Anyone wishing to view supporting documents for agenda items, please contact Tamara Melton, City Clerk: 941-932-9463 or cityclerk@cityofbradenton.com

AGENDA
BRADENTON CITY COUNCIL MEETING
8:30 a.m Wednesday, February 8, 2023
CITY HALL COUNCIL CHAMBERS - 101 OLD MAIN STREET

1. INVOCATION & PLEDGE

Pastor Gene McIntyre, Senior Servant at The Altar Church

(The City does not endorse the religious beliefs of any speaker.)

2. MEETING CALLED TO ORDER

3. PROCLAMATIONS

a) Legislative: 100 Years of Baseball in Bradenton - 1923 to 2023
100 Years of Baseball in Bradenton Proclamation
b) Legislative: Manatee Community Foundation 25th Anniversary Recognition Day - February 8, 2023
2023 Manatee Community Foundation Proclamation

4. PRESENTATIONS

a) Police: Recognition from Community Organization for Chief Melanie Bevan
b) Fire: Fire Department Employee Recognition

5. CITIZEN COMMENTS

Citizen comments will be accepted at this time on any non-agenda item. Comments will be accepted on the public hearings and agenda items at the appropriate time.

6. CONSENT AGENDA

a) Administrative Services: Recommendation for Award for RFP 23-001 Agent of Record for Employee Benefits Program
Brown & Brown Response to RFP for Agent of Record
b) City Administration: Memorandum of Understanding to Cease Operations with Bird Rides, Inc.
MOU with Bird Rides, Inc.
c) Clerk: January 3, 2023 Special Meeting Minutes

1-3-23 Bradenton City Council Special Meeting Minutes

d) Clerk: January 25, 2023 Special Meeting Minutes
1-25-23 Bradenton City Council Special Meeting Minutes

e) Clerk: Resolution 23-7: Correcting Scrivener's Error
Resolution 23-7 - Board Appointment

f) Community Redevelopment Agency: Astoria on 9th - Legal Documents
7a Astoria on 9th Documentation

g) Fire: Federal Subaward and Grant Agreement for DR-4673 Hurricane Ian
DR4673 Z3124 Funding Agreement

h) Planning & Community Development: e-Plansoft (Electronic Plans Review Platform)
Carahsoft - e-PlanSoft - Quote

i) Public Works & Utilities: Amendment to Piggyback 20-01KC-EX2 with Insituform Technologies, LLC
Amendment to Piggyback 20-01KC-EX2

j) Public Works & Utilities: Budget Adjustment BA23-3
Budget Adjustment BA23-3

k) Public Works & Utilities: Piggyback PB 21-01KC-EX1 with Bearing Point Construction
PB 21-01KC-EX1 with Bearing Point
Maintenance and Repair Agreement

l) Public Works & Utilities: Piggyback PB23-007KC with Gator Grading and Paving
PB 23-007KC with Gator Grading and Paving

m) Public Works & Utilities: Water Tank Lease Agreement Amendment
Water Tank Lease Agreement Amendment

7. BUSINESS/ADVERTISING, PETITIONS, HEARINGS & COMMUNICATIONS

ADMINISTRATION OF THE OATH - Anyone wishing to address City Council during the following public hearing will please stand and raise your right hand: "Do you swear or affirm that the factual statements and representations which you are about to present to this board will be truthful and accurate?"

Quasi-Judicial

a) Planning & Community Development: Resolution 23-13 - SECOND READING AND PUBLIC HEARING

A RESOLUTION OF THE CITY COUNCIL FOR THE CITY OF BRADENTON, FLORIDA DESIGNATING A BROWNFIELD AREA TO BE CALLED THE RIVERVIEW6 GREEN REUSE AREA WITHIN THE CITY FOR PROPERTY LOCATED AT 813 6TH AVENUE WEST, FOLIO NUMBERS 3269800003, 3269900001, 3270000007, 3270100005, 3270200003, 3270300001, 3270400009, 3270500006, AND 3270600004 OF APPROXIMATELY 1.466 ACRES (THE "BROWNFIELD AREA") FOR THE PURPOSE OF ENVIRONMENTAL SITE REHABILITATION AND ECONOMIC REDEVELOPMENT; AND PROVIDING FOR AN EFFECTIVE DATE.

Resolution 23-13

Green Reuse Area Designation Eligibility Statement

Community Meeting Information

b) City Administration: Ordinance 3097 - SECOND READING AND PUBLIC HEARING

AN ORDINANCE OF THE CITY OF BRADENTON, FLORIDA, AMENDING CHAPTER 2, ARTICLE V, SECTION 2-236 OF THE CODE OF ORDINANCES OF THE CITY OF BRADENTON, FLORIDA RELATING TO EXECUTION OF CONTRACTS AND DEEDS OF CONVEYANCE; AMENDING CHAPTER 2, ARTICLE V, SECTION 2-237 OF THE CODE OF ORDINANCES OF THE CITY OF BRADENTON, FLORIDA, RELATING TO REQUIREMENTS FOR COMPETITIVE BIDDING; PROVIDING FOR CODIFICATION; PROVIDING FOR SEVERABILITY; PROVIDING FOR REPEAL OF ORDINANCES IN CONFLICT; AND PROVIDING FOR AN EFFECTIVE DATE.

Ordinance 3097 and Supporting Documentation

c) City Administration: Resolution 23-3

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, MEMORIALIZING THE PURPOSE, PROCEDURES AND RESPONSIBILITIES UNDER THE CITY OF BRADENTON PURCHASING POLICY; PROVIDING FOR THE REPEAL OF RESOLUTIONS IN CONFLICT; AND PROVIDING AN EFFECTIVE DATE.

Resolution 23-3 and Policy

d) City Administration: Ordinance 4003 - SECOND READING AND PUBLIC HEARING

AN ORDINANCE OF THE CITY OF BRADENTON, FLORIDA, AMENDING CHAPTER 22, ARTICLE III, OF THE CODE OF ORDINANCES, ENTITLED "VACATION RENTALS;" AMENDING SECTION 22-51, TO AMEND THE DEFINITION OF "VACATION RENTAL;" AMENDING SECTION 22-52(a) TO EXTEND THE DEADLINE FOR OBTAINING A CERTIFICATE OF REGISTRATION; PROVIDING FOR CODIFICATION; PROVIDING FOR SEVERABILITY; PROVIDING FOR REPEAL OF ORDINANCES IN CONFLICT; AND PROVIDING FOR AN EFFECTIVE DATE.

Ordinance 4003 and Supporting Documents

8. NEW BUSINESS BY DEPARTMENT HEADS, CITY ATTORNEY AND COUNCIL

a) Community Redevelopment Agency: Bloomberg Philanthropies Public Art Challenge
Bloomberg Philanthropies Art Challenge Website

b) Planning & Community Development: Exterior Hoarder Properties

c) Public Works & Utilities: Oyster Habitat Restoration Permitting
Bradenton Riverwalk Phase 2 Amendment

d) City Administration: Recommendation of Pre-Construction Services with H.J. High Construction
HJ High Pre-Construction Services Proposal

e) Public Works & Utilities: Resolution 23-14

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, ADOPTING THE 2023 CITY WASTEWATER MASTER FACILITIES PLAN; MAKING FINDINGS; AUTHORIZING THE SUBMITTAL FOR THE CITY'S FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STATE REVOLVING FUND LOAN REQUEST FOR PROJECT NUMBER CW-4103A AND THE 2023 CITY WASTEWATER MASTER FACILITIES PLAN; DESIGNATING THE CITY'S AUTHORIZED REPRESENTATIVE; AUTHORIZING THE EXECUTION OF APPLICABLE LOAN AGREEMENT AND RELATED DOCUMENTS; PROVIDING FOR THE ESTABLISHMENT OF PLEDGED REVENUES FOR THE REPAYMENT OF THE LOAN; PROVIDING ASSURANCES OF COMPLIANCE WITH LOAN PROGRAM REQUIREMENTS; PROVIDING FOR CONFLICTS, SEVERABILITY, AND EFFECTIVE DATE.
Resolution 23-14 and Supporting Documents

9. UNFINISHED BUSINESS

10. COUNCIL REPORTS

11. DEPARTMENT HEAD REPORTS

12. ADJOURN

RULES OF PRECEDURE
FOR AGENDA AND PUBLIC APPEARANCES BEFORE CITY COUNCIL

Please place all cell phones on silent!

PRIOR TO COUNCIL MEETING: Appointments on the agenda, all items from

Department Directors and other interested parties must be submitted before 4:30 p.m. on the Wednesday preceding the Council meeting. Anyone wishing to be placed on the agenda must contact Tamara Melton, City Clerk, at City Hall by phone 941-932-9463 or email: tamara.melton@bradentonfl.gov and give their name, business name (if applicable), whether they are resident taxpayers of the City and their business before Council. Appearances before Council will be authorized by the Mayor or Councilperson in charge of the meeting. NOTE: The Mayor may ask a city department to look into an issue prior to the meeting to see if the issue can be resolved. If the Mayor or Councilperson in charge of the meeting feels the request is justified, they will instruct the City Clerk as to its placement on the agenda.

Non-Discrimination Statement: The City of Bradenton prohibits discrimination in all of its services, programs or activities on the basis of race, color, age, disability, sex, national origin, religion, genetic information or marital status. Persons with a disability needing a reasonable accommodation to participate in, or who require assistance or an alternative means for communication of program information such as Braille, large print, etc., should contact as soon as possible, but at least 48 hours in advance:

City of Bradenton
ADA/Title VI Coordinator
101 Old Main Street
Bradenton, FL 34205
ADACoordinator@cityofbradenton.com
941-932-9400
TTY: 7-1-1 or 1-800-955-8771

La ciudad de Bradenton proveera servicio de interprete a las personas quienes su primer lenguage no es el ingles. Si necesita estos servicios, usted o su representante puede comunicar al ADA/Title VI Coordinator, 101 Old Main Street, Bradenton, FL 34205. Tambien puede llamar al (941) 932-9470 o enviar correo electronico a ADACoordinator@cityofbradenton.com

AT COUNCIL MEETING:

Citizen comments are accepted on non-agenda items and, per F.S. 286.0114, on all agenda 'action' items. All citizen comments related to quasi-judicial items are required to be under oath and such comments will be invited to be presented during the duly noticed public hearing.

If an individual (or agent) wishes to address the City Council, they shall first complete a comment card available at the back of the Chamber and submit such card to the City Clerk.

To discuss items identified on the agenda as "Public Hearing" the Public Hearing

Comment (green) card should be completed. (Please circle "In Favor" or "Opposed" on the card as you will be summoned by that category.)

To discuss non-agenda items, or those items on the agenda that are NOT public hearings, the Citizen Comment (yellow) card should be completed. (Please state topic you would like to comment on.)

At the appropriate time during the meeting, the Mayor will call speakers to come forward. After being recognized by the Mayor, the individual should come to the podium and, for the public record, state their name, address, whether they are a resident taxpayer of the City of Bradenton, and whether they are in favor of or against the item they wish to address. In the case of an agent, they shall identify themselves, identify their clients by name, their clients' address, whether their clients are resident taxpayers of the City of Bradenton, and whether their clients are in favor of or against the topic they wish to address. The speaker should then proceed to state their position or present their information.

An individual appearance on all items will be limited to three (3) minutes unless the Mayor rules otherwise. Additional time will be allowed (up to 10 minutes at the discretion of the Mayor) if the speaker is officially representing a group, provided that proof is given that the person is authorized to speak on their behalf.

Note: If handouts are being distributed, please provide a minimum of ten (10) copies to the City Clerk. If you wish to display a drawing or rendering, contact Tamara Melton, as indicated above, prior to the meeting. Any submissions commented on, photographs, letters, renderings, etc. will be kept by the City Clerk for the official record.

PURSUANT TO FLORIDA STATUTE 286.0105: If an individual decides to appeal any decision made by the board, council, agency, or commission at this meeting, such individual will need a record of the proceedings, and for such purpose may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

PLEDGE OF PUBLIC CONDUCT We, the Mayor, City Council and Employees of the City of Bradenton, agree to: *Establish a process to promote positive interaction among ourselves and the citizens of Bradenton in a positive and non-threatening environment. *Encourage visible, involved and active participation among all. *Promote improved communication through active listening, providing feedback and honest expression of ideas. *Utilize consensus for decision making. *We realize that though we may disagree, we will be respectful of each other. *We will direct all comments to the issues and will avoid personal attacks.

AGENDA ITEM NO. 3.a

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Kelly Thomas, Legislative

ITEM TYPE: Proclamation

AGENDA SECTION: PROCLAMATIONS

SUBJECT: 100 Years of Baseball in Bradenton - 1923 to 2023

SUGGESTED ACTION: Proclamation honoring 100 years of baseball in Bradenton.

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
Proclamation honoring 100 years of baseball in Bradenton - 1923 to 2023

ATTACHMENTS:
100 Years of Baseball in Bradenton Proclamation

City of Bradenton
Office of the Mayor

Proclamation

By virtue of the authority vested in me as Mayor of the City of Bradenton, I do hereby issue this proclamation honoring

100 Years of Baseball in Bradenton
1923 - 2023

Whereas, Major League baseball came to Bradenton in 1923, hosting Spring Training games for the St. Louis Cardinals, the Philadelphia Phillies and the Boston Red Sox during the 1920s; and

Whereas, St. Louis Cardinal Hall of Famer Dizzy Dean played at City Park (later named McKechnie Field) in Bradenton for Spring Training in the 1930s, and during his time here he bought a gas station which became basis for the famed nickname, the Gashouse Gang that won the World Series in 1934; and

Whereas, the Boston Braves held Spring Training in Bradenton starting in 1948, after a hiatus from baseball earlier that decade during which the ballpark served as a training field for the U.S. military during World War II; and

Whereas, LECOM Park has hosted baseball games in Bradenton for more than 90 seasons. It is the oldest spring training ballpark in Major League Baseball, and in 2012 the ballpark underwent considerable renovations and is now widely considered Spring Training's finest venue; and

Whereas, the Pirates have called the Bradenton area their Southern home since 1969, a period during which the Pirates won two World Series championships and featured numerous all-stars including Hall of Fame great Roberto Clemente; and

Whereas, the Pittsburgh Pirates will commemorate 100 Years of Baseball in Bradenton with a special exhibit at LECOM Park this month, along with a host of other activities during this year.

Now, Therefore Be It Resolved that, I, Gene Brown, as Mayor of the City of Bradenton, Florida, do hereby proclaim that this season will celebrate 100 Years of Baseball in Bradenton.

Gene Brown
Mayor
February 8, 2023

AGENDA ITEM NO. 3.b

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Kelly Thomas, Legislative

ITEM TYPE: Proclamation

AGENDA SECTION: PROCLAMATIONS

SUBJECT: Manatee Community Foundation 25th Anniversary Recognition Day - February 8, 2023

SUGGESTED ACTION: Approval

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
Manatee Community Foundation proclamation honoring their 25th anniversary of serving the citizens.

ATTACHMENTS:
2023 Manatee Community Foundation Proclamation

City of Bradenton
Office of the Mayor

Proclamation

By virtue of the authority vested in me as Mayor of the City of Bradenton, I do hereby issue this proclamation honoring

Manatee Community Foundation
25th Anniversary
Recognition Day
February 8, 2023

Whereas, Manatee Community Foundation (MCF) is celebrating their 25th anniversary of serving the citizens of the City of Bradenton and Manatee County; and

Whereas, the foundation began in 1998 in West Bradenton to serve charitable people and organizations in our community; and

Whereas, MCF continues to enhance the downtown area with investments and program partnerships supporting Realize Bradenton, Manatee Chamber of Commerce Foundation, ArtCenter Manatee, The Bishop Museum of Science and Nature and many other nonprofits; and

Whereas, they stand firm in their belief that all people should have access to opportunities that will allow our citizens to grow and prosper; and

Whereas, through generous caring donors, MCF has awarded $50 million in grants and scholarships and is committed to partnering with nonprofit organizations to continue making our City a great place to work, live and play.

Now, Therefore Be It Resolved that, I, Gene Brown, as Mayor of the City of Bradenton, Florida, do hereby proclaim February 8, 2023 as **Manatee Community Foundation 25th Anniversary Recognition Day** in Bradenton, and urge all citizens to congratulate the foundation for caring about our community.

Gene Brown
Mayor
February 8, 2023

AGENDA ITEM NO. 4.a

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Elba Viruet, Police

ITEM TYPE: Presentation

AGENDA SECTION: PRESENTATIONS

SUBJECT: Recognition from Community Organization for Chief Melanie Bevan

SUGGESTED ACTION: N/A

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
Recognition from Community Organization for Chief Melanie Bevan

ATTORNEY REVIEW/RECOMMENDATION:
N/A

SUGGESTED MOTION:
N/A

ATTACHMENTS:

AGENDA ITEM NO. 4.b

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Rebecca Desch, Fire

ITEM TYPE: Presentation

AGENDA SECTION: PRESENTATIONS

SUBJECT: Fire Department Employee Recognition

SUGGESTED ACTION: Recognition

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
Recognition and plaque presentation to retired fire marshal, Ken Langston, a 27.5-year employee.

FINANCIAL IMPACT:
N/A

ATTORNEY REVIEW/RECOMMENDATION:
N/A

SUGGESTED MOTION:
N/A

ATTACHMENTS:

AGENDA ITEM NO. 6.a

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Tammy Winton-Spearman, Administrative Services

ITEM TYPE: Miscellaneous

AGENDA SECTION: CONSENT AGENDA

SUBJECT: Recommendation for Award for RFP 23-001 Agent of Record for Employee Benefits Program

SUGGESTED ACTION: Authorize award and to pursue a contract with Brown & Brown of Florida, Inc.

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
RFP 23-001 Agent of Record for Employee Benefits Program was posted to DemandStar.com on November 9, 2022. On December 19, 2022, two (2) sealed proposals were received and opened in response to the Request for Proposal. The proposals were presented to the Evaluation Committee for evaluating and scoring. During the review process by the Evaluation Committee, each vendor was given an evaluation score based on their submittal and then a ranking based on their presentation and interview. Based on the total points awarded and interview ranking received, Brown & Brown of Florida, Inc. was selected for recommendation for award and permission to negotiate a contract.

FINANCIAL IMPACT:
N/A - Financial Impact will be included in the proposed contract that will be brought before Council once negotiations are completed.

ATTORNEY REVIEW/RECOMMENDATION:
Attorney Rudacille will be sent the contract for review once negotiated.

SUGGESTED MOTION:

Motion to authorize award and to pursue a contract with Brown & Brown of Florida, Inc.

ATTACHMENTS:
Brown & Brown Response to RFP for Agent of Record

Brown & Brown INSURANCE®

EMPLOYEE BENEFITS

RFP 23-001TWS
Agent of Record for Employee Benefits Program

Due: December 19th, 2022, by 2:30 PM ET

b r a d e n t o n

The Friendly City



Submitted By:

Brown & Brown of Florida, Inc.
Est. 1939 in Daytona Beach, FL

Presented by:

Steve Farmer
Executive Vice President
Email: Steve.Farmer@bbrown.com
O: (386) 239-7233 F: (386) 239-5705

Danielle Boyle, GBA, GBDS
Senior Vice President
Email: Danielle.Boyle@bbrown.com
O: (386) 333-6008 C: (386) 235-8608

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2023 Compliance Checklist

Governmental Plan Compliance Guide

Quarterly Claims Review

Benchmarking Report

Monthly Budget Report

Contribution Model

Tab I: Executive Summary

On behalf of Brown & Brown of Florida, Inc., we are pleased to submit our proposal for the City of Bradenton's RFP for the Agent of Record for Employee Benefits Program.

Brown & Brown was founded in 1939 in Daytona Beach, Florida where its headquarters remain today. The Company is ranked as the 5th largest insurance intermediary in the United States and 6th in the world by Business Insurance Magazine. Brown & Brown has over 450 offices in over 40 states, with 30+ offices located in Florida. Our total employee count currently exceeds 14,500 worldwide.

Our Daytona Beach office, located at 300 North Beach Street, has focused on consulting and risk management services for Florida's public entities since 1992. Since that time, our business has grown to include over 230 of Florida's public entities ranging from small special districts and cities to large school districts and counties.

Brown & Brown's Employee Benefits Division has developed into one of the nation's largest with premiums in excess of $4 billion annually. This premium affords us a distinct advantage when it comes time to negotiate the City's renewals. Brown & Brown's established relationships with carriers and our reputation provide us with a proven ability to bring forth the most competitive rates and programs the market has to offer.

Brown & Brown's success is due largely to our ability to adapt to the demands of the marketplace and to the needs of our clients. Our employee benefits team provides our many public sector clients with the tools they need to develop and continue successful employee benefits programs including:

- Actuarial/Budget Projections
- Detailed Claims Analysis
- Benchmarking Reports
- Employee Benefits Technology Team
- Population Health Expertise
- Communications & Presentations to Leadership
- Extensive Compliance Resources
- Concierge Service Approach

It is our intent to demonstrate our firm's willingness and ability to provide the requested services as outlined in this RFP response. Every effort was made to concisely provide all requested information, all required completed forms, and succinctly illustrate our understanding of the required scope of services as well as other services provided by or recommended by Brown & Brown.

We are a unique agency in that we are a national brokerage firm with a local focus. We are a decentralized organization which gives each of our offices the authority to service our clients in a manner that serves their best interests yet maintain the resources one would expect from the 6th largest brokerage firm in the world. We further differentiate ourselves in that we have separate account management, analytics, marketing/brokerage, and population health teams. This allows each team to become subject matter experts and provide the highest quality work product to our clients. The City's project leader and lead consultant, Danielle Boyle, will lead these teams to form cohesive long and short-term strategies and white glove service that will enable the City of Bradenton to have the most optimal health and welfare programs at the lowest possible cost.

We are available at the request of the City to participate in any oral interviews. Please feel free to contact me should you need further clarification of our proposal.

Kind regards,



Steve Farmer
Executive Vice President

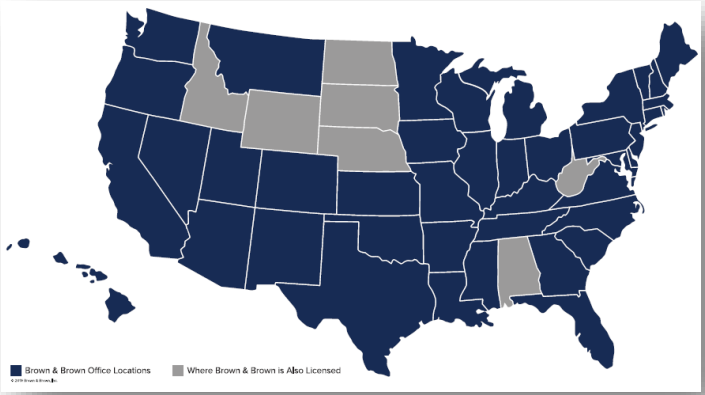
Tab II: Qualifications



We appreciate the thorough consideration taken by the City in search of their best broker partner. In effort to make key information asked for in this proposal most accessible, ***please see Tab End Summaries where questions from the RFP are concisely answered point-by-point.***

Organizational History

Founded by the Brown family in Daytona Beach, Florida in 1939, Brown & Brown has grown into one of the largest insurance intermediaries in the world over the past 83 years. With over 14,500 employees and over 450 offices in 42 states, Bermuda, London, and Ireland, Brown & Brown and its subsidiaries offer a broad range of insurance and reinsurance products and services to business, public entity, individual, trade and professional association clients nationwide. Brown & Brown is a publicly traded company on the New York Stock Exchange under the stock symbol (BRO).



From the beginning, Brown & Brown has always focused on building meaningful relationships with our clients and with our communities, based on trust and service. Our core philosophy is: ***Always do what's best for our clients***. It is our goal to exceed clients' expectations while maintaining the highest of professional and ethical standards.

Brown & Brown is "Built to Last" and its decentralized structure allows its offices to be proactive and to quickly react to changes according to local environments without waiting for bureaucratic approval. An important by-product of Brown & Brown's decentralized structure is that it serves to improve the quality of customer service. Each office is able to tailor its operations to fit the needs of its clients. However, we have national alignment as well. We have senior leadership dedicated solely to employee benefits, as well as a National Benefits Committee to share ideas and shape our employee benefits priorities and policies. The senior leaders and Benefits Committee sit on advisory boards of the insurance carriers and routinely meet with the insurance carriers' senior leadership teams, perform RFPs for all benefits related products and services, and are held responsible for the successful implementation of new initiatives and products.

One of our core philosophies, as communicated by Mr. J. Hyatt Brown, Chairman of Brown & Brown illustrates our culture and corporate commitment:

"The best way is almost always the most difficult way. Long term success involves conflict with those who are not disciplined or committed. Our model is designed to allow those uncommitted undisciplined people to find other companies whose focus is not forever."

CULTURE: "The People Recruiting & Enhancing Business"

Ask anyone at Brown & Brown the secret to the Company's eight decades of success, and they will give one answer: CULTURE. We have a deeply rooted culture that is built on honesty, integrity, innovation, superior capabilities, discipline, and a commitment to always doing what is best for our customers, teammates and communities. Strive to do better than others and hire only those who can surpass you. Be bold but be sure you are willing to deal with the consequences. If something seems easy, it is probably wrong.

Our drive to be the best has made Brown & Brown one of the largest and most respected independent insurance intermediaries in the nation, with over 80 years of continuous service. We believe that maintaining client loyalty requires hiring people of the highest quality. This commitment remains strong as we continually increase our budget to bring in new quality people and invest heavily in each teammate's training. This training begins at hire and continues throughout teammates careers, many of which last over 30 years with the company. Each person is encouraged to further their education and all job-related designations are paid for by Brown & Brown. We understand that by investing in our most valuable asset, our people, we are consistently ahead of our competition.



Number of Years in Business:
Brown & Brown has grown into one of the largest insurance intermediaries in the world over the past 83 years.

Address:
The Daytona Beach office of 345 employees is located at 300 N Beach Street Daytona Beach, FL 32114. This would be the office directly responsible for the City of Bradenton. We also have an office located in the City of Bradenton, located at 7984 Cooper Creek Boulevard, Suite 101 University Park, FL 34201. Both offices will be available should any immediate need arise.

Our Daytona Beach office, located at 300 North Beach Street, has focused on consulting and risk management services for Florida's public entities since 1992. Since that time, our business has grown to include over 230 of Florida's public entities ranging from small special districts and cities to large school districts and counties. Brown & Brown has a particularly strong presence in the Central Florida area. We currently consult or act as the broker on over 75 public entities within Central Florida.

Within our Corporate Headquarters in Daytona Beach, we have upwards of 50 employee benefits teammates ready to surpass your expectations. We also have direct access to a National Employee Benefits Leadership team comprised of Regional Presidents, a Medical Director, a Mental Health Director, Technology Team, and a Population Health Management team.

The team assigned to the City of Bradenton is led by Danielle Boyle who has built her 14-year career working with Florida's public entities to enhance and manage their employee benefits programs. She has significant experience with self-funded health plans and works in collaboration with our Director of Analytics, Brandon Savage to effectively manage the costs associated with a self-funded plan. As our references will attest, we strive to provide excellent service throughout the year and to partner with our clients to manage their employee benefits programs.

Financial Strength

Brown & Brown is ranked as the 6th largest broker in the world and is a publicly traded company. In 2021, Brown & Brown achieved the honor of being included on the prestigious S&P 500 index, composed of the top 500 companies in leading industries of the U.S. economy. This distinction further demonstrates our long-standing history of proven success and company growth.

Certified Financial Statements

Brown & Brown's 10-K is our annual report required by the U.S. Securities and Exchange Commission, that gives a comprehensive summary of our financial performance. Brown & Brown's financials are audited by an independent registered public accounting firm, Deloitte & Touche LLP, per the 10-K found in the link below:

https://investor.bbinsurance.com/static-files/b8049061-0af3-4ee8-8b62-d59c19a8392f

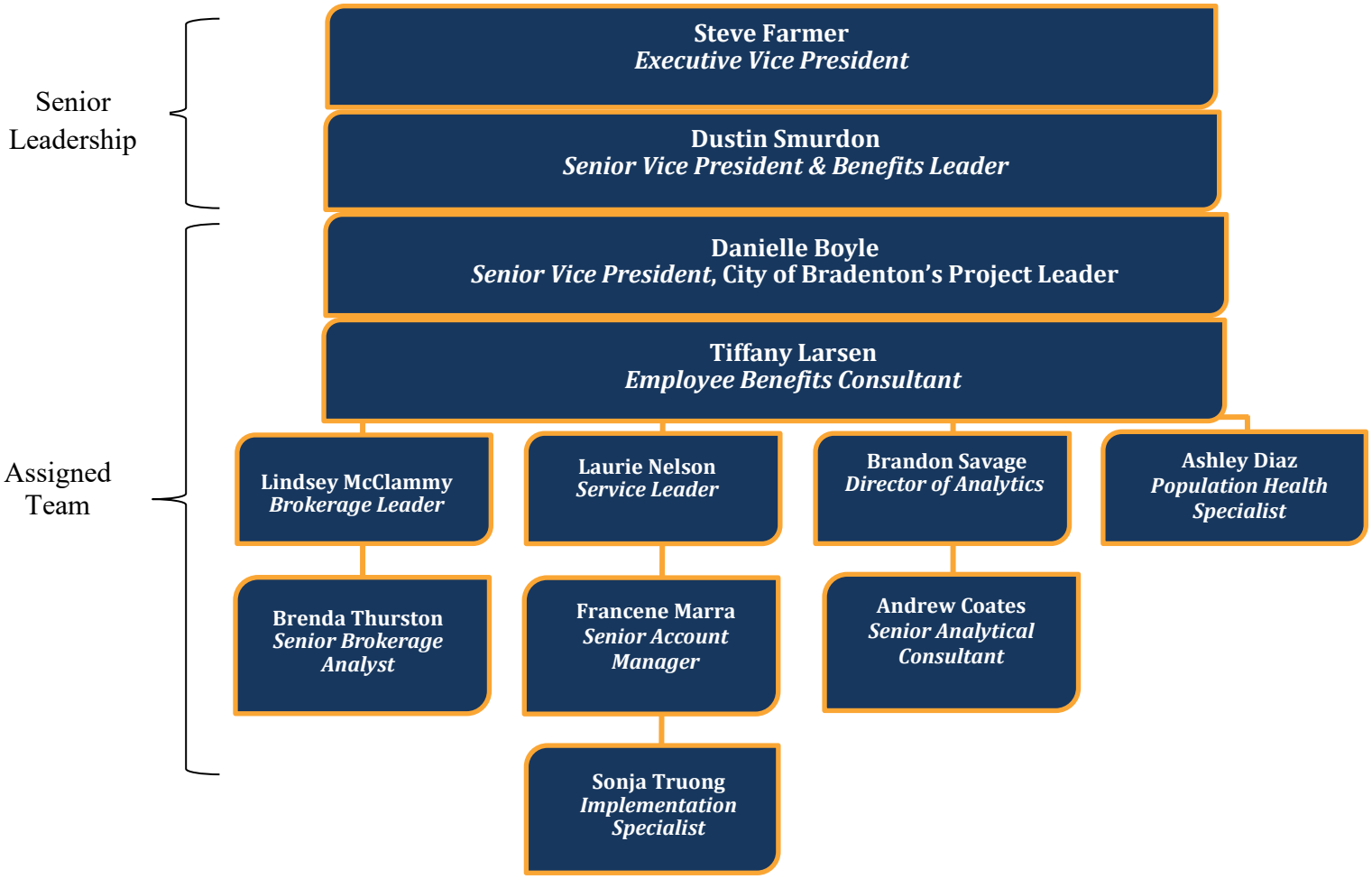
Tab III: Key Personnel



Organizational Structure of Business

Brown & Brown Daytona's employee benefits staff of nearly 50 teammates has over 500 years of collective benefits experience. Members of our team have rich backgrounds in a range of insurance professions including underwriting, claims processing, third party claims administration, medical billing, provider contracting, marketing, as well as account management. We are committed to remaining at the forefront of all industry trends by participating in professional memberships, continuing education, and through earning designations.

The team assigned to the City of Bradenton is led by Danielle Boyle who has built her 14-year career working with Florida's public entities to enhance and manage their employee benefits programs. She has significant experience with self-funded health plans and works in collaboration with our Director of Analytics, Brandon Savage to effectively manage the costs associated with a self-funded plan. Francene Marra, Senior Account Manager would serve as the day-to-day contact for claims and service issues. She has over 10 years of public sector employee benefits service experience and is loved by every client that works with her. As our references will attest, we strive to provide excellent service throughout the year and to partner with our clients to manage their employee benefits program.



Steve Farmer, *Executive Vice President*

steve.farmer@bbrown.com

Steve Farmer is responsible for Brown & Brown's Daytona Beach office including sales, service, and operations. Steve has over 20 years of insurance industry experience with Brown & Brown and has worked with many of Florida's public entities. Steve will serve as a resource in expediting the resolution of any critical matters with top management at the insurance companies for the City of Bradenton's employees. Steve is the only Key Personnel contact listed with authority to enter into a contract on behalf of the company.

Dustin Smurdon, *Senior Vice President & Benefits Leader*

dustin.smurdon@bbrown.com

Dustin Smurdon is responsible for the overall performance of the Daytona Beach Employee Benefits Division. The team consists of about 50 teammates focusing on Service, Analytics, Marketing, Enrollment/Implementation and Wellness. Dustin has been with Brown & Brown since 2015. Prior to Brown & Brown, Dustin spent nearly 12 years with JPMorgan Chase in various operational and leadership roles. He currently serves on the Board of the United Way of Volusia and Flagler Counties as the Chair Elect. He is originally from Ohio, where he attended Ohio University and obtained his Bachelor of Business Administration degree in Finance and Marketing. Dustin holds his insurance licenses for Life, Variable Annuities & Health along with the General Lines Property & Casualty.

Danielle Boyle, GBA, GBDS, *Senior Vice President, City of Bradenton's Primary Contact & Senior Consultant*

Danielle.Boyle@bbrown.com

Danielle Boyle is a senior consultant responsible for a book of business made up of complex public entity and large private sector clients. She began working for Brown & Brown in 2009 and focused solely in the public sector employee benefits segment for the majority of her career. She specializes in large fully insured and self-funded accounts where she focuses on managing her clients' insurance costs over the long term. She is a very hands-on and proactive consultant and works closely with her clients to establish strategies and initiatives to enhance their benefits programs.

Danielle is a graduate of the University of Central Florida where she received a bachelor's degree in Business Administration, holds her Florida Life & Health (2-15) License, and has earned both the Group Benefits Associate (GBA) and Group Benefits Disability Specialist (GBDS) designations.

Past projects she has overseen include:

- Annual renewal negotiations for all clients
- Managing RFP process for public sector clients
- Working closely with Insurance Committees to establish renewal calendars, and with RFP design and management, vendor selection, and negotiations
- Presentations to Boards, Commissions, and Councils
- Monthly, Quarterly, and Annual claims reviews to include Executive Summaries and recommendations in order to accomplish budgetary goals
- Coordination with actuary to assist with 112.08, RDS, GASB, and OPEB filings for self-funded public entity clients
- Compliance oversight for all clients
- Pharmacy disruption analysis to determine the impact of changing Pharmacy Benefit Managers (PBMs)
- Claims re-pricing analysis to determine the potential savings between networks
- Transitioning multiple clients from fully insured to self-funded health plans
- Onsite clinic consulting to include RFP process, vendor selection, and ongoing coordination between clinic vendor and health plan

Francene Marra, CEBS, GBA, GBDS, VBS, *Senior Account Manager*

francene.marra@bbrown.com

Francene Marra will serve as the City's dedicated Account Manager. She will be the day-to-day contact for all service-related inquiries or issues including, but not limited to billing issues, claims resolution, eligibility, and benefit questions. Francene will correspond directly with the City's HR team, as well as employees and retirees. Additionally, Francene will assist in facilitating any open enrollment meetings, health and wellness fairs and wellness programs, at the City's direction.

Francene has earned her Certified Employee Benefits Specialist (CEBS), Group Benefit Associate (GBA) and Group Benefits Disability Specialist (GBDS) and Voluntary Benefits Specialist (VBS) designations. She holds her Florida Life & Health (2-15) License.

Brandon Savage, *Director of Analytics*

brandon.savage@bbrown.com

Brandon Savage has over 13 years of insurance industry experience and has excelled in a variety of diverse roles over the course of his career, including Account Executive and Director of Account Management, predominantly for self-funded clients or fully insured clients with 300+ lives. He is an alumnus of the State University of New York and holds a Florida Life & Health License. Brandon has been with Brown & Brown just over 7 years and leads the Analytics team. On a high level, Brandon's team is responsible for analyzing claims data, making recommendations for changes in plan design where needed, benchmarking plan designs, identifying cost drivers, as well as serving as the primary liaison with our actuaries.

Ashley Diaz, *Population Health Consultant*

Ashley Diaz is a member of Brown & Brown's National Population Health team. She brings over 7 years of experience consulting in workforce wellness, health, and productivity in the middle-market. Ashley has worked with employers in every major industry with workforces ranging from 100 to 10,000 employees. Ashley is certified through the Wellness Council of America (WELCOA) and holds a Florida Life & Health (2-15) License. She earned a B.A. in Communication and Media Studies from Stetson University.

Areas of Expertise Include:

- Assessing current insurance programs, wellness programs, and engagement strategies
- Analyzing claims to identify specific cost and productivity drivers
- Determining the estimated cost of unmanaged emotional and behavioral health issues
- Developing a 3-year custom roadmap with recommendations tailored to the City's unique needs
- Creating a performance dashboard and establishing annual review metrics for vendors and programs we put in place with the City
- Providing vendor implementation advice and support

Brenda Thurston, *Senior Brokerage Analyst*

Brenda Thurston will be responsible for the renewal marketing process for the City of Bradenton. She has over 21 years of employee benefits experience in our large group & public entity Brokerage Department. She holds a Florida Life & Health (2-15) License and earned the Associate in Insurance Account Management (AAIM) designation from the Florida Association of Insurance Agents. Brenda has significant knowledge regarding the Florida market as well as relationships with all major Florida medical and ancillary carriers.

Curt Evans, *Actuary*

Curt Evans has 31 years of experience in providing employee benefit actuarial consulting. He is a Fellow of the Society of Actuaries and an Enrolled Actuary under ERISA.

Mr. Evans consults on active and retiree health and welfare benefit programs for the private and public sector. The active healthcare services that he provides include plan design costing, premium equivalence and reserve determinations, and Medicare Part D creditable coverage testing. Retiree services include actuarial valuations for financial statement reporting under FASB and GASB, including cash flow, expense and liability forecasting. Mr. Evans also consults on retirement benefit programs for the private and public sector. He is knowledgeable on all aspects of pension administrative, funding and accounting rules. He consults with clients on plan funding and investment strategies, financial forecast projections, valuation assumptions and method setting, plan design alternatives, and legal and government reporting compliance.

Mr. Evans graduated from Penn State University in 1988 with a bachelor's degree in mathematics, became an Enrolled Actuary in 1993 and a Fellow of the Society of Actuaries in 2001.

Dr. Louise Short, MD, MSC, *National Clinical Leader*

Dr. Short is the National Clinical Leader for Brown & Brown. Her passion and her focus is working with employers to develop innovative strategies and solutions that engage and support employees and their families in making good choices to avoid the cost and consequences of poor health. She is a seasoned, results-driven physician with a background in internal medicine, occupational and preventive medicine, and 25 years of experience providing clinical leadership in designing, implementing and measuring Population Health programs and strategies.

Previously Dr. Short was a partner at Mercer where she built the Population Health practice for the South and spent six years consulting to national and global employers on approaches to improve health outcomes and control cost. She has worked with many jumbo employers including Lowe's, Bank of New York Mellon, Dollar General, and PepsiCo.

Her expertise also includes analytics, epidemiology, managed care plan administration and medical management, clinical and behavioral health strategy and program management, and outcomes measurement strategy and execution. Dr. Short has a focus on making the healthcare system work better and has relationships as well as in-depth knowledge of many of the advocacy and navigation vendors and solutions. Prior to Mercer, Dr. Short worked at Healthways (now Sharecare) assisting health plan and employer clients defining the needs of their populations and developing strategic approaches and products to assist in improving clinical outcomes and ROI. Dr. Short also spent over thirteen years working as a medical director for both UnitedHealthcare and Anthem, including Corporate Medical Director for BCBSGA, a 2.5-million-member plan, and also directing research and business development for Anthem's health outcomes research subsidiary. Previously, Dr. Short was an epidemiologist at the Centers for Disease Control and Prevention and in clinical practice.

Dr. Short earned her undergraduate degree at Harvard, her MD from Tufts University School of Medicine, did her internal medicine residency at Yale-New Haven Hospital, and trained in occupational and preventive medicine at Mt. Sinai School of Medicine in New York City where she also received a master's degree in Community Medicine.

Scott Wold, Esq., ***Assistant Vice President, Regulatory and Legislative Strategy***

With over 17 years of employee benefits experience, Scott Wold serves as the Assistant Vice President - Regulatory and Legislative Strategy in the Employee Benefits division of Brown & Brown. Scott is responsible for researching and analyzing appropriate industry responses and best practices to address key legislative and regulatory efforts. Scott supports the Brown & Brown team members and customers regarding matters pertaining to customer compliance with employee benefit laws such as the Affordable Care Act, ERISA, HIPAA, and COBRA.

Prior to joining Brown & Brown, Scott worked as a lawyer in private practice. He was most recently a shareholder of the law firm of Hitesman & Wold, P.A., where he practiced exclusively in the employee benefits area since 2004.

Scott received his undergraduate degree, cum laude, from Bethel College and his law degree, cum laude and Order of the Coif, from Southern Methodist University School of Law. He is a member of the Hennepin County Bar and Minnesota State Bar Associations. Scott is active in his community and has served in various capacities for several non-profit organizations.

Sub-contractors

All our clients receive access to HR Workplace Services and Zywave for compliance resources and toolkits. These are free to all clients. We also utilize Medcom for other compliance services including COBRA administration. We also provide technology consulting and assistance through our Brown & Brown EB Tech Center. They are part of Brown & Brown, but a separate team. Should the City choose to access any of these, they would be at no cost.

Company Name	Contact Person	Phone Number
HR Workplace Services	John Dale, President	480-302-6517
Zywave	Mike Gallihugh, Sr. Account Exec.	804-536-3394
Medcom	Michael Bracken, President	904-596-2239
EB Tech Center (A part of Brown & Brown)	Steve Piccolino, VP	518-210-4573

Our Public Sector Experience



Public Sector Experience

Brown & Brown has worked with Florida's public entities since the 1960s. We have a significant public entity client base in Central Florida with over 75 public sector clients. The team assigned to City also has significant public sector employee benefits experience. Danielle Boyle, the City's Senior Consultant, and project leader has specialized in public entity employee benefits since 2009. Brandon Savage, our Director of Analytics has worked with many of Florida's large public entities for over 13 years. Francene Marra, the City's Account Manager, has worked with public sector clients for over 10 years and Brenda Thurston, the City's assigned Brokerage Analyst, has managed public sector insurance RFP processes for over 20 years. We have provided references for the City to verify our experience as well.

Below is a list of some of our public sector employee benefits clients:

- City of Daytona Beach
- City of Daytona Beach Shores
- City of Debary
- City of Deland
- City of Edgewater
- City of Flagler Beach
- City of Holly Hill Employment Corporation
- City of Longwood
- City of Monticello
- City of New Smyrna Beach
- City or Ormond Beach
- City of Palm Coast
- City of Port Orange
- City of South Daytona Employment Corporation
- Clerk of Circuit Courts
- County of Volusia
- Jefferson County
- Reedy Creek Improvement District
- Wakulla Clerk of Court
- Wakulla County
- City of Arcadia
- Bayfront Park Management Trust
- City of Belleview
- Big Bend Water Authority
- City of Bonita Springs
- City of Casselberry
- City of Chattahoochee
- City of Chipley
- Collier Mosquito Control District
- City of Dade City
- City of Davenport
- DeSoto County BOCC
- City of Eagle Lake
- City of Freeport
- Ft Myers Beach
- Gadsden County BOCC
- Gilchrist County BOCC
- Gilchrist County School Board
- City of Groveland
- City of Haines City
- Town of Indian River Shores
- Town of Ponce Inlet
- James Madison Schools
- Lafayette County Clerks Office
- City of Lake Alfred
- City of Lake Helen
- Levy County BOCC
- Madison County BOCC
- City of Madison
- City of Miami Gardens
- Village of Palmetto Bay
- Pinellas Park WMD
- Ranger Drainage District
- Sanibel Fire & Rescue District
- City of Sarasota
- City of Seminole
- Spring Lake Improvement District
- St Johns River Water Management District
- City of St. Cloud
- SWFWMD
- City of New Smyrna Beach Utilities Commission
- Washington County BOCC
- Washington County Sheriff's Office

Tab IV: Service

Describe your service facilities in terms of square feet, equipment, service response time, number of technicians, and inventory in stock. If facilities are not applicable to this solicitation, then state "Facilities Not Applicable". Please include valuation of equipment if construction related.

Facilities Not Applicable

In comparing previous similar projects your organization is involved with or has completed, do you see any areas where your organization possesses unique experience, resources, product offerings, personnel or other service accomplishments that should be considered with your ability to provide timely, quality product or services to the City of Bradenton?

Absolutely. Brown & Brown is uniquely qualified to provide benefits consulting services to the City. We have the strength and resources of the nation's 6th largest broker, with the local, FL public sector experience the City needs. We have a strong, deeply rooted cultural foundation, built on integrity, innovation, superior capabilities, and discipline We are not owned by a private equity group nor are we looking for short term gains. Brown & Brown is stable and ***Built to Last.***

The team assigned to the City is made up of public entity specialists with significant experience with similar projects. The Senior Consultant, Danielle Boyle, is dedicated to providing expert guidance and prompt assistance for all clients including the City of Sarasota which is listed as one of our references.

Our company's success is due largely to our ability to adapt to the demands of the marketplace and to the needs of our clients. Our employee benefits team provides our many public sector clients with the tools they need to develop and continue successful employee benefits programs including:

- Hands-on service
- Extensive compliance resources
- Data-driven Population Health services
- Medical Director and nurses on staff
- Regulatory & Compliance team
- Absence Management team
- Employee Benefits Technology consulting
- Brown & Brown Innovation Hub
- Pharmacy consulting
- Voluntary benefits consulting
- Actuarial consulting
- Data Analytics consulting
- Benchmarking reports
- Communications & presentations
- Claims and billing reconciliation
- Strong carrier relationships to get things done for our clients

Case Study – City of Sarasota:

As an example of our work, below is an overview of what we have accomplished working with your neighboring city, the City of Sarasota:

In 2019, Brown & Brown worked with the City to develop RFPs for medical, Rx, dental, vision, stop loss, HRA, FSA, COBRA, and Online Enrollment. During pre-renewal discussions, we recommended the City evaluate carving out their prescription drug plan for the 2020 plan year due to the substantial savings other clients had achieved recently through a **Group Purchasing Organization** we have access to. After the RFP process, Brown & Brown's team analyzed and repriced all medications through the various respondents.

The results were astounding.

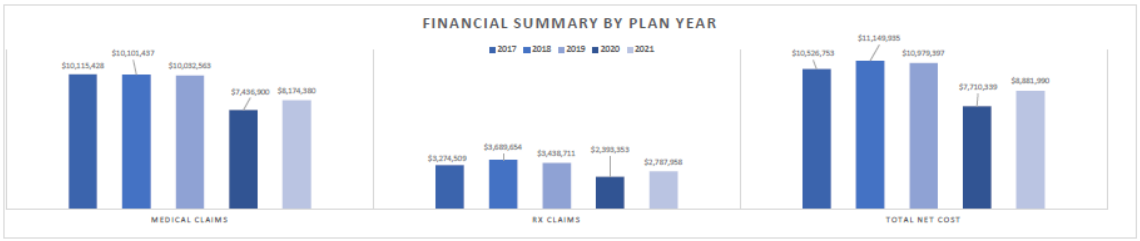
- The City was projected to **save over 36%** on their prescription drug costs in 2020, resulting in over **$1.3 million in savings**. This was due to improved purchasing terms and stronger rebates.

For medical, Brown & Brown worked for months assisting the City with evaluating ASO options. This included finalists' interviews, repricing analysis on claims to determine the strength of each carrier's network and a disruption analysis on networks to ensure employees would not be negatively impacted by a change in carrier/network.

The recommendations made in 2019 resulted in the City saving nearly 30%, or $3.2 million in 2020 as compared with 2019.

The following page illustrates the financial results achieved year over year.

Financial Summary (Totals)



Plan Year	2017	2018	2019	2020	2021
Average Subscriber Enrollment	1,161	1,204	1,194	1,140	1,092
Active Subscriber Enrollment	327	360	379	387	381
Retiree Subscriber Enrollment	571	571	513	442	402
Teamster Subscriber Enrollment	263	272	301	311	309
Claim Basis	Paid	Paid	Paid	Paid	Paid
Gross Claims					
Medical	$10,115,428	$10,101,437	$10,032,563	$7,436,900	$8,174,380
Rx	$3,274,509	$3,689,654	$3,438,711	$2,393,353	$2,787,958
Total Gross Claims	$13,389,937	$13,791,092	$13,471,274	$9,830,252	$10,962,338
Fixed Costs					
Admin	$577,606	$522,620	$518,387	$766,621	$761,765
Stop Loss-Specific	$573,446	$622,743	$760,230	$726,682	$775,943
Stop Loss-Aggregate	$39,642	$45,192	$0	$60,264	$59,042
Taxes & Fees	$4,414	$4,952	$5,109	$4,443	$4,557
Total Fixed	$1,195,108	$1,195,507	$1,283,726	$1,558,009	$1,601,307
Claims & Fixed Costs					
Total Gross Costs	$14,585,045	$14,986,598	$14,755,000	$11,388,261	$12,563,645
Less: SL Reimbursements	($881,205)	($407,960)	($520,575)	$0	($104,124)
Less: EE Contributions	($3,177,088)	($3,428,703)	($3,255,028)	($3,677,922)	($3,577,531)
Total Net Costs	$10,526,753	$11,149,935	$10,979,397	$7,710,339	$8,881,990

Number and size of relevant projects currently being performed, personnel assigned to and stage of completion of such project, status of each project relative to completion schedule.

Brown & Brown is staffed to accommodate growth and is confident in our ability to provide timely service to the City of Bradenton. Each of our clients has insurance needs which span the entirety of any given year, and thus we do not track our work in terms of projects or completion dates. We also believe in a "team-lift" mindset and approach every client's insurance program as a team.

Throughout each year, our leadership examines the number of current clients and anticipated growth and adds team members as needed. We also have a robust training program for those new teammates without industry experience – this includes intensive insurance and coverage training, licensing, carrier training, shadowing seasoned employees, and Brown & Brown University training.

Provide a description and dollar amount of any and all projects, which have been done, or currently being done during the past five- (5) years for the City of Bradenton.

Brown & Brown has not had any contract with the City of Bradenton in the past 5 years.

Project Approach:

We would begin the project by meeting with the City to discuss the current benefits and ascertain goals for the October 2023 renewal. We would also review our Working Service Calendar shown below. This document includes monthly deliverables, compliance deadlines, renewal timeline, and links to Brown & Brown's monthly compliance webinars shown on the right.



In addition to the meetings and deliverables shown in the service calendar, we act as an extension of our clients' HR teams. Whatever we can do to make things easier we will do for your team. As our references will attest, our commitment to service is something we pride ourselves on.

On the following pages, we have addressed each of the items from the City's Scope of Services which will further elaborate on our project approach.

Scope of Services from RFP

The successful Proposer shall:

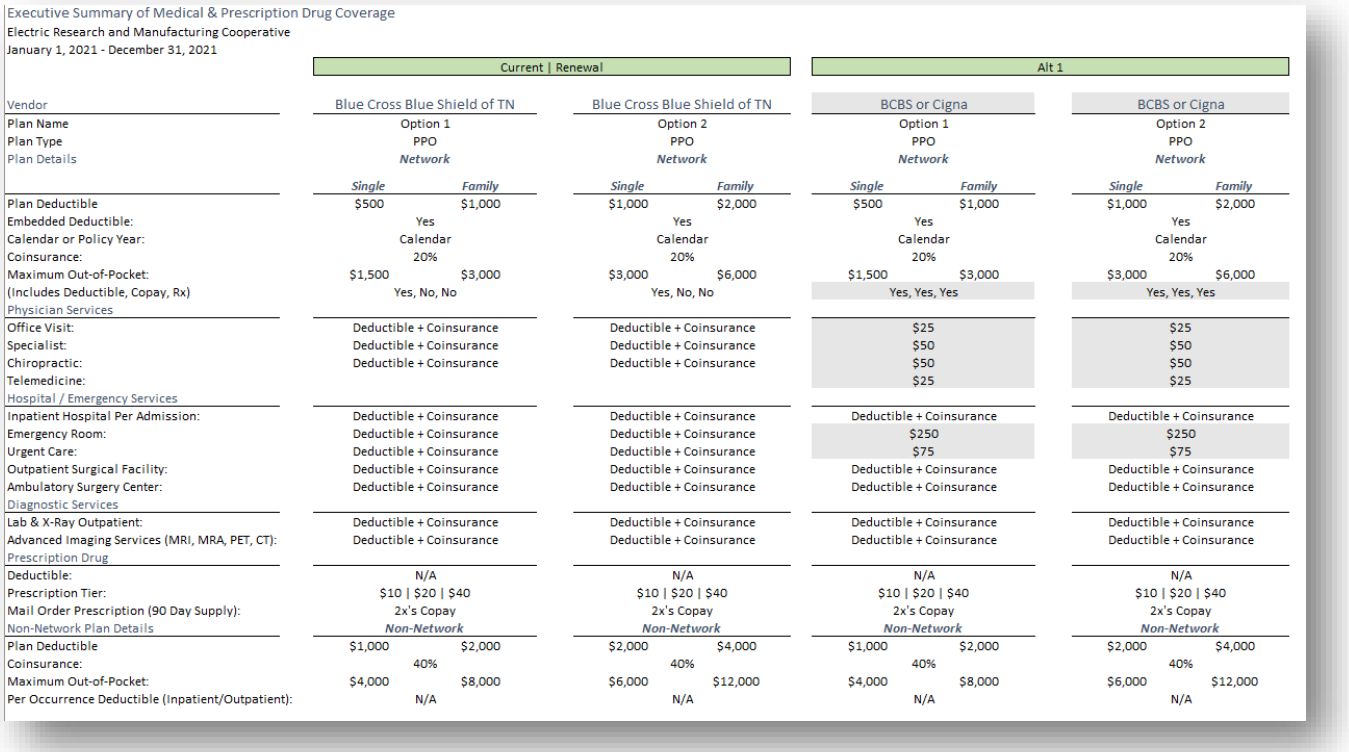
- **1) Serve as the City's Broker of Record/Consultant and provide such brokerage services to the City to ensure comprehensive and cost-effective benefits are included in the City's Benefits plans for selection by the City's eligible employees and retirees.**

Confirmed. Each year beginning in January or February, we will meet with the City to determine which lines of coverage are to be marketed for the coming renewal. We will discuss satisfaction with current carriers and any items to be addressed within the marketing process. We want to understand the short- and long-term goals and to discuss what has worked well for our other similarly situated clients.

We will then develop the RFP specifications and send to the City for review and will work with the Purchasing department to follow its guidelines for releasing and managing the RFP to the carriers.

Once we receive the proposals we will compile all carrier responses in a comprehensive proposal which will include AM Best ratings of each carrier, side by side comparisons, rates, rate guarantees, and important terms and conditions.

Below is a sample of our plan design comparison page.



Executive Summary of Medical & Prescription Drug Coverage
Electric Research and Manufacturing Cooperative
January 1, 2021 - December 31, 2021

	Current | Renewal				Alt 1			
Vendor	Blue Cross Blue Shield of TN		Blue Cross Blue Shield of TN		BCBS or Cigna		BCBS or Cigna	
Plan Name	Option 1		Option 2		Option 1		Option 2	
Plan Type	PPO		PPO		PPO		PPO	
Plan Details	*Network*		*Network*		*Network*		*Network*	
	Single	*Family*	*Single*	*Family*	*Single*	*Family*	*Single*	*Family*
Plan Deductible	$500	$1,000	$1,000	$2,000	$500	$1,000	$1,000	$2,000
Embedded Deductible:	Yes		Yes		Yes		Yes	
Calendar or Policy Year:	Calendar		Calendar		Calendar		Calendar	
Coinsurance:	20%		20%		20%		20%	
Maximum Out-of-Pocket:	$1,500	$3,000	$3,000	$6,000	$1,500	$3,000	$3,000	$6,000
(Includes Deductible, Copay, Rx)	Yes, No, No		Yes, No, No		Yes, Yes, Yes		Yes, Yes, Yes	
Physician Services								
Office Visit:	Deductible + Coinsurance		Deductible + Coinsurance		$25		$25	
Specialist:	Deductible + Coinsurance		Deductible + Coinsurance		$50		$50	
Chiropractic:	Deductible + Coinsurance		Deductible + Coinsurance		$50		$50	
Telemedicine:					$25		$25	
Hospital / Emergency Services								
Inpatient Hospital Per Admission:	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Emergency Room:	Deductible + Coinsurance		Deductible + Coinsurance		$250		$250	
Urgent Care:	Deductible + Coinsurance		Deductible + Coinsurance		$75		$75	
Outpatient Surgical Facility:	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Ambulatory Surgery Center:	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Diagnostic Services								
Lab & X-Ray Outpatient:	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Advanced Imaging Services (MRI, MRA, PET, CT):	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Prescription Drug								
Deductible:	N/A		N/A		N/A		N/A	
Prescription Tier:	$10 | $20	$40	$10	$20	$40	$10	$20	$40	$10	$20	$40
Mail Order Prescription (90 Day Supply):	2x's Copay		2x's Copay		2x's Copay		2x's Copay	
Non-Network Plan Details	*Non-Network*		*Non-Network*		*Non-Network*		*Non-Network*	
Plan Deductible	$1,000	$2,000	$2,000	$4,000	$1,000	$2,000	$2,000	$4,000
Coinsurance:	40%		40%		40%		40%	
Maximum Out-of-Pocket:	$4,000	$8,000	$6,000	$12,000	$4,000	$8,000	$6,000	$12,000
Per Occurrence Deductible (Inpatient/Outpatient):	N/A		N/A		N/A		N/A	

- **2) Assist the City in developing the most advantageous strategies in the areas of employee health and benefit compliance, costs, coverage and continuity**.

Confirmed, the team assigned to the City is made up of the best public entity team within Brown & Brown. This team will work together to develop a long-term strategy to achieve the City's goals and priorities.

- **3) Present plan design recommendations that support the City's benefits strategies and position the City to comply with Federal, State and other regulatory requirements yearly.**

Confirmed. Brown & Brown will present to the City plan designs tailored to the makeup of their ever-changing employee population as well as with the City's wellness and financial goals in mind. Conversations about annual plan designs will have the foundation of quarterly reports to help lend insight into how best implement new solutions or alter existing ones. Please see the response to the following prompt (4) for more details about the content and presentation of our quarterly reports.

The content presented to the City in the quarterly reviews, along with the feedback received from the City during those presentations, set the stage for discussing strategy for actuarial review: including underwriting evaluations as well as alternative funding analysis. It is from here we would put together our marketing strategy to execute against our analytics and actuarial review.

Brown & Brown's team of regulatory experts will ensure than any type of implemented employee benefits solution is in full compliance with federal, state and local regulations.

- **4) Provide quarterly plan review including, but not limited to, conducting medical audit claims, annual plan design evaluation, benchmarking trends, and state of the national and Florida-based marketplace, including a comparison of Florida's public sector.**

Confirmed. Quarterly reports include budget projections along with an analytic review of claims, pharmacy spend and discount/rebate opportunities. These presentations are streamlined with an executive summary to illustrate the aforementioned categories in addition to diving into more detail regarding design benchmarking, medical & Rx plan design summaries, current plan designs & contributions, and financial summaries (spend distribution, medical spend by category, pharmacy spend by class and non-network providers to name a few). See Appendix for Sample Quarterly reporting and Benchmarking report.

- **5) Administer the City's health and welfare plans, including setting reserves, reporting experience and projecting funding levels when applicable.**

Confirmed. While quarterly reports will provide insight into group experience, Senior Consulting Actuary, Curt Evans will be working closely with our Director of Analytics Brandon, and the City's Senior Consultant, Danielle, to provide renewal projections for the health plans. This is done by looking at claims over the prior 18-24 months to project the plan costs into the next plan year.

- **6) Provide actuarial impacts to plan design changes.**

Confirmed. Our analytics team utilizes a modeling tool to determine the impacts of any plan design changes. This tool determines the actuarial value of each plan and the projected claims savings or claims increases achieved through the plan changes.

- **7) Provide actuarial recommendations for plan funding and cost sharing.**

Confirmed. We provide actuarial projections two to three times per year. In order to establish the appropriate funding rates, our actuary looks at the most recent 12-24 months of claims and projects costs into the new plan year.

Contribution modeling is then performed to illustrate various cost sharing options to achieve budgetary goals. We include employer vs employee contributions as well as any other costs including HSA seeding, wellness discounts, or tobacco surcharges.

We have included a contribution model in the Appendix section.

- **8) Provide guidance and information regarding compliance and options related to the medical plan and related wellness and health management programs.**

Confirmed. Our regulatory team provides written compliance updates throughout the year which are then shared with our clients. We also host monthly compliance webinars. All clients receive a compliance checklist each year as well. If the City has specific questions we reach out to our compliance attorneys to provide same day guidance.

All clients also have access to HR Workplace Services, an HR consulting company, for same day responses to HR questions via email or the City's HR team can call the HR consultants to discuss any questions/concerns over the phone. This is a no cost service for all clients.

- **9) Provide ongoing advice on ERISA, COBRA, FMLA, and HIPAA reporting obligations, and other laws and regulations affecting City's Benefits plans as it relates to the insurance products within this RFP.**

Confirmed. Please see our response to the question above.

- **10) Assist with the City's reporting obligations, including but not limited to ACA, Section 125, and COBRA as it relates to the products within this RFP.**

Confirmed. The City's Account Manager, Francene Marra will assist the City with ACA reporting and ensure the City's Section 125 plan document remains up to date and will assist with the Section 125 Non-Discrimination testing through our partnership with Medcom. We also provide COBRA administration through Medcom or can work with the City's current COBRA vendor.

- **11) Provide comprehensive services (traditional and web-based) necessary to enroll eligible employees and retirees in the City's Benefits plans.**

Confirmed. Our team assists the City with all aspects of enrollment from beginning to end. During open enrollment, Brown & Brown provides onsite and virtual support for any employees or retirees that need help with enrollment. We also provide step by step instructions to try to make the process as easy as possible.

If the City needs assistance with updating Munis for online enrollment, we can complete any rate tables and assist with the testing process to ensure the employee experience is a positive one.

- **12) Propose and develop communication materials for employee education on current plan designs, plan modifications and consumer education.**

Confirmed. We will provide a custom Benefits Guide each year for open enrollment as well as a custom presentation for Open Enrollment meetings. These meetings can be held in-person or virtually and we typically record one session for employees to view at their leisure.

In addition to the open enrollment materials, we also provide clients with HR bulletins, compliance updates, and other materials which can be used in newsletters. We can develop custom communication materials or work with the City's carriers to create the communication and wellness materials that best meet the needs of the City.

- **13) Provide comprehensive services necessary to serve as the City's Section 125 and Voluntary Benefits Administrator, including enrollment support and election reconciliation.**

Confirmed. We would utilize Medcom for Section 125 plan documents and non-discrimination testing each year. We would also partner with the city's voluntary benefits carrier(s) to ensure all enrollments are captured correctly and determine the best work flows for election reconciliation whether that is through the online enrollment system or data feeds.

- **14) Provide key contact(s) to facilitate immediate access by the City to awarded Firm for a speedy answer to questions and resolution to any challenges experienced by either party.**

Confirmed. The City will have 24/7 access to assistance. During normal business hours, the City's Senior Account Manager, Francene Marra is available via phone or email. Francene prides herself on delivering exceptional customer service and building a strong relationship with her clients. The City's primary contact, Danielle Boyle, works after hours and on weekends responding to any issues that arise. (Critical claims issues and authorization requests do not take a break so we cannot either.) We are available via cell phone, office line, or email to assist you as needed. We understand that when you send an email or make a phone call it is because you need something, and we want to help you with it right away.

- **15) Shall agree that all data exchanged between selected Proposer, and the City or prospective customers belongs to the City and shall be accessible at any time during the life of the contract for no additional fee.**

Confirmed. Brown & Brown's data retention policy ensures that data is preserved for our clients and if at any point it is requested we will send immediately.

- **16) Provide technical assistance to reduce the overall cost of providing these benefits through a variety of means including developing effective negotiations strategies to expeditiously reduce the absolute cost of health insurance benefits.**

Confirmed. Brown & Brown recognizes that there are several paths toward the solution of lower healthcare costs while still providing quality benefits to the City's members. As touched upon in other prompts, Brown & Brown's employee benefits team is a mosaic of professionals, some of whom have a particular focus. Reducing the absolute cost of health insurance could look like a long-term strategy related to population health and wellness initiatives to improve the group's performance over the course of a couple years, or it may look like a conversation with Brandon Savage about how to best balance employer contributions in the upcoming renewal season as to make sure the benefits are most appealing to the healthiest risks in your employee pool. Our approach is to identify the best of the many paths forward.

We also have access to several programs that provide savings to our clients including a stop loss coalition, pharmacy coalition, and group purchasing contracts for pharmacy. As a top-tier broker with all major carriers we also have access to carrier leadership to effectively negotiate tough renewals.

- **17) Solicit and negotiate annual renewal of existing coverage including soliciting multiple or alternative proposal coverage.**

Confirmed. Each year beginning in February, we will meet with the City to determine which lines of coverage are to be marketed for the coming renewal. We will discuss satisfaction with current carriers and any items to be addressed within the negotiations or marketing process.

If the City is happy with the current carriers, we will first negotiate directly with them in lieu of an RFP process. If the carriers cannot provide the pricing, terms, and conditions we feel are warranted, we will work with the City to go to market.

We will then develop the RFP specifications and send to the City for review and will work with the Purchasing department to follow its guidelines for releasing and managing the RFP to the carriers.

Once we receive the proposals we will compile all carrier responses in a comprehensive proposal which will include AM Best ratings of each carrier, side by side comparisons, rates, rate guarantees, and important terms and conditions.

-

- **18) A comprehensive summary of responsive quotes from insurance carriers will be presented to the City Administrator or designee.**

Confirmed. We will present a comprehensive renewal proposal illustrating the various proposals received. We will also provide an Executive Summary for the City Administrator which will provide a concise overview along with recommendations for each line of coverage.

- **19) Respond to all employee issues and questions in a timely manner regarding their benefits.**

Confirmed. Brown & Brown will work year-round to provide the City and its employees with excellent customer service. Employees can reach out directly to the City's dedicated Account Manager, Francene Marra, when they have any claims issues or questions regarding their benefits coverages. Francene works as a liaison between the City and the insurance carriers to ensure prompt resolutions to any issues. She advocates on behalf of employees when they feel a claim has not been processed correctly. This includes calling the doctors or hospitals and speaking with billing representatives to explain the situation and to ask that all collections activities be put on hold while we get the claims reprocessed. She provides regular updates to the employee as the situation is being resolved with the end goal being to make the process as painless as possible.

- **20) Provide City with dedicated agents for any assistance needed.**

Confirmed. The City will have Danielle Boyle, the lead consultant assigned to the City as well as the dedicated Senior Account Manager, Francene Marra. Danielle is available 24/7 via cell and email and regularly helps with time sensitive issues over the weekends. Francene Marra is the day-to-day contact for service issues and questions.

- **21) Provide the City with support for the wellness program.**

Confirmed. Our Population Health services include the implementation and management/support for any wellness programs. We would also request wellness funds from the City's carriers to pay for incentives and events. Many of our clients the size of the City of Bradenton received $100,000+ per year from their medical carriers.

- **22) Collaborate and share ideas and initiatives with the City regarding improvements in the current health and wellness offerings and the related strategic plan. Support the City in organizing coordinating one (1) employee wellness fair, annually.**

Confirmed. We would work closely with the City to develop a robust Population Health Strategy with measurable results year over year. We would also support the City with its annual wellness fair. We work closely with two vendors that specialize in wellness fairs for public employers. They make the events memorable by providing all décor and including interactive and educational experiences.

The following health-fair services are included at NO Cost to our clients:

- Complete event organization
- Dedicated Account Manager
- Securing of local health and wellness exhibitors
- Coordination of company benefit carriers
- Event poster for internal promotions
- Complete set-up and tear down of event
- Tables, tablecloths, signage, event supplies, and balloons
- Customized bingo game for employee engagement during event
- Raffle prizes secured from exhibitors
- Onsite Event Coordinators to manage entire event and vendor management

- **23) Identify claims trends and anomalies in a timely manner and prepare recommendations to the City on actions to be taken, if any.**

Confirmed. Brown & Brown recognizes the advantage of identifying trends earlier and seek to keep our clients as well-informed as possible. This will be accomplished via the quarterly utilization reviews and monthly budget reports. We are also rolling out a proprietary data warehousing tool which will allow our analytics team to take a forward-looking approach to claims trends and recommendations.

- **24) Review historical claims experience, demographic data trends and plans performance from a financial prospective.**

Confirmed. We will meet with the City each quarter to review year over year claims and demographic profiles. Please see our sample Quarterly Claims Review and Budget Report in the Appendix section.

- **25) Coordinate and participate in the implementation and enrollment process and employee meetings.**

Confirmed. Brown & Brown has a team dedicated to Implementation within the Employee Benefits division. Implementation team responsibilities will include presenting benefits during open enrollment and engage new employees per the direction of the City on a monthly or quarterly basis. Members of this team have an excellent understanding of all lines of coverage that we offer and are well versed in handling questions, comments, and concerns from employees and will host as many meetings as the City of Bradenton requires during open enrollment. All members of the Implementation team hold a Florida Life & Health (2-15) License.

- **26) Assist in the review and or creation of enrollment materials to enhance the overall perceived value of the benefits and compensation.**

Confirmed. We will provide a custom Benefits Guide, Open Enrollment Post Cards, PowerPoint Presentations, and Flyers each year.

- **27) Coordination of annual benefits fair at no cost to the City.**

Confirmed. We work closely with two vendors that specialize in wellness fairs for public employers. They make the events memorable by providing all décor and including interactive and educational experiences.

The following health-fair services are included at NO Cost to our clients:

- Complete event organization
- Dedicated Account Manager
- Securing of local health and wellness exhibitors
- Coordination of company benefit carriers
- Event poster for internal promotions
- Complete set-up and tear down of event
- Tables, tablecloths, signage, event supplies, and balloons
- Customized bingo game for employee engagement during event
- Raffle prizes secured from exhibitors
- Onsite Event Coordinators to manage entire event and vendor management

- **28) Preparation of insurance applications, compile and format support information needed and requested by insurance company underwriters.**

Confirmed. We aim to take as much work off our clients plates as possible which includes pre-filling as much information as we can prior to sending to the City for completion and signature. We also pull census reports from our clients benefit administration systems when possible so that the censuses carriers request are not burdensome for our clients' HR teams.

- **29) Compile and maintain historical underwriting information. Provide copies of this information to the City.**

Confirmed. We house all claims reports in our agency management system in addition to sending the monthly budget reports directly to our clients each month. Renewal projections are also provided during the quarterly reviews and at renewal. For ancillary lines, we request historical loss ratio reporting and provide that information to clients each year as well.

- **30) Development of annual employee Benefits statements.**

Confirmed. We will provide annual employee benefits statements for the City. These will illustrate the total compensation including employer contributions for each benefit line by line. We can also include other intangible benefits like FICA taxes, retirement contributions, PTO, etc.

Request for Proposal Services:

The City is responsible for any procurement efforts and will seek information and/or guidance from the awarded Firm as needed. The information shall include, but not be limited to:

1. Assist City staff with designing specifications or Scopes of Services for identified Requests for Proposals.
2. Assemble experience and census data for the purpose of providing to proposers.
3. Engage subject matter experts and internal resources in evaluating provider discount comparisons for medical Request for Proposal.
4. Review responses and provide a summary report to the City to assist in evaluation.

Confirmed. As described in our responses to multiple items in the Scope of Services, we will work with the City's staff on all aspects of the RFP process.

Brown & Brown Service Overview

- **Renewal Strategy & Negotiations**
    - Pre-renewal meeting with City's HR team to establish goals and discuss strategy for renewal marketing and negotiations
    - RFP development
    - Marketing process
        - Gather census, claims reports, and policies needed to market
        - Work with the City's staff to release RFP to insurance carriers
        - Collect responses and clarifications from carriers
        - Negotiations
        - Network analysis including PPO discount evaluation and comparison
    - Present proposal to City's HR team and discuss any further requests
    - Final negotiations and Presentations to City Commission if requested
- **Management of Self-insured Health Plan**
    - Our Director of Analytics and his team will gather the claims reports from BCBS to put the data into meaningful deliverables. We do not simply forward the carrier reports, but rather digest them and present the data to the City in a more user friendly and actionable manner
        - Quarterly utilization reviews with City's HR team
        - Monthly budget reports are available as well
        - Separate reports by actives and retirees
        - Renewal projections provided by our actuary
        - Plan design modeling to estimate claims savings through plan design changes and enrollment migration
        - Tracking of stop loss claims
        - Stop loss level evaluation
    - Recommendations for new solutions for cost mitigation
    - Annual Filing of Self-Funded plan with the State of Florida as required by Florida Statute 112.08

- **Employee Claims Issues and Advocacy**
    - Assist HR with escalated claims issues for any employee or retiree that needs help beyond what BCBS is providing
    - Contact providers and hospitals to get claims reprocessed or to request that accounts be put on hold rather than sent to collections
- **Coordinate all Ongoing Meetings with Carriers**
    - Monthly service meetings with BCBS, quarterly meetings with other vendors as needed, any other meetings as needed or requested by the City
- **Open Enrollment**
    - Coordinate all open enrollment tasks
        - Implement and update any online enrollment systems
        - Open Enrollment meetings
        - Benefits guides
        - Ensuring enrollment data is sent to carriers as scheduled

Our Commitment to Service:

We understand how overwhelming and often confusing health insurance can be for your employees. When employees have claims issues or trouble with authorizations, we will work with them directly to get their questions answered and the issue resolved.

Below is an example to illustrate our commitment to service.

Example from April 2022

- Florida Blue client
- Employee needed spinal surgery at a specialty hospital in NY
- We were notified via email by the employee and the HR Director at 4:00 on a Friday that the surgery scheduled for Monday was being denied
- We worked all weekend with Florida Blue leadership to get the medical director and necessary parties to review
- Surgery was approved that Sunday evening

That Sunday we emailed the employee to let her know it had been approved and this was her response:

"This is such great news. I am tremendously grateful. Thanks to Danielle and the village that worked to make this happen."

The following Thursday we emailed to check on the employee and this was her response:

"I am out of the hospital now and hopefully on the road to a great recovery. Thanks for moving mountains to make it happen. I am eternally grateful."

Brown & Brown

EMPLOYEE BENEFITS

Population Health Consulting

For the Health and Well-Being of Your Employees



Overview

Taking care of your employees can be a challenge. Rising costs, a marketplace flooded with digital and virtual solutions and limited time and resources to develop and deploy effective strategies can all have an impact on you and your employee's health care. The Population Health Consulting team brings specialists to help you improve health outcomes, reduce costs and increase workforce productivity. We "look under the hood" to understand your pain points, cost drivers and the effectiveness of existing programs. Our team leverages our Innovation Hub to help navigate the vast array of digital health solutions and develop a strategic roadmap to address your unique needs.

Why is it Important?

You and your team are tasked with helping to manage costs, improving the health and productivity of your workforce, easing administrative burden and demonstrating value to stakeholders. Let our consulting services help you address these issues by:

- Developing a strategic data-driven approach to achieve programs for your employees
- Selecting evidence-based programs proven to help improve employee health and deliver value
- Applying best practice communications and incentive strategies to engage your employees
- Establishing key performance metrics to set priorities and measure results over time

How We Can Help

Our Population Health team can work with your team to provide:

Standard Consulting Services

- Assessing your current programs and engagement strategies
- Analysis of claims to identify your specific costs and productivity drivers
- 3-year custom roadmap with recommendations tailored to your unique needs
- Specialized vendor tools to help select the best vendor for your needs
- Engagement strategy for communication and incentive programs for your employees
- Performance dashboard and annual review
- Vendor implementation advice and support

Premium Consulting Services

- Clinical assessments of carrier/TPA case management programs
- Onsite clinic feasibility assessments and vendor oversight
- Custom vendor RFPs, evaluation and selection
- Vendor implementation management and periodic performance review

Brown & Brown

EMPLOYEE BENEFITS

Behavioral Health Consulting

Keep Your Employees Healthy and Informed



Overview

Behavioral health refers to how cognitive habits affect an individual's overall well-being, emotions, biology and behavior. It is all about how people think, feel and behave – and it is an essential component of health care.

Why is it Important?

- One in five Americans are at risk of developing a mental health condition during a given year
- Access to quality providers as well as destigmatization campaigns are top priorities to keep your employees healthy
- The total spend for behavioral health issues is estimated at $525 billion annually
- Left untreated, depression is as costly as heart disease or AIDS to the U.S. economy—more than $51 billion in work absenteeism and lost productivity and $26 billion in direct treatment costs

How We Can Help

Brown & Brown has a dedicated behavioral health clinical team that can provide you with customized solutions, including:

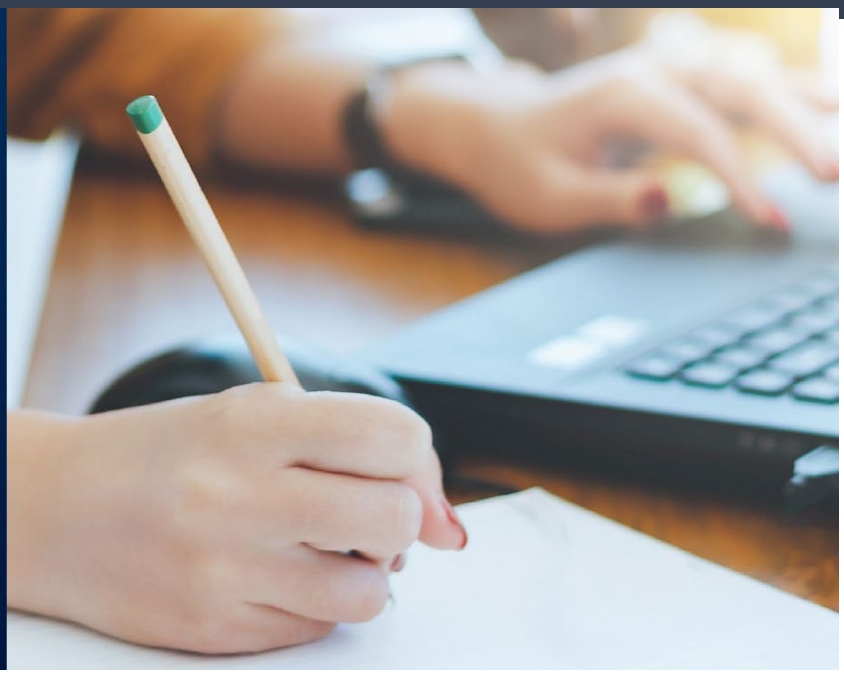
- **Behavioral health strategy:** We work closely with you and your Human Resources team to identify and administer holistic solutions to help address mental health and substance abuse issues
- **Communication:** Educational communications for your employees and supervisors
- **Trainings, webinars and white papers:** Help build awareness among your employees and their managers about issues like destigmatization, social determinants of health, work-life balance, resiliency, stress, anxiety and depression
- **Vendor management:** Requests for Information collecting details from a database of more than 50 vendors for comparisons, vetting, proposal intake, administration, vendor summits and ongoing management

Brown & Brown

EMPLOYEE BENEFITS

Regulatory and Legislative Strategy

Helping to simplify your employee benefit compliance



Overview

Brown & Brown recognizes that one of the most important services that we can provide to you is the delivery of timely and accurate information on topics that affect how employers and benefit plans operate. This is increasingly important as the regulatory landscape becomes more complex and the benefits' field continues to look for products and systems that can help make plans more effective and efficient.

How We Can Help

While the Brown & Brown Regulatory and Legislative Strategy group does not provide legal advice, it does provide detailed insight and information to employers and organizations regarding the legislative and regulatory requirements for your employee health and welfare benefit plans.

The Regulatory and Legislative Strategy group provides the following services:

- Assistance for a general compliance review of your health and welfare benefit plans
  - » Areas reviewed include ERISA, Section 125, ACA General Topics, ACA Employer Mandate, Reporting Under the Employer Mandate, COBRA, Wellness Plans, Self-Insured Plans and HIPAA Privacy and Security
- Supporting consultants in understanding new laws and regulations impacting employee benefits
- In-person seminars
- Web-based training (webinars)
- Monthly updates on various employee benefit topics, including the Affordable Care Act (ACA), HIPAA, FMLA, state laws and other regulatory changes impacting employee benefit plans
- Communications regarding relevant and timely compliance topics
- Legislative Briefs detailing important issues, such as the latest information on the ACA, HIPAA, COBRA, FMLA, ADA, etc.
- Form 5500 preparation guidance

Why Is It Important?

Health and welfare laws, rules and regulations can become incredibly complex. However, understanding them is an integral part of providing you with the information you need to make the best decisions for your employees.

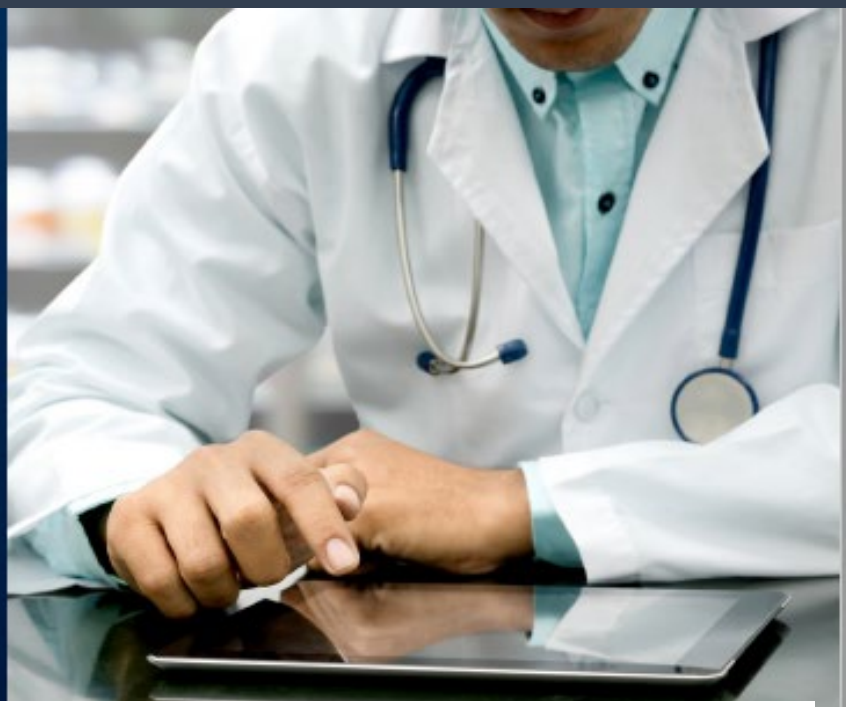
DISCLAIMER: *Brown & Brown, Inc. and all its affiliates, do not provide legal, regulatory or tax guidance, or advice. If legal advice counsel or representation is needed, the services of a legal professional should be sought. The information in this document is intended to provide a general overview of the topics and services contained herein. Brown & Brown, Inc. and all its affiliates, make no representation or warranty as to the accuracy or completeness of the document and undertakes no obligation to update or revise the document based upon new information or future changes.*

Brown & Brown

EMPLOYEE BENEFITS

Pharmacy Consulting

Mitigate Costs While Helping to Ensure Access to Employee Medications



Overview

The rising cost of prescription drugs has become a key driver of overall health care spending in the U.S. The growth in spend can be attributed to several factors – the number and type of medications and where they are being administered. The Brown & Brown Pharmacy Solutions team can help mitigate rising costs while helping to ensure patient safety and value.

How We Can Help

Whether an employer is in need of understanding the components of their pharmacy trend, managing specialty costs or identifying select high inflation products that have preferred alternatives, the Brown & Brown Pharmacy Solutions team have strategies that can impact drug spend while allowing access to a complete range of effective drug treatments with minimal member disruption.

Offerings Include:

- **Specialty Copay Assist Program:** We can help optimize available manufacturers' assistance dollars to offset the cost of specialty drugs, helping to provide savings for both you and your employees
- **Pharmacy Clinical Directorship:** With a pharmacist providing clinical guidance, we can assist your team and lead you through the complexities of formulary strategy, utilization review and market changes all while working to mitigate spend
- **Specialty Pharmacy Coverage Alignment Review:** Our Brown & Brown Pharmacy Solutions team can conduct a comprehensive clinical and financial claim review under both the medical and pharmacy benefit channels to uncover savings opportunities within areas of enhanced rebate potential, optimization of site of care and discovery of potential duplicate payment recovery

Why is it Important?

Pharmacy is a complex, dynamic environment that requires ongoing evaluation by a pharmacy specialist. Our Brown & Brown Pharmacy Solutions team will pilot a strategic course of action to help meet your pharmacy plan goals and objectives. The team can also help ensure access to medically necessary medications – effectively balancing cost and member impact.

Tab V: References



The references below are all self-funded clients with between 500 and 1500 employees. We have also included 2 reference letters on the following pages.

Client	City of Sarasota
Contact	Dominique Anderson
Title	Sr. Human Resources Generalist
Phone	941-263-6324
Email	Dominique.Anderson@sarasotaFL.gov
Address	111. S. Orange Ave., Ste 204, Sarasota, FL 34236

Client	Stetson University
Contact	Chris Chellberg
Title	Associate Director, Total Rewards
Phone	386-740-2535
Email	cchellbe@stetson.edu
Address	421 N. Woodland Blvd., DeLand, FL 32723

Client	City of Palm Coast
Contact	Tim Wilsey
Title	HR Manager
Phone	386-986-3721
Email	twilsey@palmcoastgov.com
Address	160 Lake Ave., Palm Coast, FL 32164

Client	ERMCO
Contact	Angela Newbill
Title	VP, Human Resources
Phone	731-288-4245
Email	Angela.newbill@ermco-eci.com

Department of
Human Resources

Dominique Anderson
Senior Human Resource
Generalist

111 S. Orange Avenue
Room 204
Sarasota, FL 34236

Telephone
941-263-6324

May 23, 2022

RE: Reference Letter

To whom it may concern:

I am happy to provide a reference for the Brown & Brown team. They have been our Broker for the past 6 years. Danielle Boyle and her team are extremely prompt when responding to our inquiries which is important to us. They have successfully negotiated with all of our vendors to obtain the best pricing for our employees.

Danielle Boyle and her team are very accessible. They keep us updated on any problems or issues that may arise as well as help with any implementation of new vendors, file feeds, billing issues etc. I have the upmost confidence in Brown and Brown and they walk us through any new setups or changes when it comes to benefits. Our day-to-day contact Francene Marra has been a pleasure to work with. She has been our contact since day one and is very familiar with our benefits especially when they can be very cumbersome. It's nice to work with the same team for so many years. I think that speaks to how they take care of their employees too which is important. The team is always willing to travel at anytime we need them onsite. They attend all of our open enrollment meetings over a 2-week period.

The team goes to market for our medical, pharmacy, stoploss, dental, vision, short term, long term, legal, clinic management and EAP. They obtain the information and put it in a format that is easy to read and compare. This saves our team a lot of time knowing that we have a highly intelligent team available to work on these projects.

I would highly recommend Brown & Brown as a Broker.

Kind regards,

Dominique Anderson
Senior Human Resource Generalist
City of Sarasota

ERMCO
DISTRIBUTION
TRANSFORMERS

April 27, 2021

To Whom It May Concern:

It is my great pleasure to recommend to you the services of Brown & Brown of Florida, Inc. Danielle and her team feel like an extension of our own benefits team regarding their accessibility and concerns for our employees and programs.

ERMCO chose to switch brokers to Brown & Brown at a time of transition. We were electing to go from fully insured to self-funded, as well as in need of several provider changes. We had been fully insured with Blue Cross Blue Shield for 16 years but were planning to implement an onsite clinic. We needed to realize the savings from a self-funded program and discover better options to offer our team members as the first step towards that goal.

Danielle and her team made the decision process for these changes very easy by illustrating the costs and savings for a variety of plan designs that could be customized to fit our specific needs. They ensured that the transition was a smooth one by mirroring current plans in the upgrades, while making subtle changes where they would have the greatest impact.

In addition to finding the most suitable providers to continue our benefits program at a significant cost savings, they supported us through all the implementations – even bearing the administrative loads whenever possible. Having a very small HR/Benefits team, this was a life saver for us. We could never have accomplished this massive task without the support of Danielle and her team.

As previously mentioned, the Brown & Brown team feel like an extension of our own benefits team. That is due to the continuing support that they provide several months into our new programs. They ensure that all of our customer service expectations are met and that our employees are informed and satisfied with the changes. They are also assisting us toward our goal of an onsite clinic and other positive changes that we will implement in future years.

Brown & Brown has far exceeded all of our expectations. You will not regret allowing Danielle and her team to assist you with your future goals.

Sincerely,

Angela Newbill
VP of HR
731-377-2133
angela.newbill@ermco-eci.com

Tab VI: Proposal Requirements

State how you plan to provide your product or service based on the evaluation criteria and specifications listed in this Request for Proposal.

Below we have included the amended scoring criteria that was released in addendum #2. Categories 1-3 were addressed in the prior sections, and we will address Category 4 on the following pages.

Scoring Criteria:

Category	Category Title	Category Description	Proposal Tab(s)	Points
1	Qualifications and Experience / Ability of Professional Personnel/Financial	□ Expertise of human resources and employee benefits management, in public, private and/or non-profit sector □ Qualifications & experience of the firm, & its subcontractors/suppliers relevant to the Scope of Work □ Availability of qualified personnel □ Ability to meet set standards □ Previous contracting experience with the other public, private and/or non-profit agencies (see References) □ Financial resources and capabilities per financial statements □ Evidence of insurance and/or bonding capacity □ Location of local office	Tab I and II	25
2	Quality of Services / Technical Approach to the Scope of Work	□ High-quality level of services to be provided to the City □ Understanding of City needs □ Ability to convey a depth of understanding of the Scope of Work and the firm's capacity to accomplish it successfully □ Conveyance of a willingness to work with City staff to maximize resources □ Approach to the Project and Methodology □ Technical Soundness of the proposal □ Applicability of the services offered	Tab III	25
	Services/References	Services (past projects) and references that support your comments on the products or services you provide. Past customers related experience with your company.	Tab IV and V	25
4	Cost Saving Initiatives	□ Development of long-range cost strategies □ Innovative ideas for cost containment □ Examples of cost-savings implementation for clients that may have saved money □ Costs or Fees Associated with Program Administration	Tab VI	25
			Total Score	100







See following pages

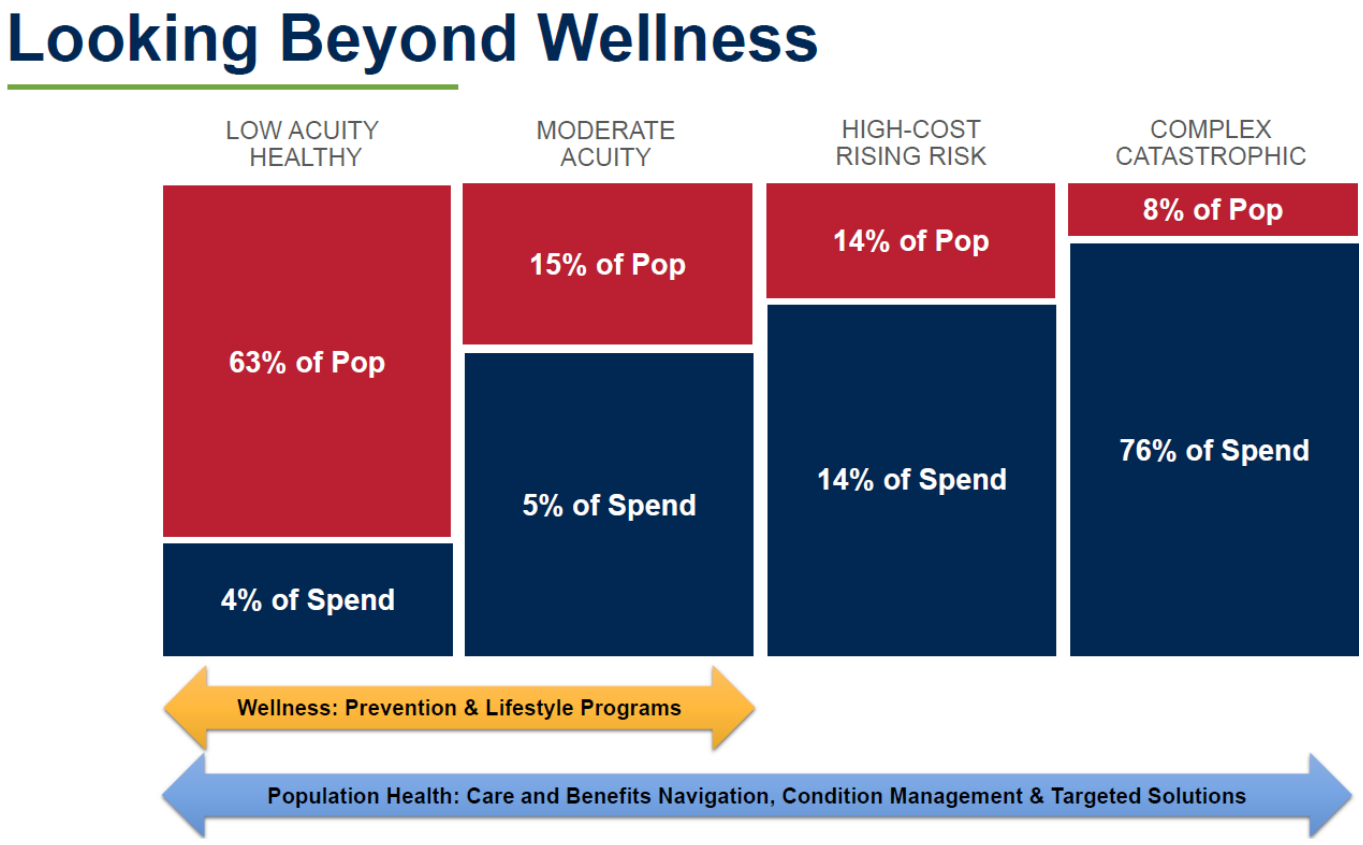
Category 4: Cost Saving Initiatives:

- **Development of long-range cost strategies**
- **Innovative ideas for cost containment**

Our responsibility to our employee benefits clients is to manage costs in both the short and long-term. Short-term solutions include aggressive marketing and negotiations. Long-term solutions are all about the *Risk Pool* (who is enrolled on your self-funded health plan and why?) and how we best manage the pool to ***stabilize that risk over the long term***. We do this by taking a data-driven approach to establish goals to address cost drivers, implementing programs to accomplish those goals, and measuring the results year over year.

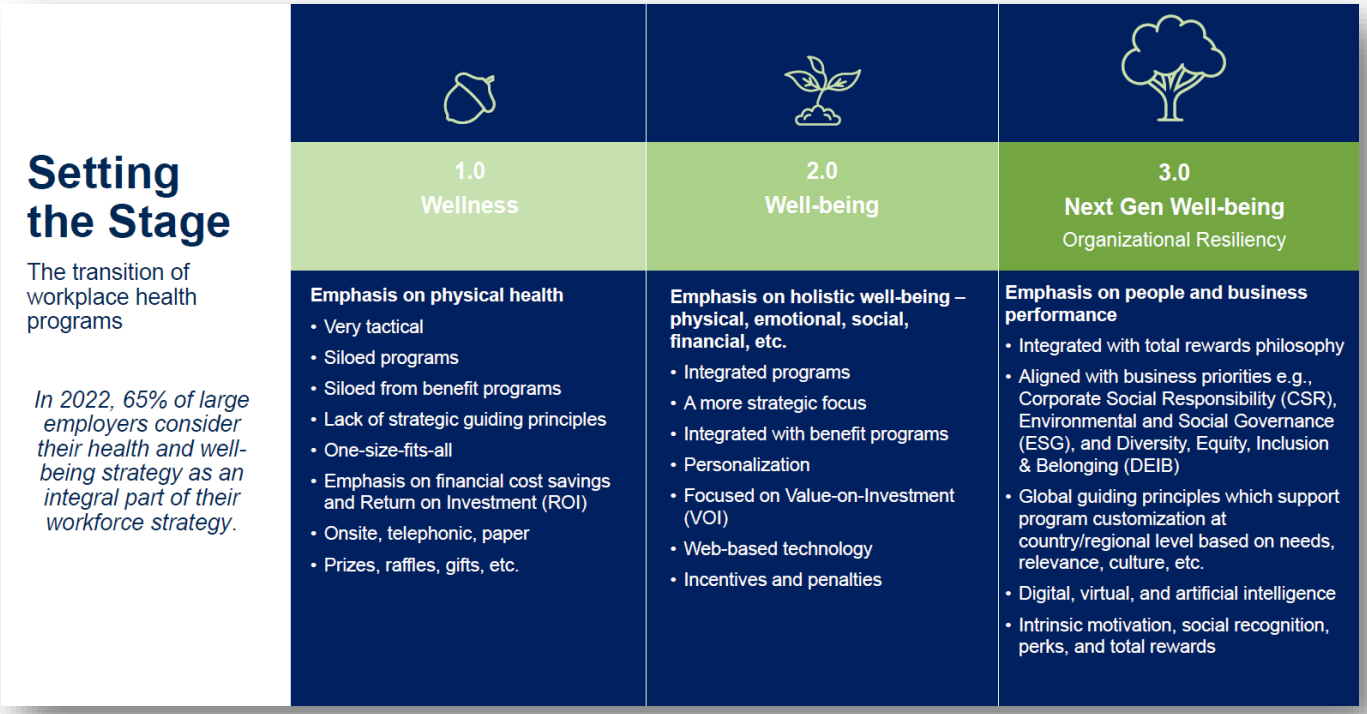
We look at 3 key areas: Population Health Strategy, Demographic Analysis, and Member Burden.

Population Health:

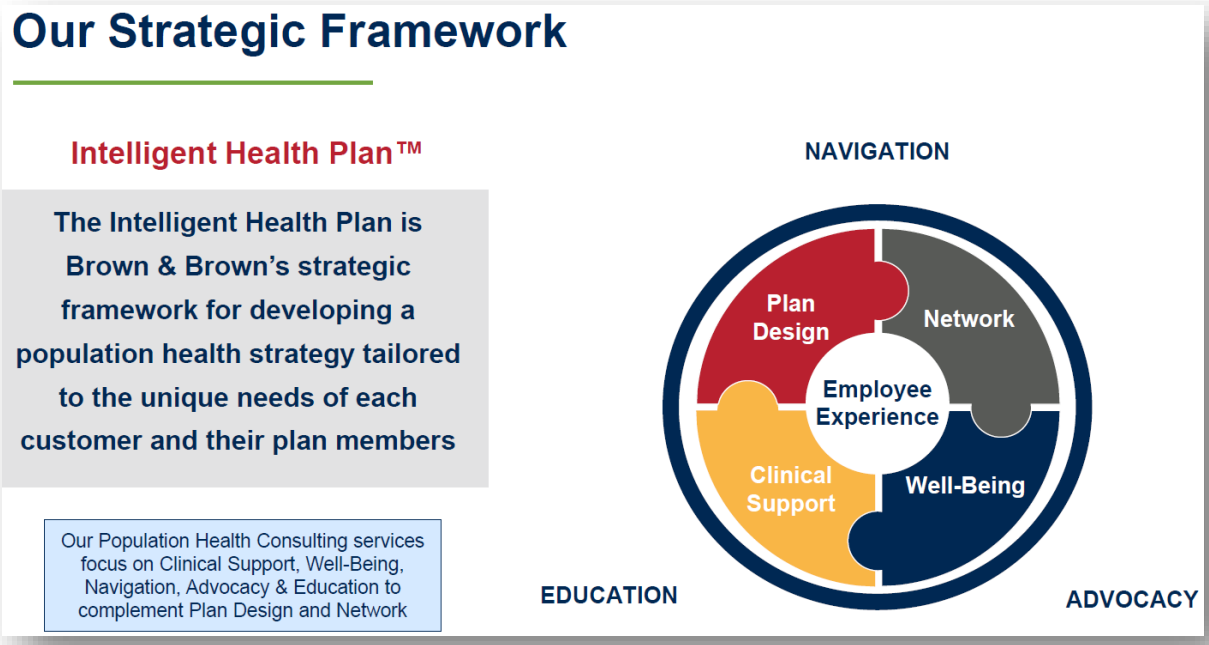


While wellness programs are great for engaging a workforce, typically the ones that participate are already those that are healthier or more engaged in their health overall. As this chart shows, traditional Wellness & Lifestyle programs see engagement from those that are already low or moderate risk. These 78% of employees are only driving <10% of claims spend. ***What about the other 22% of employees that are driving 90% of the spend?***

The evolution of wellness programs over the past decade:



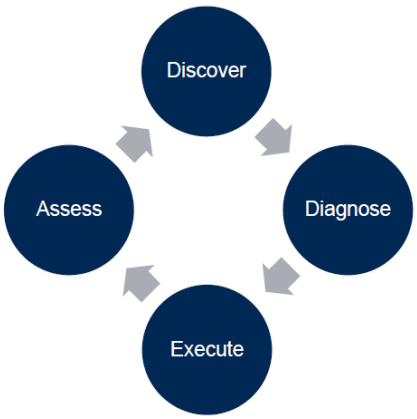
Brown & Brown's Population Health team has a trademarked solution to address all categories of risk, but most importantly, those high-risk claimants that drive 90% of your cost. We call it the ***Intelligent Health Plan.***



The City's Lead Consultant, Danielle Boyle will work closely with our Population Health Consultant, Ashley Diaz to develop a data-driven strategy based on the City of Bradenton's cost drivers, culture, and goals.

Population Health Strategy Development

Process & Deliverables



The Brown & Brown Team will complete the following steps:

- **Establish** client goals and objectives
- **Analysis** of The City of Bradenton's claims to identify specific cost and productivity drivers (i.e. high-cost claims and chronic conditions), prevalence vs. benchmarks
- **Inventory** of current programs, participation rates and outcomes metrics
- **Identification** of gaps, high value opportunities and areas of focus
- **Best practice recommendations** for programs/vendors including costs and expected value on investment
- **3-year roadmap** to fill gaps/high value opportunities including programs, incentives and communications
- **Dashboard** of key performance metrics (leading and lagging indicators)

We will begin this process with a kick-off meeting where we discuss goals, priorities, and culture. Ashley and Danielle will provide some initial observations on cost drivers and how other clients have addressed similar challenges. Below we have included an example:

Workforce Health & Benefits Goals & Objectives

Goal Setting Exercise

The Brown & Brown Team will work with the City of Bradenton to develop a 3-year strategy to address their workforce health and well-being goals & objectives.

Examples of Goals

- Attraction & Retention of Talent
- Cost of Benefits
- Competitiveness of Benefits
- Recognition as Employer of Choice
- Absenteeism
- Productivity
- Employee Engagement in Organization
- Morale, Turnover, Burnout

City of Bradenton's Top 5 Workforce Health & Benefits Goals	
1	Cost of Benefits
2	Attraction & Retention of Talent
3	Employee Engagement in Organization
4	Productivity
5	Competitiveness of Benefits

Workforce Health & Benefits Goals & Objectives

Objective Setting Exercise

The Brown & Brown Team will work with the City of Bradenton to develop a 3-year strategy to address their workforce health and well-being goals & objectives.

Examples of Objectives

- Manage medical & Rx costs
- Manage high cost/complex claims
- Lower cost & prevalence of chronic conditions
- Increase utilization of benefits, programs & resources
- Help employees manage behavioral health
- Help employees navigate the health care system
- Help employees manage finances and work/life issues
- Establish a culture of health & well-being
- Establish a formal health & well-being program/brand
- Establish baseline of key performance metrics and strategy to measure program success and value on investment

City of Bradenton's Top 5 Workforce Health Objectives	
1	Managing high-cost/complex claims, manage medical & Rx costs
2	Increase utilization of the benefits, programs & resources
3	Establish a formal health & well-being program
4	Manage behavioral health
5	Manage finances and work/life issues



Next Steps

- **Brown & Brown to conduct Population Health Analysis to identify opportunities and make recommendations**
- **Brown & Brown to present Population Health Analysis findings to the City of Bradenton**
- **Brown & Brown to develop 3 year Population Health Strategy**

- **Examples of cost-savings implementation for client that may have saved money**

Rx Contract Evaluation:

With the increasing prevalence of specialty medications that can cost a plan $6,000 to $80,000 per script, we have seen specialty drug costs represent 40-60% of total drug spend and even up to 35-40% of total plan spend in some cases. In order to help the City of Bradenton ensure it is getting the best deal on pharmacy, we would evaluate the current Rx contract and provide cost saving alternatives while weighing the disruption to employees to determine what is most advantageous to the City.

For our self-funded clients, we analyze the discounts from Average Wholesale Price (AWP) are being achieved and evaluate the rebate structure. We then reprice the pharmacy claims through several other Pharmacy Benefit Manager (PBM) contracts to identify weaknesses in the current contract and find areas for improvement. We have access to a Group Purchasing Organization that aggregates their PBM business together so that a group the size of the City would get the drug pricing usually only available to employers with 30,000+ employees.

Below is an example of an analysis we performed recently for a client. They saved over $1.2 million on their annual drug costs with very minimal disruption to employees. This was achieved through better AWPs and stronger rebate guarantees.

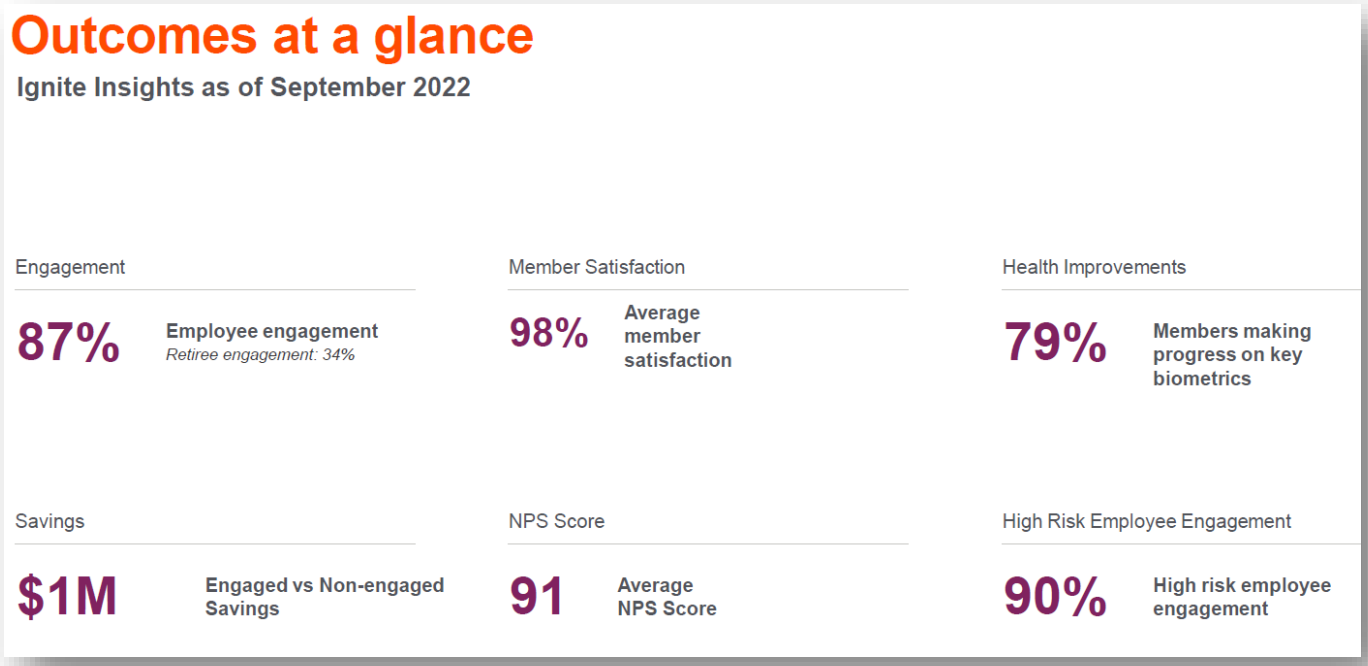
Executive Overview - Financial Results

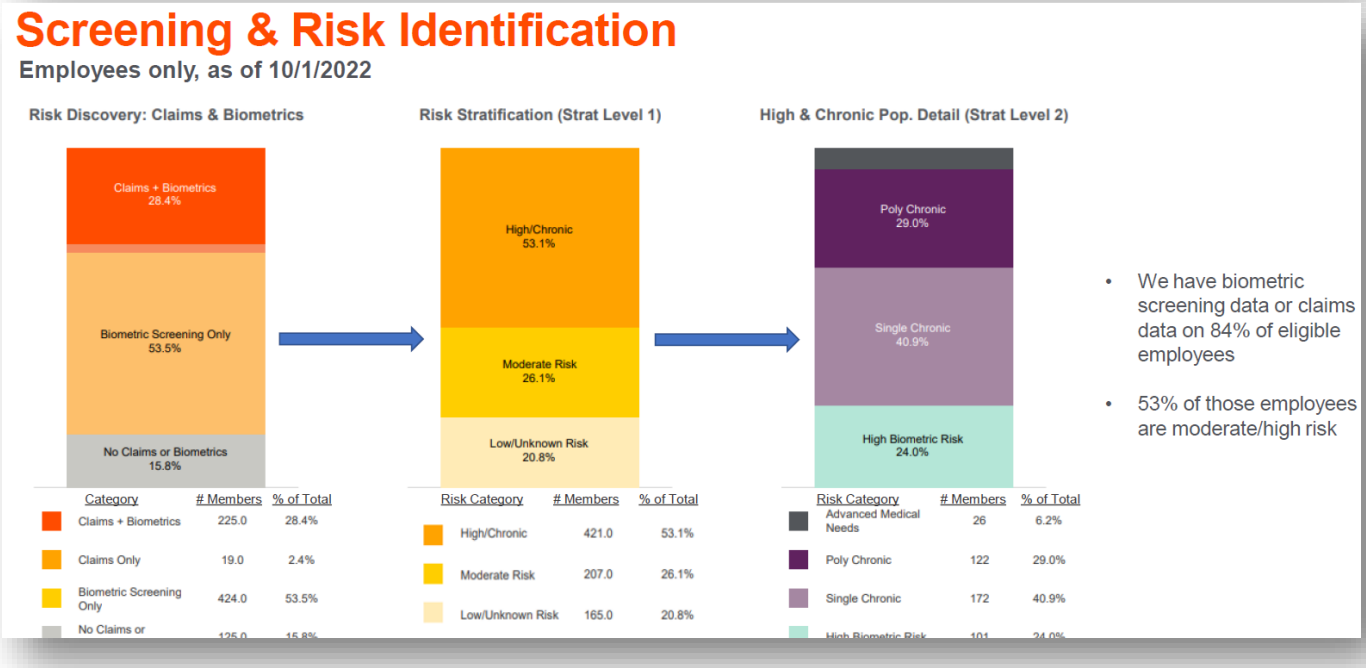
1,181 Employees | 2,432 Members	Current PBM	CVS/caremark	CVS/caremark	OptumRx
		Standard Control Formulary	Transparent Standard Control Formulary	Premium Formulary
Overview of Plan Cost				
Gross Claim Amount Paid	$4,145,461	$3,584,560	$3,591,194	$3,613,732
Less Member Cost Share	-$436,423	-$436,423	-$436,423	-$436,423
Claims Amount Paid by Employer	$3,709,039	$3,148,138	$3,154,771	$3,177,309
Plus Potential Implementation Fees from Incumbent	$0	$50,000	$50,000	$50,000
Plus UM Package / Connectivity Fees	$0	$0	$0	$0
Plus Administrative / Transaction Fees	$0	$18,950	$222,605	$18,950
Less Rebates and Credits from PBM	-$130,795	-$945,641	-$953,960	-$878,711
Net Amount Paid by Employer	$3,578,244	$2,271,447	$2,473,416	$2,367,548
Average Amount Paid				
Average Net Cost Per Claim	$122.74	$77.91	$84.84	$81.21
Net Amount Paid PEPM	$252.49	$160.28	$174.53	$167.06
Savings Summary				
Savings Compared to Incumbent	N/A	$1,306,798	$1,104,829	$1,210,696
Percentage Savings Compared to Incumbent	N/A	36.52%	30.88%	33.83%

Onsite Clinics:

Our team has had huge success with the design and implementation of employee health clinics for our public entity clients. City of Palm Coast, Flagler Schools, City of Sarasota and City of St. Cloud are just some of the clients with whom we have built long-term partnerships, enabling our team to install complex clinic arrangements which have provided significant savings.

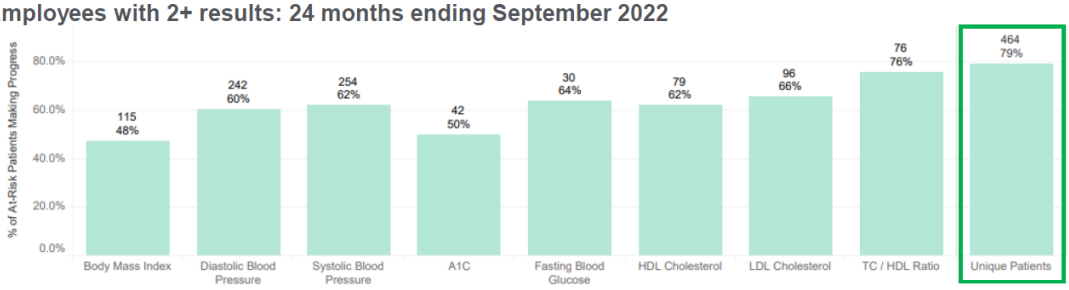
Below are a few pages from a recent onsite clinic annual review for one of our clients.





Employees Making Progress on Biometric Risk Factors

Employees with 2+ results: 24 months ending September 2022



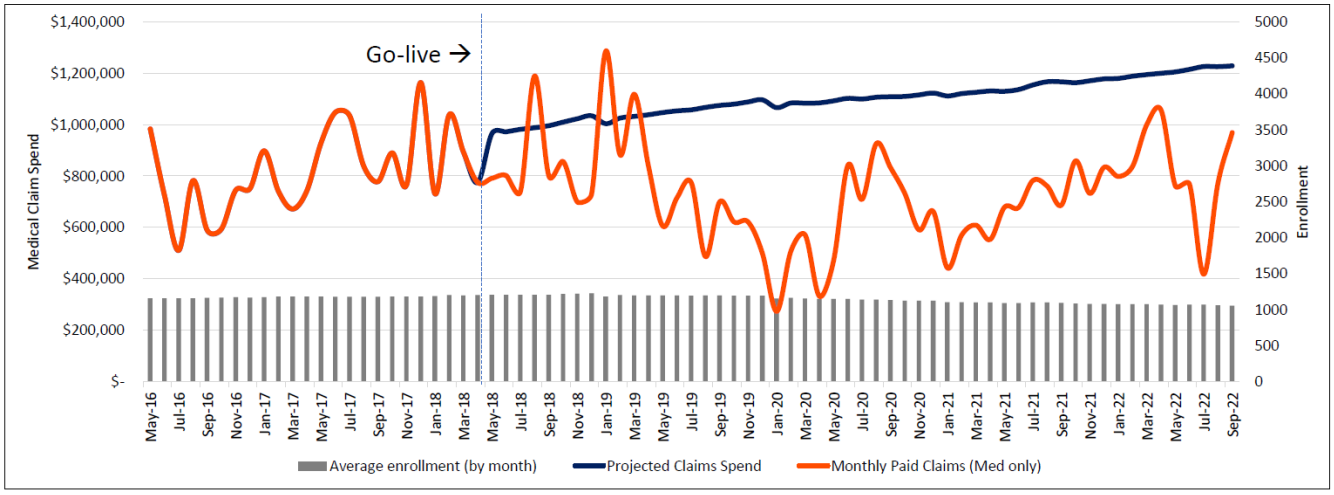
- 79% of unique employees with a high biometric risk are making progress
- 115 members improved their BMI by an average of 2 points

Biometric Name	Total Patients Screened	Number of Patients Starting at Risk	Number of Patients Making Any Improvement	% of Patients Making Any Improvement	Average Change for those Making Any Improvement
Body Mass Index	646	241	115	48%	-2.0
Diastolic Blood Pressure	607	401	242	60%	-9.2
Systolic Blood Pressure	609	410	254	62%	-13.8
A1C	139	84	42	50%	-1.3
Fasting Blood Glucose	266	47	30	64%	-13.7
HDL Cholesterol	425	127	79	62%	7.9
LDL Cholesterol	446	146	96	66%	-23.1

	At-risk (high or mod)
BMI	≥30
DBP	≥80
SBP	≥120
A1c	>6
Fasting Glucose	≥120
HDL Male	<40
HDL Female	<50
LDL	≥160
TC:HDL Ratio Male	≥10

Medical Claims Trend Analysis

Projections based on 6% annual trend



- **Costs or Fees Associated with Program Administration**

Brown & Brown is flexible with compensation structure and for many self-funded clients we do a combination of fees and commission.

- Medical: $75,000 fee
- Dental: 5% commission
- Vision: 5% commission
- Basic Life: 5% commission
- Supplemental Life: 10% commission
- Short-term Disability: 10% commission
- Long-term Disability: 10% commission

If the City would prefer either one annual fee with out commission or an all-commission structure we are flexible and will work with the City to establish the structure you are most comfortable with.

Tab VII: Required Forms

Form#1 – RFPResponse Form

City of Bradenton
RFP Response Form

Company Name: Brown & Brown of Florida, Inc.

Date Submitted 12/19/2022

PROJECT IDENTIFICATION: RFP# 23-001TWS

NAME: Agent of Record for Employee Benefits Program

COMPANY NAME: Brown & Brown of Florida, Inc.

NAME & TITLE: (TYPED OR PRINTED) Steve Farmer, Executive Vice President

BUSINESS ADDRESS: (PHYSICAL) 300 North Beach Street Daytona Beach, FL 32114

CORPORATE OR MAILING ADDRESS: ☒ SAME AS PHYSICAL

ADDRESS MUST MATCH SUNBIZ

E-MAIL ADDRESS: Steve.Farmer@bbrown.com

PHONE NUMBER: (386) 239-7233 FAX NUMBER:

In submitting this proposal, Proposer makes all representations required by the Instructions to Proposer and further warrants and represents that: Proposer has examined copies of all the RFP Documents and of the following addenda:

No. 1	Dated: 12/2/22	No.		Dated:	
No. 2	Dated: 12/8/22	No.		Dated:	
No.	Dated:	No.		Dated:	

City of Bradenton, Bradenton, Florida

The undersigned, as Proposer, hereby declares that no person or other persons other than the undersigned are interested in this Request for Proposal (RFP) as Principal, and that this RFP is submitted without collusion with others; and that we have carefully read and examined the specifications or scope of work, and with full knowledge of all conditions under which the services herein is contemplated must be furnished, hereby propose and agree to furnish this service according to the requirements set out in the specifications or scope of work for said service for the prices as listed on the city provided price sheet or (CCNA) agree to negotiate prices in good faith if a contract is awarded.

Tax Payer Identification Number: 59-0691921

(1) Employer Identification Number -or- (2) Social Security Number:

** *The City of Bradenton collects your social security number for tax reporting purposes only*

ALL BIDS MUST BE SIGNED, SEALED AND EXECUTED BY A CORPORATE AUTHORITY.

Where Proposer is a Corporation, add:

Brown & Brown of Florida, Inc.
Company Name: (Name printed or typed)

(Seal)

Attest:

Authorized Proposer:

Steve Farmer
Proposer: (Name printed or typed)

Executive Vice President
Authorized Signature and Proposer Title

~~Secretary~~ Assistant Secretary Anthony Robinson

Please submit a copy of your registration certificate establishing your firm as authorized to conduct business in the State of Florida, as provided by the *Florida Department of State, Division of Corporations*. Please refer to website: *www.sunbiz.org*

Bidder/Proposers Name _____

STATEMENT OF NO RESPONSE

If you do not intend to submit a bid or proposal on this requirement, please complete and return this form by the bid or proposal opening deadline to the:

City of Bradenton Purchasing Division
1300 6th Street West
Bradenton FL 34205 |
This form may be emailed to person listed on Page 2

Failure to respond, either by submitting a bid or proposal, or by submitting this "Statement of No Response" form eliminates your firm from being able to participate in the protest of this bid or proposal in accordance with the **City of Bradenton Code of Ordinance 2-237.**

N/A

WE, the undersigned, have declined to bid on this solicitation for the following reason(s):

_____ We do not offer this product or service.

_____ Our workload would not permit us to perform

_____ Insufficient time to respond to the Invitation for Bid or Request for Proposal

_____ Unable to meet specifications (explain below)

_____ Other (specify below)

Remarks _____

_____

_____

_____

_____

COMPANY NAME _____

ADDRESS _____

TELEPHONE _____

SIGNATURE/TITLE _____

DATE _____

FORM 3A INTEREST IN COMPETITIVE BID FOR PUBLIC BUSINESS

LAST NAME, FIRST NAME, MIDDLE NAME	OFFICE POSITION HELD
MAILING ADDRESS	AGENCY
CITY ZIP COUNTY	ADDRESS OF AGENCY

WHO MUST FILE THIS STATEMENT

Sections 112.313(3) and 112.313(7), Florida Statutes, prohibit certain business relationships on the part of public officers and employees, their spouses, and their children. See Part III, Chapter 112, Florida Statutes and/or the brochure entitled "A Guide to the Sunshine Amendment and Code of Ethics for Public Officers, Candidates and Employees" for more details on these prohibitions. However, Section 112.313(12), Florida Statutes (1983), provides certain exemptions to the above-referenced prohibitions, including one where the business is awarded under a system of sealed, competitive bidding; the public official has exercised no influence on bid negotiations or specifications; and where disclosure is made prior to or at the time of the submission of the bid, of the official's or his spouse's or child's interest and the nature of the intended business. The Commission on Ethics has promulgated this form for such disclosure, if and when applicable to a public official or employee.

N/A

INTEREST IN COMPETITIVE BID FOR PUBLIC BUSINESS (Required by 112.313(12), Florida Statute (1983))

1. The competitive bid to which this statement applies will be (strike one) submitted to the following government agency:
2. The person submitting the bid: Name Position
3. The business entity with which the person submitting the bid is associated is:
4. My relationship to the person or business entity submitting the bid is as follows:
5. The nature of the business intended to the transacted in the event that this bid is awarded is as follows: a. The realty, goods and/or services to be supplied specifically include: _____ b. The realty, goods and/or services will be supplied for the following period of time: _____ c. Will the contract be subject to renewal without further competitive bidding? ____ Yes ____ No if so, how often? _____
6. Additional comments:
7. Signature Date Signed Date Filed

FILING INSTRUCTIONS

If you are a state officer or employee required disclosing the information above, please filing this form with the Secretary of State at the Capitol, Tallahassee, Florida 32301. If you are an officer or employee of a political subdivision of this state and are subject to this disclosure, please file the statement with the Supervisor of Elections of the county in which the agency in which you are serving has its principal office.

NOTICE: UNDER THE PROVISIONS OF FLORIDA STATUTES #112.317 (1983), A FAILURE TO MAKE ANY REQUIRED DISCLOSURE CONSTITUTES GROUNDS FOR AND MAY BE PUNISHED BY ONE OR MORE OF THE FOLLOWING: IMPEACHMENT, REMOVAL OR SUSPENSION FROM OFFICE OR EMPLOYMENT, DEMOTION, REDUCTION IN SALARY, REPRIMAND, OR A CIVIL PENALTY NOT TO EXCEED $5,000.00.

Form# 3 – Non-collusive Affidavit

NON-COLLUSIVE AFFIDAVIT

(Prime Contractor/Vendor)

State of Florida

County of Volusia

Steve Farmer, being first duly sworn, deposes and says that they are

Executive Vice President, the party making the fore-going solicitation

(Partner or officer of the firm, etc.)

is genuine and not collusive or sham; that said contractor/vendor has not colluded, conspired, connived or agreed, directly or indirectly, with any contractor/vendor or person, to put in a sham solicitation or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the solicitation price of affiant or of any other contractor/vendor, or to fix overhead, profit or cost element of said solicitation price, or of that of any other contractor/vendor, or to secure any advantage against the City of Bradenton of any person interested in the proposed contract; and that all statements in said solicitation are true.

(Contractor/Vendor, *if the Contractor/vendor is an individual;*
Partner, if the Contractor/vendor is a partnership;
Officer, if the Contractor/vendor is a corporation)

Brown & Brown of Florida, Inc.

(Company Name)

STATE OF Florida

COUNTY OF Volusia

The foregoing instrument was acknowledged before me this 15 day of December by Steve Farmer, Executive Vice President *(name and title of corporate officer)* of Brown & Brown of Florida, Inc. *(name of corporation)*, a Florida *(state* or place of incorporation) corporation, on behalf of the corporation. He/she is personally known to me or has produced _____ *(type of identification)* as identification.

Karly White

(Signature line for notary public)

Karly White

(Name of notary typed, printed or stamped)

Secretary

(Title or rank)

KARLY WHITE
Notary Public - State of Florida
My Comm. Expires Sept. 28, 2024
Commission # HH47417

My commission expires:

9/28/2024

(Serial number, if any)

Form# 4 – Public Entity Crimes

SWORN STATEMENT UNDER SECTION 287.133(3)(a), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

This form must be signed and sworn to in the presence of a notary public or other officer authorized to administer oaths.

1. This sworn statement is submitted to **City of Bradenton**
(*Print name of the public entity*)

by Steve Farmer, Executive Vice President
(*Print individual's name and title*)

for Brown & Brown of Florida, Inc.
(*Print name of entity submitting sworn statement*)

whose business address is 300 North Beach Street, Daytona Beach, FL 32114

(If applicable) its Federal Employer Identification Number (FEIN) is 59-0691921

(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: On the attached sheet.) Required as per IRS Form W-9.

2. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including but not limited to, and bid or contract for goods or services to be provided to any public entity or agency or political subdivision or any other state or of the Unites States, and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

3. I understate that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

4. I understand that "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means:

    1. A predecessor or successor of a person convicted of a public entity crime: or:

    2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those offices, directors, executives, partners, shareholders, employees, members and agents who are active in the management of the affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not fair market value under an arm's length agreement, shall be a facie case that one person controls another person. A person who knowingly enters into a join venture with a person who has been convicted of a public entity crime in Florida during the proceeding 36 months shall be considered an affiliate.

5. I understand that a "person" as defined in Paragraph 287.133(1)(c), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of the entity.

Form# 4 – Public Entity Crimes

6. **Based on information and belief, the statement, which I have marked below, is true in relation to the entity submitting those sworn statements. (*Please indicate which statement applies.*)**

X Neither the entity submitted this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity nor affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, member, or agents who are active in management of the entity, or an affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, member, or agents who are active in management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearing and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (Attach a copy of the final order)

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES, FOR CATEGORY TWO OR ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

_____
(*Signature*)

12/15/2022
(*Date*)

STATE OF Florida
COUNTY OF Volusia

PERSONALLY APPEARED BEFORE ME, the undersigned authority, Steve Farmer
(*Name of individual signing*)
who, after first being sworn by me, affixed his/her signature in the space provided above on this 15 day of December, 2022

_____
(NOTARY PUBLIC)

My Commission Expires: September 2024

KARLY WHITE
Notary Public - State of Florida
My Comm. Expires Sept. 28, 2024
Commission # HH47417

Form# 4 – Public Entity Crimes

6. **Based on information and belief, the statement, which I have marked below, is true in relation to the entity submitting those sworn statements. (*Please indicate which statement applies.*)**

X Neither the entity submitted this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity nor affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, member, or agents who are active in management of the entity, or an affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, member, or agents who are active in management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearing and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (Attach a copy of the final order)

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES, FOR CATEGORY TWO OR ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

_____
(*Signature*)

12/15/2022
_____
(*Date*)

STATE OF Florida
COUNTY OF Volusia

PERSONALLY APPEARED BEFORE ME, the undersigned authority, Steve Farmer
(*Name of individual signing*)

who, after first being sworn by me, affixed his/her signature in the space provided above on this 15 day of December, 2022

_____
(NOTARY PUBLIC)

My Commission Expires: September 2024

KARLY WHITE
Notary Public - State of Florida
My Comm. Expires Sept. 28, 2024
Commission # HH47417

ALLEGED NEGLIGENCE OR BREACH OF CONTRACT DISCLOSURE FORM

Please fill in the form below. Provide a sheet for each incident that has occurred over the past 10 years. Please compete in chronological order with the most recent incident on starting on page 1. Please do not modify this form or submit your own variation.

1.	Your Company Name	Brown & Brown of Florida, Inc.				
2.	Type of Incident	Place an X in the appropriate block.	Alleged Negligence		Breach of Contract	
3.	Date of Incident	None				
4.	Who Took Action Against Your Company? (Include name, state, and City.)					
5.	What was the initial circumstance for this action?					
6.	What was the final outcome of this action?					

Make as many copies of this sheet as necessary in order to provide a 10 year history of the requested information. Provide this sheet to your primary partners that are listed in your proposal. If there is no action pending or action taken in the last 10 years, write 'NONE" on the page and return it with the company name completed.

Page Number: [ ] of [ ]

Update the page number to reflect the current page and the total number of pages. If you must use a separate sheet to continue an explanation please reference the page and item number on the separate sheet. Example: Page 3, Item 5.

Alternate Reporting: If you have too many lawsuits report the most recent 10 lawsuits. This may be done on a spreadsheet. Please include the name of the plaintiff (Do not include litigation with your company as the plaintiff), Date of filing, initial reason for circumstances, final outcome. Final outcome should include whether a monetary settlement was made. The amount may remain anonymous. In the blocks above enter, "See Enclosed Spreadsheet" of you use this alternate method

Form# 5 – Drug-Free Workplace

DRUG-FREE WORKPLACE CERTIFICATION

Preference shall be given to businesses with drug-free workplace programs. Pursuant to Section 287.087, Florida Statutes, whenever two or more competitive solicitations that are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a response received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie responses will be followed if none of the tied providers has a drug free workplace program. In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under proposal a copy of the statement specified in Subsection (1).

4. In the statement specified in Subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under proposal, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 894, Florida Statutes, or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Impose a sanction on any employee who is so convicted or require the satisfactory participation in a drug abuse assistance or rehabilitation program as such is available in the employee's community.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of applicable laws, rules and regulations.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Brown & Brown of Florida, Inc.
CONTRACTOR VENDOR NAME

AUTHORIZED SIGNATURE

CERTIFICATION REGARDING SCRUTINIZED COMPANIES LISTS

Respondent Name: Brown & Brown of Florida, Inc.

Respondent's Authorized Representative Name and Title: Steve Farmer, Executive Vice President

Address: 300 North Beach Street

City: Daytona Beach State: FL Zip: 32114

Phone Number: 386-239-7233 Respondent FEIN: 59-0691921

Email Address: steve.farmer@bbrown.com

Section 287.135, Florida Statutes prohibits a company from bidding on, submitting a proposal for, or entering into or renewing a contract for goods or services of any amount if, at the time of contracting or renewal, the company is on the Scrutinized Companies that Boycott Israel List, created pursuant to Section 215.4725, Florida Statutes, or is engaged in a boycott of Israel. Section 287.135, Florida Statutes, also prohibits a company from bidding on, submitting a proposal for, or entering into or renewing a contract for goods or services of $1,000,000 or more, that are on either the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector Lists which were created pursuant to s. 215.473, Florida Statutes.

Certification:

As the person authorized to sign on behalf of Respondent, I hereby certify that the company identified above in the section entitled "Respondent Vendor Name" is not listed on either the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List. I further certify that the company is not engaged in a boycott of Israel. I understand that pursuant to section 287.135, Florida Statutes, the submission of a false certification may subject company to civil penalties, attorney's fees, and/or costs.

Certified By: Steve Farmer, Executive Vice President,

who is authorized to sign on behalf of the above referenced company.

Authorized Signature:

Print Name and Title: Steve Farmer, Executive Vice President

Form# 8 – Proposer Reference List

Proposer References

Name of Company Submitting bid: Brown & Brown of Florida, Inc.

References

Contact Person & Title: Brandon Young, VP & Chief Human Resources Officer

Email Address: youngbr@erau.edu Phone No. (386) 226 - 7245

Company Name: Embry-Riddle Aeronautical University Fax No. N/A

Mailing Address: 1 Aerospace Boulevard

City: Daytona Beach State: Florida Zip: 32114

Type of commercial work contracted: Employee Benefits Broker Services

Contact Person & Title: Dominique Anderson, Senior Human Resources Generalist

Email Address: Dominique.Anderson@sarasotaFL.gov Phone No. (941) 263 - 6324

Company Name: City of Sarasota Fax No. N/A

Mailing Address: 111 S. Orange Avenue STE 204

City: Sarasota State: Florida Zip: 34236

Type of commercial work contracted: Employee Benefits Broker Services

Contact Person & Title: Chris Chellberg, Associate Director, Total Rewards

Email Address: cchellbe@stetson.edu Phone No. (386) 740 - 2535

Company Name: Stetson University Fax No. N/A

Mailing Address: 421 Woodland Boulevard Unit 8327

City: Deland State: Florida Zip: 32723

Type of commercial work contracted: Employee Benefits Broker Services

Contact Person & Title: Tim Wilsey, Human Resources Manager

Email Addresss: TWilsey@palmcoastgov.com Phone No. (386) 986 - 3721

Company Name: City of Palm Coast Fax No. N/A

Mailing Address: 160 Lake Avenue

City: Palm Coast State: Florida Zip: 32164

Type of commercial work contracted: Employee Benefits Broker Services

Proposer must provide Form# 9, Reference Survey, to a minimum of three of the references listed above. Three of the surveys must be returned to the Purchasing Division to be reviewed with your proposal. References should return the surveys direct to the Purchasing Division. Failure to obtain reference surveys 7 days after the opening date may make your company non-responsive.

Form# 19 – RFP Withdrawal Request

RFP WITHDRAWAL REQUEST

Date: _____

RFP Number and Title:

N/A

I _____ thorized signer for
Authorized Sig s Name Here

_____
ontract/V or's Name Here

wish to withdra er RFP on th roje sted abo on withdr rize my representative, _____ to take possession of our RFP.
Type Name of Authorized Representative

Attached is a copy of proper identification (government issued identification) for the purpose of claiming the RFP. I understand that if no one is present to take possession of the withdrawn RFP, the RFP will be disposed of in a proper manner, by the City, twenty-four (24) hours after the RFP opening date and time.

_____

Authorized Signature

SCOPE OF SERVICES

The successful Proposer shall:

1. Serve as the City's Broker of Record/Consultant and provide such brokerage services to the City to ensure comprehensive and cost-effective benefits are included in the City's Benefits plans for selection by the City's eligible employees and retirees.
2. Assist the City in developing the most advantageous strategies in the areas of employee health and benefit compliance, costs, coverage and continuity.
3. Present plan design recommendations that support the City's benefits strategies and position the City to comply with Federal, State and other regulatory requirements yearly.
4. Provide quarterly plan review including, but not limited to, conducting medical audit claims, annual plan design evaluation, benchmarking trends, and state of the national and Florida-based marketplace, including a comparison of Florida's public sector.
5. Administer the City's health and welfare plans, including setting reserves, reporting experience and projecting funding levels when applicable.
6. Provide actuarial impacts to plan design changes.
7. Provide actuarial recommendations for plan funding and cost sharing.
8. Provide guidance and information regarding compliance and options related to the medical plan and related wellness and health management programs.
9. Provide ongoing advice on ERISA, COBRA, FMLA, and HIPAA reporting obligations, and other laws and regulations affecting City's Benefits plans as it relates to the insurance products within this RFP.
10. Assist with the City's reporting obligations, including but not limited to ACA, Section 125, and COBRA as it relates to the products within this RFP.
11. Provide comprehensive services (traditional and web-based) necessary to enroll eligible employees and retirees in the City's Benefits plans.
12. Propose and develop communication materials for employee education on current plan designs, plan modifications and consumer education.
13. Provide comprehensive services necessary to serve as the City's Section 125 and Voluntary Benefits Administrator, including enrollment support and election reconciliation.
14. Provide key contact(s) to facilitate immediate access by the City to awarded Firm for a speedy answer to questions and resolution to any challenges experienced by either party.
15. Shall agree that all data exchanged between selected Proposer, and the City or prospective customers belongs to the City and shall be accessible at any time during the life of the contract for no additional fee.
16. Provide technical assistance to reduce the overall cost of providing these benefits through a variety of means including developing effective negotiations strategies to expeditiously reduce the absolute cost of health insurance benefits.
17. Solicit and negotiate annual renewal of existing coverage including soliciting multiple or alternative proposal coverage.

18. A comprehensive summary of responsive quotes from insurance carriers will be presented to the City Administrator or designee.
19. Respond to all employee issues and questions in a timely manner regarding their benefits.
20. Provide City with dedicated agents for any assistance needed.
21. Provide the City with support for the wellness program.
22. Collaborate and share ideas and initiatives with the City regarding improvements in the current health and wellness offerings and the related strategic plan. Support the City in organizing coordinating one (1) employee wellness fair, annually.
23. Identify claims trends and anomalies in a timely manner and prepare recommendations to the City on actions to be taken, if any.
24. Review historical claims experience, demographic data trends and plans performance from a financial prospective.
25. Coordinate and participate in the implementation and enrollment process and employee meetings.
26. Assist in the review and or creation of enrollment materials to enhance the overall perceived value of the benefits and compensation.
27. Coordination of annual benefits fair at no cost to the City.
28. Preparation of insurance applications, compile and format support information needed and requested by insurance company underwriters.
29. Compile and maintain historical underwriting information. Provide copies of this information to the City.
30. Development of annual employee Benefits statements.

Request for Proposal Services:

The City is responsible for any procurement efforts and will seek information and/or guidance from the awarded Firm as needed. The information shall include, but not be limited to:

1. Assist City staff with designing specifications or Scopes of Services for identified Requests for Proposals.
2. Assemble experience and census data for the purpose of providing to proposers.
3. Engage subject matter experts and internal resources in evaluating provider discount comparisons for medical Request for Proposal.
4. Review responses and provide a summary report to the City to assist in evaluation.

Compensation shall be quoted in either of the following ways. Remuneration may consist of flat or variable fees, or commissions for each line of insurance. The awarded Firm shall provide an annual statement from each carrier confirming that the insurance carrier has paid no commissions if a flat fee has been agreed to as a method of compensation. Full disclosure of all compensation earned, either directly or indirectly is required. All fees and or commissions earned must be disclosed.

Insurance placed by agent-broker on behalf of the City will be invoiced based on agreed terms upon placement of the coverage. The City shall remit payment to the agreed party in accordance with the specified terms and conditions. **Please complete the information below regarding the proposed fees for each line (health, dental, vision, life & disability)**

Line of Business	Commission	Fee	Comments
Group Health Insurance		$75,000	
Group Dental Insurance	5%		
Group Vision Insurance	5%		
Group Life Insurance	5%		10% Supp Life
Group Disability Insurance	10%		

<u>Note</u>: Respondent should attach additional information (clarification) as part of their proposal regarding their proposed compensation for all services to be provided under this Solicitation.

1. Respondent, individual, partnership, corporation or association responding to this Solicitation certifies that all statements made in this document are true and correct to the best of their knowledge. Also, the Respondent agrees to hold this offer open for a period of ninety (90) days from the deadline for receipt of Response.
2. Respondent understands and agrees to be bound by the conditions contained in this Solicitation and shall conform to all the requirements.

Brown & Brown of Florida, Inc.

Company Name

Steve Farmer, Executive Vice President

Authorized Company Representative (Print Name)

12/15/2022

Date

Authorized Company Representative (Signature)

EXECUTIVE VICE PRESIDENT

Title

Minimum Qualifications

- **The Proposer must have experience with public, private or non-profit entities. As a minimum qualification, Proposer must provide references from no less than three (3) contracts with public, private or non-profit sector clients, with 600 employees or more.**

Confirmed. The proposed team from Brown & Brown has significant experience with public and private entities and works predominately with employers with 600 employees or more. Our references –City of Sarasota, Embry Riddle Aeronautical University, Stetson University, and ERMCO all have more than 600 employees and have self-funded health plans.

- **The Proposer must hold the necessary business tax receipt and all required licenses (such as 2-15 Life/Health or 2-14 combined with a 2-40 or 2-20) within the State of Florida in order to provide the services contemplated by this RFP. Additionally, copies of the required licenses must be submitted with the proposal indicating that the entity, as well as the team assigned to the City's account, is properly licensed to perform the work included in the contract. Failure of the Proposer to submit required documentation may be grounds to deem Proposer non-responsive.**

Confirmed. Licenses on the following pages. All members of our team are licensed in the State of Florida.

- **The awarded Firm must be an active registered Sunbiz business and have been licensed for no less than five years from the release date of this RFP.**

Confirmed. SunBiz Registration on following pages.

- **The awarded Firm must satisfy City's minimum insurance requirements, including any requests to be named additional insured which are included under Section 34 of this Solicitation.**

Confirmed.

- **Awarded Firm shall be responsible for all actions of any subcontractor or outsourced service provider and shall assure that they hold all required licenses and carry the requested insurance for the services it will perform.**

Confirmed.

- **The award Firm and any subcontractor or outsourced service provider must provide all administrative and technical services contemplated by this RFP within the United States and shall not offshore any of the City's data.**

Confirmed.

State of Florida
Department of State

I certify from the records of this office that BROWN & BROWN OF FLORIDA, INC. is a corporation organized under the laws of the State of Florida, filed on April 3, 1947.

The document number of this corporation is 150616.

I further certify that said corporation has paid all fees due this office through December 31, 2019, that its most recent annual report/uniform business report was filed on March 18, 2019, and that its status is active.

I further certify that said corporation has not filed Articles of Dissolution.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Ninth day of January, 2020

Secretary of State

Tracking Number: 6419870476CU

To authenticate this certificate, visit the following site, enter this number, and then follow the instructions displayed.

https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication

FLORIDA DEPARTMENT of FINANCIAL SERVICES

BROWN & BROWN OF FLORIDA, INC.

655 NORTH FRANKLIN STREET
SUITE 1900
TAMPA FL 33602

Agency License Number L007011

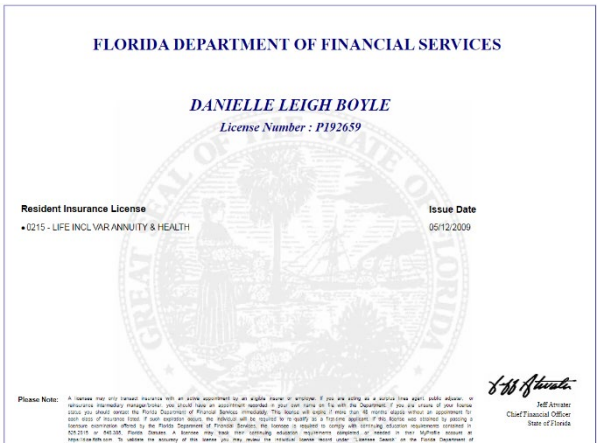
Location Number: 125245

Issued On 07/25/2006

Pursuant To Section 626.0428, Florida Statutes, This Agency Location Shall Be In The Active Full-Time Charge Of A Licensed And Appointed Agent Holding The Required Agent Licenses To Transact The Lines Of Insurance Being Handled At This Location.

Pursuant To Subsection 626.173(4), Florida Statutes, Each Agency Location Must Display The License Prominently In A Manner That Makes It Clearly Visible To Any Customer Or Potential Customer Who Enters The Agency Location.

Jeff Atwater
Chief Financial Officer
State of Florida



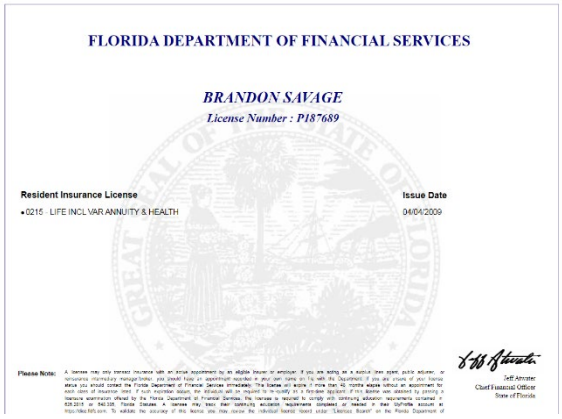
FLORIDA DEPARTMENT OF FINANCIAL SERVICES

DANIELLE LEIGH BOYLE
License Number : P192659

Resident Insurance License	Issue Date
• 0215 - LIFE INCL VAR ANNUITY & HEALTH	05/12/2009

Please Note: A licensee may only transact insurance with an active appointment by an eligible insurer or employer. If you are acting as a surplus lines agent, public adjuster, or reinsurance intermediary manager/broker, you should have an appointment recorded in your own name on file with the Department. If you are unsure of your license status you should contact the Florida Department of Financial Services immediately. This license will expire 2 more than 48 months elapse without an appointment for each class of insurance listed. If such expiration occurs, the individual will be required to re-qualify as a first-time applicant. If this license was obtained by passing a licensure examination offered by the Florida Department of Financial Services, the licensee is required to comply with continuing education requirements contained in 626.2815 or 648.385, Florida Statutes. A licensee may track their continuing education requirements completed or needed in their MyProfile account at https://doi.fldfs.com. To validate the accuracy of this license you may review the individual license record under "Licensee Search" on the Florida Department of

Jeff Atwater
Chief Financial Officer
State of Florida



FLORIDA DEPARTMENT OF FINANCIAL SERVICES

BRANDON SAVAGE
License Number : P187689

Resident Insurance License	Issue Date
• 0215 - LIFE INCL VAR ANNUITY & HEALTH	04/04/2009

Please Note: A licensee may only transact insurance with an active appointment by an eligible insurer or employer. If you are acting as a surplus lines agent, public adjuster, or reinsurance intermediary manager/broker, you should have an appointment recorded in your own name on file with the Department. If you are unsure of your license status you should contact the Florida Department of Financial Services immediately. This license will expire 2 more than 48 months elapse without an appointment for each class of insurance listed. If such expiration occurs, the individual will be required to re-qualify as a first-time applicant. If this license was obtained by passing a licensure examination offered by the Florida Department of Financial Services, the licensee is required to comply with continuing education requirements contained in 626.2815 or 648.385, Florida Statutes. A licensee may track their continuing education requirements completed or needed in their MyProfile account at https://doi.fldfs.com. To validate the accuracy of this license you may review the individual license record under "Licensee Search" on the Florida Department of

Jeff Atwater
Chief Financial Officer
State of Florida



FLORIDA DEPARTMENT OF FINANCIAL SERVICES

DUSTIN SMURDON
License Number : W288069

Resident Insurance License	Issue Date
• 0215 - LIFE INCL VAR ANNUITY & HEALTH	06/29/2018
• 0220 - GENERAL LINES (PROP & CAS)	10/22/2015

Please Note: A licensee may only transact insurance with an active appointment by an eligible insurer or employer. If you are acting as a surplus lines agent, public adjuster, or reinsurance intermediary manager/broker, you should have an appointment recorded in your own name on file with the Department. If you are unsure of your license status you should contact the Florida Department of Financial Services immediately. This license will expire 2 more than 48 months elapse without an appointment for each class of insurance listed. If such expiration occurs, the individual will be required to re-qualify as a first-time applicant. If this license was obtained by passing a licensure examination offered by the Florida Department of Financial Services, the licensee is required to comply with continuing education requirements contained in 626.2815 or 648.385, Florida Statutes. A licensee may track their continuing education requirements completed or needed in their MyProfile account at https://doi.fldfs.com. To validate the accuracy of this license you may review the individual license record under "Licensee Search" on the Florida Department of Financial Services website at http://www.MyFloridaCFO.com/DivisionAgents

Jimmy Patronis
Chief Financial Officer
State of Florida



FLORIDA DEPARTMENT OF FINANCIAL SERVICES

BRENDA M THURSTON
License Number : D031408

Resident Insurance License	Issue Date
• 0240 - HEALTH	04/15/2000
• 0214 - LIFE INCL VARIABLE ANNUITY	02/26/2000

Please Note: To validate the accuracy of this license you may review the individual or business entity's license record under "Licensee Search" on the FL Dept. of Financial Services website at http://www.myfloridacfo.com/agents/.

Jeff Atwater
Chief Financial Officer
State of Florida



FLORIDA DEPARTMENT OF FINANCIAL SERVICES

LAURIE ANN NELSON
License Number : A055841

Resident Insurance License	Issue Date
• 0215 - LIFE & HEALTH	07/15/1994
• 0440 - CUSTOMER REPRESENTATIVE	02/07/2007
• 0240 - HEALTH	07/15/1994

Please Note: To validate the accuracy of this license you may review the individual or business entity's license record under "Licensee Search" on the FL Dept. of Financial Services website at http://www.myfloridacfo.com/agents/.

Jeff Atwater
Chief Financial Officer
State of Florida



FLORIDA DEPARTMENT OF FINANCIAL SERVICES

FRANCENE MARRA
License Number : W132492

Resident Insurance License	Issue Date
• 0215 - LIFE INCL VAR ANNUITY & HEALTH	02/27/2013

Please Note: A licensee may only transact insurance with an active appointment by an eligible insurer or employer. If you are acting as a surplus lines agent, public adjuster, or reinsurance intermediary manager/broker, you should have an appointment recorded in your own name on file with the Department. If you are unsure of your license status you should contact the Florida Department of Financial Services immediately. This license will expire 2 more than 48 months elapse without an appointment for each class of insurance listed. If such expiration occurs, the individual will be required to re-qualify as a first-time applicant. If this license was obtained by passing a licensure examination offered by the Florida Department of Financial Services, the licensee is required to comply with continuing education requirements contained in 626.2815 or 648.385, Florida Statutes. A licensee may track their continuing education requirements completed or needed in their MyProfile account at https://doi.fldfs.com. To validate the accuracy of this license you may review the individual license record under "Licensee Search" on the Florida Department of Financial Services website at http://www.MyFloridaCFO.com/DivisionAgents

Jimmy Patronis
Chief Financial Officer
State of Florida

2022 FLORIDA PROFIT CORPORATION ANNUAL REPORT

FILED
Apr 24, 2022
Secretary of State
5705105222CC

DOCUMENT# 150616

Entity Name: BROWN & BROWN OF FLORIDA, INC.

Current Principal Place of Business:

300 NORTH BEACH STREET
DAYTONA BEACH, FL 32114

Current Mailing Address:

300 NORTH BEACH STREET
DAYTONA BEACH, FL 32114 US

FEI Number: 59-0691921

Certificate of Status Desired: No

Name and Address of Current Registered Agent:

CORPORATION SERVICE COMPANY
1201 HAYS STREET
TALLAHASSEE, FL 32301-2525 US

The above named entity submits this statement for the purpose of changing its registered office or registered agent, or both, in the State of Florida.

SIGNATURE:

Electronic Signature of Registered Agent — Date

Officer/Director Detail :

Title	DIRECTOR, PRESIDENT	Title	VICE PRESIDENT
Name	KEEBY, MICHAEL	Name	WATTS, RICHARD ANDREW
Address	300 NORTH BEACH STREET	Address	300 NORTH BEACH STREET
City-State-Zip:	DAYTONA BEACH FL 32114	City-State-Zip:	DAYTONA BEACH FL 32114
Title	VICE PRESIDENT, SECRETARY	Title	TREASURER
Name	LLOYD, ROBERT W.	Name	STANTON, JOSEPH
Address	300 NORTH BEACH STREET	Address	300 NORTH BEACH STREET
City-State-Zip:	DAYTONA BEACH FL 32114	City-State-Zip:	DAYTONA BEACH FL 32114

I hereby certify that the information indicated on this report or supplemental report is true and accurate and that my electronic signature shall have the same legal effect as if made under oath; that I am an officer or director of the corporation or the receiver or trustee empowered to execute this report as required by Chapter 607, Florida Statutes; and that my name appears above, or on an attachment with all other like empowered.

SIGNATURE: ROBERT W. LLOYD SECRETARY 04/24/2022

Electronic Signature of Signing Officer/Director Detail — Date

Sunbiz.org DIVISION of CORPORATIONS
an official State of Florida website

Department of State / Division of Corporations / Search Records / Search by Entity Name /

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brown & brown of Florida
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Events Name History

Detail by Entity Name

Florida Profit Corporation
BROWN & BROWN OF FLORIDA, INC.

Filing Information

Document Number	150616
FEI/EIN Number	59-0691921
Date Filed	04/03/1947
State	FL
Status	ACTIVE
Last Event	AMENDMENT
Event Date Filed	09/11/2014
Event Effective Date	NONE

Principal Address

300 NORTH BEACH STREET
DAYTONA BEACH, FL 32114

Changed: 04/26/2021

Mailing Address

300 NORTH BEACH STREET
DAYTONA BEACH, FL 32114

Changed: 04/26/2021

Registered Agent Name & Address

CORPORATION SERVICE COMPANY
1201 HAYS STREET
TALLAHASSEE, FL 32301-2525

Name Changed: 09/18/2019

Address Changed: 09/18/2019

Officer/Director Detail

Name & Address

Title DIRECTOR, PRESIDENT

KEEBY, MICHAEL
300 NORTH BEACH STREET
DAYTONA BEACH, FL 32114

Title VICE PRESIDENT

WATTS, RICHARD ANDREW
300 NORTH BEACH STREET
DAYTONA BEACH, FL 32114

Title VICE PRESIDENT, SECRETARY

LLOYD, ROBERT W.
300 NORTH BEACH STREET
DAYTONA BEACH, FL 32114

Title TREASURER

STANTON, JOSEPH
300 NORTH BEACH STREET

Appendix

- Working Service Calendar
- 2023 Compliance Checklist
- Governmental Plan 2022 Employee Benefits Compliance Guide
- Quarterly Claims Review
- Benchmarking Report
- Monthly Budget Report
- Contribution Model

2023 SAMPLE WORKING SERVICE CALENDAR

Brown & Brown

JANUARY

Monthly Budget Report

Q3 2022 Utilization Review

Marketing Strategy Meeting

Discrimination Testing (Preferred Q1)
W2 Box 12 Reporting due (1/31)

FEBRUARY

Monthly Budget Report

Renewal Request Sent to City

Census & Questionnaires Returned to B&B

MARCH

Monthly Budget Report

Issue RFP

CMS Online Disclosure of Creditable Coverage (3/1)
1095 Reporting Due to Employees (3/2)
1095C Reporting Due to IRS (3/31)

APRIL

Monthly Budget Report

Q4 2022 Utilization Review

Proposals Due from Carriers

MAY

Monthly Budget Report

Review Proposals

Request Best and Finals/Finalist Presentations

JUNE

Monthly Budget Report

Final Decisions

Section 204 Consolidated Appropriations Act, 2022 Reporting Due 6/30

JULY

Monthly Budget Report

Q1 2023 Utilization Review

Implementation of New Carriers If Applicable

Prepare for Open Enrollment Benefits Guide, Update Navigator

PCORI Fee Due (7/31)

AUGUST

Monthly Budget Report

Open Enrollment & Health Fair

Open Enrollment Close
Confirm ID Card Delivery
Account Structure Updates
File Feed ready for 10/1

Implementation of New Carriers If Applicable

SEPTEMBER

Monthly Budget Report

Implementation of New Carriers If Applicable

OCTOBER

Monthly Budget Report

Q2 2023 Utilization Review

2023/2024 Strategic Initiatives?
OE Debrief & Lessons Learned Meeting

New Plan Year Begins

Medicare Part D Notice Due (10/15)

NOVEMBER

Monthly Budget Report

DECEMBER

Monthly Budget Report

TENTATIVE COMPLIANCE WEBINARS

Monthly | 12:00pm EST

January
2022 in Review: Looking Ahead to 2023

February
Status Changes and Special Enrollments

March
Onsite Clinics & Other Supplemental Benefits

April
Transparency Update

May
Account-Based Plans

June
Wellness Programs

August
Medicare and Health Plans

September
Benefits Notices

October
ERISA Plan Documents

November
FAQs 2023

DOWNLOAD SCHEDULE

NOTE: Additional webinars may be added due to legislative changes, rulings, guidance or other developments impacting employee benefits

*COMPLIANCE DUE DATES

Brown & Brown

EMPLOYEE BENEFITS

2023 Compliance Checklist (January - December Plan Years)

Important Compliance Dates

January
- W2 Box 12 Reporting of Aggregate Cost of Coverage (1/31)[2]

February
- 1094-C & 1095-C (Paper) Reporting Due to IRS (2/28)[2]

March
- CMS Online Disclosure of Creditable – Medicare Part D Coverage (Due 60 Days Post Annual Renewal) (3/1)[3]
- 1095-C Reporting Due to Employees (3/2)[2]
- 2022 Reporting to IRS if filing electronically (3/31)[2] (Electronic filing required for ALE with 250 or more 1095s)
- SPD Delivery Deadline *for new enrollees* (3/31)[3,5] (Within 90 days of effective date)

April
- Deadline for 2022 HSA Contributions (4/17)[2]

May

June
- Prescription Drug Data Collection (RxDC) Reporting Due (6/1)[2]

July
- PCORI Filing Due (7/31)[1]
- 5500 Filing Due (7/31)[1]

August

September
- SAR, Summary Annual Report Due (9/30)[1]

October
- Medicare Part D Notice Due (10/14)[3]

November

December
- SBC Distribution: With open enrollment materials or 30 days prior to renewal if coverage renews automatically[4,6]

[1] *Applies to Plan Year beginning 1/1/2022 and ending 12/31/2022*
[2] *Applies to 2022 calendar year*
[3] *Applies to Plan Year beginning 1/1/2023 and ending 12/31/2023*
[4] *Applies to Plan Year beginning 1/1/2024 and ending 12/31/2024*
[5] *SPDs must be distributed within 120 days after effective date of a new plan. Amended SPDs or SMMs describing material reductions in health plan benefits must be distributed within 60 days after they are adopted. Amended SPDs or SMMs describing other material modifications must be distributed within 210 days after end of plan year in which they are adopted.*
[6] *If material modification is made to plan mid-year that impacts content of SBC, notice of material modification must be provided at least 60 days prior to date on which modification will be effective.*

Employer Requirements

ACA

The ACA created several notice and disclosure obligations for group health plans, such as:

- ☐ Statement of Grandfathered Status
- ☐ Notice of Rescission
- ☐ Notice of Patient Protections and Selection of Providers
- ☐ Uniform Summary of Benefits and Coverage
- ☐ Exchange Notice

COBRA

Notice/disclosure requirements:

- ☐ Initial/General COBRA Notice
- ☐ QE Notice to Plan Administrator
- ☐ COBRA Election Notice
- ☐ Notice of Unavailability of COBRA
- ☐ Notice of Insufficient Payment
- ☐ Premium Change Notice
- ☐ Termination Notice

ERISA

Notice/disclosure requirements:

- ☐ SPD
- ☐ Summary of Material Modifications (SMM)
- ☐ Plan Documents (upon request)
- ☐ Summary Annual Report (SAR)
- ☐ Notice of Special Enrollment Rights
- ☐ HIPAA Notice of Privacy Practices
- ☐ CHIPRA
- ☐ Medicare Part D (Creditable/Non-creditable coverage)
- ☐ WHCRA

ACA Cost Sharing Limits (Plan Years Beginning In 2023)

Self-Only Coverage	$9,100
Family Coverage	$18,200

HDHP OOP Maximum (Plan Years Beginning In 2023)

Self-Only Coverage	$7,500
Family Coverage	$15,000

DISCLAIMER: *Brown & Brown, Inc. and all its affiliates, do not provide legal, regulatory or tax guidance, or advice. If legal advice counsel or representation is needed, the services of a legal professional should be sought. The information in this document is intended to provide a general overview of the topics and services contained herein. Brown & Brown, Inc. and all its affiliates, make no representation or warranty as to the accuracy or completeness of the document and undertakes no obligation to update or revise the document based upon new information or future changes.*



How Brown & Brown Can Help

Connect with your Brown & Brown service team to learn more about how we can help find solutions to fit your unique needs.

Brown & Brown

Any solicitation or invitation to discuss insurance sales or servicing is being provided at the request of

Brown & Brown, Inc.

an owned subsidiary of Brown & Brown, Inc.

Brown & Brown, Inc.

only provides insurance related solicitations or services to insureds or insured risks in jurisdictions where it and its individual insurance professionals are properly licensed.

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Brown & Brown

EMPLOYEE BENEFITS

Governmental Plan 2022 Compliance Guide

From the Brown & Brown Regulatory and Legislative Strategy Group



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Affordable Care Act (ACA)

The following are certain disclosures, notices and reporting currently required for group health plans under the ACA. This is not an exhaustive list of ACA requirements, nor does it include past requirements that are no longer applicable, or future requirements that are not yet effective.

Summary of Benefits and Coverage (SBC)

Group health plans (other than excepted benefits and retiree plans) are required to furnish an SBC for each benefit option. The SBC is a uniform explanation of benefits that is required in addition to other ERISA disclosure requirements (i.e., SPDs). Regulations specify language and format that must be used. The DOL issued final regulations on a new SBC template, and instructions in April 2016. The rules apply to all SBCs created on or after April 1, 2017. More recently, the DOL released a new SBC template that is required to be used with respect to all plan years beginning on or after January 1, 2021. Current and revised SBC templates can be found on the DOL website.

SBCs must be distributed:

1. At initial enrollment;
2. Annually at re-enrollment;
3. Within 90 days after enrollment resulting from a special enrollment right; and
4. Within seven (7) business days of an employee/beneficiary request.

Notice of mid-year material modifications to an SBC must be provided at least 60 days ***prior to*** the effective date of the change.

Model Notice to Employees of Coverage Options ("Public Exchange" Notice)

The notice must broadly describe the existence of the Health Insurance Marketplace and the ramifications if an employee purchases individual coverage on the Marketplace instead of enrolling in the employer's coverage. The notice must be provided to new employees within 14 days of the employee's start date. This includes employees who are not eligible for the employer's health benefits.

Grandfathered Health Plan Disclosure – Grandfathered Health Plans Only

Grandfathered health plans must include language (in any plan materials describing the plan's benefits), indicating that the plan believes it is a grandfathered health plan under the health care reform law and it must provide contact information for questions and complaints.

Internal Claims and Appeals and External Review Requirements – Non-Grandfathered Health Plans Only

Governmental group health plans are not subject to ERISA. As a result, the ERISA claims and appeals requirements historically were not applicable to governmental plans. The ACA incorporated the ERISA claims and appeals requirements in the Public Health Services Act, which does apply to governmental group health plans. As a result, governmental group health plans (other than excepted benefits and retiree plans) must implement an internal claims and appeals process that satisfies the ERISA claims and appeals requirements. Group health plans must also implement new procedural requirements for appeals as required by the ACA and make external review available. Model notices have been issued for claim denials/external review decisions. Language generally should be included in plan documents. Employers should confirm that their health plan's appeals procedures comply with these requirements.

Patient Protection Disclosure – Non-Grandfathered Health Plans Only

Plans that require the designation of a primary care physician (PCP) must provide a notice of patient protections under health care reform whenever the plan or issuer provides a participant with a summary plan description or other similar description of benefits under the plan or health insurance coverage. NOTE: Plans that do not require/allow PCP designations are not required to provide this notice. In general, most PPOs do not require PCP designation; however, we are seeing some carriers request or assign PCPs on PPOs for provider payment under accountable care contracts. We recommend confirming if this notice applies to your plans.

Medical Loss Ratio (MLR) Reporting

Health insurers of fully insured (including grandfathered) plans are required to report to HHS each year, the percentage of their premium revenue that the insurer spent on 1) clinical services for enrollees, 2) "activities that improve health care quality," and 3) all other non-claims costs, excluding federal and state taxes, and licensing or regulatory fees. Insurers in the small group market must spend at least 80 percent and insurers in the large group market must spend at least 85 percent of their premium revenues (excluding federal and state taxes and licensing and regulatory fees) on clinical services and quality improvement activities. Insurers that fail to do so will have to rebate the difference to their enrollees. Under the HHS rule, rebates must be paid by September 30 of the year following the year for which the MLR data is reported. In the case of an employer group health plan, rebates must be paid to the policyholder (that is, the employer).*Insurers must also report to their enrollees how the rebate was calculated.

**Employer policyholders may have legal obligations to return some or all of the rebate to employees. If your organization receives an MLR rebate, it is recommended that you review your obligations with legal counsel.*

Rescission of Health Plan Coverage

Group health plans may not rescind coverage except for fraud or intentional misrepresentation of a material fact. A rescission includes any retroactive termination or retroactive cancellation of coverage except for a termination or cancellation due to failure to timely pay premiums. Therefore, if an employee is enrolled in the plan and makes the required contributions, then the employee's coverage may not be rescinded if it is later discovered that the employee was mistakenly enrolled and not eligible to participate. If a mistake was made and there was no fraud or intentional misrepresentation of a material fact, then the employee's coverage may be canceled prospectively, but not retroactively. In cases where a rescission is permitted, the plan must provide the covered person with 30 days advance written notice of the rescission.

Patient Centered Outcomes Research Institute Fee (PCORI)

Imposed on issuers of insurance policies and sponsors of self-insured health plans starting with the first plan year ending after September 30, 2012. While originally set to sunset with plan years ending on or after October 1, 2019, the 2020 SECURE Act extended the PCORI fee for an additional ten years.

The PCORI fee (as indexed by inflation) will continue to apply to all plan years ending before October 1, 2029. The fee for plan years ending on or after October 1, 2020, and before October 1, 2021, is $2.66 per covered member. The fee for plan years ending on or after October 1, 2021, and before October 1, 2022, is $2.79 per covered member. The fee is reported and paid once per year on IRS Form 720 no later than July 31 of the calendar year immediately following the last day of the plan year for which the fee is owed. For fully insured plans, the carrier will make the payment on the employer's behalf. If you are self-insured or have an HRA integrated with a fully insured plan you are responsible for making the payment. Employers with a fully insured plan and an HRA can use the "one life per participant" rule - meaning spouses and dependents do not have to be counted.

Employer Shared Responsibility ("Play or Pay")

This mandate went into effect for large employers with 100 or more full-time employees and full-time employee equivalents the first day of the plan year beginning on or after January 1, 2015. (After 2015 the large employer threshold dropped to 50 or more full-time employees and full-time employee equivalents). Under this provision, employers are subject to penalties if they do not offer health coverage (minimum essential coverage) to substantially all Full-Time Employees and Dependents. "Full-Time Employee" is defined as a person who is credited with an average of at least 30 hours of service per week for a calendar month.

- "Substantially all" is defined as at least 95 percent of full- time employees in 2016 and beyond.
- "Dependents" is defined to include only children to the end of the month they attain age 26, not spouses.

If the applicable threshold is not met, and at least one full-time employee receives a premium tax credit and purchases coverage on the Marketplace (public Exchange), the employer is subject to a penalty per full-time employee. The thresholds and corresponding penalties are evaluated on a monthly basis. For 2021, the penalty is $225.00 per month (1/12 of $2,700) x the number of full-time employees* x the number of months in which the threshold is not met. The penalty is indexed by inflation, and the 2022 adjusted amount increases to $229.17 per employee per month (1/12 of $2,750) for 2022.

Rather than evaluating eligibility on a monthly basis, the IRS has outlined an alternative look-back measurement method that can be used by employers with a large population of part-time and/or "variable hour employees" (an employee whose hours of service per week cannot be reasonably determined at date of hire). This allows employers to avoid the penalty if they provide prospective eligibility to employees who met the definition of full-time in the retrospective measurement period.

Even if the threshold is met, the employer may be subject to a penalty if the coverage is not offered to a full-time employee, or the coverage offered to full-time employees is inadequate (less than 60% minimum value) or unaffordable (employee-only coverage costs more than 9.83% (in 2021) of household income). The affordability safe harbor percentage reduces to 9.61% in 2022. For 2021 the penalty is $338.63 (1/12 of $4,060) x the number of full-time employees who receive a premium tax credit or cost sharing assistance per month.

For 2022, the penalty is $343.33 (1/12 of $4,120) x the number of full-time employees who receive a premium tax credit or cost sharing assistance per month.

**The penalty is waived for the first 30 full-time employees.*

The IRS recognizes that employers do not know employees' household incomes and have therefore issued three affordability safe harbors (Federal Poverty Line, Rate of Pay and W-2) that are generally based only on the earnings of the employee. NOTE: If an employer offers an opt-out payment for employees who waive coverage, the amount of the payment may be required to be included in the affordability calculation unless it was in place by December 16, 2015, or it is conditioned on the employee providing reasonable evidence of enrollment by the employee and his/her expected tax family in minimum essential coverage other than individual market coverage

Large Employer Reporting

Beginning in 2016, employers and other entities are required to annually report (regarding the prior year) information to assist the IRS with enforcing the individual mandate, administering premium tax credits and making employer penalty determinations. The reports (due after the year ends) must include information related to full-time employee status and coverage information for each month of the year covered by the report.

There are two reporting requirements:

1. Code section 6055 reporting: Requires various reporting entities (including employers and insurance carriers) to report information on each individual with minimum essential coverage. The IRS intended to use the information to enforce the individual mandate, but that mandate has since been effectively repealed because the penalty has been reduced to $0. The forms used for filing returns are 1094-B (transmittal form) and 1095-B (individual statement). Reporting for large self- funded employers is satisfied by submitting the 1094-C and 1095-C forms (referenced below); however, the B forms may be used for reporting on enrolled non- employees. The IRS will not enforce the Code section 6055 requirements if certain conditions are satisfied.

2. Code section 6056 reporting: Requires large employers that are subject to the Employer Shared Responsibility (Play or Pay) penalties to report information on the coverage offered to full-time employees. The IRS will use the information to enforce the play or pay penalties. The forms used for filing returns are 1094-C (transmittal form) and 1095-C (individual statement). Large self-funded employers will be permitted to satisfy both Code Section 6055 and Code Section 6056 reporting requirements by submitting a combined information return. There are also simplified section 6056 reporting alternatives that may apply to certain employers/groups of employees. In concept, the reports are similar to Form W-2 reporting – for example, an aggregate filing must be made to the IRS, and an individual statement must be provided to applicable employees.

The date to furnish 2021 and subsequent Form 1095-Cs to individuals has been permanently extended beginning with plan years on or after December 31, 2020. Employee statements must be furnished no later than the first business day that occurs 30 days on or after January 31 following the end of the calendar year being reported (i.e., 2021 employee statements must be furnished by March 2, 2022). The IRS filing is due no later than the first business day on or after February 28 (if filed by mail) or March 31 (if filed electronically) following the end of the calendar year being reported. Employers with 250 or more forms must file electronically via the AIR system. For 2021, the IRS filing dates by mail and electronically are unchanged.

Reporting is subject to the general reporting penalty provisions under section 6721 (failure to file correct information returns) and section 6722 (failure to furnish correct payee statement). The penalty for failure to file an IRS return or provide individuals statements is $280 per return ($560 per employee) with a calendar year maximum penalty of $3,392,000. NOTE: The "good faith" compliance standard in place for prior returns has NOT been extended to 2021 returns.

W-2 Reporting

Employers providing applicable employer- sponsored group health plan coverage are required to report the aggregate cost of applicable employer-sponsored group health plan coverage on Form W-2. Employers who issued fewer than 250 Form W-2s in the preceding calendar year are not subject to the reporting requirement until further guidance is issued.

Section 1557 Nondiscrimination

Section 1557 of the Affordable Care Act (ACA) prohibits covered entities from discriminating in health programs on the basis of race, color, national origin, age, disability or sex.

These rules apply to "covered entities," which are broadly defined to include certain health programs or activities that receive federal financial assistance from HHS. Under this definition, most insurance carriers and health care providers are covered entities, and the rules apply not only to all operations of these entities (including third-party administrative services), but also to the group health plans sponsored by these entities. Other employer group health plans will generally be treated as covered entities only if the employer/plan receives federal financial assistance from HHS (for example, this could include employers who receive the retiree drug subsidy and employers who sponsor a self-insured employer group waiver plan (EGWP) for retirees).

In final regulations issued in 2016, HHS interpreted the definition of "sex" to include sexual orientation and gender identity. As a result, many group health plans that are covered entities adjusted their provisions addressing gender reassignment and treatment of gender dysphoria. The final regulations also require covered entities to post nondiscrimination notices in "significant" communications targeted to participants and beneficiaries (for health care employers this also means patients) and "taglines" to alert individuals with limited English proficiency of the availability of language assistance services.

The taglines are short statements written in non-English languages and must be posted in at least the top 15 non-English languages spoken in a relevant state or states. HHS has provided a model notice as well as taglines.

In 2019, a federal court determined the final regulations, including the provision defining sex to include sexual orientation and gender identity, were overbroad and vacated certain portions of the regulations. Subsequently, in June, HHS issued amended regulations to remove sexual orientation and gender identity from the definition of covered classes. The amended regulations also eliminated the requirements regarding taglines. However, shortly before the amended regulations were to become effective, a federal court blocked HHS from enforcing the provisions of the amended regulations that removed gender identity and sexual orientation from the protections. Litigation regarding Section 1557 is ongoing and employers that are covered entities should consult with counsel to determine their obligations under Section 1557 in the meantime.

Consolidated Omnibus Budget and Reconciliation Act (COBRA)

General Notice

Group health plans must give each employee and each spouse of an employee who becomes covered under the plan a general notice describing COBRA rights.
The general notice must be provided within the first 90 days of coverage. Group health plans can satisfy this requirement by furnishing the notice to employees and spouses, or by including the general notice in the plan's SPD (provided the SPD is distributed to both the employee and the spouse within this time limit). The DOL updated its model COBRA general notice in May 2020 to include information regarding the interaction between Medicare and COBRA coverage.

Election Notice

Group health plans must also send a COBRA election notice to qualified beneficiaries following a qualifying event. For certain qualifying events (termination of employment, reduction of hours and death of an employee), the employer has 30 days to notify the plan administrator and the plan administrator has 14 days to send the notice to qualified beneficiaries (44 days if the employer is also the plan administrator*). For other qualifying events (divorce, legal separation and a child ceasing to be eligible), the covered employee or other qualified beneficiary has 60 days to notify the plan administrator, and the plan administrator has 14 days to send the notice.

The DOL updated its model COBRA election notice in May 2020 to include information regarding the interaction between Medicare and COBRA coverage.**

**The plan administrator is not the same as the COBRA administrator*

*** While the DOL does not enforce COBRA against governmental employers, the agency that does so (HHS) has not made model notices available. Governmental employers may find the DOL model notices helpful when developing their own notices.*

Notice of Unavailability

Group health plans must send a notice of unavailability of COBRA coverage if the plan administrator determines that an individual is not eligible for COBRA coverage. This notice must be furnished within 14 days of the administrator's receipt of the coverage election notice furnished by the covered employee or other qualified beneficiary for qualifying events that include divorce, legal separation or a child ceasing to be eligible.

Notice of Early Termination

Group health plans must send a notice of early termination of COBRA coverage to qualified beneficiaries if COBRA coverage terminates earlier than the maximum period of coverage. The notice must be provided by the plan or COBRA administrator as soon as practicable after the decision to terminate COBRA coverage is made.

COBRA Notice of Insufficient Payment

If a COBRA premium payment is insufficient by an "insignificant amount," a notice must be provided of the insufficient payment. (In addition, a reasonable period of time, such as 30 days, must be given to pay the insufficient amount.)



Health Insurance Portability and Accountability Act (HIPAA) and Electronic Disclosure Requirements

HIPAA Notice of Special Enrollment Rights

Special enrollment is available in the following situations:

- A loss of eligibility for group health coverage or health insurance coverage;
- The acquisition of a new spouse or dependent by marriage, birth, adoption or placement for adoption; and
- Becoming eligible or ceasing to be eligible for Medicaid or CHIP coverage and/or for Medicaid or CHIP premium assistance subsidies.

Plans must notify eligible employees of their special enrollment rights upon their initial eligibility to enroll in the plan.

Governmental plans were previously allowed to opt out of complying with HIPAA special enrollment (and other HIPAA portability) requirements. The ability to opt out was eliminated by the Affordable Care Act (ACA).

Privacy and Security Requirements: Notice of Privacy Practices

A HIPAA Notice of Privacy Practices must be provided to participants and beneficiaries upon enrollment and when there are material changes to the notice, generally within 60 days of the material change. Every three years, the notice must be re-issued, or participants must be notified that a Notice of Privacy Practices is available and how to obtain it.



Other Laws

Children's Health Insurance Program Reauthorization Act (CHIPRA)

Since 2009, special enrollment rights to immediately enroll in an employer's health plan arise if an individual becomes eligible for a state premium assistance subsidy under Medicaid or CHIP. The subsidy helps low-income individuals pay for employer coverage, transferring them from government-sponsored health programs to employer health plans. CHIPRA imposes a notice requirement on employers who maintain health plans with participants residing in one of the states providing a premium assistance subsidy. The notice must be provided annually to all employees residing in each premium assistance subsidy state, including employees not enrolled in the plan. Model notice language, which is periodically updated, is available on the DOL website and includes contact information for each state offering a premium assistance subsidy. Before distributing the notice each year, you should check the DOL website for any updates to the model. (The DOL typically updates the notice each January 31 and July 31.)



Mental Health and Substance Abuse Parity

The The Mental Health Parity Act of 1996 prohibits group health plans from having lower annual or aggregate lifetime dollar limits for mental health benefits than for medical/surgical benefits. The Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008 broadened the "parity" requirements by making them applicable to substance use disorder benefits and by mandating parity for financial requirements and treatment limitations. Self-insured governmental plans may opt out of complying with this law. For plans that have not opted out, the plan generally may not impose a financial requirement (deductible, copay, etc.) or quantitative treatment limitation to a mental health/substance abuse classification that is more restrictive than the predominant requirement or limitation applied to substantially all medical/surgical benefits in the same classification. Plans must be tested for compliance with the parity law. While not required to be done annually, it should be done when there is a change to plan design (e.g., to a cost sharing or utilization management provision) that affects a financial or treatment limitation within a defined classification or sub-classification.

Plans also may not impose nonquantitative treatment limits (NQTLs) for mental health/substance abuse benefits unless certain conditions are met. Beginning February 10, 2021, group health plans must complete a comparative analysis that demonstrates that the processes, strategies, evidentiary standards or other factors used to apply any NQTL to the plan's mental health and substance use disorder benefits are comparable to, and applied no more stringently than, the processes, strategies, evidentiary standards and other factors used to apply NQTLs to medical or surgical benefits. These comparative analyses must be provided to the HHS upon request.

Michelle's Law

Michelle's Law requires group health plans to continue coverage for dependent college students who take a medically necessary leave of absence or switch to part-time student status due to a serious illness or injury. The leave must be medically necessary, begin while the child is suffering from illness or injury and cause the child to lose coverage. Coverage must extend for one year after the first day of leave. This requirement applies only if a group health plan requires student status for children age 26 or older.

Since the ACA requires coverage for all dependent children up to age 26, regardless of student status, Michelle's law typically no longer impacts group health plans. Self-insured governmental plans may opt out of complying with this law.

Newborns' and Mothers' Health Protection Act

The Act and its regulations provide that health plans and insurance issuers may not restrict a mother's or newborn's benefits for a hospital length of stay that is connected to childbirth to less than 48 hours following a vaginal delivery or 96 hours following a delivery by cesarean section.

However, the attending provider (who may be a physician or nurse midwife) may decide, after consulting with the mother, to discharge the mother or newborn child earlier. The Act specifies a notice that must be included in the plan document verbatim. Self-insured governmental plans may opt out of complying with this law.

Women's Health and Cancer Rights Act (WHCRA)

WHCRA requires group health plans to cover reconstructive surgery following a mastectomy. Notices about this law must be provided upon enrollment and annually thereafter. Self-insured governmental plans may opt out of complying with this law.



National Medical Support Notices (NMSNs)

Under the NMSN rules, when a plan administrator determines the NMSN was appropriately completed it must notify the employee, child and custodial parent that coverage is or will become available and furnish the custodial parent a description of the coverage available and the effective date of the coverage. This includes, if not already provided, a summary plan description (or similar document used by a governmental plan) and any forms, documents or information necessary to effectuate such coverage, as well as information necessary to submit claims for benefit.

No Surprises Act and Related Transparency Requirements

The No Surprises Act, which was passed as part of the Consolidated Appropriations Act, 2021, imposes various transparency and surprise medical billing requirements on group health plans. The No Surprises Act builds on the health plan transparency requirements contained in the Affordable Care Act, which were addressed in final regulations released in October 2020. These requirements are being implemented in stages over the next couple of years. The following is a list of key provisions by effective date:

- Effective for plan years beginning in 2022:
  - Surprise medical bill rules
  - Health plan ID card changes
  - Prohibition on gag clauses
  - Provider directory requirements
  - Continuity of care requirements
- Effective the later of the first day of the 2022 plan year or July 1, 2022:
  - Publicly available machine-readable file containing in-network provider rates for covered items and services and out-of-network allowed amounts
- Effective December 27, 2022:
  - Prescription drug cost reporting (first report covering 2020 and 2021 due by 12/27/22; future reports for a calendar year due by the following June 1)
- Effective for plan years beginning in 2023:
  - Requirement to make price comparison information available to participants
- Effective at a future date (after issuance of regulations):
  - Advance EOB requirements

Additional information regarding these requirements is available in our prior articles *Requirements for the Surprise Billing Under the No Surprises Act,* *Guidance on Health Plan Transparency Rules Delays Some Compliance Dates* and *Health Care Cost Transparency Reporting for Group Health Plans*.

Medicare Requirements

Medicare Part D Creditable Coverage Notice

Employer-sponsored group health plans that provide prescription drug coverage must notify Medicare-eligible plan participants whether the plan's drug coverage is creditable or non- creditable. The notice must be provided to Medicare beneficiaries who are active employees and those who are retired, as well as Medicare beneficiaries who are covered as spouses or dependents under active or retiree coverage. The notice must be provided prior to the participant's effective date of coverage, prior to an individual's initial enrollment period in Part D*, by October 15 of each year, upon a change in creditable coverage status, and upon request.

**An annual notice to all participants by October 15 will satisfy this requirement.*



Plan Sponsor's Medicare Part D Creditable Coverage Disclosure

Online disclosure is due to CMS no later than 60 days after the beginning of the plan year. This requirement applies to sponsors of group health plans that provide prescription drug coverage to Medicare Part D eligible individuals.

Application for Retiree Drug Subsidy (RDS)

Plan sponsors must apply for the retiree drug subsidy annually by submitting a valid application and a valid retiree list to CMS no later than 90 days prior to the beginning of the plan year. (Requests for extension must be approved by CMS).

Reconciliation for Retiree Drug Subsidy (RDS)

Plan sponsors taking the subsidy are required to report the total gross covered retiree plan related prescription drug costs and actual cost adjustments annually to CMS by the last day of the fifteenth month following the end of the plan year.

Medicare Mandatory Reporting Requirements

Insurers, third party administrators and administrators of self-insured and self- administered group health plans must collect specific information from plan participants and report this information to CMS.

Other Compliance Requirements

Compulsory Short-Term Disability

Laws require employers to provide coverage for non-work-related short-term disability benefits for employees in five states – California, Hawaii, New Jersey, New York and Rhode Island – and Puerto Rico. In some cases, providing this coverage is optional for governmental employers.

State Paid Family Leave Laws (PFL)

Many states have enacted laws and regulations which may impact group plans in their state. For example, several states, including New York, California, Connecticut, Massachusetts, New Jersey, Rhode Island and Washington, plus the District of Columbia provide job-protected, paid leave for various reasons including to bond with a new child, care for a loved one with a serious health condition or help relieve family pressures when someone is deployed on active military service.

In Connecticut, PFL contributions began in January 2021 with benefits commencing in 2022. Oregon and Colorado have each adopted legislation that will require covered employers to provide PFL beginning in 2023 and 2024, respectively.

Other states are in the process of considering similar legislation. Employers are therefore well advised to consult with legal counsel to help ensure compliance with the various state specific laws which impact their operations.

In some cases, compliance with these requirements is optional for governmental employers.

Family and Medical Leave Act (FMLA)

FMLA entitles eligible employees of covered employers to take unpaid, job-protected leave for certain reasons. General employer requirements:

- Allow eligible employees to take up to 12 weeks of unpaid leave during a 12-month period for certain statutory reasons, or up to 26 weeks in a single 12-month period to care for a service member or an injured/ill veteran
- Continue the employee's group health benefits and any employer contributions while on leave
- Restore the employee to the same or equivalent job and reinstate benefits upon return from leave
- Not take any adverse action against an employee for taking FMLA leave
- Provide employees with:
  - A general notice about the FMLA (through a poster and/or an employee handbook upon hire);
  - An eligibility notice;
  - A rights and responsibilities notice; and
  - A designation notice.

Employers are responsible for designating any leave taken as FMLA leave and for notifying an employee of the designation. Note that additional state leave laws may apply.

The Uniformed Services Employment and Reemployment Rights Act (USERRA)

Requires employers to provide certain re- employment and benefits rights to employees who take a leave of absence for service in the military. The maximum period of coverage under the election to continue employer- sponsored health care benefits while on active duty is 24 months. Upon completion of active duty, the employee is entitled to his/her most recent employment status, pay and benefits.

State Law Benefit Laws

Since governmental plans are not subject to ERISA, there is no general preemption of state law available to governmental plans. Depending on the state, state law might address what benefits may be provided, to whom they may be provided and in what form. In addition, some states have special continuation coverage requirements that apply to governmental employers. State law may also regulate self-insured plans sponsored by governmental employers and may include limits or restrictions on the ability to self-insured, filing and reporting requirements, benefit mandates, etc.

Electronic Distribution Rules

Unlike with ERISA plans, for which ERISA provides a generally applicable set of rules regarding electronic distribution of required documents and notices, there is no rule of general applicability regarding electronic distribution for governmental plans. Certain laws that require governmental plans to distribute certain notices/documents have rules regarding the electronic distribution of those documents (e.g., Summaries of Benefits and Coverage (SBCs), HIPAA Notices of Privacy Practices, etc.). When no specific requirements apply, a governmental plan might choose to follow the DOL's regulations regarding electronic distribution based on the theory that HHS likely would not find a violation where the DOL regulations are followed. However, specific legal advice should be obtained before doing so.



Internal Revenue Code – General Requirements

Cafeteria Plans

The terms of a cafeteria plan must be set forth in a written plan document. Participants must make elections prior to the first day of the plan year. If the cafeteria plan document allows, mid-year election changes can be made in accordance with IRS regulations.

Self-Insured Group Health Plans

The terms of a self insured group health plan must be set forth in a written plan document.

Flexible Spending Account (FSA)

The Internal Revenue Code defines eligible FSA expenses and annual maximums (employers can set lower maximums). The maximum salary reduction contribution to a health care FSA for plan years beginning in 2022 is $2,850. The maximum annual tax exclusion for dependent care FSA benefits is typically $5,000 per household. Health care FSA plans may allow participants to carry over up to $550 in unused funds to the plan year beginning in 2022. Health care FSA plans may allow participants to carry over up to $570 in unused funds to the plan year beginning in 2023. A health care FSA plan can include the carryover provision or the 2½ month grace period but cannot include both provisions.

Domestic Partner Benefits – Imputed Income

The general rules for excluding from income the value of health care benefits provided for employees, their legal spouses and their dependent children generally do not apply to domestic partners and their dependent children (unless they qualify as the employee's tax dependent – which is rare). The value of coverage for a domestic partner and his or her children may be subject to federal, FICA, state, local and any other applicable payroll taxes.

NOTE: The June 2015 Supreme Court ruling in *Obergefell v. Hodges* requires all states to license and recognize same-sex marriages. As a result, employers no longer need to impute federal or state income tax on benefits for same-sex spouses. However, imputed income still applies to domestic partners who are not legally married, unless the domestic partner is a tax dependent.

Heroes Earnings Assistance & Relief Tax Act

Cafeteria plans may permit distribution of unused health care FSA account balances when reservists are called to active duty for 180 days or more.

Life Insurance Plans

Section 79 requires employers to impute income for non-discriminatory employer-provided group term life insurance benefits in excess of $50,000. Supplemental life insurance rates that straddle Table I and/or supplemental life insurance that is paid for by the employee on a pre-tax basis may also be subject to imputed income.

Disability Plans

If the cost of coverage under a disability plan is fully or partially subsidized by the employer or is paid for by employees on a pre- tax basis, the benefits provided under the plan are subject to federal income tax (in proportion to the employer subsidy or pre-tax share).

Nondiscrimination Requirements Section 125* – Cafeteria Plans

Cafeteria plans sponsored by governmental employers are subject to two nondiscrimination tests: Eligibility Test and Benefits and Contributions Test. The nondiscrimination tests are designed to prevent the plan from favoring the highly compensated employees to an impermissible degree.

**Cafeteria plan regulations are proposed; final regulations are pending.*



Section 105(h) – Self-Funded Health Plans

Self-funded health plans (including health care FSAs and HRAs) are subject to two nondiscrimination tests: Eligibility Test and Benefits Test. Per the Affordable Care Act (ACA), this testing was to also apply to fully insured plans. However, the compliance date has been delayed until regulations or other guidance is issued and it appears the IRS has no plans to do so for the foreseeable future.

Section 129 – Dependent Care Assistance Plans

Dependent care assistance plans (including dependent care FSAs) sponsored by governmental employers are subject to three nondiscrimination tests: Eligibility Test, Benefits Test and 55% Average Benefits Test.

NOTE: Until further guidance is issued, it is advisable that most nondiscrimination tests be performed at least annually* and that the 55% Average Benefits Test under Section 129 be performed as early in the year as possible in case adjustments are necessary for highly compensated employees.

**IRS regulations do not specify when or how often nondiscrimination testing should be performed.*

Wellness Program Requirements

HIPAA Wellness Requirements

Wellness programs that require individuals to meet a standard related to a health factor (activity-based or outcome-based) in order to obtain a reward or avoid a penalty under a group health plan are subject to a variety of requirements under HIPAA, including limits on the amount of reward/penalty, requirements regarding earning the reward/avoiding the penalty through alternative means and notice requirements.

Americans with Disabilities Act (ADA)

New rules, effective the first day of the plan year beginning on or after January 1, 2017, require employers who offer wellness programs that collect employee health information (e.g., via health risk assessments, biometric screenings) in exchange for an incentive to comply with certain requirements to ensure the wellness program is voluntary. Key requirements include a limitation on the amount of incentive that may be provided and a requirement to provide a notice to employees informing them of what information will be collected, how it will be used, who will receive it and what will be done to keep it confidential. The EEOC has issued a sample notice. A federal court ordered a portion of the ADA wellness rules (specifically the portion addressing the maximum size of the incentive that may be provided under a program subject to the ADA) to be vacated as of January 1, 2019.

The EEOC is in the process of developing new regulations. In the interim, it appears the notice portion of the rules continues to apply but it is unclear what size incentive can be provided.

Employers with wellness programs that collect medical information should consult with counsel to discuss compliance with the ADA.



Genetic Information Nondiscrimination Act (GINA)

GINA restricts the ability of health plans (including wellness programs that are part of or tied to health plans) and employers to collect and use genetic information, including family health histories (which generally includes information about a spouse or child's health conditions).

Regulations issued under GINA allowed limited collection of information about a spouse's current health conditions as part of a wellness program, but that portion of the regulation was vacated along with parts of the ADA wellness regulations.

Employers with wellness programs that include health risk assessments should consult with counsel to discuss compliance with GINA.

General Notice Timeline

Generally, all new employees should receive:

- CHIPRA Notice
- Marketplace Notice

Notices eligible employees should receive when enrollment is offered or upon enrollment:

- COBRA General Notice (Spouse must also receive)
- HIPAA Notice of Privacy Practices
- HIPAA Notice of Special Enrollment Rights
- Medicare Part D Creditable Coverage or Non-Creditable Coverage
- Summary of Benefits and Coverage
- Women's Health and Cancer Rights Act (WHCRA) Enrollment Notice (unless employer has opted out)

Notices participants should receive on an annual basis:

- HIPAA Notice of Privacy Practices (once every 3 years)
- Medicare Part D Creditable Coverage or Non-Creditable Coverage
- Summary of Benefits and Coverage
- Women's Health and Cancer Rights Act (WHCRA) (unless employer has opted out)
- Other potential notice requirements:
  - Patient Protection Disclosure (with SPD or similar benefit description)
  - Notice of Grandfathered Status (with materials describing benefits)
  - Wellness Program Disclosure (in all materials describing terms of wellness program and/or before collection of medical information)

Notices that all employees should receive on an annual basis:

- CHIPRA Notice

Potential notices a terminated employee may receive:

- COBRA Election Notice
- Conversion/Portability Notice (fully insured benefits)

General Reporting Requirements:

- W-2 Reporting (i.e., aggregate cost of employer sponsored coverage, imputed income for life insurance, imputed income for domestic partner coverage, dependent care assistance benefits)
- Medicare Part D Creditable Coverage Disclosure Notice to CMS
- Section 6055 and 6056 reporting
- PCORI Fee
  - Medical plans that are self-funded (if fully insured the carrier reports and pays)
  - Self-funded prescription drug plans
  - Some dental or vision plans
  - Health Reimbursement Arrangements (HRAs) (Special Rules)
  - Retiree-only health plans
  - Some FSAs

Due Dates and Links

Benefit Notice	Due Date	Link
ACA		
Summary of Benefits and Coverage (SBC)	With open enrollment materials (or at least 30 days prior to the start of the plan year if enrollment is automatic), with initial application materials (or if the plan does not distribute written application materials for enrollment, no later than the first date on which the participant is eligible to enroll in coverage), within 90 days of special enrollment, no later than 7 business days following a request	Model SBCs and instructions, as well as final regulatory guidance, are available on the DOL's website at: SBC's and Instructions Link
Marketplace (Public Exchange) Notice	Within 14 days of date of hire	If you offer a health plan: Marketplace Notice If you do not offer a health plan: Marketplace Notice
Grandfathered Health Plan Disclosure – Grandfathered Health Plans Only	In any materials describing benefits available under the plan.	Model notice is available on the DOL's website: Grandfathered Health Plan Disclosure Link
Patient Protection Disclosure – Non-Grandfathered Health Plans Only	Whenever a SPD or similar description of benefits is distributed (only applies to HMO/POS)	Patient Protection Model Notice
Internal Appeals and External Review Requirements – Non-Grandfathered Health Plans Only	Following an adverse benefit determination	Model notice is available on the DOL's website: Internal Appeals and External Review Requirements Link
COBRA		
General Notice	Within the first 90 Days of Coverage	Click on "COBRA Model General Notice" General Notice Link
Election Notice	Employer has 30 days to notify the plan administrator and the administrator has 14 days to send the notice (44 days total if the employer is also the administrator)	Click on "COBRA Model Election Notice" Election Notice Link

Benefit Notice	Due Date	Link
HIPAA Notices		
HIPAA Notice of Special Enrollment Rights	At or before initial enrollment period	Notice of Special Enrollment Rights can be found here. (page 138)
Notice of Privacy Practices	Upon Enrollment and within 60 days of material change, every 3 years participants must be provided a new notice or notified that a notice of privacy practices is available	Notice of Privacy Practices Link
Other Law Notices		
Children's Health Insurance Program Reauthorization Act (CHIPRA)	Annually prior to the start of each plan year	CHIP Model Notice - United States Department of Labor
Newborns' and Mothers' Health Protection Act	Must be included in the SPD (unless employer has opted out)	Newborns' and Mothers' Health Protection Act Link (page 140)
Women's Health and Cancer Rights Act (WHCRA) Notices	At enrollment and annually (unless employer has opted out)	WHCRA Model Notices can be found here. (page 141)
Medicare Notices		
Medicare Part D Notice of Creditable (or Non-Creditable) Coverage	Prior to October 15 each year, prior to an individual's initial enrollment period in Part D, prior to an individual's effective date of coverage under the employer's plan, upon change in creditable coverage status and upon request.	Model Notice for Creditable Coverage Link Model Notice for Non-Creditable Coverage Link
Wellness Notices		
EEOC notice	At enrollment and annually if applicable	EEOC Notice Link



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Brown & Brown INSURANCE®

Sample Client



Sample
Plan Performance Review

Presented By

Teammate Name
Teammate Title

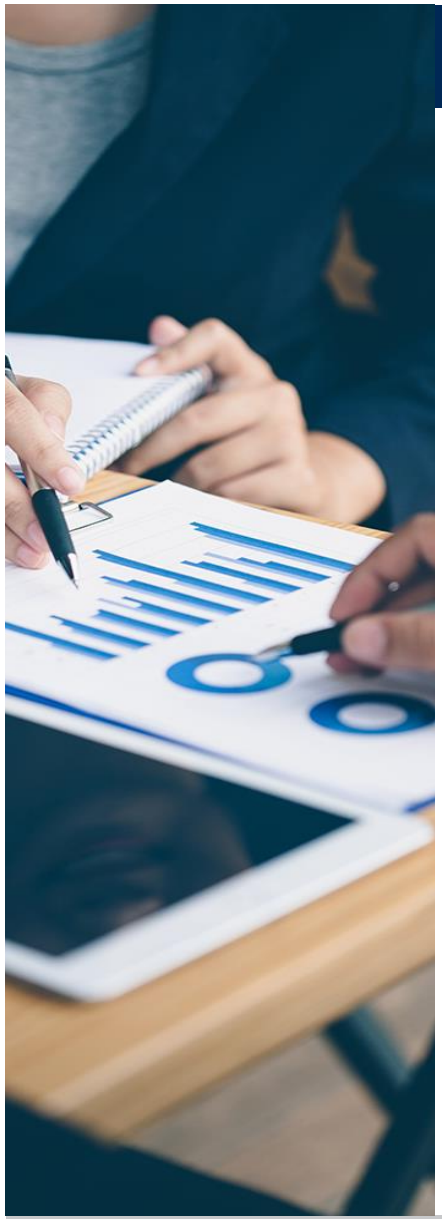
Target Date

Teammate Name
Teammate Title

Teammate Name
Teammate Title

Teammate Name
Teammate Title

Presented by Brown & Brown of Florida, Inc.



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Executive Summary

	Start Date	End Date
Current Period:	1-Jan-20	31-Dec-20
Prior Period:	1-Jan-19	31-Dec-19

Total Cost

$11,909,082	Gross Cost (Claims & Fixed & HSA)
-4%	*Decrease vs. Prior Period*
$6,977,052	Gross Medical Cost
-12%	*Decrease vs. Prior Period*
$1,938,836	Gross Pharmacy Cost
22%	*Increase vs. Prior Period*
$1,962,940	Gross Fixed Fees Cost
6%	*Increase vs. Prior Period*
$1,030,254	HSA Seed
-9%	*Decrease vs. Prior Period*

High Cost Claimants

$4,477,387	> $50,000 Paid (Med & Rx)	
23%	*Increase vs. Prior Period*	
50%	% of Total Claim Cost	Current Period
39%	% of Total Claim Cost	Prior Period
31	Claimants > $50,000	Current Period
28	Claimants > $50,000	Prior Period

Medical Network Discounts

61%	UnitedHealthcare Choice Plus
59%	UnitedHealthcare Choice Plus
24%	Change Health Care
67%	Change Health Care
59%	First Health Network Secondary
62%	First Health Network Secondary
34%	Multiplan
35%	Multiplan

Total Cost (PEPY)

$17,086	Gross Cost (Claims & Fixed & HSA)
5%	*Increase vs. Prior Period*
($3,830)	Employee Contributions
0%	*No Change vs. Prior Period*
$2,416	Stop Loss Reimb.
44%	*Increase vs. Prior Period*
$15,672	Net Claims & Fixed Costs
11%	*Increase vs. Prior Period*

Medical Cost by Category

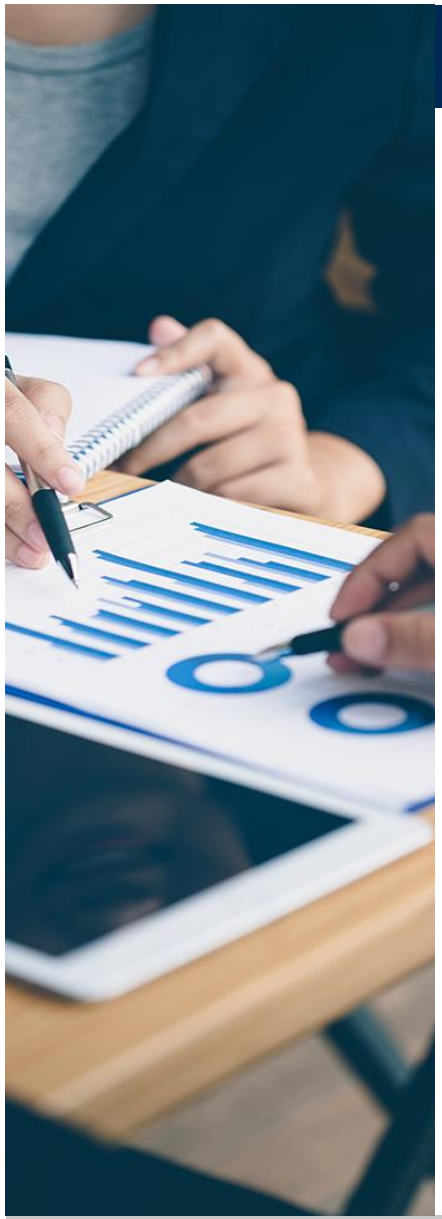
$2,472,597	Inpatient Spend
28%	*Increase vs. Prior Period*
$1,647,275	Outpatient Spend
-29%	*Decrease vs. Prior Period*
$2,528,915	Professional Spend
-25%	*Decrease vs. Prior Period*
$328,265	Medical Pharmacy
16%	*Increase vs. Prior Period*

Pharmacy

84%	Generic Dispensing Rate
97%	Generic Substitution Rate
$1,035,531	Spend in Specialty ($)
61%	*Increase vs. Prior Period*
53%	Specialty % of Gross Pharm. Cost
1%	Specialty % of Total Scripts

COVID-19 Impact Summary

606	Individuals Tested YTD	$70,872	Spend on Testing Jan-Dec 2020
109	Confirmed Cases YTD	$18,626	Spend on Testing Jan -Mar 2021
$89,498	Total Spend on Testing YTD	$73,664	Spend on Conf. Cases Jan-Dec 2020
$77,499	Total Spend on Confirm. Cases YTD	$3,835	Spend on Conf. Cases Jan-Mar 2021



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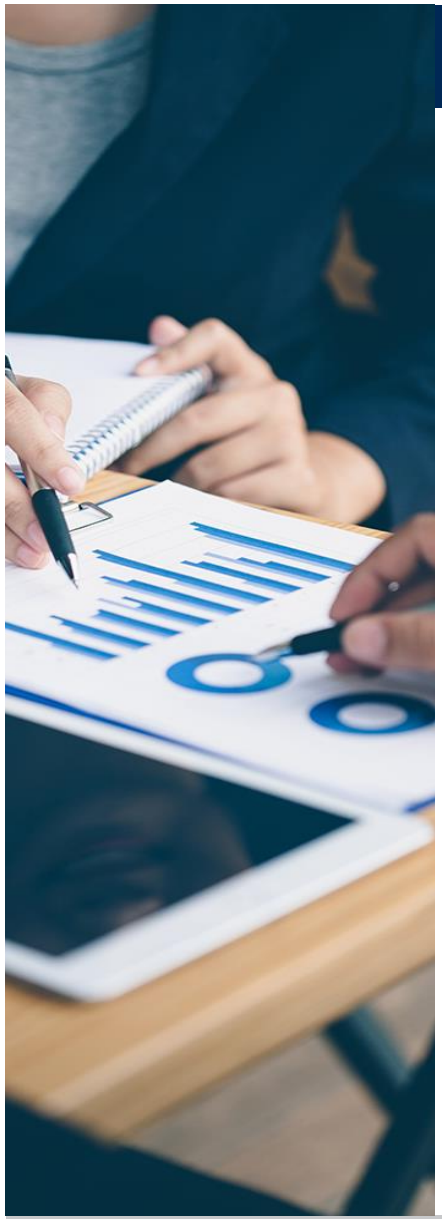
Medical & Rx Plan Design Benchmarking

	Sample Client	Benchmark #1
Plan Name	**Sample TPA**	**Benchmark #1**
Plan Type	PPO	PPO
HSA Seed | HRA Fund		
Network Status	**In-Network**	**In-Network**
Deductible		
Single	$1,000	$1,111
Family	$2,000	$2,394
Deductible Basis		
Out of Pocket Maximum		
Single	$4,000	$2,789
Family	$8,000	$5,645
Coinsurance Level		
	80%	82%
Office Visits		
Primary Care	$20	$20
ER	Deductible + Coinsurance	$121
Prescription Drugs (Rx) - Retail		
Rx Deductible	**N/A**	N/A
Tier 1 Copay | Generic	($0, $7)	$10
Tier 2 Copay | Brand (Pref)	$50	$27
Tier 3 Copay | Brand (Non_Pref)	($80, $175)	$40
Monthly EE Contributions	**Sample TPA**	**Benchmark #1**
EE-Only	$115.00	$150.04
EE+SP	$335.00	$412.15
EE+CH	$260.00	$353.70
Family	$415.00	$593.52

Medical & Rx Plan Design Benchmarking

	Sample Client	Benchmark #2
Plan Name	**Sample TPA**	**Benchmark #3**
Plan Type	HDHP	HDHP
HSA Seed | HRA Fund	$600 (EE), $900 (EE+), $1,200 (FAM)	$500 (EE), $1,000 (FAM)
Network Status	**In-Network**	**In-Network**
Deductible		
Single	$2,000	$1,750
Family	$4,000	$3,500
Deductible Basis		
Out of Pocket Maximum		
Single	$6,000	$3,750
Family	$12,000	$7,000
Coinsurance Level		
	80%	60%
Office Visits		
Primary Care	Deductible + Coinsurance	Deductible + Coinsurance
ER	Deductible + Coinsurance	Deductible + Coinsurance
Prescription Drugs (Rx) - Retail		
Rx Deductible	**Calendar Year Deductible**	**Calendar Year Deductible**
Tier 1 Copay | Generic	($0, $7)	Deductible & Coinsurance
Tier 2 Copay | Brand (Pref)	$50	Deductible & Coinsurance
Tier 3 Copay | Brand (Non_Pref)	($80, $175)	Deductible & Coinsurance
Monthly EE Contributions	**Sample TPA**	**Benchmark #3**
EE-Only	$57.50	$87.00
EE+SP	$190.00	n/a
EE+CH	$165.00	n/a
Family	$265.00	$355.00



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Self-Funded Budget Report
Summary - Consolidated

Medical Administrator	Sample TPA
Pharmacy Benefit Manager	Sample PBM

Date	Employee Only	Employee + Spouse	Employee + Child/Children	Family	Total	Total Membership	2019 Premium Equivalent Total	2019 EE Contribution	2019 Employer Contribution
Jan-21	675	240	140	360	1,415	2,860	1,394,850	318,403	1,076,448
Feb-21	665	240	140	360	1,405	2,845	1,392,090	318,300	1,073,790
Mar-21	675	240	140	360	1,415	2,865	1,398,650	319,385	1,079,265
Apr-21									
May-21									
Jun-21									
Jul-21									
Aug-21									
Sep-21									
Oct-21									
Nov-21									
Dec-21									
YTD Totals/ Averages	672	240	140	360	1412	2857	$4,185,590	$956,088	$3,229,503

Date	Specific Premium Total	Aggregate Total	Administrative Fee Total	Fixed Fee Total	Expected Claims	Maximum Claims	Medical Claims	Rx Claims	Claims Total	Grand Total	Claim Delta from Expected	Claim Delta from Max	YTD Surplus (Budget)
Jan-21	$65,155	$3,962	$67,920	$137,037	$1,132,000	$1,415,000	$910,000	$270,000	$1,180,000	$1,317,037	($48,000)	$235,000	$77,813
Feb-21	$64,705	$3,934	$67,440	$136,079	$1,124,000	$1,405,000	$560,000	$260,000	$820,000	$956,079	$304,000	$585,000	$436,011
Mar-21	$65,155	$3,962	$67,920	$137,037	$1,132,000	$1,415,000	$670,000	$270,000	$940,000	$1,077,037	$192,000	$475,000	$321,613
Apr-21													
May-21													
Jun-21													
Jul-21													
Aug-21													
Sep-21													
Oct-21													
Nov-21													
Dec-21													
YTD Totals/ Averages	$195,015	$11,858	$203,280	$410,153	$3,388,000	$4,235,000	$2,140,000	$800,000	$2,940,000	$3,350,153	$448,000	$1,295,000	$835,437

% Medical Claims	73%
% Pharmacy Claims	27%

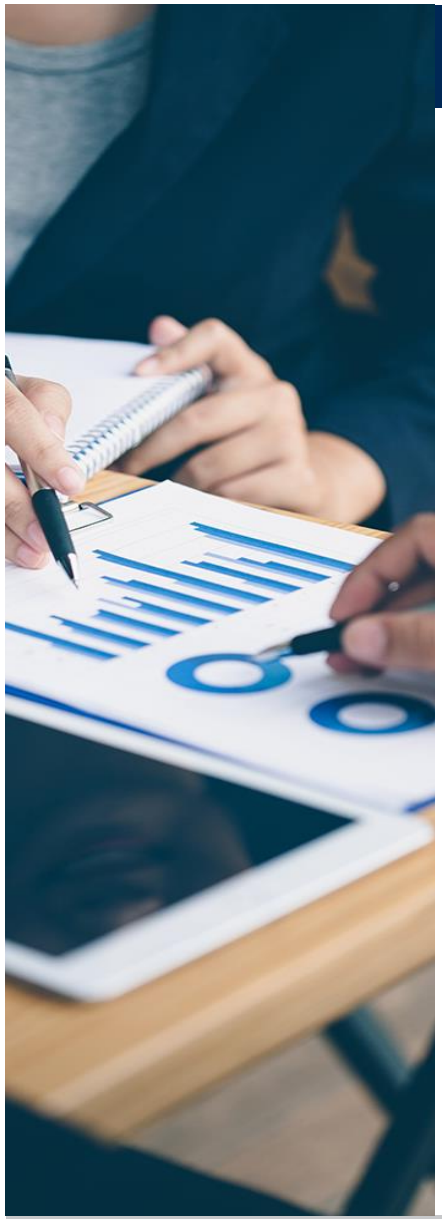
Stop Loss Contract Summary

Carrier:	Sample Stop Loss Carrier
Individual Stop Loss Deductible	$300,000
Aggregating Specific Deductible	N/A
Reporting Threshold	$50,000
Specific Contract:	18/12
Aggregate Contract	18/12

YTD Large Claimants	Primary Condition	Relationship	Total Paid
1	Congestive Heart Failure	EE	$325,000
2	Hyptertension	EE	$125,000
3	Breast Cancer	EE	$100,000
4	COPD	EE	$97,500
5	Premature Child	EE	$90,000
Total	High Cost Claimant Total (> $50,000)		$737,500
	Amount in Excess of ISL Deductible		$25,000
	Eligible for Reimbursement		$25,000

Rx Rebate History - Paid 2019 YTD

Check Date	Attributable Period	Amount
9/1/2020	Q1 2018	$200,000
12/1/2020	Q2 2018	$215,000
3/1/2021	Q3 2018	$220,000
Total Rebates		$635,000



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Executive Summary of Medical & Prescription Drug Coverage

January 1, 2021 - December 31, 2021

	2020 Plan Year				Final - 2021 - Triple Option					
Vendor	BCBS		BCBS		Sample TPA		Sample TPA		Sample TPA	
Plan Name	Sampole Plan		Sample Pla		Sample Plan		Sample Plan		Sample Plan	
Plan Type	PPO | Traditional		HDHP - HSA		PPO | Traditional		HDHP - HSA		HDHP - HRA	
Plan Details	***Network***		***Network***		***Network***		***Network***		***Network***	
HSA Seed | HRA Fund			Single $600	Dep Cov: $900			Single $600	Dep Cov: $900 | $1,200	Single $600	Dep Cov: $900 | $1,200
	Single	***Family***	***Single***	***Family***	***Single***	***Family***	***Single***	***Family***	***Single***	***Family***
Plan Deductible	$1,000	$2,000	$2,000	$4,000	$1,000	$2,000	$2,000	$4,000	$2,000	$4,000
Embedded Deductible:	Yes		No		Yes		No		No	
Calendar or Policy Year:	Calendar		Calendar		Calendar		Calendar		Calendar	
Coinsurance:	20%		20%		20%		20%		20%	
Maximum Out-of-Pocket:	$4,000	$8,000	$6,000	$12,000	$4,000	$8,000	$6,000	$12,000	$6,000	$12,000
(Includes Deductible, Copay, Rx)	Yes, Yes, Yes		Yes, Yes, Yes		Yes, Yes, Yes		Yes, Yes, Yes		Yes, Yes, Yes	
Physician Services										
Office Visit Copay:	$15		Deductible + Coinsurance		$15		Deductible + Coinsurance		Deductible + Coinsurance	
Specialist Copay:	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Chiropractic Copay:	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Hospital / Emergency Services										
Inpatient Hospital Per Admission Copay:	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Emergency Room Copay:	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Urgent Care Copay:	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Outpatient Surgical Facility Copay:	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Ambulatory Surgery Center:	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Diagnostic Services										
Lab, X-Ray & Diagnostics Outpatient:	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Advanced Imaging Services	Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance		Deductible + Coinsurance	
Prescription Drug										
Deductible:	N/A		Calendar Year Deductible		N/A		Calendar Year Deductible		Calendar Year Deductible	
Prescription Tier	$7 / $50 /$80 / $175		$7 / $50 /$80 / $175		$7 / $50 /$80 / Ded & Coins.		$7 / $50 /$80 / $175		$7 / $50 /$80 / $175	
Mail Order Prescription (90 Day Supply):	2.5x's Copay		2.5x's Copay		2.5x's Copay		2.5x's Copay		2.5x's Copay	
Non-Network Plan Details	***Non-Network***		***Non-Network***		***Non-Network***		***Non-Network***		***Non-Network***	
Plan Deductible	$1,500	$3,000	$4,000	$8,000	$1,500	$3,000	$4,000	$8,000	$4,000	$8,000
Coinsurance:	40%		40%		40%		40%		40%	
Maximum Out-of-Pocket:	$8,000	$16,000	$12,000	$24,000	$8,000	$16,000	$12,000	$24,000	$12,000	$24,000
Per Occurrence Deductible (Inpatient/Outpatient):	N/A									

Note: The HDHP in-network out of pocket maximum for any person within the family will not exceed $6,000

2021 Proposed Funding, Contribution & EE Contribution Summary

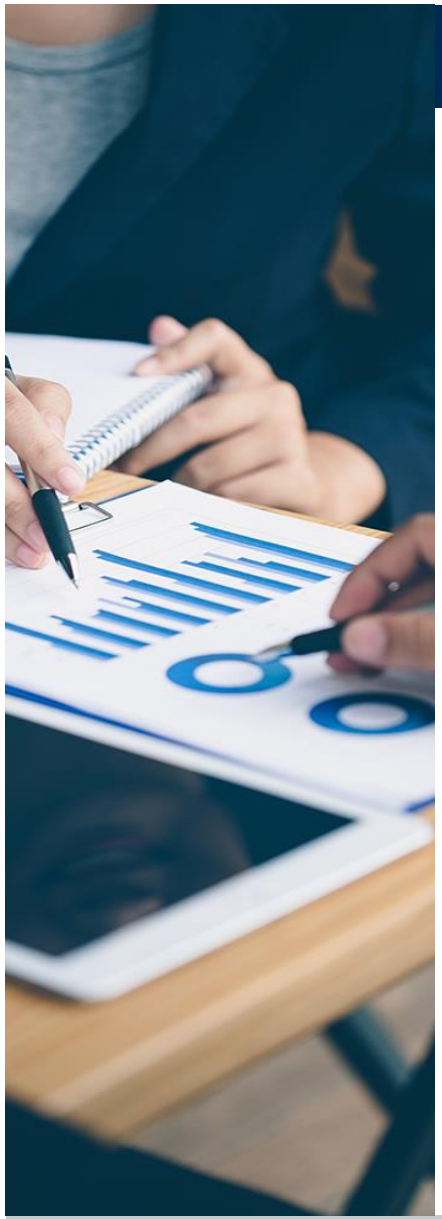
	2020 Monthly Funding & EE | ER Contributions					2021 Monthly Funding & EE | ER Contributions						
Sample HRA	Enrollment Tier					Enroll	Funding Rate	Employer Contrib. ($)	HRA Fund	EE Contrib. ($)	EE Monthly Δ	Tobacco EE Contrib. ($)
	EE Only					-	$560.00	$510.00	$50.00	$50.00		$62.50
	EE & Spouse					-	$980.00	$805.00	$75.00	$175.00		$218.75
	EE & Child(ren)					-	$890.00	$725.00	$75.00	$165.00		$206.25
	Family					-	$1,360.00	$1,095.00	$100.00	$265.00		$331.25
	Annual Total					0	$0	$0	$0	$0		
Sample HSA	Enrollment Tier	Enroll	Funding Rate	Employer Contrib. ($)	HSA Seed	Total EE Contrib. ($)	Enroll	Funding Rate	Employer Contrib. ($)	HSA Seed	EE Contrib. ($)	EE Monthly Δ	Tobacco EE Contrib. ($)
	EE Only	136	$550.00	$495.00	$50.00	$55.00	142	$560.00	$502.50	$50.00	$57.50	$2.50	$71.88
	EE & Spouse	34	$980.00	$795.00	$75.00	$185.00	31	$980.00	$790.00	$75.00	$190.00	$5.00	$237.50
	EE & Child(ren)	16	$870.00	$710.00	$75.00	$160.00	17	$890.00	$725.00	$75.00	$165.00	$5.00	$206.25
	Family	41	$1,360.00	$1,110.00	$75.00	$250.00	44	$1,360.00	$1,095.00	$100.00	$265.00	$15.00	$331.25
	Annual Total	227	$2,133,600	$1,814,640	$163,500	$318,960	234	$2,218,440	$1,876,200	$181,200	$342,240		
Sample PPO	Enrollment Tier	Enroll	Funding Rate	Employer Contrib. ($)		Total EE Contrib. ($)	Enroll	Funding Rate	Employer Contrib. ($)		Total EE Contrib. ($)	EE Monthly Δ	Tobacco EE Contrib. ($)
	EE Only	528	$635.00	$525.00		$110.00	523	$650.00	$535.00		$115.00	$5.00	$143.75
	EE & Spouse	195	$1,140.00	$815.00		$325.00	201	$1,160.00	$825.00		$335.00	$10.00	$418.75
	EE & Child(ren)	110	$1,000.00	$750.00		$250.00	111	$1,030.00	$770.00		$260.00	$10.00	$325.00
	Family	321	$1,580.00	$1,580.00			308	$1,610.00	$1,195.00		$415.00	$415.00	$518.75
	Annual Total	1,154	$14,097,120	$12,309,660		$1,787,460	1,143	$14,199,840	$10,789,920		$3,409,920		
		Total Enroll	Total Funding	Employer Contrib. ($)	HSA Seed	Total EE Contrib. ($)	Total Enroll	Total Funding	Employer Contrib. ($)	HSA Seed & HRA Fund	Total EE Contrib. ($)		
	Est. Annual Total	1,381	$16,230,720	$14,124,300	$163,500	$2,106,420	1,377	$16,418,280	$12,666,120	$181,200	$3,752,160		
	Δ from 2018 ($)							$187,560	-$1,458,180	$17,700	$1,645,740		
	Δ from 2018 (%)							1.2%	-10.3%	$17,700	78.1%		

Notes

Enrollment is broken out as follows:

2018 -December enrollment

2019 - January enrollment



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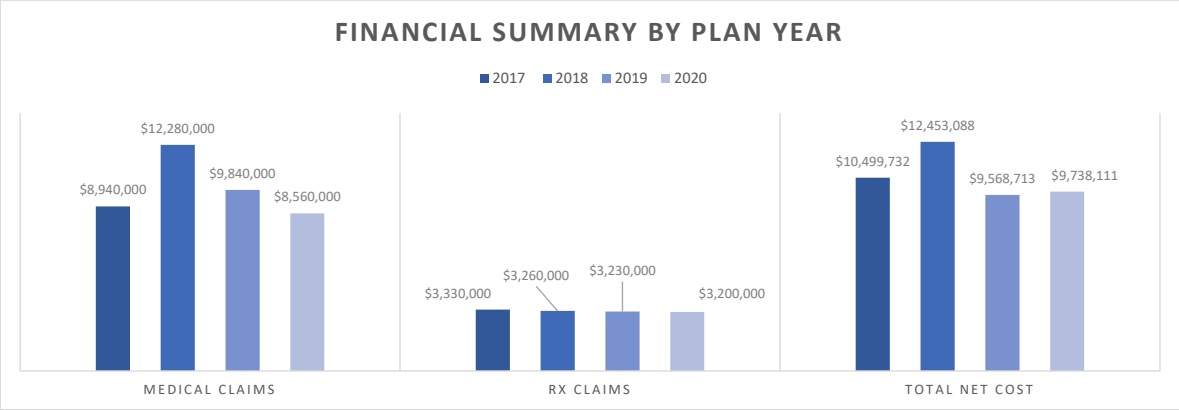
Financial Summary (Totals)



Plan Year	2017	2018	2019	2020
Average Enrollment	1,269	1,313	1,368	1,412
Claim Basis	Paid	Paid	Paid	Paid
Gross Claims				
Medical	$8,940,000	$12,280,000	$9,840,000	$8,560,000
Rx	$3,330,000	$3,260,000	$3,230,000	$3,200,000
Total Gross Claims	$12,270,000	$15,540,000	$13,070,000	$11,760,000
Fixed Costs				
Admin	$685,350	$724,960	$771,270	$813,120
Stop Loss-Specific	$656,150	$694,740	$739,210	$780,060
Stop Loss-Aggregate	$38,075	$40,976	$44,307	$47,432
Taxes & Fees	$75,271	$78,539	$6,581	$6,999
Total Fixed	$1,454,846	$1,539,215	$1,561,368	$1,647,611
Misc. Expenses				
HSA Seed	$32,417	$49,983	$148,275	$193,500
Broker Fee	$28,800	$28,800	$28,800	$28,800
Total Misc.	$61,217	$78,783	$177,075	$222,300
Claims & Fixed Costs				
Total Gross Costs	$13,786,062	$17,157,998	$14,808,443	$13,629,911
Less: SL Reimbursements	($210,000)	($1,270,000)	($1,670,300)	($67,450)
Less: EE Contributions	($3,076,330)	($3,434,910)	($3,569,430)	($3,824,350)
Total Net Costs	$10,499,732	$12,453,088	$9,568,713	$9,738,111

Notes

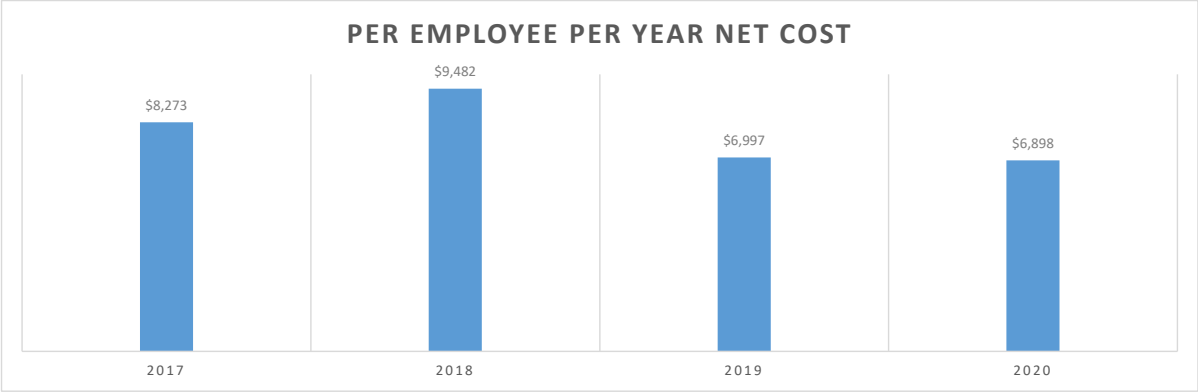
Excludes all ancillary lines

Dental: 2016 - $707,006 / 2017 - $737,760 / 2018 - $28,423

Vision: 2016 - $56,518 / 2017 - $60,843 / 2018 - $10,612

Financial Summary (PEPY)

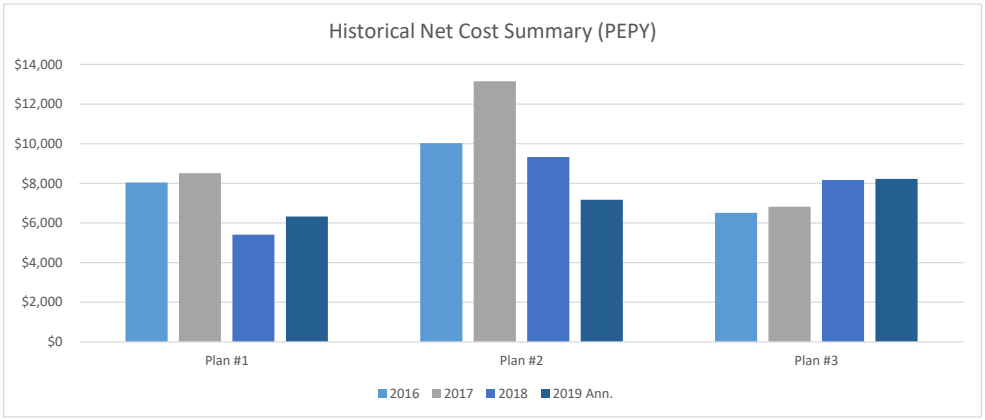
Year-over-Year Performance



Plan Year	2017	2018	2019	2020
Average Enrollment	1,269	1,313	1,368	1,412
Claim Basis	Paid	Paid	Paid	Paid
Gross Claims & Variable Expenses				
Medical	$7,044	$9,350	$7,196	$6,064
Prescription Drug	$2,624	$2,482	$2,362	$2,267
Total Claims	$9,668	$11,832	$9,558	$8,331
Fixed Costs				
Administration	$540	$552	$564	$576
Stop Loss-Specific	$517	$529	$541	$553
Stop Loss-Aggregate	$30	$31	$32	$34
Taxes & Fees	$59	$60	$5	$5
Total Fixed	$1,146	$1,172	$1,142	$1,167
Misc. Expenses				
HSA Seed	$26	$38	$108	$137
Broker Fee	$23	$22	$21	$20
Total Misc.	$48	$60	$129	$157
Gross Total & Offsets				
Total Gross Costs	$10,862	$13,064	$10,829	$9,655
Less: SL Reimbursements	($165)	($967)	($1,221)	($48)
Less: EE Contributions	($2,424)	($2,615)	($2,610)	($2,709)
Total Net Cost (PEPY)	$8,273	$9,482	$6,997	$6,898
Δ from Prior Year		15%	-26%	-1%
Δ from Baseline (2016 Plan Year)		15%	-15%	-17%

Notes

Cost by Plan



2019 Annualized Total Costs by Plan

	Plan #1	Plan #2	Plan #3	Overall PEPY
Average Enrolled	775	385	252	1,412
Gross Claim Costs	$7,690	$8,727	$9,695	$8,331
Fixed Costs	$1,166	$1,169	$1,168	$1,167
Broker Fee	$20	$20	$20	$20
ER Funding Account	$134	$158	$113	$137
ISL Reimbursements	($84)	$0	($8)	($48)
EE PEPY Contributions	($2,599)	($2,899)	($2,759)	($2,709)
Net PEPY ER Cost	$6,328	$7,176	$8,230	$6,898

2018 Total Costs by Plan

	Plan #1	Plan #2	Plan #3	Overall PEPY
Average Enrolled	742	383	243	1,368
Gross Claim Costs	$8,872	$10,693	$9,863	$9,558
Fixed Costs	$1,141	$1,143	$1,142	$1,142
Broker Fee	$21	$21	$21	$21
ER Funding Account	$104	$127	$93	$108
ISL Reimbursements	($2,164)	($1)	($267)	($1,221)
EE PEPY Contributions	($2,563)	($2,654)	($2,685)	($2,610)
Net PEPY ER Cost	$5,411	$9,329	$8,168	$6,997

2017 Total Costs by Plan

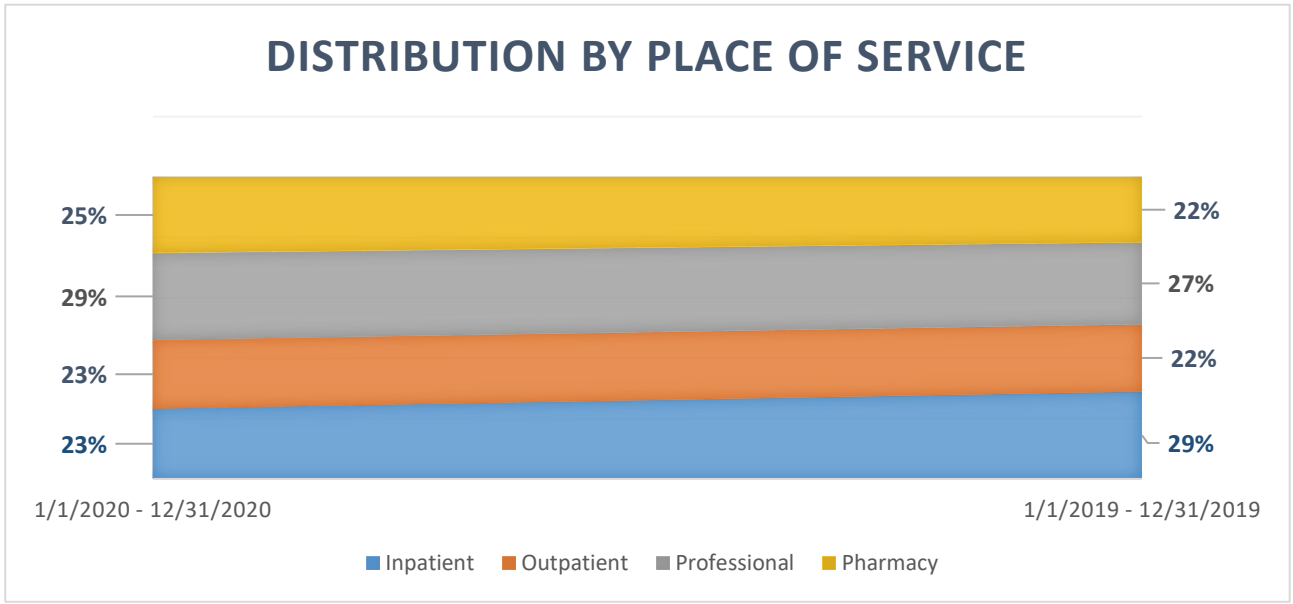
	Plan #1	Plan #2	Plan #3	Overall PEPY
Net PEPY ER Cost	$8,514	$13,150	$6,816	$9,482

2016 Total Costs by Plan

	Plan #1	Plan #2	Plan #3	Grand Total
Net PEPY ER Cost	$8,044	$10,025	$6,512	$8,273

2019 Ann. Δ from 2018	17%	-23%	1%	-1%
2018 Δ from 2017	-36%	-29%	20%	-26%
2017 Δ from 2016	6%	31%	5%	15%

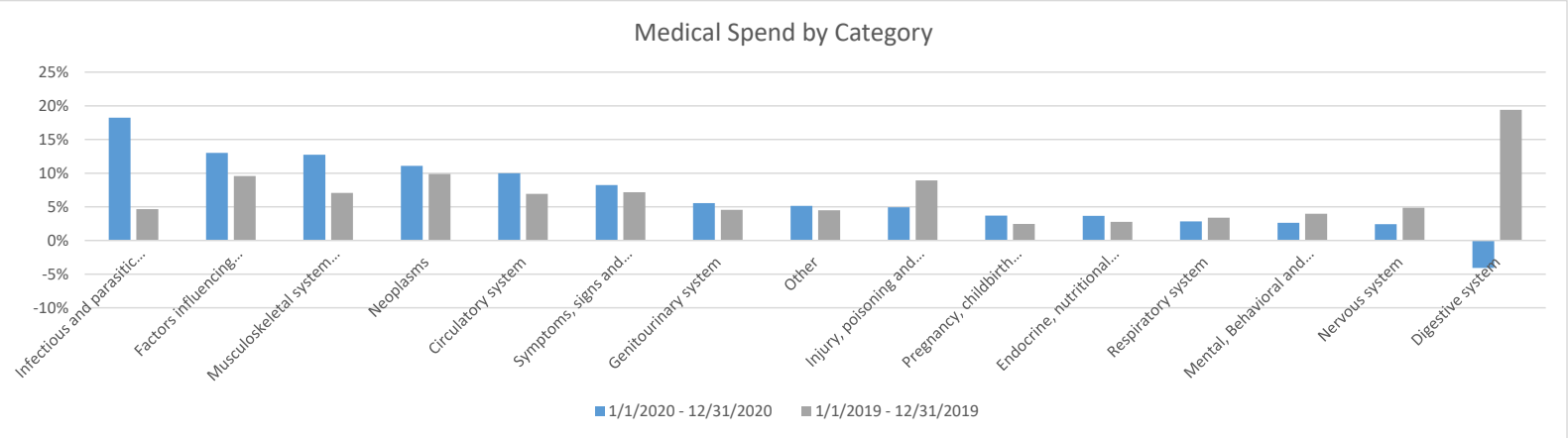
Total Spend Distribution



	1/1/2020 - 12/31/2020		1/1/2019 - 12/31/2019	
Place of Service	Total Spend	% of Total Spend	Total Spend	% of Total Spend
Inpatient	$3,050,000	23%	$4,436,410	29%
Outpatient	$2,980,000	23%	$3,413,453	22%
Professional	$3,770,000	29%	$4,160,000	27%
Pharmacy	$3,290,000	25%	$3,320,000	22%
Total	$13,090,000	100%	$15,329,863	100%

Reporting Basis: Paid

Diagnostic Category Distribution



Summary ICD 10 Diagnostic Category	1/1/2020 - 12/31/2020		1/1/2019 - 12/31/2019	
Category	Total Medical Spend	%	Total Medical Spend	%
Infectious and parasitic diseases	$1,692,977	18%	$550,384	5%
Factors influencing health status and contact with health services	$1,207,982	13%	$1,132,124	10%
Musculoskeletal system and connective tissue	$1,183,395	13%	$838,026	7%
Neoplasms	$1,031,504	11%	$1,169,224	10%
Circulatory system	$929,320	10%	$820,066	7%
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	$766,183	8%	$846,317	7%
Genitourinary system	$514,354	6%	$537,664	5%
Other	$476,009	5%	$530,921	4%
Injury, poisoning and certain other consequences of external causes	$457,579	5%	$1,055,479	9%
Pregnancy, childbirth and the puerperium	$341,778	4%	$288,934	2%
Endocrine, nutritional and metabolic diseases	$339,392	4%	$326,698	3%
Respiratory system	$264,782	3%	$400,376	3%
Mental, Behavioral and Neurodevelopmental disorders	$243,734	3%	$470,622	4%
Nervous system	$224,964	2%	$575,403	5%
Digestive system	($380,320)	-4%	$2,298,029	19%
Total	$9,293,632	100%	$11,840,267	100%

Reporting Basis: Paid

*Other includes the following diag. categories: eye and adnexa, Skin and subcutaneous tissue, Blood and blood-forming organs, Congenital malformations, ear and mastoid process, and perinatal period

Medical Spend by Diagnosis (1)

ICD-10 Diagnostic Category	ICD-10 Principal Diagnosis	1/1/2020 - 12/31/2020	1/1/2019 - 12/31/2019
Infectious and parasitic diseases	A419 Sepsis, unspecified organism	$1,555,757	$310,982
	A4101 Sepsis due to Methicillin susceptible Staphylococcus aureus	$82,549	
	A4151 Sepsis due to Escherichia coli [E. coli]	$28,204	$153,961
	B349 Viral infection, unspecified	$4,037	$5,747
	B373 Candidiasis of vulva and vagina	$2,884	$1,127
	B348 Other viral infections of unspecified site	$2,642	
	B079 Viral wart, unspecified	$2,388	$836
	B029 Zoster without complications	$1,740	$1,179
	B078 Other viral warts	$1,254	$1,818
	B20 Human immunodeficiency virus [HIV] disease	$1,064	$177
	All Others	$10,459	$74,558
	Category Total	**$1,692,977**	**$550,384**
Factors influencing health status and contact with health services	Z1211 Encounter for screening for malignant neoplasm of colon	$155,980	$175,411
	Z00129 Encntr for routine child health exam w/o abnormal findings	$123,659	$100,239
	Z0000 Encntr for general adult medical exam w/o abnormal findings	$121,990	$107,608
	Z1231 Encntr screen mammogram for malignant neoplasm of breast	$109,030	$70,313
	Z421 Encounter for breast reconstruction following mastectomy	$98,290	
	Z01419 Encntr for gyn exam (general) (routine) w/o abn findings	$62,547	$64,358
	Z4822 Encounter for aftercare following kidney transplant	$47,383	$10,303
	Z23 Encounter for immunization	$43,558	$45,178
	Z3800 Single liveborn infant, delivered vaginally	$38,246	$49,454
	Z853 Personal history of malignant neoplasm of breast	$32,146	$8,818
	All Others	$375,154	$500,442
	Category Total	**$1,207,982**	**$1,132,124**
Musculoskeletal system and connective tissue	M4726 Other spondylosis with radiculopathy, lumbar region	$106,188	$73,163
	M1711 Unilateral primary osteoarthritis, right knee	$94,350	$878
	M19012 Primary osteoarthritis, left shoulder	$81,744	$703
	M1612 Unilateral primary osteoarthritis, left hip	$70,493	$63,382
	M1712 Unilateral primary osteoarthritis, left knee	$64,503	$34,922
	M545 Low back pain	$55,837	$46,850
	M4802 Spinal stenosis, cervical region	$47,789	$687
	M50121 Cervical disc disorder at C4-C5 level with radiculopathy	$44,940	
	M2012 Hallux valgus (acquired), left foot	$37,501	
	M21062 Valgus deformity, not elsewhere classified, left knee	$35,445	$451
	All Others	$544,606	$616,989
	Category Total	**$1,183,395**	**$838,026**
Neoplasms	C480 Malignant neoplasm of retroperitoneum	$337,968	$2,224
	D321 Benign neoplasm of spinal meninges	$67,797	
	C50912 Malignant neoplasm of unspecified site of left female breast	$49,831	$9,535
	C50112 Malignant neoplasm of central portion of left female breast	$45,457	$160
	C44622 Squamous cell carcinoma skin/ right upper limb, inc shoulder	$41,249	$167
	C50212 Malig neoplasm of upper-inner quadrant of left female breast	$40,224	
	C884 Extrnod mrgnl zn B-cell lymph of mucosa-assoc lymphoid tiss	$38,405	
	C50919 Malignant neoplasm of unsp site of unspecified female breast	$33,099	$3,822
	C652 Malignant neoplasm of left renal pelvis	$29,741	
	C61 Malignant neoplasm of prostate	$23,968	$65,364
	All Others	$323,765	$1,087,954
	Category Total	**$1,031,504**	**$1,169,224**
Circulatory system	I671 Cerebral aneurysm, nonruptured	$180,508	$2,051
	I340 Nonrheumatic mitral (valve) insufficiency	$134,774	$2,339
	I214 Non-ST elevation (NSTEMI) myocardial infarction	$88,996	$96,411
	I480 Paroxysmal atrial fibrillation	$63,059	$2,493
	I70211 Athscl native arteries of extrm w intrmt claud, right leg	$52,171	
	I2102 STEMI involving left anterior descending coronary artery	$51,940	
	I10 Essential (primary) hypertension	$46,297	$46,771
	I2510 Athscl heart disease of native coronary artery w/o ang pctrs	$42,575	$101,470
	I4891 Unspecified atrial fibrillation	$41,644	$204,321
	I2699 Other pulmonary embolism without acute cor pulmonale	$34,246	$16,681
	All Others	$193,111	$347,529
	Category Total	**$929,320**	**$820,066**

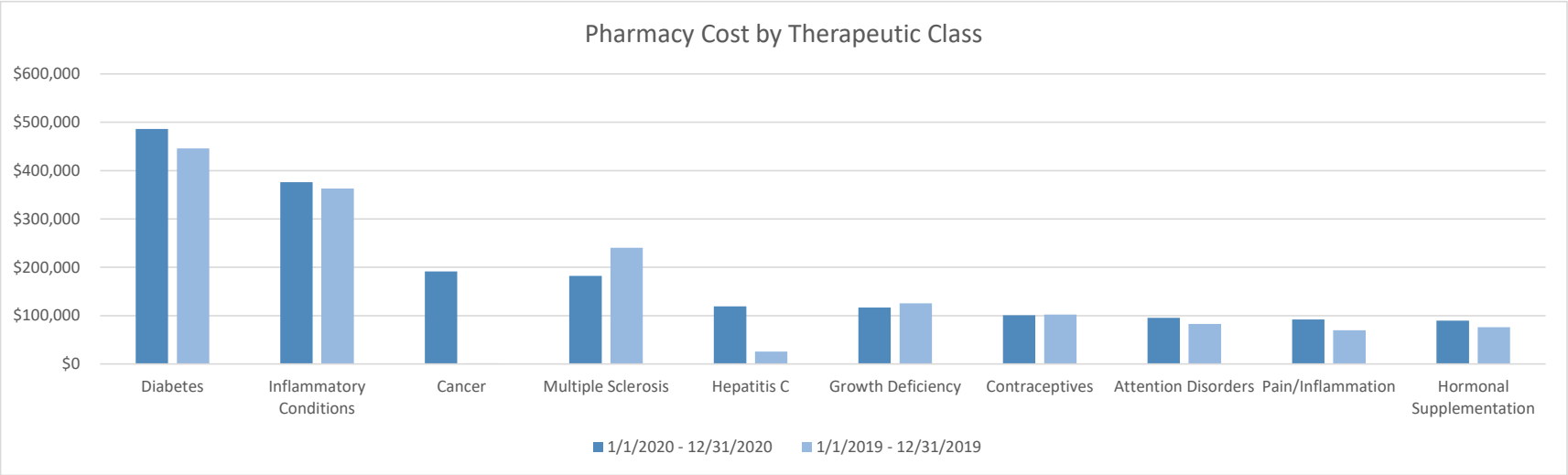
Medical Spend by Diagnosis (2)

ICD-10 Diagnostic Category	ICD-10 Principal Diagnosis	1/1/2020 - 12/31/2020	1/1/2019 - 12/31/2019
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	R5381 Other malaise	$68,070	$1,006
	R079 Chest pain, unspecified	$58,509	$71,140
	R002 Palpitations	$50,632	$10,263
	R109 Unspecified abdominal pain	$40,573	$43,135
	R51 Headache	$27,306	$46,344
	R42 Dizziness and giddiness	$25,541	$8,272
	R0789 Other chest pain	$23,858	$36,823
	R55 Syncope and collapse	$21,678	$57,475
	R1084 Generalized abdominal pain	$21,666	$16,414
	R197 Diarrhea, unspecified	$19,815	$9,640
	All Others	$408,534	$545,805
	Category Total	**$766,183**	**$846,317**
Genitourinary system	N186 End stage renal disease	$110,217	$91,044
	N390 Urinary tract infection, site not specified	$60,388	$9,807
	N201 Calculus of ureter	$46,812	$6,280
	N62 Hypertrophy of breast	$39,381	$102
	N200 Calculus of kidney	$21,468	$35,977
	N920 Excessive and frequent menstruation with regular cycle	$19,795	$43,391
	N840 Polyp of corpus uteri	$16,532	$561
	N812 Incomplete uterovaginal prolapse	$14,420	
	N938 Other specified abnormal uterine and vaginal bleeding	$10,605	$19,018
	N401 Benign prostatic hyperplasia with lower urinary tract symp	$10,357	$17,760
	All Others	$164,379	$313,724
	Category Total	**$514,354**	**$537,664**
Other	H209 Unspecified iridocyclitis	$38,777	$4,339
	D680 Von Willebrand's disease	$25,189	$129
	Q6589 Other specified congenital deformities of hip	$24,918	$37
	L4050 Arthropathic psoriasis, unspecified	$17,753	$1,783
	H3322 Serous retinal detachment, left eye	$15,825	
	H33012 Retinal detachment with single break, left eye	$12,039	$401
	L570 Actinic keratosis	$11,717	$11,150
	H35069 Retinal vasculitis, unspecified eye	$10,720	$18,069
	D509 Iron deficiency anemia, unspecified	$10,488	$2,430
	L400 Psoriasis vulgaris	$10,080	$202
	All Others	$298,504	$492,379
	Category Total	**$476,009**	**$530,921**
Injury, poisoning and certain other consequences of external causes	S83262A Prph tear of lat mensc, current injury, left knee, init	$53,586	$254
	S83272A Complex tear of lat mensc, current injury, left knee, init	$49,611	$586
	S13161A Dislocation of C5/C6 cervical vertebrae, initial encounter	$40,710	
	T8489XA Oth comp of internal orthopedic prosth dev/grft, init	$23,964	
	S83222A Prph tear of medial meniscus, current injury, l knee, init	$22,216	$18,251
	S0990XA Unspecified injury of head, initial encounter	$15,378	$20,902
	S32010A Wedge compression fracture of first lumbar vertebra, init	$14,946	$86
	S83232A Complex tear of medial mensc, current injury, l knee, init	$14,273	$41,278
	S52501A Unsp fracture of the lower end of right radius, init	$11,659	$199
	S43431A Superior glenoid labrum lesion of right shoulder, init	$11,167	$0
	All Others	$200,067	$973,923
	Category Total	**$457,579**	**$1,055,479**
Pregnancy, childbirth and the puerperium	O80 Encounter for full-term uncomplicated delivery	$50,801	$55,089
	O321XX0 Maternal care for breech presentation, unsp	$30,046	$0
	O99824 Streptococcus B carrier state complicating childbirth	$23,452	$8,810
	O480 Post-term pregnancy	$21,033	$25,358
	O3429 Maternal care due to uterine scar from oth previous surgery	$17,195	
	O1404 Mild to moderate pre-eclampsia, complicating childbirth	$16,039	
	O365930 Matern care for oth or susp poor fetl grth, third tri, unsp	$14,987	
	O4292 Full-term prem ROM, unsp time betw rupture and onset labor	$11,224	
	O701 Second degree perineal laceration during delivery	$10,449	$21,778
	O00101 Right tubal pregnancy without intrauterine pregnancy	$10,146	
	All Others	$136,405	$177,898
	Category Total	**$341,778**	**$288,934**

Medical Spend by Diagnosis (3)

ICD-10 Diagnostic Category	ICD-10 Principal Diagnosis	1/1/2020 - 12/31/2020	1/1/2019 - 12/31/2019
Endocrine, nutritional and metabolic diseases	E6601 Morbid (severe) obesity due to excess calories	$109,512	$126,760
	E079 Disorder of thyroid, unspecified	$30,527	$1,060
	E109 Type 1 diabetes mellitus without complications	$24,483	$10,956
	E119 Type 2 diabetes mellitus without complications	$20,134	$15,487
	E1010 Type 1 diabetes mellitus with ketoacidosis without coma	$17,888	
	E8352 Hypercalcemia	$15,642	$9,048
	E785 Hyperlipidemia, unspecified	$13,055	$11,846
	E039 Hypothyroidism, unspecified	$12,027	$12,387
	E860 Dehydration	$10,988	$1,351
	E1065 Type 1 diabetes mellitus with hyperglycemia	$9,436	$9,955
	All Others	$75,699	$127,850
	Category Total	**$339,392**	**$326,698**
Respiratory system	J210 Acute bronchiolitis due to respiratory syncytial virus	$32,362	$89
	J324 Chronic pansinusitis	$24,271	$89,920
	J069 Acute upper respiratory infection, unspecified	$23,865	$20,013
	J342 Deviated nasal septum	$14,385	$14,390
	J218 Acute bronchiolitis due to other specified organisms	$12,701	
	J301 Allergic rhinitis due to pollen	$12,496	$16,692
	J029 Acute pharyngitis, unspecified	$11,203	$12,158
	J40 Bronchitis, not specified as acute or chronic	$10,913	$2,706
	J209 Acute bronchitis, unspecified	$10,369	$6,644
	J0190 Acute sinusitis, unspecified	$8,580	$8,571
	All Others	$103,636	$229,193
	Category Total	**$264,782**	**$400,376**
Mental, Behavioral and Neurodevelopmental disorders	F840 Autistic disorder	$66,749	$84,022
	F411 Generalized anxiety disorder	$17,907	$16,465
	F329 Major depressive disorder, single episode, unspecified	$13,319	$2,679
	F1220 Cannabis dependence, uncomplicated	$11,463	$27,873
	F322 Major depressv disord, single epsd, sev w/o psych features	$10,002	$278
	F419 Anxiety disorder, unspecified	$9,692	$15,094
	F319 Bipolar disorder, unspecified	$7,648	$2,897
	F4310 Post-traumatic stress disorder, unspecified	$7,315	$4,758
	F331 Major depressive disorder, recurrent, moderate	$7,181	$9,261
	F0781 Postconcussional syndrome	$6,176	$5,003
	All Others	$86,283	$302,293
	Category Total	**$243,734**	**$470,622**
Nervous system	G4733 Obstructive sleep apnea (adult) (pediatric)	$54,376	$47,230
	G43909 Migraine, unsp, not intractable, without status migrainosus	$32,225	$5,372
	G8918 Other acute postprocedural pain	$15,309	$2,799
	G459 Transient cerebral ischemic attack, unspecified	$13,139	$13,819
	G5601 Carpal tunnel syndrome, right upper limb	$9,698	$8,707
	G959 Disease of spinal cord, unspecified	$9,002	
	G40109 Local-rel symptc epi w simp prt seiz,not ntrct, w/o stat epi	$8,569	$16,072
	G8252 Quadriplegia, C1-C4 incomplete	$7,643	$140,469
	G43109 Migraine with aura, not intractable, w/o status migrainosus	$6,689	$1,496
	G43709 Chronic migraine w/o aura, not intractable, w/o stat migr	$6,169	$5,857
	All Others	$62,146	$333,581
	Category Total	**$224,964**	**$575,403**
Digestive system	K632 Fistula of intestine	$122,560	$16,191
	K5090 Crohn's disease, unspecified, without complications	$69,712	$66,531
	K529 Noninfective gastroenteritis and colitis, unspecified	$56,630	$10,442
	K3580 Unspecified acute appendicitis	$41,281	$42,601
	K5650 Intestnl adhesions, unsp as to partial versus complete obst	$40,338	
	K838 Other specified diseases of biliary tract	$38,414	
	K8010 Calculus of gallbladder w chronic cholecyst w/o obstruction	$32,034	$36,001
	K7290 Hepatic failure, unspecified without coma	$21,939	$132
	K353 Acute appendicitis with localized pe (Invalid, Non-Billable)	$21,619	$1,104
	K8020 Calculus of gallbladder w/o cholecystitis w/o obstruction	$17,613	$27,458
	All Others	($842,461)	$2,097,569
	Category Total	**($380,320)**	**$2,298,029**

Pharmacy - Overview by Therapeutic Class



Class	1/1/2020 - 12/31/2020			1/1/2019 - 12/31/2019		
	Scripts	Plan Cost PMPM	Total Plan Paid	Scripts	Plan Cost PMPM	Total Plan Paid
Diabetes	1,421	$14.94	$486,132	1,336	$13.24	$445,792
Inflammatory Conditions	167	$11.55	$375,922	148	$10.78	$363,129
Cancer	71	$5.88	$191,393	31	$0.04	$1,242
Multiple Sclerosis	30	$5.60	$182,296	36	$7.13	$240,143
Hepatitis C	5	$3.66	$119,225	2	$0.76	$25,628
Growth Deficiency	15	$3.59	$116,827	11	$3.73	$125,709
Contraceptives	1,331	$3.09	$100,574	1,168	$3.04	$102,377
Attention Disorders	496	$2.93	$95,455	446	$2.46	$82,766
Pain/Inflammation	1,999	$2.83	$92,030	1,774	$2.07	$69,593
Hormonal Supplementation	469	$2.75	$89,579	417	$2.26	$76,275
Total	6,004	$56.82	$1,849,431	5,369	$45.51	$1,532,654

High Cost Medications

1/1/2020 - 12/31/2020								
#	Drug Name	Brand/Generic	Specialty	Therapeutic Class / Associated Condition	Total Plan Cost	Script Count	Paid/Script	Claimants
1	Humira Pen	Brand	Y	Analgesics - Anti-Inflammatory	$500,000	82	$6,098	6
2	Eloctate	Brand	Y	Hematological Agents - Misc.	$250,000	11	$22,727	1
3	Genotropin	Brand	Y	Endocrine And Metabolic Agents - Misc.	$175,000	27	$6,481	1
4	Xyrem	Brand	Y	Psychotherapeutic And Neurological Agents - Misc.	$150,000	15	$10,000	1
5	Copaxone	Brand	Y	Psychotherapeutic And Neurological Agents - Misc.	$115,000	25	$4,600	2
6	Tecfidera	Brand	Y	Psychotherapeutic And Neurological Agents - Misc.	$112,000	21	$5,333	1
7	Avonex Pen	Brand	Y	Psychotherapeutic And Neurological Agents - Misc.	$92,000	20	$4,600	1
8	Trulicity	Brand	N	Antidiabetics	$88,000	177	$497	15
9	Truvada	Brand	Y	Antivirals	$85,000	106	$802	7
10	Humira	Brand	Y	Analgesics - Anti-Inflammatory	$65,000	24	$2,708	2
				Top 10 Total	$1,632,000	508	$3,212.60	37
				Total Pharmacy Spend	$3,290,000			
				Top 10 % of Total	50%			

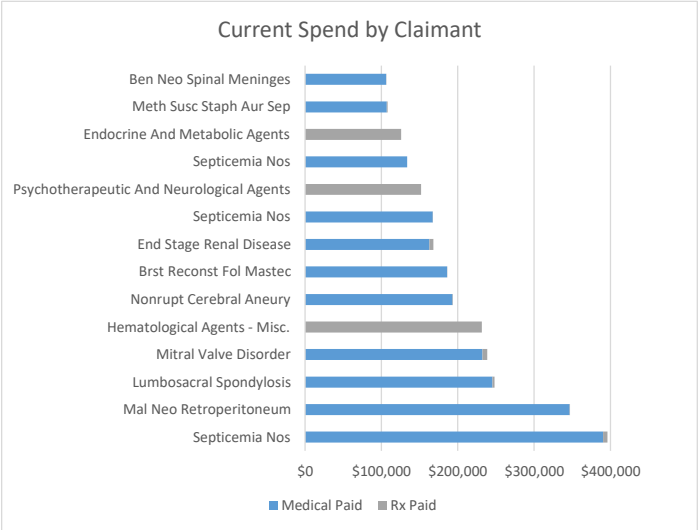
1/1/2019 - 12/31/2019								
#	Drug Name	Brand/Generic	Specialty	Therapeutic Class / Associated Condition	Total Plan Cost	Script Count	Paid/Script	Claimants
1	Ibrance	Brand	Y	Antineoplastics And Adjunctive Therapies	$165,000	15	$11,000	2
2	Humira Pen	Brand	Y	Analgesics - Anti-Inflammatory	$100,000	24	$4,167	7
3	Harvoni	Brand	Y	Antivirals	$95,000	3	$31,667	1
4	Tecfidera	Brand	Y	Psychotherapeutic And Neurological Agents - Misc.	$62,000	9	$6,889	1
5	Genotropin	Brand	Y	Endocrine And Metabolic Agents - Misc.	$59,000	8	$7,375	1
6	Trulicity	Brand	N	Antidiabetics	$52,000	57	$912	13
7	Humalog	Brand	N	Antidiabetics	$42,000	42	$1,000	15
8	Metformin Hcl Er	Generic	N	Antidiabetics	$41,000	110	$373	26
9	Stelara	Brand	Y	Dermatologicals	$38,000	4	$9,500	1
10	Androgel	Brand	N	Androgens-Anabolic	$38,000	35	$1,086	6
				Total	$692,000	307	$2,254	73
				Total Pharmacy Spend	$3,320,000			
				Top 10 % of Total	21%			

High Cost Claimants

Claimants >$50,000 Combined Medical & Pharmacy

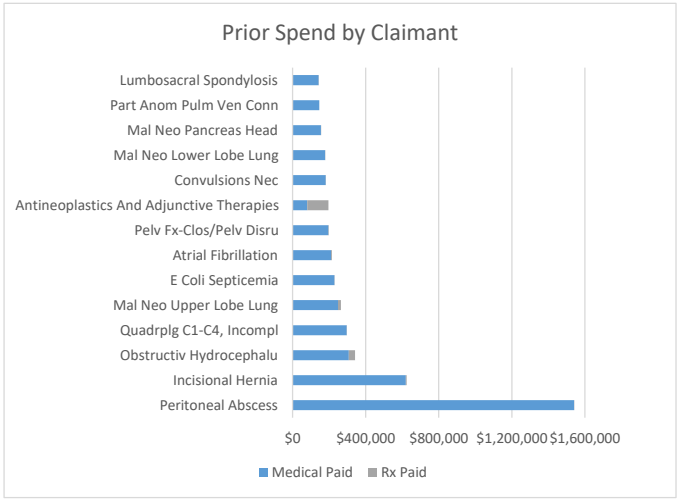
1/1/2020 - 12/31/2020						
Claimant #	Age Band	Gender	Primary Diagnosis Description	Medical Paid	Rx Paid	Med & Rx Paid
1	65-69	Male	Septicemia Nos	$390,280	$5,868	$396,148
2	70-74	Female	Mal Neo Retroperitoneum	$346,519	$515	$347,034
3	25-29	Female	Lumbosacral Spondylosis	$245,405	$2,857	$248,263
4	45-49	Female	Mitral Valve Disorder	$232,323	$6,160	$238,483
5	31-35	Male	Hematological Agents - Misc.	$0	$231,622	$231,622
6	60-64	Male	Nonrupt Cerebral Aneury	$192,987	$554	$193,541
7	60-64	Female	Brst Reconst Fol Mastec	$186,001	$369	$186,370
8	60-64	Female	End Stage Renal Disease	$162,926	$5,000	$167,926
9	60-64	Female	Septicemia Nos	$167,195	$354	$167,549
10	65-69	Female	Psychotherapeutic And Neurological Agents	$0	$151,942	$151,942
11	55-59	Female	Septicemia Nos	$133,793	$0	$133,793
12	15-19	Male	Endocrine And Metabolic Agents	$0	$125,736	$125,736
13	70-74	Female	Meth Susc Staph Aur Sep	$107,047	$1,130	$108,177
14	65-69	Female	Ben Neo Spinal Meninges	$106,142	$455	$106,597
15	N/A	N/A	All Other HCC over Medical $106,141 -$50K	$1,128,305	$499,742	$1,628,047
			Grand Total	$3,398,924	$1,032,304	$4,431,228
			Δ from Prior Period (%)	52%	141%	61%
			Total Gross Claims (Including HCC)	$9,800,000	$3,290,000	$13,090,000
			HCC as % of Total Spend by category	35%	31%	34%

Summary



1/1/2019 - 12/31/2019						
Claimant #	Age Band	Gender	Primary Diagnosis Description	Medical Paid	Rx Paid	Total Paid
1	55-59	Female	Peritoneal Abscess	$1,541,046	$142	$1,541,188
2	65-69	Male	Incisional Hernia	$619,566	$4,645	$624,211
3	40-44	Female	Obstructiv Hydrocephalu	$308,221	$33,951	$342,172
4	65-69	Male	Quadrplg C1-C4, Incompl	$296,433	$108	$296,541
5	60-64	Male	Mal Neo Upper Lobe Lung	$248,567	$16,033	$264,600
6	70-74	Male	E Coli Septicemia	$229,053	$66	$229,119
7	60-64	Male	Atrial Fibrillation	$211,046	$4,792	$215,838
8	40-44	Female	Pelv Fx-Clos/Pelv Disru	$196,089	$2,286	$198,375
9	50-54	Female	Antineoplastics And Adjunctive Therapies	$79,754	$116,255	$196,009
10	20-24	Female	Convulsions Nec	$181,816	$603	$182,419
11	65-69	Female	Mal Neo Lower Lobe Lung	$178,488	$632	$179,120
12	55-59	Female	Mal Neo Pancreas Head	$155,616	$202	$155,818
13	10-14	Male	Part Anom Pulm Ven Conn	$145,635	$0	$145,635
14	25-29	Female	Lumbosacral Spondylosis	$143,322	$410	$143,731
15	N/A	N/A	All Other HCC over Medical $143,321 -$50K	$2,057,553	$551,801	$2,609,354
			Grand Total	$6,592,206	$731,924	$7,324,130
			Total Gross Claims (Including HCC)	$12,180,000	$3,320,000	$15,500,000
			HCC as % of Total Spend by category	54%	22%	47%

Summary



Reporting Basis: Paid

Non-Network Providers

1/1/2020 - 12/31/2020

Inpatient Facilities

Rank	Facility Name	Admits	Days	Total Paid	Paid / Admit
1	Facility #1	1	2	$15,000	$7,500
2	Facility #2	1	6	$12,500	$2,083
3	Facility #3	1	1	$10,000	$10,000
4	Facility #4	1	2	$9,750	$4,875
5	Facility #5	1	1	$9,500	$9,500
6	Facility #6	1	1	$9,250	$9,250
7	Facility #7	1	1	$9,000	$9,000
8	Facility #8	1	1	$8,750	$8,750
9	Facility #9	1	1	$8,500	$8,500
10	Facility #10	1	1	$8,250	$8,250
11	All Other Facilities	2	2	$8,000	$4,000
	Total	12	19	$108,500	$9,042

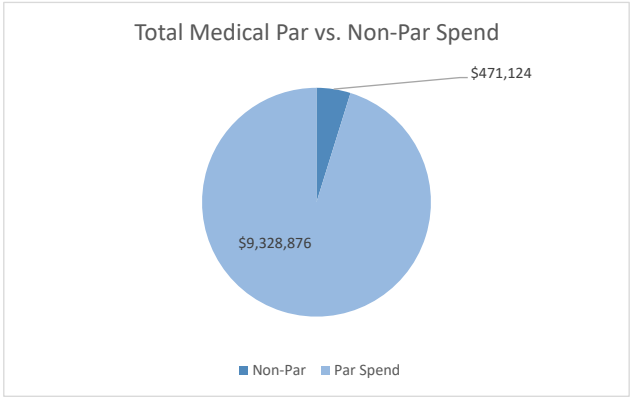
Professional Providers

Rank	Provider Name	Specialty	Services	Total Paid	Paid / Sevices
1	Provider / Practice #1	Anest.	5	$54,400	$10,880
2	Provider / Practice #2	NEC.	237	$21,025	$89
3	Provider / Practice #3	CRNA	3	$10,316	$3,439
4	Provider / Practice #4	CRNA	2	$8,400	$4,200
5	Provider / Practice #5	Ambulance	141	$6,596	$47
6	Provider / Practice #6	Mixed Spec	33	$6,314	$191
7	Provider / Practice #7	Mixed Spec	31	$6,225	$201
8	Provider / Practice #8	CRNA	62	$5,270	$85
9	Provider / Practice #9	NEC.	42	$5,238	$125
10	Provider / Practice #10	Mental Health	149	$5,199	$35
11	All Other Providers / Practices	Misc.	609	$57,823	$95
	Total		1,314	$186,806	$142

Outpatient Providers | Facilities

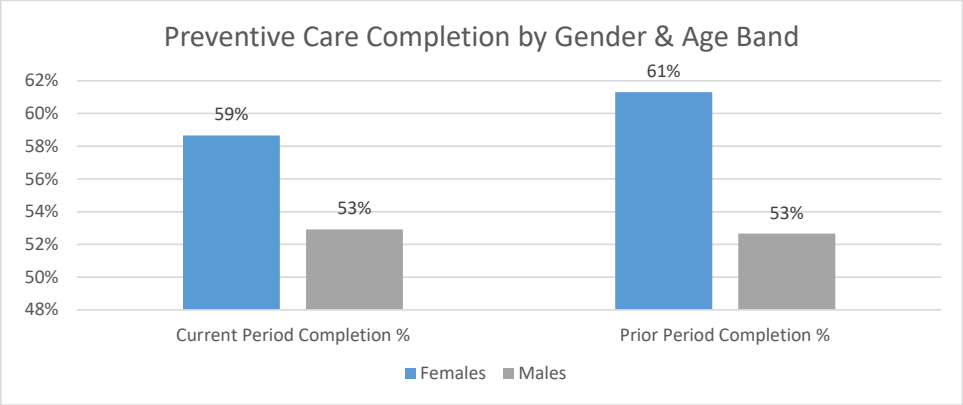
Rank	Facility Name	Visits	Claimants	Total Paid	Paid / Visit
1	Facility #1	3	1	$171,137	$171,137
2	Facility #2	1	1	$2,042	$2,042
3	Facility #3	1	1	$1,092	$1,092
4	Facility #4	1	1	$708	$708
5	Facility #5	1	1	$455	$455
6	Facility #6	4	1	$386	$386
	Total	11	6	$175,819	$15,984

Summary



Preventive Visits

Summary by Gender and Age Band



April 1, 2018 - March 31, 2019

	Females			Males		
Age Band	Eligible	Completed	% of Eligible	Eligible	Completed	% of Eligible
Infant	35	30	86%	25	15	60%
1-4 Years	65	55	85%	65	45	69%
5-14 Years	150	95	63%	175	100	57%
15-19 Years	100	40	40%	100	35	35%
20-39 Years	400	195	49%	150	70	47%
40-64 Years	650	400	62%	500	275	55%
65+ Years	100	65	65%	100	50	50%
Total	1,500	880	59%	1,115	590	53%

April 1, 2017 - March 31, 2018

	Females			Males		
Age Band	Eligible	Completed	% of Eligible	Eligible	Completed	% of Eligible
Infant	40	35	88%	25	15	60%
1-4 Years	60	45	75%	65	50	77%
5-14 Years	150	80	53%	175	95	54%
15-19 Years	90	40	44%	100	40	40%
20-39 Years	400	200	50%	165	75	45%
40-64 Years	625	425	68%	500	280	56%
65+ Years	95	70	74%	100	40	40%
Total	1,460	895	61%	1,130	595	53%

Executive Summary of Medical & Prescription Drug Coverage

City of Sarasota

	City of Sarasota - 2022						Sarasota County- 2022			
Vendor	**BlueCross BlueShield**			**BlueCross BlueShield**			**Aetna**		**Aetna**	
Plan Name	Plan 1			Plan 2			Choice POS II		Health Fund	
Plan Type	PPO w/HRA			PPO w/HSA			PPO		PPO w/HRA	
HRA Fund	Up to $600 | Wellness Activity Contingent			Up to $600 | Wellness Activity Contingent			-		$500 Individual	$1,000 Family
On-Site Clinic Offered	Yes			Yes			Yes		Yes	
Plan Details	**In-Network**			**In-Network**			**In-Network**		**In-Network**	
	Single		**Family**	**Single**		**Family**	***Single***	***Family***	***Single***	***Family***
Plan Deductible	$750		$1,500	$2,000 | $2,800		$4,000	$600	$1,200	$1,750	$3,500
Family Deductible of 3 or more:			$2,250							
Calendar or Policy Year:	Calendar			Calendar			Calendar		Calendar	
Coinsurance:	80%			80%			80%		80%	
Maximum Out-of-Pocket (Med|Rx):	$2,500		$5,000	$6,900		$13,800	$2,500	$5,000	$3,500	$7,000
Family of 3 or more Max OOP:	-		$7,500	-						
Physician Services										
Office Visit Copay:	$20			80% after CYD			$25		80% after CYD	
Specialist Copay:	$35 (CCN) | $50 (Non-CCN)			80% after CYD			$35 (Aexcel | $50 (Non-Aexcel)		90% (Aexcel) | 80% (Non-Aexcel)	
Hospital / Emergency Services										
Inpatient Hospital Per Admission Copay:	80% after CYD			80% after CYD			80% after CYD		80% after CYD	
Emergency Room Copay:	$250			80% after CYD			$300		80% after CYD	
Urgent Care Copay:	$75			80% after CYD			$75		80% after CYD	
Outpatient Surgical Facility Copay:	80% after CYD			80% after CYD			80% after CYD		80% after CYD	
Diagnostic Services										
Lab, X-Ray & Diagnostics Outpatient:	$10			80% after CYD			$35		80% after CYD	
Advanced Imaging Services:	$250 Copay per scan			80% after CYD			80% after CYD		80% after CYD	
Prescription Drugs										
Deductible:	-			-			-		-	
	$5 | 60% of cost ($35-$75)						$9 | 80% of cost ($35-$70)		$9 | 80% of cost ($35-$70)	
Prescription Tier	40% of cost ($70-$100) | $250			80% after CYD			60% of cost ($50-$100) | $250		60% of cost ($50-$100) | $250	
Mail Order Prescription (90 Day Supply):	2.5x's Copay			80% after CYD						
	Plan 1			**Plan 2**			**Choice POS II**		**Health Fund**	
Monthly Employee Contributions	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**				
Employee Only	$60.04	$43.38	$67.45	$0.00	$0.00	N/A	$106.36		$77.00	
Employee + One	$448.18	$423.17	$503.58	$219.92	$194.91	N/A	$498.01		$360.58	
Employee + Child(ren)	N/A	N/A	N/A	N/A	N/A	N/A	$584.96		$423.54	
Employee + Family	$537.23	$495.56	$603.63	$400.83	$359.17	N/A	$712.57		$515.95	
	Plan 1			**Plan 2**			**Choice POS II**		**Health Fund**	
Monthly Retiree Contributions	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**	**Non-Medicare**		**Non-Medicare**	
Employee Only	$137.94	N/A	$686.02	$0.00	N/A	$600.71	N/A		N/A	
Employee + One	$619.55	N/A	$1,368.54	$485.66	N/A	$1,191.18	N/A		N/A	
Employee + Family	$1,108.09	N/A	$2,392.32	$976.81	N/A	$1,967.02	N/A		N/A	

Notes

Illustrated benefits include in-network coverages only.

	City of Sarasota - 2022						City of Clearwater - 2022	
Vendor	**BlueCross BlueShield**			**BlueCross BlueShield**			**Cigna**	
Plan Name	Plan 1			Plan 2			OAP	
Plan Type	PPO w/HRA			PPO w/HSA			PPO	
HRA Fund	Up to $600 | Wellness Activity Contingent			Up to $600 | Wellness Activity Contingent			-	
On-Site Clinic Offered	Yes			Yes			Yes	
Plan Details	**In-Network**			**In-Network**			**In-Network**	
	Single		**Family**	**Single**		**Family**	**Single**	**Family**
Plan Deductible	$750		$1,500	$2,000 | $2,800		$4,000	$2,000	$4,000
Family Deductible of 3 or more:			$2,250					
Calendar or Policy Year:	Calendar			Calendar			Calendar Year	
Coinsurance:	80%			80%			90%	
Maximum Out-of-Pocket (Med|Rx)	$2,500		$5,000	$6,900		$13,800	$3,500	$7,000
Family of 3 or more Max OOP:	-		$7,500	-				
Physician Services								
Office Visit Copay:	$20			80% after CYD			$20	
Specialist Copay:	$35 (CCN) | $50 (Non-CCN)			80% after CYD			$40	
Hospital / Emergency Services								
Inpatient Hospital Per Admission Copay:	80% after CYD			80% after CYD			90% after CYD	
Emergency Room Copay:	$250			80% after CYD			$150	
Urgent Care Copay:	$75			80% after CYD			$75	
Outpatient Surgical Facility Copay:	80% after CYD			80% after CYD			90% after CYD	
Diagnostic Services								
Lab, X-Ray & Diagnostics Outpatient:	$10			80% after CYD			$0	
Advanced Imaging Services:	$250 Copay per scan			80% after CYD			$0	
Prescription Drugs								
Deductible:	-			-			-	
Prescription Tier	$5 | 60% of cost ($35-$75)			80% after CYD			$10 | $30 | $50	
Mail Order Prescription (90 Day Supply):	2.5x's Copay			80% after CYD			2x's Copay	
	Plan 1			**Plan 2**			**PPO**	
Monthly Employee Contributions	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**		
Employee Only	$60.04	$43.38	$67.45	$0.00	$0.00	N/A	$0.00	
Employee + One	$448.18	$423.17	$503.58	$219.92	$194.91	N/A	$330.00	
Employee + Child(ren)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Employee + Family	$537.23	$495.56	$603.63	$400.83	$359.17	N/A	696.76	
	Plan 1			**Plan 2**			**OAP**	
Monthly Retiree Contributions	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**		
Employee Only	$137.94	N/A	$686.02	$0.00	N/A	$600.71	$774.45	
Employee + One	$619.55	N/A	$1,368.54	$485.66	N/A	$1,191.18	$1,326.99	
Employee + Family	$1,108.09	N/A	$2,392.32	$976.81	N/A	$1,967.02	$2,177.41	

Illustrated benefits include in-network coverages or

	City of Sarasota - 2022						City of Tampa - 2022			
Vendor	**BlueCross BlueShield**			**BlueCross BlueShield**			**UnitedHealthcare**		**UnitedHealthcare**	
Plan Name	Plan 1			Plan 2			City Plan With HRA		Simple Wellness Plan	
Plan Type	PPO w/HRA			PPO w/HSA			PPO w/HRA		PPO w/HRA	
HRA Fund	Up to $600 | Wellness Activity Contingent			Up to $600 | Wellness Activity Contingent			$1,000 Single | $2,000 w/Spouse or DP		$1,000	
On-Site Clinic Offered	Yes			Yes			Yes		Yes	
Plan Details	**In-Network**			**In-Network**			**In-Network**		**In-Network**	
	Single		**Family**	**Single**		**Family**	***Single***	***Family***	***Single***	***Family***
Plan Deductible	$750		$1,500	$2,000 | $2,800		$4,000	$2,000	$4,000	$2,000	$4,000
Family Deductible of 3 or more:			$2,250							
Calendar or Policy Year:	Calendar			Calendar			Calendar		Calendar	
Coinsurance:	80%			80%			90%		100%	
Maximum Out-of-Pocket (Med|Rx):	$2,500		$5,000	$6,900		$13,800	$4,000	$8,000	$4,000	$8,000
Family of 3 or more Max OOP:	-		$7,500	-						
Physician Services										
Office Visit Copay:	$20			80% after CYD			$30		$30	
Specialist Copay:	$35 (CCN) | $50 (Non-CCN)			80% after CYD			$30 Tier-1 | $50 all others		$30 Tier-1 | $50 all others	
Hospital / Emergency Services										
Inpatient Hospital Per Admission Copay:	80% after CYD			80% after CYD			90% after CYD		$400 per day up to 5 days after CYD	
Emergency Room Copay:	$250			80% after CYD			$300		$300 after CYD	
Urgent Care Copay:	$75			80% after CYD			$50		$50	
Outpatient Surgical Facility Copay:	80% after CYD			80% after CYD			90% after CYD		$100 - Free Standing $250 after CYD - Hospital	
Diagnostic Services										
Lab, X-Ray & Diagnostics Outpatient:	$10			80% after CYD			90% after CYD		No Charge after CYD	
Advanced Imaging Services:	$250 Copay per scan			80% after CYD			90% after CYD		$200 after CYD	
Prescription Drugs										
Deductible:	-			-			-		-	
Prescription Tier	$5 | 60% of cost ($35-$75)			80% after CYD			$30 | $60 | $90 | 75%		$30 | $60 | $90 | 75%	
Mail Order Prescription (90 Day Supply):	2.5x's Copay			80% after CYD			2x's Copay		2x's Copay	
	Plan 1			**Plan 2**			**City Plan With HRA**		**Simple Wellness Plan**	
Monthly Employee Contributions	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**				
Employee Only	$60.04	$43.38	$67.45	$0.00	$0.00	N/A	$0.00		$38.00	
Employee + One	$448.18	$423.17	$503.58	$219.92	$194.91	N/A	N/A		N/A	
Employee + Child(ren)	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	
Employee + Family	$537.23	$495.56	$603.63	$400.83	$359.17	N/A	$428.00		$502.00	
	Plan 1			**Plan 2**			**City Plan With HRA**		**Simple Wellness Plan**	
Monthly Retiree Contributions	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**	**Non-Medicare**		**Non-Medicare**	
Employee Only	$137.94	N/A	$686.02	$0.00	N/A	$600.71	N/A		N/A	
Employee + One	$619.55	N/A	$1,368.54	$485.66	N/A	$1,191.18	N/A		N/A	
Employee + Family	$1,108.09	N/A	$2,392.32	$976.81	N/A	$1,967.02	N/A		N/A	

Notes

Illustrated benefits include in-network coverages only.

The City of Tampa's HRA for both plans is contingent upon completion of wellness related activities (Personal Health Assessment, Tobacco Free Affidavit, and completion of online webinars, onsite classes, or participation in a designated walking challenge.

	City of Sarasota - 2022						City of Venice - 2021			
Vendor	**BlueCross BlueShield**			**BlueCross BlueShield**			**Florida Blue**			
Plan Name	Plan 1			Plan 2			PPO Plan			
Plan Type	PPO w/HRA			PPO w/HSA			PPO			
HRA Fund	Up to $600 | Wellness Activity Contingent			Up to $600 | Wellness Activity Contingent			-			
On-Site Clinic Offered	Yes			Yes			-			
Plan Details	**In-Network**			**In-Network**			**In-Network**			
	Single		**Family**	**Single**		**Family**	***Single***		***Family***	
Plan Deductible	$750		$1,500	$2,000 | $2,800		$4,000	$300		$500	
Family Deductible of 3 or more:			$2,250						-	
Calendar or Policy Year:		Calendar			Calendar			Calendar		
Coinsurance:		80%			80%			80%		
Maximum Out-of-Pocket (Med|Rx):	$2,500		$5,000	$6,900		$13,800	$2,000		$6,000	
Family of 3 or more Max OOP:	-		$7,500	-				-		
Physician Services										
Office Visit Copay:		$20			80% after CYD			$25		
Specialist Copay:		$35 (CCN) | $50 (Non-CCN)			80% after CYD			$25		
Hospital / Emergency Services										
Inpatient Hospital Per Admission Copay:		80% after CYD			80% after CYD			80% after CYD		
Emergency Room Copay:		$250			80% after CYD			$250 Copay + 80% after CYD		
Urgent Care Copay:		$75			80% after CYD			$25		
Outpatient Surgical Facility Copay:		80% after CYD			80% after CYD			80% after CYD		
Diagnostic Services										
Lab & Diagnostic X-Ray		$10			80% after CYD			Lab: $0 | X-Rays: 80% after CYD		
Advanced Imaging Services:		$250 Copay per scan			80% after CYD			80% after CYD		
Prescription Drugs										
Deductible:		-			-			-		
Prescription Tier		$5 | 60% of cost ($35-$75) 40% of cost ($70-$100) | $250			80% after CYD			$7.50 | $25 | $35		
Mail Order Prescription (90 Day Supply):		2.5x's Copay			80% after CYD			2x's Copay		

	Plan 1			Plan 2			PPO Plan			
Monthly Employee Contributions	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**	**Wage Band #1**	**Wage Band #2**	**Wage Band #3**	**Wage Band #4**
Employee Only	$60.04	$43.38	$67.45	$0.00	$0.00	N/A	$47.06	$86.26	$172.51	$203.88
Employee + One	$448.18	$423.17	$503.58	$219.92	$194.91	N/A	$313.67	$352.89	$439.14	$470.51
Employee + Child(ren)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Employee + Family	$537.23	$495.56	$603.63	$400.83	$359.17	N/A	$363.07	$402.29	$488.54	$519.91

	Plan 1			Plan 2		
Monthly Retiree Contributions	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**
Employee Only	$137.94	N/A	$686.02	$0.00	N/A	$600.71
Employee + One	$619.55	N/A	$1,368.54	$485.66	N/A	$1,191.18
Employee + Family	$1,108.09	N/A	$2,392.32	$976.81	N/A	$1,967.02

Illustrated benefits include in-network coverages only.

	City of Sarasota - 2022						City of St. Petersburg - 2022			
Vendor	**BlueCross BlueShield**			**BlueCross BlueShield**			**UnitedHealthcare**		**UnitedHealthcare**	
Plan Name	Plan 1			Plan 2			Choice High Deductible Plan		Basic High Deductible Plan	
Plan Type	PPO w/HRA			PPO w/HSA			PPO w/HRA		PPO	
HRA Fund	Up to $600 | Wellness Activity Contingent			Up to $600 | Wellness Activity Contingent			$250		-	-
On-Site Clinic Offered	Yes			Yes			Yes		Yes	
Plan Details	**In-Network**			**In-Network**			**In-Network**		**In-Network**	
	Single		**Family**	**Single**		**Family**	***Single***	***Family***	***Single***	***Family***
Plan Deductible	$750		$1,500	$2,000 | $2,800		$4,000	$1,750	$3,500	$5,000	$10,000
Family Deductible of 3 or more:			$2,250							
Calendar or Policy Year:	Calendar			Calendar			Plan Year		Plan Year	
Coinsurance:	80%			80%			90%		100%	
Maximum Out-of-Pocket (Med|Rx)	$2,500		$5,000	$6,900		$13,800	$3,500	$7,000	$5,000	$10,000
Family of 3 or more Max OOP:	-		$7,500	-						
Physician Services										
Office Visit Copay:	$20			80% after CYD			$25		$0 After PYD	
Specialist Copay:	$35 (CCN) | $50 (Non-CCN)			80% after CYD			$35 Designated Provider | $45 all others		$0 After PYD	
Hospital / Emergency Services										
Inpatient Hospital Per Admission Copay:	80% after CYD			80% after CYD			$300 per day up to 5 days then 10% after PYD		$0 After PYD	
Emergency Room Copay:	$250			80% after CYD			$250 after PYD (Waived if admitted)		$0 After PYD	
Urgent Care Copay:	$75			80% after CYD			$50 after PYD		$0 After PYD	
Outpatient Surgical Facility Copay:	80% after CYD			80% after CYD			90% after PYD		$0 After PYD	
Diagnostic Services										
Lab, X-Ray & Diagnostics Outpatient:	$10			80% after CYD			90% after PYD		$0 After PYD	
Advanced Imaging Services:	$250 Copay per scan			80% after CYD			90% after PYD		$0 After PYD	
Prescription Drugs										
Deductible:	-			-			$200 Ind. | $400 Family		Plan Year Deductible	
Prescription Tier	$5 | 60% of cost ($35-$75) 40% of cost ($70-$100) | $250			80% after CYD			$15 | $35 | $50 | 75% - Tier 2,3, & 4 after Rx Ded.		$0 After PYD	
Mail Order Prescription (90 Day Supply):	2.5x's Copay			80% after CYD			$45 | $105 | $150 - Tier 2 & 3 after Rx Ded.		$0 After PYD	

	Plan 1			**Plan 2**			**Choice High Deductible Plan**	**Basic High Deductible Plan**
Monthly Employee Contributions	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**		
Employee Only	$60.04	$43.38	$67.45	$0.00	$0.00	N/A	$169.18	$134.32
Employee + One	$448.18	$423.17	$503.58	$219.92	$194.91	N/A	$363.74	$288.80
Employee + Child(ren)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Employee + Family	$537.23	$495.56	$603.63	$400.83	$359.17	N/A	$478.78	$380.14

	Plan 1			**Plan 2**			**Choice High Deductible Plan**	**Basic High Deductible Plan**
Monthly Retiree Contributions	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**		
Employee Only	$137.94	N/A	$686.02	$0.00	N/A	$600.71	N/A	N/A
Employee + One	$619.55	N/A	$1,368.54	$485.66	N/A	$1,191.18	N/A	N/A
Employee + Family	$1,108.09	N/A	$2,392.32	$976.81	N/A	$1,967.02	N/A	N/A

Notes

Illustrated benefits include in-network coverages only.

The City of St. Petersburg's HRA fund is tied to comp

	City of Sarasota - 2022						City of St. Petersburg - 2022 (Traditional Plans)			
Vendor	**BlueCross BlueShield**			**BlueCross BlueShield**			**UnitedHealthcare**		**UnitedHealthcare**	
Plan Name	Plan 1			Plan 2			Choice Plus Plan		Choice EPO Plan	
Plan Type	PPO w/HRA			PPO w/HSA			PPO		EPO	
HRA Fund	Up to $600 | Wellness Activity Contingent			Up to $600 | Wellness Activity Contingent			-	-	-	-
On-Site Clinic Offered	Yes			Yes			Yes		Yes	
Plan Details	**In-Network**			**In-Network**			**In-Network**		**In-Network**	
	Single		**Family**	**Single**		**Family**	***Single***	***Family***	***Single***	***Family***
Plan Deductible	$750		$1,500	$2,000 | $2,800		$4,000	$750	$1,500	$750	$1,500
Family Deductible of 3 or more:			$2,250							
Calendar or Policy Year:	Calendar			Calendar			Plan Year		Plan Year	
Coinsurance:	80%			80%			90%		100%	
Maximum Out-of-Pocket (Med|Rx):	$2,500		$5,000	$6,900		$13,800	$3,000	$6,000	$3,000	$6,000
Family of 3 or more Max OOP:	-		$7,500	-						
Physician Services										
Office Visit Copay:	$20			80% after CYD			$30		$30	
Specialist Copay:	$35 (CCN) | $50 (Non-CCN)			80% after CYD			$35 Designated Provider | $50 all others		$35 Designated Provider | $50 all others	
Hospital / Emergency Services										
Inpatient Hospital Per Admission Copay:	80% after CYD			80% after CYD			$300 per day up to 3 days then 90% after PYD		$300 per day up to 3 days then $0 after PYD	
Emergency Room Copay:	$250			80% after CYD			$250 after PYD (Waived if admitted)		$250 after PYD (Waived if admitted)	
Urgent Care Copay:	$75			80% after CYD			$50 after PYD		$50 after PYD	
Outpatient Surgical Facility Copay:	80% after CYD			80% after CYD			90% after PYD		100% after PYD	
Diagnostic Services										
Lab, X-Ray & Diagnostics Outpatient:	$10			80% after CYD			90% after PYD		$0	
Advanced Imaging Services:	$250 Copay per scan			80% after CYD			90% after PYD		$0 after PYD	
Prescription Drugs										
Deductible:	-			-			$200 Ind. | $400 Family		$200 Ind. | $400 Family	
Prescription Tier	$5 | 60% of cost ($35-$75) 40% of cost ($70-$100) | $250			80% after CYD			$15 | $35 | $50 | 75% - Tier 2,3, & 4 after Rx Ded.		$15 | $35 | $50 | 75% - Tier 2,3, & 4 after Rx Ded.	
Mail Order Prescription (90 Day Supply):	2.5x's Copay			80% after CYD			$45 | $105 | $150 - Tier 2 & 3 after Rx Ded.		$45 | $105 | $150 - Tier 2 & 3 after Rx Ded.	
	Plan 1			**Plan 2**			**Choice Plus Plan**		**Choice EPO Plan**	
Monthly Employee Contributions	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**				
Employee Only	$60.04	$43.38	$67.45	$0.00	$0.00	N/A	$217.42		$196.43	
Employee + One	$448.18	$423.17	$503.58	$219.92	$194.91	N/A	$439.21		$422.33	
Employee + Child(ren)	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	
Employee + Family	$537.23	$495.56	$603.63	$400.83	$359.17	N/A	$608.81		$555.89	
	Plan 1			**Plan 2**			**Choice Plus Plan**		**Choice EPO Plan**	
Monthly Retiree Contributions	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**				
Employee Only	$137.94	N/A	$686.02	$0.00	N/A	$600.71	N/A		N/A	
Employee + One	$619.55	N/A	$1,368.54	$485.66	N/A	$1,191.18	N/A		N/A	
Employee + Family	$1,108.09	N/A	$2,392.32	$976.81	N/A	$1,967.02	N/A		N/A	

Notes
Illustrated benefits include in-network coverages only.

	City of Sarasota - 2022						Charlotte County - 2022	
Vendor	**BlueCross BlueShield**			**BlueCross BlueShield**			**Cigna**	
Plan Name	Plan 1			Plan 2			OAPIN Open Access Plus Plan	
Plan Type	PPO w/HRA			PPO w/HSA			PPO	
HRA Fund	Up to $600 | Wellness Activity Contingent			Up to $600 | Wellness Activity Contingent			Up to $1,000	
On-Site Clinic Offered	Yes			Yes			Yes	
Plan Details	**In-Network**			**In-Network**			**In-Network**	
	Single		**Family**	**Single**		**Family**	***Single***	***Family***
Plan Deductible	$750		$1,500	$2,000 | $2,800		$4,000	$500	$1,000
Family Deductible of 3 or more:			$2,250					
Calendar or Policy Year:		Calendar			Calendar		Plan Year	
Coinsurance:		80%			80%		100%	
Maximum Out-of-Pocket (Med|Rx):	$2,500		$5,000	$6,900		$13,800	$1,500	$3,000
Family of 3 or more Max OOP:	-		$7,500	-				
Physician Services								
Office Visit Copay:		$20			80% after CYD			$25
Specialist Copay:		$35 (CCN) | $50 (Non-CCN)			80% after CYD			$35
Hospital / Emergency Services								
Inpatient Hospital Per Admission Copay:		80% after CYD			80% after CYD			$0 after CYD
Emergency Room Copay:		$250			80% after CYD			$150
Urgent Care Copay:		$75			80% after CYD			$50
Outpatient Surgical Facility Copay:		80% after CYD			80% after CYD			$0 after CYD
Diagnostic Services								
Lab, X-Ray & Diagnostics Outpatient:		$10			80% after CYD			$0
Advanced Imaging Services:		$250 Copay per scan			80% after CYD			$0 after CYD
Prescription Drugs								
Deductible:		-			-			-
Prescription Tier		$5 | 60% of cost ($35-$75)			80% after CYD			$15 | $30 | $60
Mail Order Prescription (90 Day Supply):		2.5x's Copay			80% after CYD			2x's Copay

	Plan 1			**Plan 2**			**OAPIN Open Access Plus Plan**
Monthly Employee Contributions	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**	
Employee Only	$60.04	$43.38	$67.45	$0.00	$0.00	N/A	$26.00
Employee + One	$448.18	$423.17	$503.58	$219.92	$194.91	N/A	$286.00
Employee + Child(ren)	N/A	N/A	N/A	N/A	N/A	N/A	$249.00
Employee + Family	$537.23	$495.56	$603.63	$400.83	$359.17	N/A	$315.00

	Plan 1			**Plan 2**			**OAPIN Open Access Plus Plan**
Monthly Retiree Contributions	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**	
Employee Only	$137.94	N/A	$686.02	$0.00	N/A	$600.71	$1,137.00
Employee + One	$619.55	N/A	$1,368.54	$485.66	N/A	$1,191.18	$2,397.00 (E+S), $2082(E+C)
Employee + Family	$1,108.09	N/A	$2,392.32	$976.81	N/A	$1,967.02	$2,633.00

Notes

Illustrated benefits include in-network coverages only.

	City of Sarasota - 2022						City of North Port - 2022					
Vendor	**BlueCross BlueShield**			**BlueCross BlueShield**			**AETNA**		**AETNA**		**AETNA**	
Plan Name	Plan 1			Plan 2			Select Plan		POS II Plan		POS II Plan w/ HSA	
Plan Type	PPO w/HRA			PPO w/HSA			HMO		PPO		HDHP	
HRA Fund	Up to $600 | Wellness Activity Contingent			Up to $600 | Wellness Activity Contingent			-	-	-	-	$2,700	
On-Site Clinic Offered	Yes			Yes			-	-	-	-	-	-
Plan Details	**In-Network**			**In-Network**			**In-Network**		**In-Network**		**In-Network**	
	Single		**Family**	**Single**		**Family**	***Single***	***Family***	***Single***	***Family***	***Single***	***Family***
Plan Deductible	$750		$1,500	$2,000 | $2,800		$4,000	$1,500	$3,000	$500	$1,000	$2,800	$5,400
Family Deductible of 3 or more:			$2,250									
Calendar or Policy Year:	Calendar			Calendar			Plan Year		Plan Year		Plan Year	
Coinsurance:	80%			80%			100%		80%		90%	
Maximum Out-of-Pocket (Med|Rx):	$2,500		$5,000	$6,900		$13,800	$3,500	$7,000	$3,000	$6,000	$4,000	$8,000
Family of 3 or more Max OOP:	-		$7,500	-								
Physician Services												
Office Visit Copay:	$20			80% after CYD			$25		$25		90% after PYD	
Specialist Copay:	$35 (CCN) | $50 (Non-CCN)			80% after CYD			$50		$50		90% after PYD	
Hospital / Emergency Services												
Inpatient Hospital Per Admission Copay:	80% after CYD			80% after CYD			100% after PYD		80% after PYD		90% after PYD	
Emergency Room Copay:	$250			80% after CYD			$300		$300		90% after PYD	
Urgent Care Copay:	$75			80% after CYD			$50		$50		90% after PYD	
Outpatient Surgical Facility Copay:	80% after CYD			80% after CYD			100% after PYD		80% after PYD		90% after PYD	
Diagnostic Services												
Lab, X-Ray & Diagnostics Outpatient:	$10			80% after CYD			100% after PYD		$0		$0	
Advanced Imaging Services:	$250 Copay per scan			80% after CYD			100% after PYD		$300		$0 after PYD	
Prescription Drugs												
Deductible:	-			-								
Prescription Tier	$5 | 60% of cost ($35-$75) 40% of cost ($70-$100) | $250			80% after CYD			$10 | $30 | $50		$10 | $30 | $50		90% after PYD	
Mail Order Prescription (90 Day Supply):	2.5x's Copay			80% after CYD			2x's Copay		2x's Copay		90% after PYD	
	Plan 1			**Plan 2**			**Select Plan**		**POS II Plan**		**POS II Plan w/ HSA**	
Monthly Employee Contributions	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**						
Employee Only	$60.04	$43.38	$67.45	$0.00	$0.00	N/A	$0.00		$2.64		$0.00	
Employee + One	$448.18	$423.17	$503.58	$219.92	$194.91	N/A	$347.82		$353.30		$184.12	
Employee + Child(ren)	N/A	N/A	N/A	N/A	N/A	N/A	$286.04		$291.03		$151.43	
Employee + Family	$537.23	$495.56	$603.63	$400.83	$359.17	N/A	$705.36		$713.77		$373.40	
	Plan 1			**Plan 2**			**Select Plan**		**POS II Plan**		**POS II Plan w/ HSA**	
Monthly Retiree Contributions	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**						
Employee Only	$137.94	N/A	$686.02	$0.00	N/A	$600.71	N/A		N/A		N/A	
Employee + One	$619.55	N/A	$1,368.54	$485.66	N/A	$1,191.18	N/A		N/A		N/A	
Employee + Family	$1,108.09	N/A	$2,392.32	$976.81	N/A	$1,967.02	N/A		N/A		N/A	

Notes

Illustrated benefits include in-network coverages only.

	City of Sarasota - 2022						City of Bradenton - 2022					
Vendor	**BlueCross BlueShield**			**BlueCross BlueShield**			**BlueCross BlueShield**		**BlueCross BlueShield**		**BlueCross BlueShield**	
Plan Name	Plan 1			Plan 2			BlueCare 55		BlueOptions 03769		BlueOptions 05190/05191 w/ HSA	
Plan Type	PPO w/HRA			PPO w/HSA			HMO		PPO		HDHP	
HRA Fund	Up to $600 | Wellness Activity Contingent			Up to $600 | Wellness Activity Contingent			-	-	-	-	n/a	
On-Site Clinic Offered	Yes			Yes			-		-		-	
Plan Details	**In-Network**			**In-Network**			**In-Network**		**In-Network**		**In-Network**	
	Single		**Family**	**Single**		**Family**	***Single***	***Family***	***Single***	***Family***	***Single***	***Family***
Plan Deductible	$750		$1,500	$2,000 | $2,800		$4,000	$0	$0	$300	$600	$1,500	$3,000
Family Deductible of 3 or more:			$2,250									
Calendar or Policy Year:	Calendar			Calendar			Plan Year		Plan Year		Plan Year	
Coinsurance:	80%			80%			100%		80%		80%	
Maximum Out-of-Pocket (Med|Rx):	$2,500		$5,000	$6,900		$13,800	$1,500	$3,000	$2,000	$4,000	$2,500	$5,000
Family of 3 or more Max OOP:	-		$7,500	-								
Physician Services												
Office Visit Copay:	$20			80% after CYD			$25 / $5 per Value Choice Provider		$25 / $5 per Value Choice Provider		80% after Ded	
Specialist Copay:	$35 (CCN) | $50 (Non-CCN)			80% after CYD			$50		$50		80% after Ded	
Hospital / Emergency Services												
Inpatient Hospital Per Admission Copay:	80% after CYD			80% after CYD			$150 per day Up to $600		80% after Ded		80% after Ded	
Emergency Room Copay:	$250			80% after CYD			$250		$250		80% after Ded	
Urgent Care Copay:	$75			80% after CYD			$25 / $5 per Value Choice Provider		$25 / $5 per Value Choice Provider		80% after Ded	
Outpatient Surgical Facility Copay:	80% after CYD			80% after CYD			$100 per Visit / Hospital: $200 per Visit		80% after Ded		80% after Ded	
Diagnostic Services												
Lab, X-Ray & Diagnostics Outpatient:	$10			80% after CYD			Lab: $0, Diag Center: $25		Lab: $0, Diag Center: Ded + Coins		80% after Ded	
Advanced Imaging Services:	$250 Copay per scan			80% after CYD			Phys Office: $75, Diag Center: $100		80% after Ded		80% after Ded	
Prescription Drugs												
Deductible:	-			-							Calendar Year Deductible	
Prescription Tier	$5 | 60% of cost ($35-$75) 40% of cost ($70-$100) | $250			80% after CYD			$10 | $50 | $80 | $75 (specialty)		$10 | $50 | $80 | $75 (specialty)		$10 | $50 | $80 | Ded + Coins	
Mail Order Prescription (90 Day Supply):	2.5x's Copay			80% after CYD			2x's Copay		2x's Copay		2x's Copay	
	Plan 1			**Plan 2**			**BlueCare 55**		**BlueOptions 03769**		**BlueOptions 05190/05191 w/ HSA**	
Monthly Employee Contributions	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**	**Team IUPA Nonrep**	**Premium Incentive**	**PBA Union**						
Employee Only	$60.04	$43.38	$67.45	$0.00	$0.00	N/A	n/a		n/a		n/a	
Employee + One	$448.18	$423.17	$503.58	$219.92	$194.91	N/A	n/a		n/a		n/a	
Employee + Child(ren)	N/A	N/A	N/A	N/A	N/A	N/A	n/a		n/a		n/a	
Employee + Family	$537.23	$495.56	$603.63	$400.83	$359.17	N/A	n/a		n/a		n/a	
	Plan 1			**Plan 2**			**BlueCare 55**		**BlueOptions 03769**		**BlueOptions 05190/05191 w/ HSA**	
Monthly Retiree Contributions	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**	**Pre 10/1/93 DOH**		**Post 10/1/93 DOH**						
Employee Only	$137.94	N/A	$686.02	$0.00	N/A	$600.71	n/a		n/a		n/a	
Employee + One	$619.55	N/A	$1,368.54	$485.66	N/A	$1,191.18	n/a		n/a		n/a	
Employee + Family	$1,108.09	N/A	$2,392.32	$976.81	N/A	$1,967.02	n/a		n/a		n/a	

Notes

Illustrated benefits include in-network coverages only.

Brown & Brown INSURANCE®

DAYTONA BEACH

Sample Client

2021-2022 Plan Performance vs. Budget Summary



Presented By

Danielle Boyle
Senior Vice President

Brandon Savage
Director of Analytics

Mike Rusin
Service Leader

Brenda Thurston
Senior Brokerage Analyst

Presented by Brown & Brown of Florida, Inc.

Sample Client

Self-Funded Budget Report - October 1, 2021 - September 30, 2022
Summary

Medical Administrator	BCBS of Florida
Pharmacy Benefit Manager	BCBS / Prime

	Enrollment						Funding			Fixed Fees							
Date	Employee Only	Employee + Spouse	Employee + Child/Children	Family	Total Subscribers	Total Membership	Total Funding (Budget)	Employee Contribution	Employer Contribution	ISL Premium	ASL Premium	Admin Fees	Clinic	Opt-Out Credit [1]	Consulting Fee	PCORI Fee [2]	Fixed Fee Total
Oct-21	178	91	96	63	428	906	$446,250	$60,334	$385,916	$35,713	$2,559	$22,770	$9,167	$3,375	$5,833	$211	$79,628
Nov-21	179	90	97	63	429	909	$446,699	$60,269	$386,430	$35,747	$2,565	$22,823	$9,167	$3,313	$5,833	$211	$79,659
Dec-21	180	90	98	62	430	910	$446,772	$60,139	$386,634	$35,781	$2,571	$22,876	$9,167	$3,250	$5,833	$212	$79,690
Jan-22	185	91	99	59	434	904	$446,908	$59,550	$387,359	$35,833	$2,595	$23,089	$9,167	$3,000	$5,833	$210	$79,727
Feb-22	184	91	98	58	431	897	$443,396	$59,035	$384,361	$35,561	$2,577	$22,929	$9,167	$3,188	$5,833	$209	$79,464
Mar-22	182	95	100	59	436	912	$451,616	$60,611	$391,005	$36,324	$2,607	$23,195	$9,167	$2,875	$5,833	$212	$80,214
Apr-22	189	92	99	59	439	909	$450,613	$60,135	$390,478	$36,087	$2,625	$23,355	$9,167	$2,688	$5,833	$211	$79,966
May-22																	
Jun-22																	
Jul-22																	
Aug-22																	
Sep-22																	
YTD Totals/ Averages	182	91	98	60	432	907	$3,132,253	$420,072	$2,712,181	$251,047	$18,101	$161,036	$64,167	$21,688	$40,833	$1,476	$558,348

	Claims						Performance vs. Budget	
Date	HSA Seed [3]	Medical Claims	Rx Claims	Capitation	Value Based Programs	Claims Total	Gross Total (Claims & Fees)	YTD Performance vs Budget
Oct-21	$37,188	$284,294	$72,939	$751	$518	$395,689	$475,317	($29,068)
Nov-21	$37,396	$335,557	$69,354	$757	$507	$443,571	$523,231	($76,532)
Dec-21	$37,396	$466,077	$96,146	$780	$496	$600,894	$680,585	($233,812)
Jan-22	$37,708	$217,425	$56,874	$772	$493	$313,272	$392,999	$53,909
Feb-22	$37,396	$213,191	$59,212	$707	$482	$310,988	$390,452	$52,944
Mar-22	$37,604	$164,939	$90,966	$745	$2,128	$296,382	$376,596	$75,020
Apr-22	$38,021	$177,857	$75,880	$744	$2,138	$294,641	$374,607	$76,006
May-22								
Jun-22								
Jul-22								
Aug-22								
Sep-22								
YTD Totals/ Averages	$262,708	$1,859,340	$521,371	$5,257	$6,761	$2,655,438	$3,213,787	($81,533)

% Med. Claims	78%	Amount in Excess of ISL Ded.	$0
% Rx Claims	22%	Total Net of Stop Loss Reimb.	($81,533)
Claims as % of SL Expected	78%	2021-2022 Surplus Rx Rebates [4]	$54,115
Claims as % of SL Maximum	62%	Total Net of SL Reimb. & Rx Rebates	($27,419)

Rx Rebate History		
Experience Period	Check Date	Amount
Q2 2015	March 16, 2016	$24,034
Q3 2015	June 27, 2016	$17,919
Q4 2015	September 19, 2016	$10,787
Q1 2016	December 12, 2016	$7,457
Q2 2016	March 21, 2017	$7,205
Q3 2016	June 15, 2017	$9,703
Q4 2016	September 22, 2017	$10,090
Q1 2017	December 21, 2017	$8,953
Q2 2017	March 26 & 28, 2018	$13,337
Q3 2017	June 19 & 20, 2018	$19,514
Q4 2017	September 18 & 26, 2018	$21,056
Q1 2018	December 14 & 18, 2018	$26,712
Q2 2018	March 28,2019	$27,176
Q3 2018	June 26, 2019	$23,570
Q4 2018	September 20 & 23, 2019	$29,883
Q1 2019	December 17 & 18, 2019	$24,902
Q2 2019	March 17 & 19, 2020	$24,621
Q3 2019	June 18 & 22, 2020	$32,681
Q4 2019	September 24, 2020	$38,895
Q1 2020	December 22 & 23, 2020	$46,491
Q2 2020	March 16 & 25, 2021	$44,904
Q3 2020	June 11 & 16, 2021	$57,608
Q4 2020	September 15 & 16, 2021	$50,045
Q1 2021	December 16, 2021	$41,531
Q2 2021	March 11 & 15, 2022	$62,584
Total of 4 Most Recent Payments		$211,768

Notes

[1] Opt-Out Credit shown reflects maximum amount based on number of employees eligible at the beginning of the plan year and number of employees enrolled. It does not account for new hires or terminations.

[2] Illustrated PCORI Fees have been updated to reflect IRS announcement of 2021 rate ($2.79 PMPY).

[3] HSA Seed shown reflects maximum amount based on HSA enrollment.

[4] The 2021 - 2022 projection includes $50,000 in Rx Rebates. Surplus Rx Rebates shows any rebate amount received after the $50,000.

Sample Client

Self-Funded Budget Report - October 1, 2021 - September 30, 2022

BlueOptions Blended Plan

	Enrollment						Funding		
Date	Employee Only	Employee + Spouse	Employee + Child/Children	Family	Total Subscribers	Total Membership	Total Funding (Budget)	Employee Contribution	Employer Contribution
Oct-21	21	27	18	5	71	154	$81,266	$15,603	$65,663
Nov-21	20	26	19	5	70	153	$80,546	$15,464	$65,081
Dec-21	20	27	19	5	71	155	$81,887	$15,713	$66,174
Jan-22	20	28	19	5	72	157	$83,228	$15,962	$67,266
Feb-22	20	28	19	5	72	157	$83,228	$15,962	$67,266
Mar-22	20	28	21	6	75	166	$87,612	$17,038	$70,574
Apr-22	22	26	20	6	74	161	$84,937	$16,521	$68,416
May-22									
Jun-22									
Jul-22									
Aug-22									
Sep-22									
YTD Totals/ Averages	20	27	19	5	72	158	$582,704	$112,264	$470,439

	Fixed Fees								Claims					Performance vs. Budget	
Date	ISL Premium	ASL Premium	Admin Fees	Clinic	Opt-Out Credit	Consulting Fee	PCORI Fee	Fixed Fee Total	Medical Claims	Rx Claims	Capitation	Value Based Programs	Claims Total	Grand Total (Claims & Fees)	YTD Performance vs Budget
Oct-21	$6,647	$425	$3,777	$1,521	$560	$968	$36	$13,932	$88,330	$25,628	$258	$109	$114,324	$128,256	($46,990)
Nov-21	$6,613	$419	$3,724	$1,496	$541	$952	$36	$13,779	$87,111	$16,059	$258	$105	$103,532	$117,311	($36,765)
Dec-21	$6,731	$425	$3,777	$1,514	$537	$963	$36	$13,982	$155,446	$25,970	$267	$99	$181,782	$195,764	($113,878)
Jan-22	$6,850	$431	$3,830	$1,521	$498	$968	$37	$14,134	$98,879	$10,696	$271	$106	$109,951	$124,084	($40,857)
Feb-22	$6,850	$431	$3,830	$1,531	$532	$974	$37	$14,186	$48,988	$12,821	$232	$135	$62,176	$76,362	$6,866
Mar-22	$7,206	$449	$3,990	$1,577	$495	$1,003	$39	$14,758	$55,151	$20,477	$262	$339	$76,230	$90,987	($3,375)
Apr-22	$6,918	$443	$3,937	$1,545	$453	$983	$37	$14,316	$49,583	$12,560	$258	$359	$62,759	$77,075	$7,862
May-22															
Jun-22															
Jul-22															
Aug-22															
Sep-22															
YTD Totals/ Averages	$47,814	$3,020	$26,866	$10,704	$3,615	$6,812	$256	$99,087	$583,487	$124,211	$1,805	$1,251	$710,753	$809,840	($227,137)

Sample Client

Self-Funded Budget Report - October 1, 2021 - September 30, 2022
BlueOptions HSA Plan

	Enrollment						Funding		
Date	Employee Only	Employee + Spouse	Employee + Child/Children	Family	Total Subscribers	Total Membership	Total Funding (Budget)	Employee Contribution	Employer Contribution
Oct-21	157	64	78	58	357	752	$364,983	$44,731	$320,252
Nov-21	159	64	78	58	359	756	$366,153	$44,804	$321,348
Dec-21	160	63	79	57	359	755	$364,886	$44,426	$320,460
Jan-22	165	63	80	54	362	747	$363,680	$43,587	$320,093
Feb-22	164	63	79	53	359	740	$360,168	$43,073	$317,095
Mar-22	162	67	79	53	361	746	$364,004	$43,573	$320,431
Apr-22	167	66	79	53	365	748	$365,676	$43,614	$322,062
May-22									
Jun-22									
Jul-22									
Aug-22									
Sep-22									
YTD Totals/ Averages	162	64	79	55	360	749	$2,549,549	$307,808	$2,241,742

	Fixed Fees								Claims						Performance vs. Budget	
Date	ISL Premium	ASL Premium	Admin Fees	Clinic	Opt-Out Credit	Consulting Fee	PCORI Fee	Fixed Fee Total	HSA Seed	Medical Claims	Rx Claims	Capitation	Value Based Programs	Claims Total	Grand Total (Claims & Fees)	YTD Performance vs Budget
Oct-21	$29,067	$2,135	$18,992	$7,646	$2,815	$4,866	$175	$65,696	$37,188	$195,965	$47,311	$493	$409	$281,365	$347,061	$17,922
Nov-21	$29,135	$2,147	$19,099	$7,671	$2,772	$4,882	$176	$65,881	$37,396	$248,446	$53,296	$500	$402	$340,039	$405,920	($39,767)
Dec-21	$29,050	$2,147	$19,099	$7,653	$2,713	$4,870	$176	$65,708	$37,396	$310,631	$70,175	$513	$398	$419,112	$484,820	($119,935)
Jan-22	$28,983	$2,165	$19,258	$7,646	$2,502	$4,866	$174	$65,593	$37,708	$118,546	$46,178	$502	$387	$203,321	$268,914	$94,766
Feb-22	$28,711	$2,147	$19,099	$7,635	$2,655	$4,859	$172	$65,278	$37,396	$164,203	$46,391	$475	$347	$248,812	$314,090	$46,077
Mar-22	$29,118	$2,159	$19,205	$7,590	$2,380	$4,830	$173	$65,456	$37,604	$109,788	$70,489	$483	$1,789	$220,153	$285,608	$78,395
Apr-22	$29,169	$2,183	$19,418	$7,621	$2,234	$4,850	$174	$65,650	$38,021	$128,274	$63,321	$487	$1,779	$231,882	$297,532	$68,144
May-22																
Jun-22																
Jul-22																
Aug-22																
Sep-22																
YTD Totals/ Averages	$203,233	$15,082	$134,170	$53,463	$18,073	$34,022	$1,219	$459,262	$262,708	$1,275,852	$397,161	$3,452	$5,511	$1,944,685	$2,403,946	$145,603

2021-2022 High Cost Claimants

Top Claimants Based on Paid Amount

Individual Stop Loss Summary	
Stop Loss Vendor	BCBS / Companion
Coverages Included	Medical & Pharmacy
Individual Stop Loss Deductible	$175,000
Reporting Threshold	$75,000
Specific Contract	33/12
Incurred Period	1/1/2020 - 9/30/2022
Paid Period	10/1/2021 - 9/30/2022

October 1, 2021 - September 30, 2022			Paid Amount		
Claimant #	Relationship	Primary Diagnosis	Medical Paid	Rx Paid	Total Paid
1	Employee	Primary Diagnosis #1	$45,420	$107,444	$152,864
2	Employee	Primary Diagnosis #2	$142,919	$141	$143,061
3	Spouse	Primary Diagnosis #3	$129,706	$4,751	$134,457
4	Employee	Primary Diagnosis #4	$122,559	$9	$122,568
5	Employee	Primary Diagnosis #5	$90,023	$6,233	$96,256
6	Employee	Primary Diagnosis #6	$22,868	$54,890	$77,759
			$553,496	$173,469	$726,964
			Amount in Excess of ISL		$0

2021 Proposed Funding, Contribution & EE Contribution Summary

	2020 Monthly Funding & EE | ER Contributions					2021 Monthly Funding & EE | ER Contributions						
Sample HRA	Enrollment Tier					Enroll	Funding Rate	Employer Contrib. ($)	HRA Fund	EE Contrib. ($)	EE Monthly Δ	Tobacco EE Contrib. ($)
	EE Only					-	$560.00	$510.00	$50.00	$50.00		$62.50
	EE & Spouse					-	$980.00	$805.00	$75.00	$175.00		$218.75
	EE & Child(ren)					-	$890.00	$725.00	$75.00	$165.00		$206.25
	Family					-	$1,360.00	$1,095.00	$100.00	$265.00		$331.25
	Annual Total					0	$0	$0	$0	$0		
Sample HSA	Enrollment Tier	Enroll	Funding Rate	Employer Contrib. ($)	HSA Seed	Total EE Contrib. ($)	Enroll	Funding Rate	Employer Contrib. ($)	HSA Seed	EE Contrib. ($)	EE Monthly Δ	Tobacco EE Contrib. ($)
	EE Only	136	$550.00	$495.00	$50.00	$55.00	142	$560.00	$502.50	$50.00	$57.50	$2.50	$71.88
	EE & Spouse	34	$980.00	$795.00	$75.00	$185.00	31	$980.00	$790.00	$75.00	$190.00	$5.00	$237.50
	EE & Child(ren)	16	$870.00	$710.00	$75.00	$160.00	17	$890.00	$725.00	$75.00	$165.00	$5.00	$206.25
	Family	41	$1,360.00	$1,110.00	$75.00	$250.00	44	$1,360.00	$1,095.00	$100.00	$265.00	$15.00	$331.25
	Annual Total	227	$2,133,600	$1,814,640	$163,500	$318,960	234	$2,218,440	$1,876,200	$181,200	$342,240		
Sample PPO	Enrollment Tier	Enroll	Funding Rate	Employer Contrib. ($)		Total EE Contrib. ($)	Enroll	Funding Rate	Employer Contrib. ($)		Total EE Contrib. ($)	EE Monthly Δ	Tobacco EE Contrib. ($)
	EE Only	528	$635.00	$525.00		$110.00	523	$650.00	$535.00		$115.00	$5.00	$143.75
	EE & Spouse	195	$1,140.00	$815.00		$325.00	201	$1,160.00	$825.00		$335.00	$10.00	$418.75
	EE & Child(ren)	110	$1,000.00	$750.00		$250.00	111	$1,030.00	$770.00		$260.00	$10.00	$325.00
	Family	321	$1,580.00	$1,580.00			308	$1,610.00	$1,195.00		$415.00	$415.00	$518.75
	Annual Total	1,154	$14,097,120	$12,309,660		$1,787,460	1,143	$14,199,840	$10,789,920		$3,409,920		
		Total Enroll	Total Funding	Employer Contrib. ($)	HSA Seed	Total EE Contrib. ($)	Total Enroll	Total Funding	Employer Contrib. ($)	HSA Seed & HRA Fund	Total EE Contrib. ($)		
	Est. Annual Total	1,381	$16,230,720	$14,124,300	$163,500	$2,106,420	1,377	$16,418,280	$12,666,120	$181,200	$3,752,160		
	Δ from 2018 ($)							$187,560	-$1,458,180	$17,700	$1,645,740		
	Δ from 2018 (%)							1.2%	-10.3%	$17,700	78.1%		

Notes

Enrollment is broken out as follows:

2018 -December enrollment

2019 - January enrollment

AGENDA ITEM NO. 6.b

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Christophe St. Luce, City Administration

ITEM TYPE: Agreement

AGENDA SECTION: CONSENT AGENDA

SUBJECT: Memorandum of Understanding to Cease Operations with Bird Rides, Inc.

SUGGESTED ACTION: Approval

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
The City and Bird Rides have mutually agreed to end scooter operations.

FINANCIAL IMPACT:
None

ATTORNEY REVIEW/RECOMMENDATION:
Reviewed and accepted by the City Attorney.

SUGGESTED MOTION:
Motion to accept the memorandum of understanding ceasing operations with Bird Rides.

ATTACHMENTS:
MOU with Bird Rides, Inc.

MEMORANDUM OF UNDERSTANDING

This binding Memorandum of Understanding ("MOU") is made and entered into this _____ day of _____, 2023 (the "Effective Date"), by and between **Bird Rides, Inc.**, a Delaware Corporation, located at 8605 Santa Monica Blvd., #20388 West Hollywood, California, 90069 (the "Company"), and the **City of Bradenton**, a Municipal Corporation, located at 101 Old Main Street, Bradenton, Florida, 34205 (the "City").

WITNESSETH:

WHEREAS, on July 13, 2022, the City and Company entered into an Operating Agreement for a Scooter Sharing Pilot Program in the City (hereinafter the "Operating Agreement"); and

WHEREAS, the City and Company now mutually agree that Bird will cease operations in the City of Bradenton pursuant to the terms of the Operating Agreement.

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained herein and other good and valuable consideration, the City and Company hereby agree as follows:

1. The City and Company agree that on the Effective Date, Bird will cease its operations within the City of Bradenton, waive any rights to be the exclusive provider of scooter sharing services within the City, and the Operating Agreement, and any permit or authorization issued thereunder, will no longer be in effect.

2. The parties acknowledge and agree that no funds are being held by the City under the Operating Agreement, no amounts are due by either party under the Operating Agreement, and no further action is required by either party under the Operating Agreement.

3. The execution of this MOU has been duly authorized by the appropriate body or official of the City and Company, both the City and Company have complied with all the requirements of law, and both the City and Company have full power and authority to comply with the terms and provisions of this instrument.

4. This MOU may be executed in any number of counterparts, each of which shall be construed as an original, but all of which together shall constitute one in the same instrument.

[Signature Page to Follow]

IN WITNESS WHEREOF, the City and Company have signed this MOU as of the date first written above.

Signed, sealed, and delivered in the presence of:

ATTEST:

CITY OF BRADENTON, a Florida Municipal Corporation

_____
Tamara Melton, City Clerk

By:_____
Rob Perry, City Administrator

BIRD RIDES, INC., a Delaware Corporation

Christopher Stockwell
_____
Witness

Christopher Stockwell
_____
Printed Signature

By: Austin Marshburn
_____

Its: Sr. Director, City Partnerships
_____

Austin Marshburn

AGENDA ITEM NO. 6.c

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Tamara Melton, Clerk

ITEM TYPE: Minutes

AGENDA SECTION: CONSENT AGENDA

SUBJECT: January 3, 2023 Special Meeting Minutes

SUGGESTED ACTION: Approval

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
Minutes from the January 3, 2023 Special Meeting

SUGGESTED MOTION:
Motion to approve the minutes from the January 3, 2023 Special Meeting.

ATTACHMENTS:
1-3-23 Bradenton City Council Special Meeting Minutes

CITY OF BRADENTON

CITY COUNCIL SPECIAL MEETING MINUTES

January 3, 2023
9:00 a.m.

The City of Bradenton City Council met in Council Chambers, 101 Old Main Street, Bradenton, Florida, at 9:00 a.m. on Tuesday, January 3, 2023.

Present: Mayor Gene Brown; Councilwoman Ward I Jayne Kocher; Councilwoman Ward II Marianne Barnebey; Councilman Ward III Josh Cramer; Councilwoman Ward IV Lisa Gonzalez Moore; and Vice Mayor/Councilwoman Ward V Pam Coachman.

City Officials: Rob Perry, City Administrator; Christophe St. Luce, Assistant City Administrator; Melanie Bevan, Police Chief; Tim Geer, Fire Chief; Jim McLellan, Public Works & Utilities Director; Robin Singer, Planning & Community Development Director; Nilsa Taylor, Administrative Services Director; Tamara Melton, City Clerk; and Scott Rudacille, City Attorney.

Following the Swearing-in Ceremony for Councilwoman Barnebey, Councilman Cramer, Councilwoman Gonzalez Moore, Mayor Gene Brown opened the meeting at 9:14 a.m.

RECOGNITION OF 17 YEARS OF SERVICE – COUNCILMAN PATRICK ROFF

Mayor Brown spoke highly of the accomplishments of former Councilman Patrick Roff and congratulated him on his retirement after serving the citizens of Bradenton for 17 years. In turn, council members shared their appreciation for his service to the City of Bradenton.

Rob Perry, City Administrator, also thanked Mr. Roff for his 17 years of service and spoke highly of his dedication to the City and its citizens.

Mr. Roff thanked the citizens for allowing him to serve the City. He recalled accomplishments during his tenure on Council and encouraged the new City Council to continue moving the City forward in the future. In conclusion, Mr. Roff thanked his family for supporting him during five election cycles.

Mr. Roff was presented plaques from the City thanking him for his service and then received a standing ovation from attendees.

ELECTION OF VICE MAYOR:

MOTION TO NOMINATE COUNCILWOMAN KOCHER AS VICE MAYOR was made by Councilwoman Barnebey and seconded by Councilwoman Coachman. Motion passed 5-0.

APPOINTMENT OF CRA BOARD CHAIR & VICE CHAIR:

Scott Rudacille, City Attorney, explained Florida Statutes require the governing body of the City to appoint the Chair and Vice Chair of the Community Redevelopment Agency (CRA) board.

MOTION TO NOMINATE COUNCILMAN CRAMER AS THE COMMUNITY REDEVELOPMENT AGENCY BOARD CHAIR was made by Vice Mayor Kocher and seconded by Councilwoman Barnebey. Motion passed 5-0.

MOTION TO NOMINATE COUNCILWOMAN BARNEBEY AS THE COMMUNITY REDEVELOPMENT AGENCY BOARD VICE CHAIR was made by Vice Mayor Kocher and seconded by Councilman Cramer. Motion passed 5-0.

NEW BUSINESS:

Subgrant for Highway Traffic Safety Funds - Slow Down and Stop on Red

Melanie Bevan, Police Chief, explained the reason this request is on a Special meeting agenda, is to expedite the process for receiving grant funding from the Florida Department of Transportation (FDOT).

MOTION TO APPROVE THE SLOW DOWN AND STOP ON RED SUBGRANT was made by Councilwoman Barnebey and seconded by Vice Mayor Kocher. Motion passed 5-0.

Interlocal Agreement with Manatee County for Temporary Right-of-Way Maintenance

Mr. Perry explained the City of Bradenton had an agreement in place with FDOT to perform median maintenance on certain rights-of-way in the City. The Interlocal Agreement, he continued, would transfer maintenance responsibilities to Manatee County.

MOTION TO APPROVE THE INTERLOCAL AGREEMENT WITH MANATEE COUNTY FOR TEMPORARY RIGHT-OF-WAY MAINTENANCE was made by Vice Mayor Kocher and seconded by Councilwoman Barnebey. Motion passed 5-0.

Downtown Maintenance/Initiatives

Mr. Perry explained he distributed a memorandum to Council on December 20, 2022 regarding a series of downtown improvements and maintenance requests.

The requests outlined in the memorandum included:

- Rossi Park - Lawn Replacement - Artificial Forever Lawn and Playground Surface
- Traffic Safety Bollards
- City Center Garage and Retail Space Repairs for Moisture Penetration
- Main Street: Concrete-Sidewalk and Surround/Deep Clean-Color Activator and Sealant
- Main Street Striping
- Downtown/Barcarrota Boulevard Live Vegetative Landscape
- Parking Garage Signage
- 3rd Avenue West and Old Main Street - 6 feet by 12 feet Video Display Board

Mr. Perry gave an overview for each project and then provided a depiction of the proposed video display board. He explained the video board is an outdoor screen that is similar to Daktronics video displays that are installed in sports venues. He added the funding for the board is included in the City Centre Parking Garage budget and would be considered a sole-source purchase.

Following a brief discussion, **MOTION TO APPROVE FUNDING FOR THE DOWNTOWN MAINTENANCE INITIATIVES INCLUDING A DOWNTOWN VIDEO BOARD AS REFERENCED IN THE MEMORANDUM FROM CITY ADMINISTRATOR ROB PERRY DATED DECEMBER 20, 2022** was made by Vice Mayor Kocher and seconded by Councilwoman Barnebey. Motion passed 5-0.

CLOSING COMMENTS:

Councilwoman Barnebey thanked the citizens for putting their faith in her and thanked volunteers that assisted during her campaign. She said serving the community is an honor and serving in your hometown is a special privilege. She concluded by thanking her family for their support.

Councilwoman Gonzalez Moore thanked her family and the citizens for their confidence in her. She looked forward to a bright and vibrant future for the City of Bradenton.

Councilman Cramer spoke on partnerships and noted his first partner with the Police Department, Valorie Knight, was in attendance. These partnerships, he continued, now included citizens, Council members, and City staff. He stressed the importance to offer a competitive wage for staff to ensure a bright future for the City. He concluded by recognizing his wife, Maria, and thanking her for her support.

Councilwoman Coachman thanked everyone for attending the meeting and congratulated Vice Mayor Kocher on her new role as Vice Mayor. Councilwoman Coachman was enthusiastic about the future of the City.

Mayor Brown looked forward to a positive and productive future in working with the new Council members, citizens, and staff.

The City Council Special Meeting adjourned at 9:56 a.m.

NOTE: This is not a verbatim record.

AGENDA ITEM NO. 6.d

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Tamara Melton, Clerk

ITEM TYPE: Minutes

AGENDA SECTION: CONSENT AGENDA

SUBJECT: January 25, 2023 Special Meeting Minutes

SUGGESTED ACTION: Approval

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
January 25, 2023 Special Meeting Minutes

ATTORNEY REVIEW/RECOMMENDATION:
N/A

SUGGESTED MOTION:
Motion to approve the January 25, 2023 Special Meeting Minutes.

ATTACHMENTS:
1-25-23 Bradenton City Council Special Meeting Minutes

CITY OF BRADENTON

CITY COUNCIL SPECIAL MEETING MINUTES

January 25, 2023
Immediately following the City Council Workshop, which began at 9:00 a.m.

The City of Bradenton City Council met in Council Chambers, 101 Old Main Street, Bradenton, Florida, at 11:55 a.m. on Wednesday, January 25, 2023.

Present: Mayor Gene Brown; Vice Mayor/Councilwoman Ward I Jayne Kocher; Councilwoman Ward II Marianne Barnebey; Councilman Ward III Josh Cramer; Councilwoman Ward IV Lisa Gonzalez Moore; and Councilwoman Ward V Pam Coachman.

City Officials: Rob Perry, City Administrator; Christophe St. Luce, Assistant City Administrator; Melanie Bevan, Police Chief; Tim Geer, Fire Chief; Jim McLellan, Public Works & Utilities Director; Robin Singer, Planning & Community Development Director; Lance Williams, Finance Director; Nilsa Taylor, Administrative Services Director; Tamara Melton, City Clerk; and Scott Rudacille, City Attorney.

New Business:

Resolution 23-15

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, AUTHORIZING THE BRADENTON CITY COUNCIL TO PARTICIPATE IN A JOINT MEETING WITH THE COUNCIL OF GOVERNMENTS TO DISCUSS AND PLAN MATTERS OF MUTUAL INTEREST; AND PROVIDING FOR AN EFFECTIVE DATE.

MOTION TO APPROVE RESOLUTION 23-15 was made by Vice Mayor Kocher and seconded by Councilwoman Barnebey. Motion passed 5-0.

The City Council Special Meeting adjourned at 11:57 a.m.

NOTE: This is not a verbatim record.

AGENDA ITEM NO. 6.e

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Tamara Melton, Clerk

ITEM TYPE: Resolution

AGENDA SECTION: CONSENT AGENDA

SUBJECT: Resolution 23-7: Correcting Scrivener's Error

SUGGESTED ACTION: Approval

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
At the January 18, 2023 City Council meeting, Council approved Resolution 23-7 which approved the appointment of Kurt Landenfeld to the Citizens Advisory Network of the MPO. Following the meeting staff realized the resolution reflected number 22-7 instead of 23-7. This approval is only for the correction of the resolution number.

FINANCIAL IMPACT:
N/A

ATTORNEY REVIEW/RECOMMENDATION:
N/A

SUGGESTED MOTION:
Motion to approve the correction of the resolution number to reflect 23-7.

ATTACHMENTS:
Resolution 23-7 - Board Appointment

RESOLUTION NUMBER 23-7

A RESOLUTION APPOINTING **KURT LANDENFELD** TO THE **CITIZENS ADVISORY NETWORK OF THE METROPOLITAN PLANNING ORGANZIATION** FOR THE CITY OF BRADENTON, FLORIDA AND DEFINING HIS TERM.

WHEREAS, the City is desirous of appointing outstanding members of the community to this board.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, THAT:

The Mayor does hereby appoint, and the City Council approves and confirms the appointment from this date hereof:

KURT LANDENFELD for a term to expire January 2026.

PASSED AND DULY ADOPTED, BY THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, with a quorum present and voting, this 8th day of February, 2023.

ATTEST:

_____
Tamara Melton
City Clerk

_____
Gene Brown
Mayor

APPROVED AS TO FORM:

_____
Scott Rudacille
City Attorney

AGENDA ITEM NO. 6.f

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Karen Kyser, Community Redevelopment Agency

ITEM TYPE: Agreement

AGENDA SECTION: CONSENT AGENDA

SUBJECT: Astoria on 9th - Legal Documents

SUGGESTED ACTION: Approve LURA, Promissory Note, and Subordination Agreement

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
HTG Astoria, LTD. is requesting the execution of the attached Land Use Restriction Agreement (LURA), Promissory Note, and related Subordination Agreement. During the September 14, 2022, CRA special meeting, the CRA had agreed to provide HTG with a subordinate, long-term, forgivable loan of $600,000 which will be distributed in three disbursements of $200,000 each year, starting in FY22-23 (after commencement of construction).
HTG Astoria, Ltd., an affiliate of Housing Trust Group, LLC ("HTG") currently has plans to develop 120 units of affordable housing reserved for seniors with incomes of ranging from 22%, 30%, and 60% of the AMI). Astoria on 9th (the "Development") is in the City of Bradenton within the 14th Street CRA District and Ward 3 of the City of Bradenton. The site consists of 1.99 acres located at the northwest corner of 9th Street W. and 23rd Ave W., approximately 2116 9th Street W.
Construction is slated to start the first quarter of 2023, with 14 months scheduled for construction.

FINANCIAL IMPACT:
CRA Loan: $600,000 ($200,000 in FY22-23, $200,000 in FY23-24, $200,000 in FY24-25)

ATTORNEY REVIEW/RECOMMENDATION:
Reviewed by City and CRA Attorney

SUGGESTED MOTION:
Motion to approve the attached legal documents and authorize CRA Chair and CRA Executive Director to execute all necessary documents and paperwork.

ATTACHMENTS:
7a Astoria on 9th Documentation

Anyone wishing to view supporting documents for agenda items, please contact: Karen Kyser, Program Administrator: 941-932-9440 or karen.kyser@bradentonFL.gov

Community Redevelopment Agency
Agenda Memorandum

Agenda Item:

Astoria on 9th - Legal Documents

Agenda Date:

February 8, 2023

Originated by:

Rodrigo Paredes, SVP of Development of HTG Astoria, LTD

Authorized by:

Katerina Gerakios-Siren, CRA Executive Director

- ○ Presentation
- ○ 14th Street CRA District
- ◉ Bradenton CRA District
- ○ Central CRA District
- ○ Multiple CRA Districts
- ○ Consent Agenda

Explanation:

HTG Astoria, LTD. is requesting the execution of the attached Land Use Restriction Agreement (LURA), Promissory Note, and related Subordination Agreement. During the September 14, 2022 CRA special meeting, the CRA had agreed to provide HTG with a subordinate, long-term, forgivable loan of $600,000 which will be distributed in three disbursements of $200,000 each year, starting in FY22-23 (after commencement of construction).

** Continued on page 2

Financial Impact:

CRA Loan: $600,000 ($200,000 in FY22-23, $200,000 in FY23-24, $200,000 in FY24-25)

Attorney Review/Recommendation:

Reviewed by City and CRA Attorney

Requested action to be taken by the CRA Board:

Approve LURA, Promissory Note, and Subordination Agreement

Recommended Motion to Approve or Deny:

Motion to approve the attached legal documents and authorize CRA Chair and CRA Executive Director to execute all necessary documents and paperwork.

Attachments:

Land Use Restriction Agreement, Promissory Note, and Subordination Agreement with HTG Astoria, LTD.

Community Redevelopment Agency

Agenda Memorandum

Agenda Item:

Astoria on 9th - Legal Documents

Agenda Date:

February 8, 2023

Explanation Continued:

HTG Astoria, Ltd., an affiliate of Housing Trust Group, LLC ("HTG") currently has plans to develop 120 units of affordable housing reserved for seniors with incomes of ranging from 22%, 30%, and 60% of the AMI). Astoria on 9th (the "Development") is in the City of Bradenton within the 14th Street CRA District and Ward 3 of the City of Bradenton. The site consists of 1.99 acres located at the northwest corner of 9th Street W. and 23rd Ave W., approximately 2116 9th Street W.

Construction is slated to start the first quarter of 2023, with 14 months scheduled for construction.

ATTACHMENT 1:
LURA

PREPARED BY AND RETURN TO:
Scott E. Rudacille, Esquire
Blalock Walters, P.A.
802 11th Street W
Bradenton, Florida 34205

LAND USE RESTRICTION AGREEMENT

FOR: HTG ASTORIA, LTD – ASTORIA

THIS LAND USE RESTRICTION AGREEMENT ("Agreement") is made and entered into as of the ____ day of _____, 2023, by and between the City of Bradenton, a municipal corporation existing by and under the laws of the State of Florida ("City"), the Community Redevelopment Agency of the City of Bradenton, a dependent special district of the City of Bradenton ("CRA"), and HTG Astoria, Ltd., a Florida limited partnership (hereinafter referred to as the "Owner").

RECITALS

WHEREAS, the Owner owns approximately 1.99 acres of land located generally at the northwest corner of 9th Street West and 23rd Avenue West, Bradenton, Florida, and legally described in Exhibit "A" attached hereto (the "Land"); and

WHEREAS, the Owner seeks to develop the Land with approximately 120 units of elderly, affordable multifamily rental housing as further defined herein (the "Project"); and

WHEREAS, the Owner has requested, as part of the Project, financial incentives from the City, in the form of a waiver of certain impact fees, in order to construct the Project with affordable housing, and the City has agreed to provide these financial incentives for this purpose; and

WHEREAS, the Owner has requested, as part of the Project, financial incentives from the CRA, to include a forgivable, zero-interest loan, in order to construct the Project with affordable housing, and the CRA has agreed to provide these financial incentives for this purpose; and

WHEREAS, the City Council and CRA Board find that the construction and operation of the Project will also promote economic development by providing jobs and income to the residents of the CRA and further the implementation of the 14th Street CRA District Master Plan; and

WHEREAS, the Owner has agreed to comply with certain use restriction as provided in this Agreement.

NOW, THEREFORE, in consideration of the above premises and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

SECTION 1
DEFINITIONS

1.1 Definitions and Interpretations. Unless otherwise expressly provided herein or unless the context clearly requires otherwise, the following terms shall have the respective meanings set forth below for purposes of this Agreement:

(a) Affordable Housing: the term "affordable housing" as used in this Agreement shall mean housing for low-income households, with rents based on the rent limits applicable to 30 to 80 percent of Area Median Income ("AMI") or lower, as posted annually by the Florida Housing Finance Corporation ("FHFC") and adjusted based on revised local data for Manatee County.

(b) Project: the improvements to be constructed on the Land, consisting of approximately 120 units of elderly multifamily affordable rental housing meeting the terms described herein, associated residential amenities, and the Land and all moveable property and fixtures from time to time attached thereto.

(c) Fiscal Year: the term "fiscal year" shall be defined as the period beginning on October 1 and ending on September 30. For example, 2022-2023 fiscal year is from October 1, 2022 through September 30, 2023.

(d) Rental Housing: housing units made available for rental, and not ownership who are members of the general public, each of which units shall contain complete living facilities that are to be used other than on a transient basis and facilities that are functionally related and subordinate to the living facilities. The housing units shall at all times be constructed or substantially rehabilitated and maintained in substantial accordance with applicable building code standards of the City in which they are located.

(e) Elderly Affordable Housing: the term "elderly housing" shall mean Affordable Housing that is intended for, and solely occupied by, persons 62 years of age or older.

(f) State: the State of Florida, in which the Project is located.

(g) Term: the term of this Agreement as defined in Section 6 hereof.

SECTION 2
REPRESENTATIONS, COVENANTS AND COMMITMENTS

2.1 Residential Affordable and/or Workforce Housing Rental Project. The Owner shall develop and maintain, during the Term of this Agreement, the Project as a multifamily housing development consisting of approximately one hundred twenty (120) units of Elderly Affordable Housing. All dwelling units in the Project shall be Rental Housing available for occupancy at all times in accordance with the terms of this Agreement. The Project shall be required to obtain all necessary permits and approvals for construction, including applicable permits of the City, and nothing contained herein shall be construed as development approval. Upon execution of this Agreement, Owner shall diligently and in good faith pursue all applicable permits for construction of the Project, and upon issuance shall diligently and in good faith pursue and complete construction thereof. For the purposes of this Agreement, construction shall be deemed to have commenced upon pouring of the foundation for the Project.

2.2 City Waiver of Impact Fees. The City agrees to waive impact fees for Parks, Police, Fire, Roads, Water and Sewer which would otherwise be applicable to the Project ("City Waiver Incentive").

2.3 CRA Loan. The CRA shall provide Owner with a loan to be structured as provided herein (the "CRA Loan") and pursuant to a promissory note to be executed by the Owner prior to the initial disbursement, in a form consistent with the terms described herein and agreeable to the parties. The total loan amount shall be Six Hundred Thousand ($600,000.00) (the "CRA Loan Amount"). The CRA Loan shall be a subordinate, long-term loan, forgivable in the sole discretion of the CRA. The interest rate of the CRA Loan shall be zero (0%) percent, non-amortizing, and the term shall be coterminous with the term of

this Agreement. The initial disbursement of the CRA Loan in the amount of Two Hundred Thousand ($200,000.00) Dollars shall be made available to Owner during the 2022-2023 fiscal year but not earlier than Owner's commencement of construction of the Project and providing written notice thereof to the CRA. For the purposes of this Agreement, construction shall be deemed to have commenced upon pouring of the foundation for the Project. The second disbursement of the CRA Loan in the amount of Two Hundred Thousand ($200,000.00) Dollars shall be made available to Owner during the 2023-2024 fiscal year. The remainder of the CRA Loan Amount, in the amount of Two Hundred Thousand ($200,000.00) Dollars shall be made available to Owner during the 2024-2025 fiscal year but not earlier than the Owner achieving ninety (90%) percent completion of the Project and providing written notice thereof to the CRA. For the purposes of this Agreement, Project progress shall be measured by review of the Project contractor's executed applications and certifications for payment, as submitted to all lenders for the Project to effectuate draws. Should the Owner fail to obtain Certificate of Occupancy for the Project by March 31, 2026, the CRA may accelerate the CRA Loan and require all amounts to be due and payable immediately. Should the CRA be dissolved during the term of this Agreement, the City shall accept and have the authority to exercise all rights and obligations of the CRA related to the CRA Loan.

2.4 Prohibited Discrimination. The Owner shall not discriminate on the basis of race, religion, color, sex, familial status, national origin or disability in the lease, use or occupancy of the Project. Age discrimination and discrimination against minor dependents, except when units are specifically being held for the elderly, are also not permitted.

2.5 Successors Bound – Burden to Run with the Land. This Agreement and the covenants and conditions contained herein shall run with the Land and shall bind, and the benefits shall inure to, respectively, the Owner and its successors and assigns and all subsequent owners of the Land and the Project, and to the City and the CRA for the term of this Agreement.

2.6 Compliance. The Owner shall comply with all requirements of the City's Comprehensive Plan, all standards and requirements of the City's Land Use Regulations, the Florida Building Code, and shall maintain the Project in compliance with the aforementioned requirements.

2.7 No Conversion. During the term of this Agreement, the Owner shall not use the Project for any use other than affordable and/or workforce multifamily rental dousing developed as described herein.

2.8 Advertisement. The Owner hereby covenants and agrees that it will immediately withdraw from circulation any advertisement determined by the City to violate or be inconsistent with this Agreement with respect to promoting Elderly Affordable Housing. However, this Agreement does not require the Owner to market the units in any specific manner or any specific representation that the Project is or contains units that are designated Elderly Affordable Housing so Owner complies with this Agreement.

2.9 Maintenance. The Owner shall maintain the Project in a condition which is consistent with the City's Land Use Regulations and any housing quality standards.

SECTION 3
ADMINISTRATION

3.1 Annual Report. The Owner shall, during the term of this Agreement, submit an Annual Report to the City and the CRA. The report shall document the Owner's performance of its obligations with respect to maintaining the required Elderly Affordable Housing units, including without limitation leases, applications, employment, and income certification documents.

3.2 **Omission**. The omission of any regulatory requirement in this Agreement shall not relieve the Owner from the necessity of complying with any and all applicable State, City, and Federal laws, rules and regulations. In particular, the development and maintenance of the Project shall be governed by the provision of the City's Land Use Regulations. In interpreting any applicable requirements, the more stringent provisions shall apply.

3.3 **City/CRA Review; Audit**. The City and the CRA shall have the right to review and audit, at the City's and/or CRA's expense, the records of the Owner relating to the Land to determine compliance with this Agreement. The Owner shall be required upon written notification, to provide the necessary information to perform an audit to the reasonable satisfaction of the City and/or the CRA. This information may include without limitation, all tenant lists, applications, leases, waiting lists, income examinations and re-examination relating to the Elderly Affordable Housing units. During the term of this Agreement, these materials shall at all times be kept separate and identifiable from any other business of Owner which is unrelated to the Land, and shall be maintained in reasonable condition for a proper audit, subject to examination and photocopying during business hours by representatives of the City and/or the CRA. The City and/or the CRA shall provide at least five (5) business days prior written notice before performing such audit or examination.

3.4 **Monitoring and Inspection**. The Owner shall permit the City and the CRA, or designees, to inspect all records, including but not limited to financial statements pertaining to Elderly Affordable Housing units upon reasonable notice and within normal working hours, and shall submit to the City and/or the CRA such documentation as required by the City and/or the CRA or its designee must, from time to time, inspect each Elderly Affordable Housing unit for compliance with state and local code requirements, and agrees to facilitate such inspections with tenants as necessary. The Owner also acknowledges that the Land must meet City and CRA standards upon completion of the Project and for the duration of the term of this Agreement.

The City and/or the CRA shall, from time to time, make or cause to be made inspections of the Elderly Affordable Housing units and Land rental records to determine compliance with the conditions specified herein. The City and/or the CRA shall notify the Owner prior to scheduled inspections, and the Owner shall make any and all necessary arrangements to facilitate the City's and/or the CRA's inspection. The City and/or the CRA may make, or cause to be made, other reasonable entries upon and inspections of the Land, provided that the City and/or the CRA shall give the Owner reasonable notice prior to any inspection, specifying reasonable cause therefore, related to the City's and/or the CRA's interest in the Land.

The Owner shall comply with restrictions regarding the use or occupancy of the Project, and shall ensure that all requirements are being satisfied on a continuing basis in accordance with this Agreement. Owner staff will remain updated and knowledgeable regarding procedures for filing tenant income certification forms, and compliance certificates, and for verifying compliance with this Agreement.

SECTION 4
ENFORCEMENT AND REMEDIES

4.1 **Default**. If Owner defaults in the performance of an obligation under this Agreement or a restriction set forth herein, and if such default remains uncured for a period of thirty (30) days after written notice thereof, the City and/or the CRA may terminate all rights of the Owner under this Agreement and may take any such action, as may be deemed most beneficial by the City and/or the CRA to enforce the obligations of the Owner with respect to the Project as follows:

(a) To compel specific performance by the Owner of its obligations under this Agreement, it being recognized that the beneficiaries of Owner's obligations hereunder cannot be adequately compensated by monetary damages in the event of Owner's default; and

(b) To rescind the City Waiver Incentive and CRA Loan provided to Owner; and

(c) To cause the Owner to pay to the City and the CRA an amount equal to the City Waiver Incentive and the CRA Loan provided for any Elderly Affordable Housing unit which the Owner has failed to maintain as an Elderly Affordable Housing unit during the term of this Agreement, with interest calculated at the rate equal to the yield earned on the Florida State Board of Administration statewide government investment pool during the period of default.

All fees, costs and expenses of the City and the CRA incurred in taking any action pursuant to this Section 4 shall be the sole responsibility of the Owner. Notwithstanding anything in the foregoing to the contrary, Owner's Investor Limited Partner shall have the right, but not the obligation, to cure any default under this Agreement.

Except for any notice required under applicable law to be given in another manner, any notice to City, CRA or Owner provided for in this Agreement shall be given by mailing such notice by certified mail, return receipt requested, addressed to the party for whom it is intended at such party's respective address, with a copy to Owner's Investor Limited Partner. For the present, notice to Owner's Investor Limited Partner shall be provided at the address set forth in Section 9 below.

SECTION 5
INDEMNIFICATION

5.1 **Indemnification**. The Owner hereby covenants and agrees that it shall indemnify, hold harmless and defend the City, the CRA, and their directors, officers, members, officials, employees and agents from and against (a) any and all claims arising from any act or omission of the Owner or any of its agents, contractors, servants, employees or licensees in connection with the Project, or arising out of the construction, operation and/or management of the Project; and (b) all reasonable costs, counsel fees, expenses or liabilities incurred in connection with any such claim or proceeding brought thereon as such fees, costs, expenses or liabilities become due. In the event that any action or proceeding is brought against the City and/or the CRA, or any of its directors, officers, members, officials, employees, or agents with respect to which indemnity may be sought hereunder, the Owner, upon written notice from the indemnified party, shall assume the investigation and defense thereof, including the employment of counsel and the payment of all expenses. This provision shall survive the termination of this Agreement. The indemnified party shall have the right to participate in the investigation and defense thereof and may employ separate counsel with or without the approval and consent of the Owner.

SECTION 6
TERM

6.1 **Term**. This Agreement shall become effective upon execution hereof by the parties and recordation as provided in Section 7.1 and shall remain in full force and effect until September 1, 2041, provided, however, that all rights, benefits, remedies, payments, duties, and obligations of the parties shall survive the termination until all payments, duties, and obligations of the parties under this Agreement have been performed. The City and CRA shall execute and record a termination of this Agreement promptly upon receipt of a request to terminate the Agreement from Owner, any time after expiration of the Term.

SECTION 7
RECORDING AND FILING

7.1 **Recording and Filing.** Upon execution and delivery by the parties hereto, the Owner shall cause this Agreement and all amendments and supplements hereto to be recorded and filed in the Public Records of Manatee County, Florida, in which the Project is located and shall pay all fees and charges incurred in connection therewith. The original document shall be returned to the City and the CRA within ten (10) days of the receipt of the recorded document.

SECTION 8
GOVERNING LAW

8.1 **Governing Law.** This Agreement shall be governed by and construed in accordance with the substantive and procedural laws of the State of Florida. Venue for any litigation pertaining to the subject matter hereof shall be exclusive in Manatee County, Florida unless prohibited by law.

SECTION 9
NOTICE AND EFFECT

9.1 **Notice and Effect**. All notices and other communications to be made or permitted to be made hereunder shall be in writing and shall be delivered to the addresses shown below or to such other addresses that the parties may provide to one another in accordance herewith. Such notices and other communications shall be given by any of the following means: (a) personal service; or (b) national express air courier, provided such courier maintains written verification of actual delivery. Any notice or other communication given by the means described in subsection (a) or (b) above shall be deemed effective upon the date of receipt or the date of refusal to accept delivery by the party to whom such notice or other communication has been sent.

OWNER:

HTG ASTORIA, LTD.
C/O HOUSING TRUST GROUP, LLC
ATTN: JUSTIN TUTTLE
3225 AVIATION AVE, 6TH FLOOR
MIAMI, FL 33133

CITY:

CITY ADMINISTRATOR
CITY OF BRADENTON
101 OLD MAIN STREET
BRADENTON, FL 34205

CRA:

CRA EXECUTIVE DIRECTOR
CITY OF BRADENTON COMMUNITY REDEVELOPMENT AGENCY
101 OLD MAIN STREET
BRADENTON, FL 34205

WITH A COPY TO:

SCOTT E. RUDACILLE, ESQ.
BLALOCK WALTERS, P.A.
802 11TH STREET WEST
BRADENTON, FLORIDA 34205

STEARNS WEAVER MILLER
WEISSLER ALHADEFF & SITTERSON, P.A.
150 WEST FLAGLER STREET, SUITE 2200
MIAMI, FL 33130
ATTENTION: BRIAN MCDONOUGH

RJTCF 51-HTG ASTORIA L.L.C.
c/o RAYMOND JAMES AFFORDABLE HOUSING INVESTMENTS, INC.
880 CARILLION PARKWAY
ST. PETERSBURG, FLORIDA 33716
FAX: 727-567-8455
Attention: STEVEN J. KROPF, PRESIDENT

SECTION 10
MISCELLANEOUS PROVISIONS

10.1 **No General Obligation**. The obligations of the City and the CRA hereunder are subject to annual appropriation of legally available funds by the City Council of the City and the CRA Board, and shall not constitute or create a pledge, lending od credit or lien, either legal or equitable, of or on any of the City's ad valorem revenues or funds, or upon any other revenues or funds of the City, as may be construed under the laws or the Constitution of the State of Florida. Neither the Owner nor any other person or entity shall ever have the right to compel any exercise of the ad valorem taxing power of the City to make the payments herein provided, nor shall this Agreement constitute a charge, lien or encumbrance, either legal or equitable, upon any property or funds of the City. Notwithstanding anything contained herein, the City reserves the right, in its sole discretion, to pay the obligations contained in this Agreement from any funds legal available for such purpose.

10.2 **No Partnership or Joint Venture; Owner's Risk**. This Agreement is solely for the benefit of the parties hereto and no right or cause for action shall accrue to, or for the benefit of, any third party not a party hereto. This Agreement shall not be construed to create a joint venture or partnership between the parties hereto. By execution of this Agreement, the Owner expressly acknowledges and agrees that the City Waiver Incentive and the CRA Loan provided by the City and the CRA, respectively, pursuant to this Agreement, are provided solely to serve the public purpose set forth in Chapter 420, Florida Statutes, to provide Elderly Affordable Housing to the community, and that the City and the CRA assume no responsibility to assure the financial feasibility or success of the Owner's Project. Owner acknowledges that it is a sophisticated developer of housing projects, and has entered into this Agreement, and committed to develop its Project, based upon its independent business judgment and experience and its independent assumption of risk and responsibility for the financial feasibility and success of its Project.

10.3 **Force Majeure.** Should any party be unable to timely perform any of its obligations contained in this Agreement due to circumstances beyond its control, including but not limited to labor disputes; changes in state statutes regulating municipalities or CRAs; inability to obtain or maintain material or services; strikes; acts of nature or any delays in receiving necessary permits from third parties or agencies that were not the result of any party's fault or delay, such party shall not be considered in default under the

terms of this Agreement, the time for performance by such party of the obligation shall be extended for a period of time equal to the length of the delay caused by such circumstances, and the other party shall not be excused from the obligation provided under this Agreement as the same become due, except as otherwise expressly provided herein.

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, HTG, the City, and the CRA have read and understand the terms set forth and agree to meet the obligations contained herein by execution of this Agreement, in duplicate, this _____ day of _____, 20___.

HTG Astoria, Ltd., a Florida Limited Partnership

_____

By: _____

Its: _____

STATE OF FLORIDA
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization this _____, _____, 2023 by _____ as _____ of _____, LLC, on behalf of the company, who is personally known to me or who has produced _____ as identification.

Notary Public: _____ SEAL:

Printed Name:_____

My Commission expires: _____

CITY OF BRADENTON, FLORIDA

_____

By: Gene Brown

Its: Mayor

ATTEST: _____

Name: Tamara Melton

Title: City Clerk

STATE OF FLORIDA
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization this _____, _____, 2023, by Gene Brown, Mayor of the City of Bradenton who is personally known to me or who has produced _____ as identification.

Notary Public: _____ SEAL:

Printed Name:_____

My Commission expires: _____

COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF BRADENTON

_____

By: Josh Cramer

Its: CRA Chair

ATTEST: _____

Name: Ekaterini Gerakios-Siren

Title: CRA Executive Director

STATE OF FLORIDA
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of ☐ physical presence or ☐ online notarization this _____, _____, 2023, by _____, _____ of the Community Redevelopment Agency of the City of Bradenton who is personally known to me or who has produced _____ as identification.

Notary Public: _____ SEAL:

Printed Name:_____

My Commission expires: _____

EXHIBIT A

LEGAL DESCRIPTION OF THE REAL PROPERTY

Lots 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, of GILLEY PATTEN'S ADDITION TO THE CITY OF BRADENTOWN, KNOWN AS SECOND ADDITION TO EDGEWOOD, according to the Plat thereof, recorded in Plat Book 1, Page 301, of the Public Records of Manatee County, Florida.

ATTACHMENT 2: PROMISSORY NOTE

NON-REVOLVING LINE OF CREDIT
PROMISSORY NOTE

Effective Date: February ___, 2023

The undersigned, **HTG Astoria, Ltd., a Florida limited liability partnership** (hereinafter called the "Borrower"), promises to pay to the order of **Community Redevelopment Agency of the City of Bradenton** (called the "Lender"/"CRA"), at 101 Old Main Street, Bradenton, Florida 34205, or any such place as the Lender may designate in writing to the Borrower, the principal sum of up to Six Hundred Thousand Dollars ($600,000.00) with interest thereon from the date hereof at:

Zero percent (0.00%), per annum (the "Interest Rate")

Terms of Repayment:

The loan shall be a subordinate, long-term non-recourse loan, forgivable in the sole discretion of the CRA, with annual interest-only payments subject to cash flow and debt coverage of senior debt, commencing in the second year following completion of the Project. The loan shall be subordinate to that certain loan in the amount of Nineteen Million Dollars ($19,000,000.00) from Florida Housing Finance Corporation, a public body corporate and politic organized and existing under the laws of the State of Florida ("FHFC"), that certain loan in the amount of Nine Million Fifty Thousand Dollars ($9,050,000.00) from FHFC, that certain loan in the amount of Six Hundred Thousand Dollars ($600,000.00) from FHFC, that certain loan in the amount of Seven Hundred Thirteen Thousand Four Hundred Dollars ($713,400.00) from FHFC. The term of the loan shall be coterminous with the term of the Land Use Restriction Agreement ("Agreement") between the parties and the City of Bradenton of even date herewith. The initial disbursement of the CRA Loan in the amount of Two Hundred Thousand ($200,000.00) Dollars shall be made available to Owner during the 2022-2023 fiscal year but not earlier than Owner's commencement of construction of the Project and providing written notice thereof to the CRA. For the purposes of this Agreement, construction shall be deemed to have commenced upon pouring of the foundation for the Project. The second disbursement of the CRA Loan in the amount of Two Hundred Thousand ($200,000.00) Dollars shall be made available to Owner during the 2023-2024 fiscal year. The remainder of the CRA Loan Amount, in the amount of Two Hundred Thousand ($200,000.00) Dollars shall be made available to Owner during the 2024-2025 fiscal year but not earlier than the Owner achieving ninety (90%) percent completion of the Project and providing written notice thereof to the CRA. For the purposes of this Agreement, Project progress shall be measured by review of the Project contractor's executed applications and certifications for payment, as submitted to all lenders for the Project to effectuate draws. Should the Owner fail to obtain Certificate of Occupancy for the Project by March 31, 2026, the CRA may accelerate the loan and charge a nominal interest based on Florida's then current Judgment Interest Rate and require all amounts to be due and payable immediately. Should the CRA be dissolved during the term of the loan, the rights and obligations of the CRA under this Note shall pass to the City and, the City shall accept and have the authority to exercise all rights and obligations of the CRA related to the loan.

All persons now or hereafter becoming obligated hereunder, whether as the Borrower, endorser, or guarantor, waive demand or presentment for payment, protest for non-payment and notice of dishonor, and jointly and severally agree that, should this Note or the Agreement become in

default and placed in the hands of an attorney for collection, the Borrower, endorsers, or guarantors agree to pay costs and reasonable attorney's and paralegal's fees incurred in the collection hereof, including those incurred in trial, appellate, bankruptcy and post judgment enforcement proceedings.

The Borrower shall be in default hereunder upon: (a) failure of any Borrower to perform any agreement hereunder or otherwise a part of this Note or to pay in full, when due, any liabilities whatsoever to the Lender; (b) the appointment of a bonded receiver of any part of the property of the Borrower, assignment for the benefit of creditors by or the commencement of any proceedings in bankruptcy or insolvency by or against the Borrower; (c) the entry of a judgment against the Borrower that is not stayed, satisfied, bonded, or appealed within thirty (30) days upon entry thereon; (d) the issuing of any attachment or garnishment, or the filing of any lien against any property of the Borrower that is not stayed, satisfied, bonded, or appealed within thirty (30) days upon entry thereon; and (e) any default under the Agreement, which is not cured within any applicable curative period. The Borrower's investor limited partner shall have the right, but not the obligation, to cure any default under this Note.

The Lender shall have all the rights and remedies of a creditor under all applicable laws of the State of Florida.

The Borrower hereby expressly consents to any and all extensions, modifications, and renewals, in whole or in part, including, but not limited, to changes in payment schedules and interest rates, and all delays in time of payment or other performance that the Lender may grant or permit at any time and from time to time without limitation and without any notice to or further consent of the Borrower. The Borrower shall also be bound by each of the foregoing terms without the requirement that the Lender first go against any security interest otherwise held by the Lender. Notwithstanding any of the foregoing, any renewals of this Note shall be at the sole and absolute discretion of the Lender.

The Borrower and the Lender intend and believe that each provision in this Note comports with all applicable law. However, if any provision in this Note is found by a court of law to be in violation of any applicable law, and if such court should declare such provision of this Note to be unlawful, void, or unenforceable as written, then it is the intent of all parties hereto that such provision shall be given full force and effect to the fullest possible extent that it is legal, valid and enforceable, that the remainder of this Note shall be construed as if such unlawful, void or unenforceable provision were not contained herein, and that the rights, obligations and interests of the Borrower and the Lender hereof under the remainder of this Note shall continue in full force and effect.

This Note shall be construed and enforced according to the laws of the State of Florida.

IN WITNESS WHEREOF, the Borrower has executed this Non-Revolving Line of Credit Promissory Note on the date first stated above.

BORROWER:

HTG Astoria, Ltd.,
a Florida limited liability partnership

By: HTG Astoria, LLC,
a Florida limited liability company
Its: Special Limited Partner

By: _____
Matthew Rieger, Manager

Address for notices:

_____
_____
_____

ATTACHMENT 3: SUBORDINATION AGREEMENT

Freddie Mac Loan Number: 511331630
Property Name: Astoria on 9th

SUBORDINATION AGREEMENT
GOVERNMENTAL ENTITY – TEL (Forward)

(Revised 3-15-2022)

THIS SUBORDINATION AGREEMENT ("**Agreement**") is entered into as of the 1st day of February, 2023 by and among THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., a national banking association ("**Senior Lender**"), the CITY OF BRADENTON, a municipal corporation existing by and under the laws of the State of Florida (the "**City**"), and the COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF BRADENTON, a dependent special district of the City of Bradenton (the "**CRA**" and, together with the City, the "**Subordinate Lender**").

RECITALS

A. HTG Astoria, Ltd., a Florida limited partnership ("**Borrower**"), is the owner of certain land located in Manatee County, Florida described in Exhibit A ("**Land**"). The Land is improved with a multifamily rental housing project ("**Improvements**").

B. The Florida Housing Finance Corporation ("**Governmental Lender**"), the original holder of the Senior Note, has made a loan to Borrower in the original principal amount of $19,000,000 ("**Senior Loan**") upon the terms and conditions of a Project Loan Agreement dated as of February 1, 2023 ("**Project Loan Agreement**") among Governmental Lender, Senior Lender (in its capacity as Fiscal Agent under the Funding Loan Agreement (defined below)) and Borrower in connection with the Mortgaged Property. The Senior Loan is secured by a Construction Mortgage, Security Agreement, Fixture Filing and Assignment of Leases and Rents dated as of February 1, 2023 ("**Senior Mortgage**") encumbering the Land, the Improvements and related personal and other property described and defined in the Senior Mortgage as the "**Mortgaged Property**."

C. As evidenced by a Non-Revolving Line of Credit Promissory Note dated February 8, 2023 from the Borrower to the order of the CRA ("**Subordinate Note**"), the CRA has made or is making a loan to Borrower in the original principal amount of $600,000 ("**Subordinate Loan**").

D. The Senior Mortgage will be recorded in the land records of Manatee County, Florida ("**Recording Office**").

E. The Senior Note was assigned by the Governmental Lender to Senior Lender as security for the loan made by the Initial Funding Lender (as defined below) to the Governmental Lender pursuant to the Funding Loan Agreement (the "**Funding Loan**"). The Senior Mortgage was assigned by the Governmental Lender to Senior Lender as security for the

Funding Loan pursuant to an Assignment of Mortgage and Related Documents dated as of February 1, 2023 to be recorded in the Recording Office contemporaneously herewith.

F. Subject to the terms and conditions of that certain Construction Phase Financing Agreement (the "**Construction Phase Financing Agreement**") dated as of February 1, 2023 among Borrower, Fifth Third Commercial Funding, Inc. ("**Initial Funding Lender**"), Federal Home Loan Mortgage Corporation, and Capital One, National Association, a national banking association ("**Permanent Funding Lender**"), Initial Funding Lender shall subsequently assign and deliver the documents comprising the Funding Loan to the Permanent Funding Lender and, in connection therewith, the Senior Note (as defined herein) and the Senior Mortgage will be amended and restated, and thereafter assigned to the Fiscal Agent ("**Conversion**").

G. Upon Conversion, the Funding Lender shall have the right to amend and restate the Senior Note and the Senior Mortgage, and the right to amend, waive, postpone, extend, renew, replace, reduce or otherwise modify any provision of any of the Senior Loan Documents (as defined herein), without notice to or the consent or joinder of the Subordinate Lender.

H. The Subordinate Loan is an unsecured loan and is not secured by an interest in or lien upon the Mortgaged Property.

I. The execution and delivery of this Agreement is a condition of Funding Lender's consenting to Subordinate Lender's making of the Subordinate Loan.

AGREEMENT

NOW, THEREFORE, for valuable consideration, the receipt and sufficiency of which are acknowledged, the parties agree as follows:

1. Definitions. The following terms, when used in this Agreement (including, as appropriate, when used in the above recitals), will have the following meanings.

"**Bankruptcy Proceeding**" means any bankruptcy, reorganization, insolvency, composition, restructuring, dissolution, liquidation, receivership, assignment for the benefit of creditors, or custodianship action or proceeding under any federal or state law with respect to Borrower, any guarantor of any of the Senior Indebtedness, any of their respective properties, or any of their respective partners, members, officers, directors, or shareholders.

"**Borrower**" means all persons or entities identified as "Borrower" in the first Recital of this Agreement, together with their successors and assigns, and any other person or entity who acquires title to the Mortgaged Property after the date of this Agreement; provided that the term "Borrower" will not include Senior Lender or Funding Lender if Senior Lender or Funding Lender acquires title to the Mortgaged Property.

"**Continuing Covenant Agreement**" means the Continuing Covenant Agreement to be executed by Borrower and Permanent Funding Lender at Conversion.

"**Enforcement Action**" means any of the following actions taken by or at the direction of Subordinate Lender: the acceleration of all or any part of the Subordinate Indebtedness, the obtaining of or seeking of the appointment of a receiver, the seeking of default interest, the commencement of any suit or other legal, administrative, or arbitration proceeding based upon the Subordinate Note or any other of the Subordinate Loan Documents, the exercising of any banker's lien or rights of set-off or recoupment, or the exercise of any other remedial action against Borrower or any other party liable for any of the Subordinate Indebtedness or obligated under any of the Subordinate Loan Documents.

"**Enforcement Action Notice**" means a Notice given from Subordinate Lender to Senior Lender and Funding Lender, following one or more Subordinate Loan Default(s) and the expiration of any applicable notice or cure periods, setting forth in reasonable detail the Subordinate Loan Default(s) and the Enforcement Actions proposed to be taken by Subordinate Lender.

"**Funding Lender**" shall mean Initial Funding Lender prior to Conversion and Permanent Funding Lender from and after Conversion, and any successor holder of the Governmental Note.

"**Funding Loan Agreement**" means the Funding Loan Agreement dated as of February 1, 2023 among Initial Funding Lender, Governmental Lender and Senior Lender.

"**Governmental Note**" means the Multifamily Note delivered by the Governmental Lender evidencing the Funding Loan.

"**Lien**" means any lien, encumbrance, estate or other interest, recorded against or secured by the Mortgaged Property.

"**Notice**" means all notices, requests, demands, consents, approvals or other communication pursuant to this Agreement provided in accordance with the provisions of Section 10.

"**Regulatory Agreement**" means the Land Use Restriction Agreement among the Borrower, the City, and the CRA dated as of February 8, 2023 and to be recorded in the Recording Office.

"**Senior Indebtedness**" means the "Indebtedness" of Borrower as evidenced by the Senior Loan Documents.

"**Senior Lender**" is defined above. When any other person or entity becomes the legal holder of the Senior Note, such other person or entity will automatically become Senior Lender.

"**Senior Loan Agreement**" collectively means, prior to Conversion, the Project Loan Agreement and the Construction Disbursement Agreement dated as of February 1, 2023 between the Initial Funding Lender and the Borrower. From and after Conversion, "Senior Loan Agreement" means the Project Loan Agreement and/or the Continuing Covenant Agreement.

"**Senior Loan Documents**" collectively means prior to Conversion, the "Project Loan Documents" as defined in the Construction Phase Financing Agreement. From and after Conversion, "Senior Loan Documents" shall mean the "Financing Documents" as defined in the Continuing Covenant Agreement, as such documents may be amended.

"**Senior Mortgage Default**" means any act, failure to act, event, condition, or occurrence which constitutes, or which with the giving of Notice or the passage of time, or both, would constitute, an "Event of Default" as defined in the Senior Loan Documents.

"**Senior Note**" means, prior to Conversion, the Promissory Note dated February 22, 2023 from the Borrower to the Governmental Lender and subsequently assigned by the Governmental Lender to the Senior Lender. From and after Conversion, "Senior Note" means the Project Note as defined in the Continuing Covenant Agreement.

"**Subordinate Indebtedness**" means all sums evidenced or secured or guaranteed by, or otherwise due and payable to Subordinate Lender pursuant to, the Subordinate Loan Documents.

"**Subordinate Lender**" means the persons or entities named as such in the first paragraph of this Agreement and any other persons or entities which become the legal holder of the Subordinate Note after the date of this Agreement.

"**Subordinate Loan Default**" means any act, failure to act, event, condition, or occurrence which allows (but for any contrary provision of this Agreement) Subordinate Lender to take an Enforcement Action.

"**Subordinate Loan Documents**" means the Subordinate Note, the Regulatory Agreement and all other documents at any time evidencing, securing, guaranteeing, or otherwise delivered in connection with the Subordinate Indebtedness, as such documents may be amended.

"**Surplus Cash**" means, with respect to any period, any revenues of Borrower remaining after paying, or setting aside funds for paying, all the following:

(i) All sums due or currently required to be paid under the Senior Loan Documents, including any reserves and Imposition Reserve Deposits.

(ii) All reasonable operating expenses of the Mortgaged Property, including real estate taxes, insurance premiums, utilities, building maintenance, painting and repairs, management fees, payroll, administrative expenses,

legal expenses and audit expenses (excluding any developer fees payable with respect to the Mortgaged Property).

2. Subordinate Lender's Representations and Warranties.

(a) Subordinate Lender represents and warrants that each of the following is true as of the date of this Agreement:

(i) Subordinate Lender is now the owner and holder of the Subordinate Loan Documents.

(ii) No Subordinate Loan Default has occurred and is continuing.

(iii) The current unpaid principal balance of the Subordinate Indebtedness is $600,000.

(iv) No scheduled payments under the Subordinate Note have been prepaid.

(b) Without the prior written consent of Senior Lender, Subordinate Lender will not do any of the following:

(i) Pledge, assign, transfer, convey, or sell any interest in the Subordinate Indebtedness or any of the Subordinate Loan Documents.

(ii) Take any action which has the effect of increasing the Subordinate Indebtedness, except to cure a Senior Mortgage Default as contemplated under Section 5(a) of this Agreement.

(iii) Accept any prepayment of the Subordinate Indebtedness.

3. Terms of Subordination.

(a) Agreement to Subordinate. The Subordinate Indebtedness is and will at all times continue to be subject and subordinate in right of payment to the prior payment in full of the Senior Indebtedness. Each of the Subordinate Loan Documents is, and will at all times remain, subject and subordinate in all respects to the liens, terms, covenants, conditions, operations, and effects of each of the Senior Loan Documents.

(b) Subordination of Subrogation Rights. If Subordinate Lender, by indemnification, subrogation or otherwise, acquires any Lien on any of the Mortgaged Property, then that Lien will be fully subject and subordinate to the receipt by Senior Lender of payment in full of the Senior Indebtedness, and to the Senior Loan Documents, to the same extent as the Subordinate Indebtedness and the Subordinate Loan Documents are subordinate pursuant to this Agreement.

(c) Payments Before Senior Mortgage Default; Soft Subordinate Debt. Until the occurrence of a Senior Mortgage Default, Subordinate Lender will be entitled to retain for its own account all payments of the principal of and interest on the Subordinate Indebtedness pursuant to the Subordinate Loan Documents; provided that Subordinate Lender expressly agrees that it will not accept any such payment that is made more than 10 days in advance of its due date and provided further that Subordinate Lender will not accept any payment in an amount that exceeds 75% of then available Surplus Cash.

(d) Payments After Senior Mortgage Default or Bankruptcy.

(i) Immediately upon Subordinate Lender's receipt of Notice or actual knowledge of a Senior Mortgage Default, Subordinate Lender will not accept any payments of the Subordinate Indebtedness, and the provisions of Section 3(d) of this Agreement will apply.

(ii) If Subordinate Lender receives any of the following, whether voluntarily or by action of law, after a Senior Mortgage Default of which Subordinate Lender has actual knowledge (or is deemed to have actual knowledge as provided in Section 4(c)) or has been given Notice, such will be received and held in trust for Senior Lender:

(A) Any payment, property, or asset of any kind or in any form in connection with the Subordinate Indebtedness.

(B) Any proceeds from any Enforcement Action.

(C) Any payment, property, or asset in or in connection with any Bankruptcy Proceeding.

(iii) Subordinate Lender will promptly remit, in kind and properly endorsed as necessary, all such payments, properties, and assets described in Section 3(d)(ii) to Senior Lender. Senior Lender will apply any payment, asset, or property so received from Subordinate Lender to the Senior Indebtedness in such order, amount (with respect to any asset or property other than immediately available funds), and manner as Senior Lender determines in its sole and absolute discretion.

(e) Bankruptcy. Without the prior written consent of Senior Lender, Subordinate Lender will not commence, or join with any other creditor in commencing, any Bankruptcy Proceeding. In the event of a Bankruptcy Proceeding, Subordinate Lender will not vote affirmatively in favor of any plan of reorganization or liquidation unless Senior Lender has also voted affirmatively in favor of such plan.

4. Default Under Subordinate Loan Documents.

(a) Notice of Subordinate Loan Default and Cure Rights.

(i) Subordinate Lender will deliver to Senior Lender and Funding Lender a copy of each Notice delivered by Subordinate Lender pursuant to the Subordinate Loan Documents within 5 Business Days of sending such Notice to Borrower. Neither giving nor failing to give a Notice to Senior Lender or Funding Lender pursuant to this Section 4(a) will affect the validity of any Notice given by Subordinate Lender to Borrower.

(ii) For a period of 90 days following delivery to Senior Lender of an Enforcement Action Notice, Senior Lender will have the right, but not the obligation, to cure any Subordinate Loan Default. However, if such Subordinate Loan Default is a non-monetary default and is not capable of being cured within such 90-day period and Senior Lender has commenced and is diligently pursuing such cure to completion, Senior Lender will have such additional period of time as may be required to cure such Subordinate Loan Default or until such time, if ever, as Senior Lender takes either of the following actions:

(A) Discontinues its pursuit of any cure.

(B) Delivers to Subordinate Lender Senior Lender's written consent to the Enforcement Action described in the Enforcement Action Notice.

(iii) Senior Lender will not be subrogated to the rights of Subordinate Lender under the Subordinate Loan Documents as a result of Senior Lender having cured any Subordinate Loan Default.

(iv) Subordinate Lender acknowledges that all amounts advanced or expended by Senior Lender in accordance with the Senior Loan Documents or to cure a Subordinate Loan Default will be added to and become a part of the Senior Indebtedness and will be secured by the lien of the Senior Mortgage.

(b) Subordinate Lender's Exercise of Remedies After Notice to Senior Lender.

(i) In the event of a Subordinate Loan Default, Subordinate Lender will not commence any Enforcement Action until 90 days after Subordinate Lender has delivered to Senior Lender and Funding Lender an Enforcement Action Notice. During such 90-day period or such longer period as provided in Section 4(a), Subordinate Lender will be entitled to seek specific performance to enforce covenants and agreements of Borrower relating to income, rent, or affordability restrictions contained in the Regulatory

Agreement, subject to Senior Lender's right to cure a Subordinate Loan Default set forth in Section 4(a).

(ii) Subordinate Lender may not commence any other Enforcement Action under the Subordinate Loan Documents until the earlier of:

(A) The expiration of such 90-day period or such longer period as provided in Section 4(a).

(B) The delivery by Senior Lender to Subordinate Lender of Senior Lender's written consent to such Enforcement Action by Subordinate Lender.

(iii) Subordinate Lender acknowledges that Senior Lender may grant or refuse consent to Subordinate Lender's Enforcement Action in Senior Lender's sole and absolute discretion. At the expiration of such 90-day period or such longer period as provided in Section 4(a) and, subject to Senior Lender's right to cure set forth in Section 4(a), Subordinate Lender may commence any Enforcement Action.

(iv) Senior Lender may pursue all rights and remedies available to it under the Senior Loan Documents, at law, or in equity, regardless of any Enforcement Action Notice or Enforcement Action by Subordinate Lender. No action or failure to act on the part of Senior Lender in the event of a Subordinate Loan Default or commencement of an Enforcement Action will constitute a waiver on the part of Senior Lender of any provision of the Senior Loan Documents or this Agreement.

(c) Cross Default. Subordinate Lender acknowledges that a Subordinate Loan Default constitutes a Senior Mortgage Default. Accordingly, upon the occurrence of a Subordinate Loan Default, Subordinate Lender will be deemed to have actual knowledge of a Senior Mortgage Default. If Subordinate Lender notifies Senior Lender and Funding Lender in writing that any Subordinate Loan Default of which Senior Lender has received Notice has been cured or waived, as determined by Subordinate Lender in its sole discretion, then provided that Senior Lender has not conducted a sale of the Mortgaged Property pursuant to its rights under the Senior Loan Documents, any Senior Mortgage Default under the Senior Loan Documents arising solely from such Subordinate Loan Default will be deemed cured, and the Senior Loan will be reinstated.

5. Default Under Senior Loan Documents.

(a) Notice of Senior Loan Default and Cure Rights.

(i) Senior Lender or Funding Lender will deliver to Subordinate Lender a copy of any Notice sent by Senior Lender or Funding Lender to Borrower of a

Senior Mortgage Default within 5 Business Days of sending such Notice to Borrower. Failure of Senior Lender or Funding Lender to send Notice to Subordinate Lender will not prevent the exercise of Senior Lender's rights and remedies under the Senior Loan Documents.

(ii) Subordinate Lender will have the right, but not the obligation, to cure any monetary Senior Mortgage Default within 30 days following the date of such Notice. During such 30-day period Senior Lender will be entitled to continue to pursue its remedies under the Senior Loan Documents.

(iii) Subordinate Lender may, within 90 days after the date of the Notice, cure a non-monetary Senior Mortgage Default if during such 90-day period, Subordinate Lender keeps current all payments required under the Senior Loan Documents. If such a non-monetary Senior Mortgage Default creates an unacceptable level of risk relative to the Mortgaged Property, or Senior Lender's secured position relative to the Mortgaged Property, as determined by Senior Lender in its sole discretion, then during such 90-day period Senior Lender may exercise all available rights and remedies to protect and preserve the Mortgaged Property and the Rents, revenues and other proceeds from the Mortgaged Property.

(iv) All amounts paid by Subordinate Lender to Senior Lender to cure a Senior Mortgage Default will be deemed to have been advanced by Subordinate Lender pursuant to the Subordinate Loan Documents. Notwithstanding anything in this Section 5(a) to the contrary, Subordinate Lender's right to cure any Senior Mortgage Default will terminate immediately upon the occurrence of any Bankruptcy Proceeding.

(b) Release of Mortgaged Property.

(i) Subordinate Lender consents to and authorizes any future release by Senior Lender of all or any portion of the Mortgaged Property from the lien, operation, and effect of the Senior Loan Documents. Subordinate Lender waives to the fullest extent permitted by law, all equitable or other rights it may have in connection with the release of all or any portion of the Mortgaged Property, including any right to require Senior Lender to do any of the following:

(A) To conduct a separate sale of any portion of the Mortgaged Property.

(B) To exhaust its remedies against all or any portion of the Mortgaged Property or any combination of portions of the Mortgaged Property or any other collateral for the Senior Indebtedness.

(C) To proceed against Borrower, any other party that may be liable for any of the Senior Indebtedness (including any general partner of

Borrower if Borrower is a partnership), all or any portion of the Mortgaged Property or combination of portions of the Mortgaged Property or any other collateral, before proceeding against all or such portions or combination of portions of the Mortgaged Property as Senior Lender determines.

(ii) Subordinate Lender consents to and authorizes, at the option of Senior Lender, the sale, either separately or together, of all or any portion of the Mortgaged Property. Subordinate Lender acknowledges that without Notice to Subordinate Lender and without affecting any of the provisions of this Agreement, Senior Lender may do any of the following:

(A) Extend the time for or waive any payment or performance under the Senior Loan Documents.

(B) Modify or amend in any respect any provision of the Senior Loan Documents.

(C) Modify, exchange, surrender, release, and otherwise deal with any additional collateral for the Senior Indebtedness.

(c) Termination Upon Foreclosure. The lien of the Subordinate Loan Documents will automatically terminate upon the acquisition by Senior Lender or by a third-party purchaser of title to the Mortgaged Property pursuant to a foreclosure of, deed in lieu of foreclosure, or trustee's sale or other exercise of a power of sale or similar disposition under the Senior Mortgage.

6. Conflicts. If there is any conflict or inconsistency between the terms of the Subordinate Loan Documents and the terms of this Agreement, then the terms of this Agreement will control. Borrower acknowledges that the terms and provisions of this Agreement will not, and will not be deemed to do any of the following:

(a) Extend Borrower's time to cure any Senior Mortgage Default or Subordinate Loan Default.

(b) Give Borrower the right to receive notice of any Senior Mortgage Default or Subordinate Loan Default, other than that, if any, provided, respectively under the Senior Loan Documents of the Subordinate Loan Documents.

(c) Create any other right or benefit for Borrower as against Senior Lender or Subordinate Lender.

7. Rights and Obligations of Subordinate Lender Under the Subordinate Loan Documents and of Senior Lender under the Senior Loan Documents.

(a) Reserved.

(b) Reserved.

(c) Modification of Subordinate Loan Documents. Subordinate Lender agrees that, until the principal of, interest on and all other amounts payable under the Senior Loan Documents have been paid in full, it will not, without the prior written consent of Senior Lender, increase the amount of the Subordinate Loan, increase the required payments due under the Subordinate Loan, decrease the term of the Subordinate Loan, increase the interest rate on the Subordinate Loan, or otherwise amend the Subordinate Loan terms in a manner that creates an adverse effect upon Senior Lender or Funding Lender under the Senior Loan Documents. If Subordinate Lender either (i) amends the Subordinate Loan Documents in the manner set forth above or (ii) assigns the Subordinate Loan without Senior Lender's consent then such amendment or assignment will be void ab initio and of no effect whatsoever.

(d) Modification of Senior Loan Documents. Senior Lender may amend, waive, postpone, extend, renew, replace, reduce or otherwise modify any provisions of the Senior Loan Documents without the necessity of obtaining the consent of or providing Notice to Subordinate Lender, and without affecting any of the provisions of this Agreement. Notwithstanding the foregoing, Senior Lender may not modify any provision of the Senior Loan Documents that increases the Senior Indebtedness, except for increases in the Senior Indebtedness that result from advances made by Senior Lender to protect the security or lien priority of Senior Lender under the Senior Loan Documents or to cure defaults under the Subordinate Loan Documents.

(e) Reserved.

(f) Consent Rights. Whenever the Subordinate Loan Documents give Subordinate Lender approval or consent rights with respect to any matter, and a right of approval or consent for the same or substantially the same matter is also granted to Senior Lender or Funding Lender pursuant to the Senior Loan Documents or otherwise, Senior Lender's or Funding Lender's approval or consent or failure to approve or consent will be binding on Subordinate Lender. None of the other provisions of Section 7 are intended to be in any way in limitation of the provisions of this Section 7(f).

(g) Reserved.

(h) Certification. Within 10 days after request by Senior Lender or Funding Lender, Subordinate Lender will furnish Senior Lender and Funding Lender with a statement, duly acknowledged and certified setting forth the then-current amount and terms of the Subordinate Indebtedness, confirming that there exists no default under the Subordinate Loan Documents (or describing any default that does exist), and certifying to such other information with respect to the Subordinate Indebtedness as Senior Lender may request.

8. **Refinancing.** Subordinate Lender agrees that its agreement to subordinate under this Agreement will extend to any new mortgage debt which is for the purpose of refinancing all or any part of the Senior Indebtedness (including reasonable and necessary costs associated with the closing and/or the refinancing, and any reasonable increase in proceeds for rehabilitation in the context of a preservation transaction). All terms and covenants of this Agreement will inure to the benefit of any holder of any such refinanced debt, and all references to the Senior Loan Documents and Senior Lender will mean, respectively, the refinance loan documents and the holder of such refinanced debt.

9. **Governmental Powers.** Nothing in this Agreement is intended, nor will it be construed, to in any way limit the exercise by Subordinate Lender of its governmental powers (including police, regulatory and taxing powers) with respect to Borrower or the Mortgaged Property to the same extent as if it were not a party to this Agreement or the transactions contemplated by this Agreement.

10. **Notices.**

(a) Any Notice required or permitted to be given pursuant to this Agreement will be in writing and will be deemed to have been duly and sufficiently given if (i) personally delivered with proof of delivery (any Notice so delivered will be deemed to have been received at the time so delivered), or (ii) sent by a national overnight courier service (such as FedEx) designating earliest available delivery (any Notice so delivered will be deemed to have been received on the next Business Day following receipt by the courier), or (iii) sent by United States registered or certified mail, return receipt requested, postage prepaid, at a post office regularly maintained by the United States Postal Service (any Notice so sent will be deemed to have been received on the date of delivery as confirmed by the return receipt), addressed to the respective parties as follows:

Notices intended for Senior Lender will be addressed to:

The Bank of New York Mellon Trust Company, N.A.
4655 Salisbury Road, Suite 300
Jacksonville, FL 32256
Attention: Lori Cardey
Email: lori.cardey@bnymellon.com
Telephone: (904) 645-1954

Notices intended for Subordinate Lender will be addressed to:

City Administrator
City of Bradenton
101 Old Main Street
Bradenton, FL 34205

CRA Executive Director
Community Redevelopment Agency of the City of Bradenton
101 Old Main Street
Bradenton, FL 34205

Notices intended for Funding Lender prior to Conversion will be addressed to:

Fifth Third Commercial Funding, Inc.
National Tax Credit Lending
38 Fountain Square Plaza, MD 1090AG
Cincinnati, OH 45263
Attention: David Batey, Senior Vice President
E-mail: david.batey@53.com
Telephone: (419) 276-6170

Fifth Third Bank, National Association
National Tax Credit Lending
38 Fountain Square Plaza, MD 1090AG
Cincinnati, OH 45263
Attention: Steven Quasny, Vice President
Telephone: (919) 353-3333
E-mail: steven.quasny@53.com

Notices intended for Funding Lender following Conversion will be addressed to:

Capital One, National Association
2 Bethesda Metro Center, 10th Floor
Bethesda, Maryland 20814
Attention: Asset Management

(b) Any party, by Notice given pursuant to this Section 10, may change the person or persons and/or address or addresses, or designate an additional person or persons or an additional address or addresses, for its Notices, but Notice of a change of address will only be effective upon receipt. Neither party will refuse or reject delivery of any Notice given in accordance with this Section 10.

11. Miscellaneous Provisions.

(a) Assignments/Successors. This Agreement will be binding upon and will inure to the benefit of the respective legal successors and permitted assigns of the parties to this Agreement. Except for Funding Lender, no other party will be entitled to any benefits under this Agreement, whether as a third-party beneficiary or otherwise.

This Agreement may be assigned at any time by Senior Lender to any subsequent holder of the Senior Note.

(b) No Partnership or Joint Venture. Nothing in this Agreement or in any of the Senior Loan Documents or Subordinate Loan Documents will be deemed to constitute Senior Lender or Funding Lender as a joint venturer or partner of Subordinate Lender.

(c) Further Assurances. Upon Notice from Senior Lender or Funding Lender, Subordinate Lender will execute and deliver such additional instruments and documents, and will take such actions, as are required by Senior Lender or Funding Lender to further evidence or implement the provisions and intent of this Agreement.

(d) Amendment. This Agreement may be amended, changed, modified, altered or terminated only by a written instrument signed by the parties to this Agreement or their successors or assigns.

(e) Governing Law. This Agreement will be governed by the laws of the State in which the Land is located.

(f) Severable Provisions. If any one or more of the provisions contained in this Agreement, or any application of any such provisions, is invalid, illegal, or unenforceable in any respect, the validity, legality, enforceability, and application of the remaining provisions contained in this Agreement will not in any way be affected or impaired.

(g) Term. The term of this Agreement will commence on the date of this Agreement and will continue until the earliest to occur of the following events:

(i) The payment of all the Senior Indebtedness; provided that this Agreement will be reinstated in the event any payment on account of the Senior Indebtedness (whether by or on behalf of Borrower, as proceeds of security or enforcement of any right of set-off or otherwise) is for any reason repaid or returned to Borrower or its insolvent estate, or avoided, set aside or required to be paid to Borrower, a trustee, receiver or other similar party under any bankruptcy, insolvency, receivership or similar law. In such event, any or all of the Senior Indebtedness originally intended to be satisfied will be deemed to be reinstated and outstanding to the extent of any repayment, return, or other action, as if such payment on account of the Senior Indebtedness had not been made.

(ii) The payment of all the Subordinate Indebtedness other than by reason of payments which Subordinate Lender is obligated to remit to Senior Lender pursuant to this Agreement.

(iii) The acquisition by Senior Lender or by a third-party purchaser of title to the Mortgaged Property pursuant to a foreclosure of, deed in lieu of foreclosure, or trustee's sale or other exercise of a power of sale or similar disposition under the Senior Mortgage.

(h) Counterparts. This Agreement may be executed in two or more counterparts, each of which will be deemed an original but all of which together will constitute one and the same instrument.

(i) Entire Agreement. This Agreement represents the entire understanding and agreement between the parties regarding the matters addressed in this Agreement, and will supersede and cancel any prior agreements regarding such matters.

(j) Authority. Each person executing this Agreement on behalf of a party to this Agreement represents and warrants that such person is duly and validly authorized to do so on behalf of such party with full right and authority to execute this Agreement and to bind such party with respect to all of its obligations under this Agreement.

(k) No Waiver. No failure or delay on the part of any party to this Agreement in exercising any right, power, or remedy under this Agreement will operate as a waiver of such right, power, or remedy, nor will any single or partial exercise of any such right, power or remedy preclude any other or further exercise of such right, power, or remedy or the exercise of any other right, power or remedy under this Agreement.

(l) Remedies. Each party to this Agreement acknowledges that if any party fails to comply with its obligations under this Agreement, the other parties will have all rights available at law and in equity, including the right to obtain specific performance of the obligations of such defaulting party and injunctive relief.

(m) Funding Lender's Rights to Control. Notwithstanding anything herein to the contrary, pursuant to the Senior Mortgage and Section 6.03 of the Funding Loan Agreement, all acts, consents, approvals and undertakings of Senior Lender hereunder shall be solely at the written direction of the Funding Lender. The parties hereto acknowledge and agree that Funding Lender is a third party beneficiary of this Agreement, with full rights as such.

[SIGNATURE AND ACKNOWLEDGMENT PAGES FOLLOW]

IN WITNESS WHEREOF, the parties have duly executed this Agreement as of the day and year first above written.

SENIOR LENDER:

THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A.

By:_____
Name:
Title:

ACKNOWLEDGMENT

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me by means of [__] physical presence or [__] online notarization, this ___ day of _____, 2023, by _____, as _____of THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., a national banking association, and that s/he, as such _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the _____ by himself/herself as _____. Said person is [__] personally known to me, or [__] has produced _____ as identification.

In witness whereof I hereunto set my hand and official seal.

_____
NOTARY PUBLIC

Print Name: _____
My Commission Expires: _____

CITY OF BRADENTON, FLORIDA

_____
Gene Brown
Mayor

ATTEST: _____
Tamara Melton
City Clerk

ACKNOWLEDGMENT

STATE OF FLORIDA

COUNTY OF _____

The foregoing instrument was acknowledged before me by means of [__] physical presence or [__] online notarization, this ___ day of _____, 2023, by _____, as _____of _____, a _____, and that s/he, as such _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the _____ by himself/herself as _____. Said person is [__] personally known to me, or [__] has produced _____ as identification.

In witness whereof I hereunto set my hand and official seal.

_____
NOTARY PUBLIC

Print Name: _____
My Commission Expires: _____

ACKNOWLEDGMENT

STATE OF FLORIDA

COUNTY OF _____

The foregoing instrument was acknowledged before me by means of [__] physical presence or [__] online notarization, this ___ day of _____, 2023, by _____, as _____of _____, a _____, and that s/he, as such _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the _____ by himself/herself as _____. Said person is [__] personally known to me, or [__] has produced _____ as identification.

In witness whereof I hereunto set my hand and official seal.

_____
NOTARY PUBLIC

Print Name: _____
My Commission Expires: _____

COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF BRADENTON

_____

Josh Cramer
CRA Chair

ATTEST: _____

Ekaterini Gerakios-Siren
CRA Executive Director

ACKNOWLEDGMENT

STATE OF FLORIDA

COUNTY OF _____

The foregoing instrument was acknowledged before me by means of [__] physical presence or [__] online notarization, this ___ day of _____, 2023, by _____, as _____of _____, a _____, and that s/he, as such _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the _____ by himself/herself as _____. Said person is [__] personally known to me, or [__] has produced _____ as identification.

In witness whereof I hereunto set my hand and official seal.

_____
NOTARY PUBLIC

Print Name: _____
My Commission Expires: _____

ACKNOWLEDGMENT

STATE OF FLORIDA

COUNTY OF _____

The foregoing instrument was acknowledged before me by means of [__] physical presence or [__] online notarization, this ___ day of _____, 2023, by _____, as _____of _____, a _____, and that s/he, as such _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the _____ by himself/herself as _____. Said person is [__] personally known to me, or [__] has produced _____ as identification.

In witness whereof I hereunto set my hand and official seal.

_____
NOTARY PUBLIC

Print Name: _____
My Commission Expires: _____

CONSENT OF BORROWER

Borrower acknowledges receipt of a copy of this Subordination Agreement, dated as of _____, 2023, by and among THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., a national banking association, the CITY OF BRADENTON, a municipal corporation existing by and under the laws of the State of Florida, and the COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF BRADENTON, a dependent special district of the City of Bradenton, and consents to the agreement of the parties set forth in this Agreement.

HTG ASTORIA, LTD., a Florida limited partnership

By: HTG ASTORIA, LLC, a Florida limited liability company, its Special Limited Partner

By: _____
Matthew Rieger, Manager

ACKNOWLEDGMENT

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me by means of [__] physical presence or [__] online notarization, this ___ day of _____, 2023, by Matthew Rieger, as Manager of HTG ASTORIA, LLC, a Florida limited liability company, Special Limited Partner of HTG ASTORIA, LTD., a Florida limited partnership, and that s/he, as such Manager, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the limited liability company by himself as Manager. He is [__] personally known to me, or [__] has produced _____ as identification.

In witness whereof I hereunto set my hand and official seal.

_____
NOTARY PUBLIC

Print Name: _____
My Commission Expires: _____

EXHIBIT A

LEGAL DESCRIPTION

Lots 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, of GILLEY PATTEN'S ADDITION TO THE CITY OF BRADENTOWN, KNOWN AS SECOND ADDITION TO EDGEWOOD, according to the Plat thereof, recorded in Plat Book 1, Page 301, of the Public Records of Manatee County, Florida.

AGENDA ITEM NO. 6.g

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Rebecca Desch, Fire

ITEM TYPE: Agreement

AGENDA SECTION: CONSENT AGENDA

SUBJECT: Federal Subaward and Grant Agreement for DR-4673 Hurricane Ian

SUGGESTED ACTION: Approve execution by Mayor, as the authorized signer.

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
This executed agreement is required by the State of Florida DEM for the city to receive any FEMA Public Assistance (expense reimbursement) related to Hurricane Ian.
Where directed by the accompanying 'Subgrant Agreement Applicant Instructions,' fields have been completed.
Mayor's signature is needed on pages 8, 9, 11 (box 1 and bottom), and 13.
Other contacts on page 11 will later sign where directed, and the fully executed agreement will be uploaded to the state by the primary contact.

FINANCIAL IMPACT:
The initial estimate of expenses is $2.65 million, with potential eligible reimbursement of up to $1.9 million.

ATTORNEY REVIEW/RECOMMENDATION:
N/A

SUGGESTED MOTION:
Approve Mayor to execute the agreement, as the authorized signer, on behalf of the City of Bradenton

ATTACHMENTS:
DR4673 Z3124 Funding Agreement

FEDERALLY FUNDED SUBAWARD AND GRANT AGREEMENT for DR - 4673 - Hurricane Ian

The following Agreement is made and information is provided pursuant to 2 CFR §200.332(a)(1):

Subrecipient's name:	Bradenton, City of
Subrecipient's unique entity identifier:	P3FLJ98L86V8
Federal Award Date:	9/30/2022
Subaward Period of Performance Start and End Date (Cat A-B):	Sep 23, 2022- Mar 29, 2023
Subaward Period of Performance Start and End Date (Cat C-G):	Sep 23, 2022- Mar 29, 2024
Amount of Federal Funds Obligated by this Agreement:	N/A
Total Amount of Federal Funds Obligated to the Subrecipient by the pass-through entity to include this Agreement:	
Total Amount of the Federal Award committed to the Subrecipient by the pass-through entity:	
Federal award project description (see Federal Funding Accountability and Transparency Act (FFATA):	Grant for communities to respond to and recover from major disasters or emergencies and for limited mitigation measures.
Name of Federal awarding agency:	Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA)
Name of pass-through entity:	Florida Division of Emergency Management (FDEM)
Contact information for the pass-through entity:	2555 Shumard Oak Blvd. Tallahassee, FL 32399-2100
Assistance Listing Number (Formerly CFDA Number):	97.036

Assistance Listing Program Title (Formerly CFDA program Title): Bradenton, City of

THIS AGREEMENT is entered into by the State of Florida, Division of Emergency Management, with headquarters in Tallahassee, Florida (hereinafter referred to as the "Division"), and Bradenton, City of (hereinafter referred to as the "Subrecipient").

THIS AGREEMENT IS ENTERED INTO BASED ON THE FOLLOWING REPRESENTATIONS:

A. The Subrecipient represents that it is fully qualified and eligible to receive these grant funds to provide the services identified herein;

B. The Subrecipient, by its decision to participate in this grant program, bears the ultimate responsibility for ensuring compliance with all applicable State and Federal laws, regulations and policies, and bears the ultimate consequences of any adverse decisions rendered by the Division, the Federal Awarding Agency, or any other State and Federal agencies with audit, regulatory, or enforcement authority;

C. This Agreement establishes the relationship between the Division and the Subrecipient to allow the Division to pay grant funds to the Subrecipient.

THEREFORE, the Division and the Subrecipient agree to the following:

(1) APPLICATION OF STATE LAW TO THIS AGREEMENT

2 CFR § 200.302 provides: "Each state must expend and account for the Federal award in accordance with state laws and procedures for expending and accounting for the state's own funds." Therefore, section 215.971, Florida Statutes, entitled "Agreements funded with federal or state assistance," applies to this Agreement.

(2) LAWS, RULES, REGULATIONS AND POLICIES

a. Performance under this Agreement is subject to 2 CFR Part 200, entitled "Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards."

b. In addition to the foregoing, the Subrecipient and the Division shall be governed by all applicable State and Federal laws, rules, and regulations. Any express reference in this Agreement to a particular statute, rule, or regulation in no way implies that no other statute, rule, or regulation applies. The applicable statutes, rules, or regulations are the statutes, rules, or regulations in effect at the time of the declaration of the incident through which federal funds are awarded, or as otherwise indicated as retroactively applied.

(3) CONTACT

a. In accordance with section 215.971(2), Florida Statutes, the Division's Grant Manager shall be responsible for enforcing performance of this Agreement's terms and conditions and shall serve as the Division's liaison with the Subrecipient. As part of his/her duties, the Grant Manager for the Division shall:

i. Monitor and document Subrecipient performance; and

ii. Review and document all deliverables for which the Subrecipient requests payment.

b. The Division's Grant Manager for this Agreement is:

Name	Jennifer Stallings
Title	Grant Program Manager
Bureau of	Recovery
Address:	Florida Division of Emergency Management
	2555 Shumard Oak Blvd.
	Tallahassee, FL 32399-2100
Telephone:	(850) 815-4408
Email:	Jennifer.Stallings@em.myflorida.com

c. The name and address of the Representative of the Subrecipient responsible for the administration of this Agreement is:

Name: Rebecca Desch

Address: 1010 9th Avenue West

Bradenton, FL 34205

Telephone: 941-932-9625
Email: rebecca.desch@bradentonfl.gov

d. In the event that different representatives or addresses are designated by either party after execution of this Agreement, notice of the name, title, and address of the new representative will be provided to the other party in writing via letter or electronic email.

e. Systems Access: It is the Subrecipient's responsibility to maintain current active users in the Division's grants management system in accordance with Attachment B to this Agreement ("Systems Access Form").

(4) TERMS AND CONDITIONS

This Agreement contains all the terms and conditions agreed upon by the parties.

(5) EXECUTION

This Agreement may be executed in any number of counterparts, of which may be taken as an original.

(6) MODIFICATION

Either party may request modification of the provisions of this Agreement. Changes which are agreed upon shall be valid only when in writing, signed by each of the parties, and attached to the original of this Agreement.

(7) SCOPE OF WORK

The Subrecipient shall perform the work as approved by FEMA and provide the necessary documentation to substantiate work completed.

(8) PERIOD OF AGREEMENT/PERIOD OF PERFORMANCE

The Period of Agreement establishes a timeframe for all Subrecipient contractual obligations to be completed. Upon execution by both parties, this Agreement shall begin on the first day of the incident period for the disaster applicable to the agreement and shall end upon closeout of the Subrecipient's account for this disaster by the Federal Awarding Agency, unless terminated earlier as specified elsewhere in this Agreement. This Agreement survives and remains in effect after termination for the herein referenced State and Federal audit requirements and the referenced required records retention periods. Work may only be performed during the timeframes established and approved by FEMA for each Category of Work type.

(9) FUNDING

a. The amount of total available funding for this subgrant is limited to the amount obligated by the Federal Awarding Agency for all projects approved for this Subrecipient for DR - 4673 - Hurricane Ian Payments to Subrecipients are contingent upon the granting of budget authority to the Division.

b. Pursuant to section 252.37(5)(a), Florida Statutes, unless otherwise specified in the General Appropriations Act, whenever the State accepts financial assistance from the Federal Government or its agencies under the Federal Public Assistance Program and such financial assistance is conditioned upon a requirement for matching funds, the State shall provide the entire match requirement for state agencies and one-half of the required match for grants to Local governments. **Affected Local governments shall be required to provide one-half of the required match prior to receipt of such financial assistance. Section 252.37, Florida Statutes, does not**

apply to Subrecipients that are considered Private Non-Profit entities, therefore the entire non-federal share shall be the responsibility of the Private Non-Profit Subrecipient.

c. The Executive Office of the Governor may approve a waiver to local governments for the Non-Federal match requirement. The local government must apply for the waiver in accordance with Section 252.37(5)(b), Florida Statutes. Local governments must apply for the match waiver independently from their respective County.

(10) PAYMENT

a. The payment method used by the Division is either a Cost Reimbursement or an Advance Payment. Advance payments will be governed by Chapter 216, Florida Statutes.

b. The Division's Grant Manager, as required by section 215.971(2)(c), Florida Statutes, shall reconcile and verify all funds received against all funds expended during the grant agreement period and produce a final reconciliation report. The final report must identify any funds paid in excess of the expenditures incurred by the Subrecipient.

(11) REPAYMENTS

a. Refunds or repayments of obligated funds may be paid to the Division through check or through a payment plan as approved by the Department of Financial Services. Additionally, FEMA may permit the Division to off-set against other obligated projects where deemed appropriate. In accordance with Chapter 255, Florida Statutes, the Subrecipient has 30 days to repay the funds from the issuance of the invoice from the Division. The Division may impose a 1% per month interest fee for unpaid invoices.

b. All refunds or repayments due to the Division under this Agreement are to be made payable to the order of "Division of Emergency Management," and must include the invoice number and the applicable Disaster and Project number(s) that are the subject of the invoice, and be mailed directly to the following address:

Division of Emergency Management
Cashier
2555 Shumard Oak Boulevard
Tallahassee FL 32399-2100

(12) RECORDS

a. As required by 2 CFR § 200.334, and modified by Florida Department of State's record retention requirements (Fla. Admin. Code R. 1B-24.003), the Subrecipient shall retain sufficient records to show its compliance with the terms of this Agreement and all relevant terms and conditions of the award paid from funds under this Agreement, for a period of five (5) years from the date of submission of the final expenditure report. This period may be extended for reasons including, but not limited to, litigation, fraud, or appeal. As required by 2 CFR § 200.303(e), the Subrecipient shall take reasonable measures to safeguard protected personally identifiable information and other information the Federal Awarding Agency or the Division designates as sensitive or the Subrecipient considers sensitive consistent with applicable Federal, State, local, and tribal laws regarding privacy and responsibility over confidentiality.

b. The Subrecipient shall maintain all records for the Subrecipient and for all subcontractors or consultants to be paid from funds provided under this Agreement, including documentation of all program costs, in a form sufficient

to determine compliance with the requirements and objectives of the award and all other applicable laws and regulations.

(13) AUDITS

a. The Subrecipient shall comply with the audit requirements contained in 2 CFR Part 200, Subpart F.

b. As required by 2 CFR § 200.337(a), "The Federal awarding agency, Inspectors General, the Comptroller General of the United States, and the [Division], or any of their authorized representatives, shall enjoy the right of access to any documents, papers, or other records of the [Subrecipient] which are pertinent to the Federal award, in order to make audits, examinations, excerpts, and transcripts. The right also includes timely and reasonable access to the [Subrecipient's] personnel for the purpose of interview and discussion related to such documents." The right of access is not limited to the required retention period but lasts as long as the records are retained (2 CFR § 200.337(c)).

c. As required by 2 CFR § 200.332(a)(5), the Division, the Chief Inspector General of the State of Florida, the Florida Auditor General, or any of their authorized representatives, shall enjoy the right of access to any documents, financial statements, papers, or other records of the Subrecipient which are pertinent to this Agreement, in order to make audits, examinations, excerpts, and transcripts. The right of access also includes timely and reasonable access to the Subrecipient's personnel for the purpose of interview and discussion related to such documents.

(14) REPORTS

a. Consistent with 2 CFR § 200.329, the Subrecipient shall provide the Division with quarterly reports and any applicable financial reporting, including reports required by the Federal Funding Accountability and Transparency Act (FFATA). These reports shall include the current status and progress by the Subrecipient and, as applicable, all subcontractors in completing the work described in the Scope of Work and the expenditure of funds under this Agreement, in addition to any other information requested by the Division.

	Reporting Time Period	Subrecipient Report Submittal Deadline
Quarter 1 (Q1)	October 1 – December 31	January 15
Quarter 2 (Q2)	January 1 – March 31	April 15
Quarter 3 (Q3)	April 1 – June 30	July 15
Quarter 4 (Q4)	July 1 – September 30	October 15

b. The Subrecipient agrees to submit quarterly reports to the Division no later than fifteen (15) days after the end of each quarter of the program year and to submit quarterly reports each quarter until one quarter past the closeout of each project in the Division's Grant Management System. The ending dates for each quarter of the program year are March 31, June 30, September 30, and December 31.

c. The closeout report is due sixty (60) days after completion of each project worksheet associated with the applicant executing this Agreement, or sixty (60) days after termination of this Agreement, whichever first occurs.

d. The Subrecipient shall provide additional program reports, updates, or information that may be required by the Division or the Federal awarding agency.

(15) MONITORING

a. The Division shall monitor the performance of the Subrecipient under this Agreement to ensure that the Scope of Work is being accomplished within the specified time periods, and that other performance goals are being met.

b. The Subrecipient agrees to comply and cooperate with any monitoring procedures/processes deemed appropriate by the Division. In the event that the Division determines that an audit of the Subrecipient is appropriate, the Subrecipient agrees to comply with any additional instructions provided by the Division to the Subrecipient regarding such audit.

c. Small Projects, as defined in 44 CFR § 206.203, that are obligated above the Federal Simplified Acquisition Threshold (SAT) will be subject to enhanced oversight and monitoring by the Division as authorized by 2 CFR § 200.332(a)(2).

(16) LIABILITY

a. Unless the Subrecipient is a State agency or political subdivision, as defined in section 768.28(2), Florida Statutes, the Subrecipient is solely responsible to third parties it deals with in carrying out the terms of this Agreement. As authorized by section 768.28(19), Florida Statutes, Subrecipient shall hold the Division harmless against all claims of whatever nature by third parties arising from the work performance under this Agreement. For purposes of this Agreement, Subrecipient agrees that it is not an employee or agent of the Division but is an independent contractor.

b. As required by section 768.28(19), Florida Statutes, any Subrecipient which is a State agency or political subdivision, as defined in section 768.28(2), Florida Statutes, agrees to be fully responsible for its negligent or tortious acts or omissions which result in claims or suits against the Division and agrees to be liable for any damages proximately caused by the acts or omissions to the extent set forth in section 768.28, Florida Statutes. Nothing herein is intended to serve as a waiver of sovereign immunity by any Subrecipient to which sovereign immunity applies. Nothing herein shall be construed as consent by a State agency or subdivision of the State of Florida to be sued by third parties in any matter arising out of any contract.

(17) TERMINATION

This Agreement terminates upon the completion of all eligible work and payment of all eligible costs in accordance with the Public Assistance Program requirements. The Division and Subrecipient agree that all records will be maintained until the conclusion of any record retention period.

(18) PROCUREMENT

a. The Subrecipient must ensure that any procurement involving funds authorized by the Agreement complies with all applicable Federal and State laws and regulations, including 2 CFR §§ 200.318 through 200.327 as well as Appendix II to 2 CFR Part 200 (entitled "Contract Provisions for Non-Federal Entity Contracts Under Federal Awards"). Additional requirements, guidance, templates, and checklists regarding procurement may be obtained through the FEMA Procurement Disaster Assistance Team. Resources found here: https://www.fema.gov/grants/procurement.

b. The Subrecipient must include all applicable federal contract terms for all contracts for which federal

funds are received.

If the Subrecipient contracts with any contractor or vendor for performance of any portion of the work required under this Agreement, the Subrecipient must incorporate into its contract with such contractor or vendor an indemnification clause holding the Federal Government, its employees and/or their contractors, the Division, its employees and/or their contractors, and the Subrecipient and its employees and/or their contractors harmless from liability to third parties for claims asserted under such contract.

c. The Subrecipient must monitor and document, in the quarterly report, the contractor's progress in performing its work on its behalf under this Agreement in addition to its own progress.

d. The Subrecipient must ensure all contracts conform to sections 287.057 and 288.703, Florida Statutes, as applicable.

(19) ATTACHMENTS

a. All attachments to this Agreement are incorporated as if set out fully.

b. In the event of any inconsistencies or conflict between the language of this Agreement and the attachments, the language of the attachments shall control, but only to the extent of the conflict or inconsistency.

c. This Agreement has the following attachments:

i. Attachment A – Certification Regarding Debarment

ii. Attachment B – Systems Access Form

iii. Attachment C – Certification Regarding Lobbying

IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

SUBRECIPIENT: Bradenton, City of

By: _____
(Signature)

Name: Gene Brown

Title: Mayor

Date: 02/08/2023

STATE OF FLORIDA
DIVISION OF EMERGENCY MANAGEMENT

By: _____
Governor's Authorized Representative

Date: _____

Attachment A

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY and VOLUNTARY EXCLUSION

The Subrecipient certifies, to the best of its knowledge and belief, that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

2. Have not within the five-year period preceding entering into this Agreement had one or more public transactions (Federal, State, or Local) terminated for cause or default; and

3. Have not within the five-year period preceding entering into this proposal been convicted of or had a civil judgment rendered against them for:

a) the commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or Local) transaction or a contract under public transaction, or b) violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statements, or receiving stolen property.

The Subrecipient understands and agrees that the language of this certification must be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, contracts under grants, loans, and cooperative agreements) and that all contractors and sub-contractors must certify and disclose accordingly.

The Subrecipient further understands and agrees that this certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into.

By: _____
Signature

Gene Brown, Mayor
Name and Title

101 Old Main Street
Street Address

Bradenton, FL, 34205
City, State, Zip

02/08/2023
Date

Bradenton, City of
Subrecipient's Name

Z3124
DEM Contract Number

Attachment B

SYSTEMS ACCESS

The **System Access Form** is submitted with each new disaster or emergency declaration to identify the Subrecipient's contacts for the FDEM Grants Management System in order to enter notes, review notes and documents, and submit the documentation necessary to work the new event. The Systems Access Form is originally submitted as Attachment "B" to the PA Funding Agreement. The Subrecipient is responsible for regularly reviewing its contacts. Contacts should be removed within 14 days of separation, retirement, or are reassignment by the Subrecipient. A new form will only be needed if all listed contacts have separated from the Agency. If a new Systems Access form is submitted, all Agency Representatives currently listed as contacts that are not included on the updated form will be deleted from FDEM Grants Management System for the specified grant. All users must log in on a monthly basis to keep their accounts from becoming locked. **Note: the Systems Access Form is NOT a delegation of authority. A signatory must have an attached delegation of authority as appropriate.**

Instructions for Completion

Complete the form in its entirety, listing the name and information for all representatives who will be working in the FDEM Grant Management System. Users will be notified via email when they have been granted access. The user must log in to the FDEM Grants Management System within twelve (12) hours of being notified or their account will lock them out. Each user must log in within a sixty (60) day period or their account will lock them out. In the event you try to log in and your account is locked, users must submit a request for unlocking to RPA.Help@em.myflorida.com.

The form is divided into twelve blocks; each block must be completed where appropriate.

Block 1: "Authorized Agent" – This should be the highest authority in your organization who is authorized to sign legal documents on behalf of your organization. A subsequent new Authorized Agent must be designated through a letter on letterhead from the Subrecipient's Authorized Representative. It is recommended to delegate this authority to an organizational staff member to avoid delays in grant management (Only one Authorized Agent is allowed, and this person will have full access/authority unless otherwise requested).

Block 2: "Primary Contact" – This is the person designated by your organization to receive all correspondence and is our main point of contact. This contact will be responsible for answering questions, uploading documents, and submitting reports/requests in FDEM Grants Management System. The Authorized Agent may designate a new Primary Contact. (Only one Primary Contact is allowed, and this contact will have full access).

Block 3: "Alternate Contact" – This is the person designated by your organization to be available when the Primary is not. Either the Authorized Agent or Primary Contact may designate a new Alternate Contact. (Only one Alternate Contact is allowed, and this contact will have full access).

Block 4, 5, and 6: "Other" (Finance/Point of Contact, Risk Management-Insurance, and Environmental-Historic). Providing these contacts is essential in the coordination and communication required between State and Local subject matter experts. We understand that the same agent may be identified in multiple blocks, however we ask that you enter the name and information again to ensure we are communicating with the correct individuals.

Block 7 – 12: "Other" (Read Only Access) – There is no limit on "Other" contacts, but we ask that this be restricted to those that are going to actually need to log in and have a role in reviewing the information. This designation is only for situational awareness purposes as individuals with the "Other Read-Only" designation cannot take any action in FDEM Grants Management System.

Note: The Systems Access Form is NOT a delegation of authority. A signatory must have an attached delegation of authority as appropriate.

SYSTEMS ACCESS FORM (CONTACTS)
FEMA/GRANTEE PUBLIC ASSISTANCE PROGRAM
FLORIDA DIVISION OF EMERGENCY MANAGEMENT

Subrecipient: Bradenton, City of

Box 1: Authorized Agent (Full Access)		**Box 2: Primary Contact** (Full Access)	
Name	Gene Brown	Name	Rebecca Desch
Signature		Signature	
Organization / Official Position	Mayor	Organization / Official Position	Fire Department, Business Ops Manager
Mailing Address	101 12th Street West	Mailing Address	1010 9th Avenue West
City, State, Zip	Bradenton, FL 34205	City, State, Zip	Bradenton, FL 34205
Daytime Telephone	941-932-9400	Daytime Telephone	941-932-9625
E-mail Address	gene.brown@bradentonfl.gov	E-mail Address	rebecca.desch@bradentonfl.gov
Box 3: Alternate Contact (Full Access)		**Box 4: Other-Finance/Point of Contact** (Full Access)	
Name	Corey Fortin	Name	Lance Williams
Signature		Signature	
Organization / Official Position	Policy, Planning, and Procedures Administrator	Organization / Official Position	Finance Director
Mailing Address	101 12th Street West	Mailing Address	101 12th Street West
City, State, Zip	Bradenton, FL 34205	City, State, Zip	Bradenton, FL 34205
Daytime Telephone	941-932-9451	Daytime Telephone	941-932-9433
E-mail Address	corey.fortin@bradentonfl.gov	E-mail Address	lance.williams@bradentonfl.gov
Box 5: Other-Risk Mgmt-Insurance (Full Access)		**Box 6: Other-Environmental-Historic** (Full Access)	
Name		Name	
Signature		Signature	
Organization / Official Position		Organization / Official Position	
Mailing Address		Mailing Address	
City, State, Zip		City, State, Zip	
Daytime Telephone		Daytime Telephone	
E-mail Address		E-mail Address	

The above contacts may utilize the FDEM Grants Management System to perform the Subrecipient's responsibilities regarding the Public Assistance Grant according to their level of access. The Subrecipient is responsible for ensuring that all contacts are correct and up-to-date.

Subrecipient Authorized Representative Signature

02/08/2023

Date

SYSTEMS ACCESS FORM (CONTACTS)
FEMA/GRANTEE PUBLIC ASSISTANCE PROGRAM
FLORIDA DIVISION OF EMERGENCY MANAGEMENT

Subrecipient: Bradenton, City of **Date:**

Box 7: **Other** (Read Only Access)	**Box 8:** **Other** (Read Only Access)
Name	Name
Signature	Signature
Organization / Official Position	Organization / Official Position
Mailing Address	Mailing Address
City, State, Zip	City, State, Zip
Daytime Telephone	Daytime Telephone
E-mail Address	E-mail Address
Box 9: **Other** (Read Only Access)	**Box 10:** **Other** (Read Only Access)
Name	Name
Signature	Signature
Organization / Official Position	Organization / Official Position
Mailing Address	Mailing Address
City, State, Zip	City, State, Zip
Daytime Telephone	Daytime Telephone
E-mail Address	E-mail Address
Box 11: **Other** (Read Only Access)	**Box 12:** **Other** (Read Only Access)
Name	Name
Signature	Signature
Organization / Official Position	Organization / Official Position
Mailing Address	Mailing Address
City, State, Zip	City, State, Zip
Daytime Telephone	Daytime Telephone
E-mail Address	E-mail Address

Subrecipient's Fiscal Year (FY) Start: **Month:** October (10) **Day:** 1

Subrecipient's Federal Employer's Identification Number (EIN) 59-6000283

Subrecipient's Grantee Cognizant Agency for Single Audit Purposes: Florida Division of Emergency Management

Subrecipient's: FIPS Number (If Known) 081-07950-00

Attachment C
Certification Regarding Lobbying

APPENDIX A, 44 CFR PART 18 – CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all Subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Subrecipient or contractor, City of Bradenton, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

_____
Signature of Subrecipient/contractor's Authorized Official

Gene Brown, Mayor
_____
Name and Title of Subrecipient/contractor's Authorized Official

02/08/2023
_____
Date

AGENDA ITEM NO. 6.h

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Robin Singer, Planning & Community Development

ITEM TYPE: Agreement

AGENDA SECTION: CONSENT AGENDA

SUBJECT: e-Plansoft (Electronic Plans Review Platform)

SUGGESTED ACTION: Motion to approve the agreement with Carahsoft Technologies to purchase and implement e-Plansoft.

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
The Planning and Community Development staff, in conjunction with the Information Technology team, is working to implement a new electronic permitting and automation platform for their department.

This purchase allows the Planning and Community Development staff to begin using a small piece of the electronic plans review much sooner than the full implementation of the Accela product and automation suite. This product will be used with Accela well into the future, and the project team with Accela has no concerns about integrating e-Plansoft with the larger project.

FINANCIAL IMPACT:
Year 1 + Implementation: $60,000
Year 2: $36,050.00
Year 3: $26,522.50
Year 4: $3,500.00 and onward

Year 1 cost includes implementation plus licensing for the publicly facing portal.

Year 2 costs include the public facing portal for contractors to submit plans electronically only.

Year 3 does not have the public portal cost associated, as the contractors will begin using Accela to begin the process for inbound plans review.

Year 4 and onward only uses the integration between Accela and E-Plansoft for permitting reviews.

ATTORNEY REVIEW/RECOMMENDATION:
City Attorney, City Administrator and Purchasing teams have reviewed and accepted.

SUGGESTED MOTION:
Motion to approve the agreement with Carahsoft Technologies to purchase e-Plansoft.

ATTACHMENTS:
Carahsoft - e-PlanSoft - Quote

GOVERNMENT- PRICE QUOTATION

e-Plansoft at Carahsoft

11493 SUNSET HILLS ROAD, SUITE 100 | RESTON, VIRGINIA 20190
PHONE (703) 871-8536 | FAX (703) 871-8505 | TOLL FREE (877) 99-ADOBE
WWW.CARAHSOFT.COM

TO:
Patrick Wenzel
Building Official
City of Bradenton
101 Old Main St W.
Bradenton, FL 34205 USA

EMAIL: Patrick.wenzel@cityofbradenton.com
PHONE: (941) 932-9404

FROM:
Casey Oesterle
e-PlanSoft at Carahsoft
11493 Sunset Hills Road
Suite 100
Reston, Virginia 20190

EMAIL: Casey.Oesterle@carahsoft.com
PHONE: (571) 662-3010 **FAX:** (703) 871-8505

TERMS:
Contract Number: 43230000-NASPO-16-ACS
NASPO Master Contract Number: AR2472
Contract Term: 07/01/2017 to 09/15/2026
Shipping Point: FOB Destination
Credit Cards: VISA/MasterCard/AMEX
Remit To: Same as Above
Payment Terms: Net 30 (On Approved Credit)
Sales Tax May Apply

QUOTE NO:	31676442
QUOTE DATE:	01/31/2023
QUOTE EXPIRES:	03/02/2023
RFQ NO:	
SHIPPING:	ESD
TOTAL PRICE:	$60,000.00
TOTAL QUOTE:	$60,000.00

LINE NO.	PART NO.	DESCRIPTION	-	QUOTE PRICE		QTY	EXTENDED PRICE
		YEAR 1 SUBSCRIPTION + SERVICES					
1	AR2472-EPS001-032620-002	eplansoft REVIEW subscription license - Web-Based Electronic Plan Review Software license for a named user - must be renewed each year. This includes eplansoft REVIEW Hosting in e-PlanSoft's Amazon Cloud, Software updates, and Maintenance and Support. ePlanSoft - EPR-0100		$1,000.00	COOP	25	$25,000.00
2	AR2472-EPS001-032620-001	eplansoft goPost Public Facing Portal -Public Portal which offersappplicants the ability to create and track electronic plan review projects submitted to agencies performing plan reviews..Rate is per year ePlanSoft - EPR-0200		$10,000.00	COOP	1	$10,000.00
3	AR2472-EPS001-032620-003	Professional services provided by e-Plansoft including but not limited to implementation, setup, and training. Rate is Per Hour. *Implementation Services to be paid upfront. ePlanSoft - EPS-0400		$200.00	COOP	125	$25,000.00
		SUBTOTAL:					$60,000.00
				TOTAL PRICE:			**$60,000.00**
				TOTAL QUOTE:			**$60,000.00**

SUGGESTED OPTIONS

LINE NO.	PART NO.	DESCRIPTION	-	QUOTE PRICE	QTY	EXTENDED PRICE
		YEAR 2 SUBSCRIPTION				

GOVERNMENT- PRICE QUOTATION

e-Plansoft at Carahsoft

11493 SUNSET HILLS ROAD, SUITE 100 | RESTON, VIRGINIA 20190
PHONE (703) 871-8536 | FAX (703) 871-8505 | TOLL FREE (877) 99-ADOBE
WWW.CARAHSOFT.COM

LINE NO.	PART NO.	DESCRIPTION	-	QUOTE PRICE		QTY	EXTENDED PRICE
4	AR2472-EPS001-032620-002	eplansoft REVIEW subscription license - Web-Based Electronic Plan Review Software license for a named user - must be renewed each year. This includes eplansoft REVIEW Hosting in e-PlanSoft's Amazon Cloud, Software updates, and Maintenance and Support. ePlanSoft - EPR-0100		$1,030.00	COOP	25	$25,750.00
5	AR2472-EPS001-032620-001	eplansoft goPost Public Facing Portal -Public Portal which offersappplicants the ability to create and track electronic plan review projects submitted to agencies performing plan reviews..Rate is per year ePlanSoft - EPR-0200		$10,300.00	COOP	1	$10,300.00
		YEAR 2 SUBSCRIPTION SUBTOTAL:					$36,050.00
		YEAR 3 SUBSCRIPTION					
6	AR2472-EPS001-032620-002	eplansoft REVIEW subscription license - Web-Based Electronic Plan Review Software license for a named user - must be renewed each year. This includes eplansoft REVIEW Hosting in e-PlanSoft's Amazon Cloud, Software updates, and Maintenance and Support. ePlanSoft - EPR-0100		$1,060.90	COOP	25	$26,522.50
		YEAR 3 SUBSCRIPTION SUBTOTAL:					$26,522.50
		SUGGESTED SUBTOTAL:					$62,572.50

e-PlanSoft
111 Pacifica, Suite 100
Irvine CA 92618
877.654.3752

www.eplansoft.com

Prepared by
Lisa Lopez

Carahsoft
11493 Sunset Hills Rd
Suite 100
Reston, VA 20190
703.871.8500

www.carahsoft.com

STATEMENT OF WORK

Prepared for:

Patrick Wenzel

City of Bradenton, FL
101 Old Main St. W.
Bradenton, FL 34205

Date:
11/23/2022

Phone: 941-932-9404 Email: Patrick.Wenzel@bradentonFL.gov

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Products Overview

e-PlanREVIEW

e-PlanREVIEW (***EPR***) is an industry-leading, cloud based collaborative platform for team-based design review, permitting. The platform is designed by industry experts for architectural, engineering, and construction (AEC) companies, as well as state, county, and municipal agencies tasked with code compliance and enforcement. EPR improves results and lowers the cost of doing business in both the private and public sectors by replacing printing, shipping, and storage expenses of paper plans with convenient online document uploads and concurrent, collaborative web-based electronic plan reviews. Our mission is simple: *To fundamentally change and improve how the construction industry and permitting agencies work*.

EPR features include:

1. Route incoming plan review documents to the appropriate departments/users.
2. Conduct web-based, simultaneous plan reviews.
3. Complete each plan review assignment by choosing either 'acceptance' or 'resubmit' status.
4. Generate template Correction Reports.
5. Ability to return 'reviewed plans', correction reports and any supporting document to permitting system.
6. Notify staff members when all plan review assignments have been completed.
7. Ability to download approved plans to your network for long-term retention.
8. Intake 'corrected plan sets' from the Applicant for back check.
9. Associate existing markups and comments to the most recent document version.
10. Reset existing assignments to a 'Not Started' status.
11. Apply electronic 'stamps' to the reviewed plans, as appropriate

goPost

The goPost Public Portal (goPost) is a fully web-based application that requires no 3rd party software. Project applications submitted via goPost are passed electronically to e-PlanREVIEW for plan check. Reviewed plans are passed electronically from EPR back to goPost where they can be downloaded by the applicants.

goPost is designed to allow agencies to quickly configure the goPost login page with specific instructions which will assist applicants in the project submittal process. These instructions typically include web links to allow the applicant to download project checklists, document submittal requirements, etc.

A link to goPost placed on the Agency's webpage will provide an easy transition for the applicants navigating to the permit application process, available 24/7. goPost will include a list of the types of plan review projects that the Agency wishes to accept electronically.

GoPost supports the following 'user roles':

1. Applicants
2. Intake Staff
3. goPost Administrators

goPost for Applicants

Using goPost, your Constituents who wish to apply for electronic plan review may:

1. Create their goPost user account (as an '*Applicant*') and manage their own user profile (address, phone number, company affiliation, etc.) including multifactor authentication challenge questions for enhanced security.
2. Download permit applications forms, project checklists, etc. to assist them in successfully completing the application process.
3. Complete the goPost *Project application*, providing the scope of work, valuation, etc. and choosing the appropriate project type.
    a. View the EPR electronic document submittal requirements report.
    b. These requirements typically include instructions on how to name the incoming plan sets.
4. Upload their plans in PDF format and supporting documents (permit applications, checklists, etc.) in any format, for the '1st submittal'.
    a. Receive feedback from embedded *PDF Scout inspector Tool* (PDF Scout) that evaluates plan review documents uploaded by the Applicant.
    b. Documents that do not meet submittal requirements cannot be uploaded to goPost until the noted issues are resolved. This relieves the Internal staff from having to evaluate incoming plans.
5. Submit their project information and plan review documents and supporting attachments to Intake staff for a completeness check.
    a. Utilize the goPost project Dashboard to monitor the status of their projects.
6. Receive email alerts from goPost as the project application is processed at each milestone.
7. Download reviewed plans and correction reports returned from EPR.
8. View the document plan review status (approved, resubmit.) when it has been made available in EPR.
    a. Upload the next submittal via goPost, if requested.
    b. View the project status as it exists in EPR (open, closed, etc.)
    c. Create and manage unlimited project applications to the Agency.
    d. Request support, as needed, which will generate an email to goPost Intake staff.
    e. Access the goPost *Wiki* page for online help, as desired.

goPost Agency Intake Staff

Intake personnel at the Agency will utilize *goPost* to evaluate the project information and incoming documents submitted by the Applicants, including evaluating whether incoming documents meet the Agency's file naming requirements.

Agency Intake staff will '*submit' GoPost* projects and documents to *EPR* for processing.

The goPost Intake Staff will:

1. Create a goPost user account (as an Internal User) which is then 'activated' by the Agency's goPost *Administrator,* including multifactor authentication challenge questions for enhanced security.

2. Receive email alerts when new projects have been submitted by an 'Applicant'.
3. Monitor the status of goPost projects via the Dashboard.
4. Perform intake on a submitted goPost project to validate the information and submitted documents meet expectations, in much the same way as the 'counter reviews' are conducted in person.
5. To complete the intake review, the Intake staff may:
    a. Modify the project information submitted by the Applicant to:
    b. Deny the project outright.
    c. Accept the project for electronic plan review.
    d. Place the project on hold until payment is received.
    e. Accept the project hold once fees are paid.
    f. Place the project on hold for other issues (incorrect valuation, scope of work notes, etc.)
    g. Accept the project once the required information has been corrected by the Applicant.
    h. Place the project on hold for 'file related' issues (missing files, etc.).
    i. Accept the project once the file issues have been corrected by the Applicant.

6. Communicate with the Applicant via emails sent from goPost.
    a. Receive support requests from goPost Applicants.
    b. Receive technical support from the e-PlanSoft support team via the e-PlanSoft ticketing system, available from within goPost.
    c. Access the goPost *Wiki* page for online help, as desired.

In addition to performing intake tasks for projects and documents submitted by Applicants, the Intake staff may also create project applications *on behalf of Applicants*, if necessary. The designated Applicant can then be instructed to upload their documents and can 'take ownership' of the project record. This functionality is helpful for Applicants who may be challenged technically.

goPost Administrator

The goPost Administrator(s) will have permissions to access the goPost Settings panel to:

1. Brand the goPost landing/login page with the welcome text and applicant instructions, etc.
2. Create and manage Applicant and Intake User accounts.
3. Create and manage standard goPost Portal configurations.
4. Modify the goPost panel instructions, if desired.
5. Complete the goPost SMTP settings/credentials page.
6. Create and manage goPost alert messages, as desired.

Additionally, the Administrator(s) may perform the same tasks as the Intake staff, including have full access to the projects submitted by the Applicants.

Project Summary

This Statement of Work (SOW) sets forth the scope and definition of the consulting/professional services, work and/or project (collectively, the "Services") to be provided by Carahsoft Technology Corp. ("Carahsfot") and e-PlanSoft™ ("e-Plan") to the Agency, for a cloud hosted deployment of e-PlanREVIEW (**EPR**) and goPost.

At the core of that plan is a detailed *Project Schedule Timeline* that includes the activities for the project, the resources required to perform those activities, and the schedule for completing them including critical dependencies. The *Project Schedule Timeline* will be provided to the Client following the project kickoff meeting.

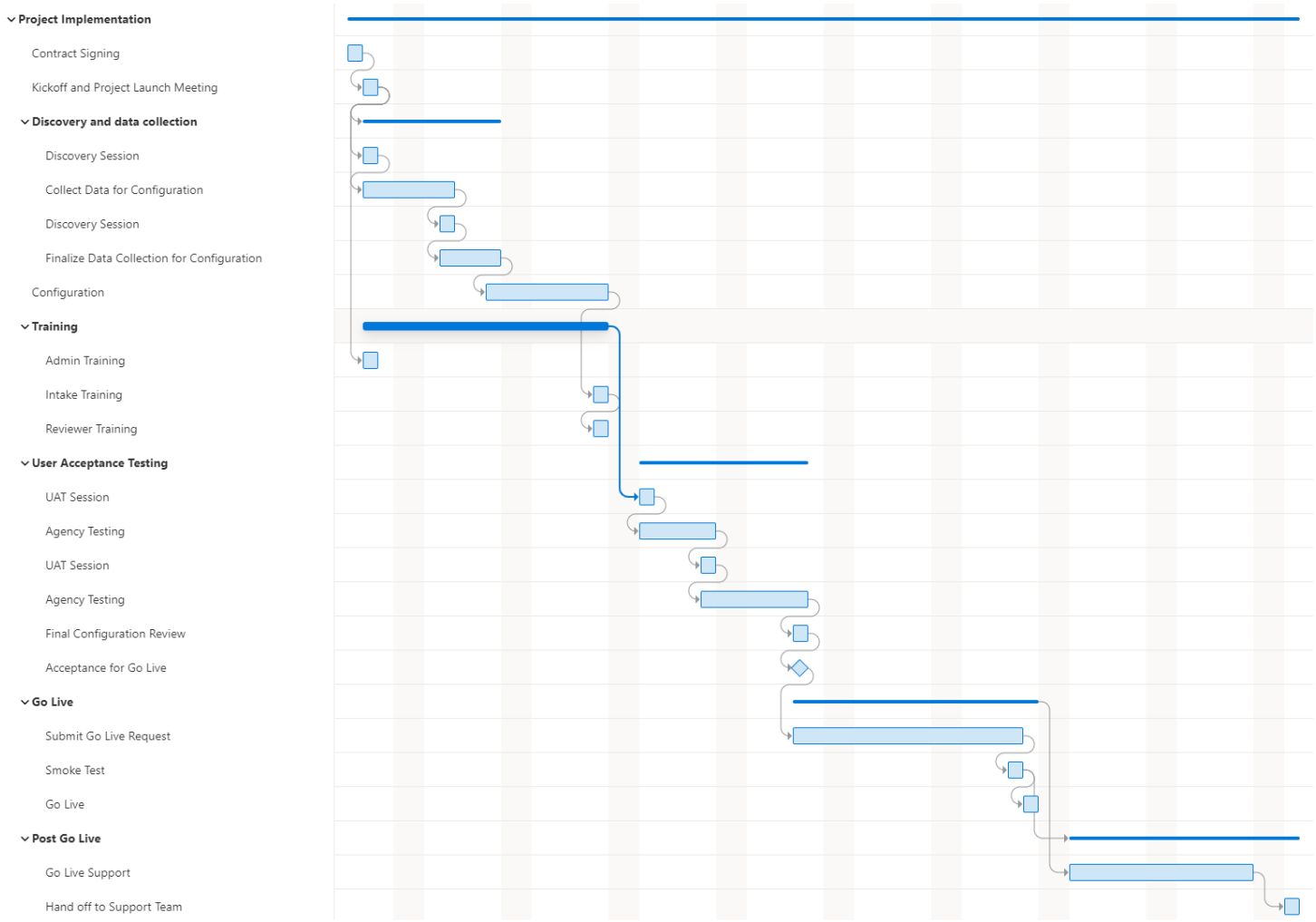
We have provided this *preliminary* statement of work based on current understanding of the activities necessary to produce the required deliverables; we will refine our plan with the Client to ensure activities are clearly defined, to review timeframes, and to ensure each activity reflects an appropriate level of detail. Each activity will be owned by person(s) who are responsible for ensuring it is completed successfully. The project plan will be updated regularly throughout the course of the project and communicated to all participants and stakeholders via email.

It is important to identify the project's critical path after the detailed project plan has been developed and prior to the start of the project. The project's critical path is the longest sequential set of activities that must occur in order, based on identified dependencies. The combined end-to-end duration of activities represents required project duration and the project's critical path. This does not account for activities that may occur in parallel, but do not contribute to the project's critical path.

The project team will schedule conference calls for the project activities. An updated schedule and an updated progress report that includes the following will be provided:

1. Activities completed within the current reporting period.
2. Activities planned for the next reporting period.
3. Updated schedule including milestones and their statuses (originally scheduled date, current target date, and the number of changes to the date).
4. Issues or problems requiring resolution.
5. The status of any changes that affect scope, cost, or schedule. Any work affecting cost will be done only with written consent from the Client.

Sample Project Plan



The e-PlanSoft Project Team

The following e-Plan roles will be assigned to ensure the successful completion of this project for the Client:

Role	Responsibilities
Project Manager	Responsible for overseeing all aspects of the solution, both from a business and technical perspective. Responsible for e-Plan project management activities and creating project management deliverables. Primary point of contact with the Client's Project Manager and responsible for providing status and issue reports to the Client.
Implementation Consultant	Assists with product configuration and participates in end user training sessions
Technical Support	Provides expertise on the solution architecture, business analysis and facilitates communication between client support requests and the product engineers.

The Client Core Project Team

Dedicated involvement of the following Client personnel will ensure the successful completion of this project for the Client. Some overlap in staff responsibilities in the chart below, is understood. The core team should be comprised of *subject matter experts* (SME's).

Role	Responsibilities
Project Managers	Individual(s) with extensive knowledge of the Client's permit intake and assignment distribution requirements.
Project Coordinators	Individuals who perform permit intake, counter reviews and may be responsible for distributing plan review assignments. Individuals who prepare deliverable packages with the reviewed plans and correction report(s) for return to the applicant.
Department / Group Manager(s)	Individuals who manage plan review staff and may be responsible for distributing plan review assignments for their staff and may be responsible for generating deliverable packages with the review plans and correction report(s) for return to the applicant.
Plan Reviewers	Individuals who conduct plan review and may be responsible for generating the correction report for return to the applicant.
Contributors	Individuals who will collaborate with the Reviewers to discuss/respond to issues, but who will not conduct plan review.

Estimated level of efforts for Agency staff during project implementation

Activity	Agency Level of effort
Kickoff and Project Launch meeting	2-3 hours for core team

Discovery and data collection	35-55 hours for core team per department/section/group (e.g., Building, Planning, Public Works)
Configuration	2 hours if EPR is building the entire solution 8-24 hours if Agency Admins is participating in building solution
Admin Training	3 hours of training for admin users
Intake Training	3 hours of training for intake clerks
Reviewer Training	3 hours of training for plan reviewers
User Acceptance Testing	25-60 hours per user participating in acceptance testing for each department/section/group (e.g., Building, Planning, Public Works)
Go Live Support	2-8 hours for core team meetings
Hand off to Support Team	1-2 hours for core team

Project Milestones

The milestone solution implementation has become a common practice in the industry to address critical business needs quickly and mitigate the risks associated with what has been termed “big bang” approaches that attempt to do too much too soon.

The milestones included in the schedule of work, and outlined in more detail below are:

1. Contract Acceptance
2. Implementation
3. Go Live

Agency Acceptance Criteria and Project Payment:

Upon the provision of Milestone completion signoffs, the Client is responsible for either accepting the milestone as complete or providing grounds for non-acceptance within 10 days of delivery. Non-correspondence will result in the de-facto acceptance of the milestone or could result in change orders due to additional project time required which is out of scope for this project.

Professional services to be paid upfront.

Milestones

Contract Acceptance Milestone

Upon signature of the contract, the first milestone is complete. Following formal acceptance of the Contract/Purchase Order, the e-Plan project manager will coordinate the Project Kickoff and Launch meetings with the Client.

Implementation

Project Kickoff and Launch

The project kickoff meeting is a meeting that includes Client project stakeholders, Client

executives, Client staff as well as the e-Plan Sales and project team members.

During this 2-hour presentation, we will review the high-level project plan, discuss the short, and long-term goals, and generally describe EPR.

This open forum is an excellent opportunity for the Client executives to 'rally' the staff and set expectations for the what the finished implementation will deliver.

In the *Project Launch* meeting, the e-Plan project manager and core Client personnel shall meet remotely to discuss the following.

1. Identify the Project Manager who has deep expertise in the Client's internal processes regarding permitting and plan review. This individual will be responsible for ensuring all deliverables are provided to the e-Plan Team on schedule, coordinating time with the Client subject matter experts as well as coordinating user training and product rollout/go live. The desired go/live date will be confirmed in the kickoff meeting.
2. Review terminology regarding project workflow status, assignment status, document cycles, etc. used in-house is identified to ensure that EPR is configured to use the same terminology.
3. Another item for discussion will be to define how and where electronic documents will be archived for long term retention.
4. Identify the Client's subject matter experts (the project team) who will participate in the product configuration and user acceptance testing (UAT).
5. Discuss and confirm the Project Timeline schedule for each milestone and all deliverables.
6. Confirm the schedule for remote project meetings.
7. Discuss the Discovery Deliverables (see below) that the Client will need to gather.

<u>e-PlanSoft Responsibilities</u>:

- Provide timely and appropriate responses to Agency's request for information
- Coordinate project planning activities
- Complete Baseline Project Plan, Project Status Report Template, and Project Initiation Presentation deliverables with input from appropriate Agency resources

<u>Agency Responsibilities</u>:

- Identify and set expectations with key resources and subject matter experts for ongoing participation in the project
- Provide timely and appropriate responses to e-PlanSoft requests for project planning input and meeting logistics requests
- Provide meeting facilities for Virtual Kickoff and other remote activities

Discovery

The Client shall gather the following deliverables, listed below, in the format provided by e-PlanSoft. This information will be used to configure EPR and user acceptance testing (**UAT**).

1. List of all records/applications/case/permits.
2. An updated staff organizational chart for the departments/agencies involved in the project.

3. Usernames, user roles, department/agency affiliation, user email and phone number.
4. A sample representative document(s) for the Correction Report letter in Word format.
5. A representative sample of electronic stamps (saved in .PNG format) for use by the EPR plan reviewers.
6. PNG images with transparent backgrounds are recommended.
7. Standard Comments/Checklists in Excel format to be uploaded into the EPR Standard Comment Library, via an XLS template provided by e-Plan.
8. A Client email account (for example: donotreply@domainname.com) that EPR can use to send automated emails to Client staff (email notification alerts). Requires opening firewall port 25.

e-PlanSoft Responsibilities:

- Provide EPR expertise

Agency Responsibilities:

- Provide lists of requested data

Configuration

Tasks include:

1. Creation of **User accounts,** no more than **25** created.
2. Confirm the **EPR groups** (departments/agencies), no more than **10** created.
3. Configure the EPR application and **project type lists**, no more than **60** created.
4. Configure **Correction Report template**, no more than **1** created.
5. Upload standard comments into the **EPR Comment Library**, no more than **100** created.
6. Configure the EPR color scheme '**branding'** and login page landing image.
7. Upload Electronic **stamps** (.PNG format) and assign them to the appropriate Reviewers, no more than **5** created.
8. Confirm/configure the EPR **permission** settings.
9. Enter the Client **email** account that EPR will use to send automated emails to Client staff. For example: *DoNotReply@Clientdomain.org*
10. Create sample projects and upload sample plans for training of Client staff. Plans shall meet electronic submittal requirements.
11. Setup goPost Portlets – no more than **5** total

e-PlanSoft Responsibilities:

- Complete EPR Configuration and goPost Configuration

Agency Responsibilities:

- Validate EPR Configuration and goPost Configuration

Training

e-PlanSoft will provide comprehensive training for EPR users per the course outline below. Training is offered as follows:

Course Description	Intended Audience	Sessions
EPR training for Administrators: User accounts, permissions, configuration.	EPR Administrators	1
EPR Training for Intake and Deliverables: PDF Scout Inspector and OCR Preparing Correction reports and project deliverables.	Permit Intake staff, Group Managers, Permit QA Supervisors	1
EPR training for Reviewers: Performing plan review. Plan review using *paper-based* plans. Preparing Correction reports and project deliverables.	Reviewers, Group Managers, Permit QA Supervisors.	1

There is a maximum class size of 15 users per class purchased. All web meetings are recorded and provided to Agency for ongoing use.

Training Materials

EPR online help can be accessed from within the products by selecting the help icon. All recorded training videos are provided at the end of each class.

Training Environment

To facilitate the best possible experience for web training, user should have available:

1. Workstations/laptop for each trainee
    a. Latest version of Chrome or Edge.
    b. 27-inch monitors.
2. A communication device such as a phone, headset, or microphone and speakers.

Once training has been completed, this milestone will be complete.

The project schedule will be updated to indicate the completion of the Training milestone.

User Acceptance Testing

In this milestone, the core project team will devote a dedicated period to test the full process from end to end in EPR. Time Commitment on the Agency for UAT testing is typically 1-2 hours of testing per case/project type.

The desired goal is to confirm the entire solution is working properly.

Sample testing scenarios include the following:

1. Submitting the project in goPost
2. Ensuring goPost transfers data to EPR
3. Confirming *optical character recognition* (OCR) of the sheet numbers on the incoming plans.
4. Performing plan review including adding comments, markups, stamps, measurements.
5. Generating a Correction Report.
6. Preparing a deliverable package.
7. Sending deliverable package from EPR to goPost.
8. Resubmitting plans in goPost.
9. Resubmitting plans to EPR from goPost
10. Accepting and routing the next submittal to the plan reviewers.
11. Stamping the final approved set of plans.
12. Sending the Approved deliverable from EPR to goPost
13. Closing the project record

The Client needs to test every record and workflow process to be successful.

During User Acceptance testing, the Agency can expect to spend 1-2 hours per person, per case/project for testing all the EPR related processes. For example, if an Agency has 50 case types to test it will take **one person** anywhere from 50 hours (5 days) to 100 hours (2.5 weeks).

e-PlanSoft Responsibilities:

- Provide Functional Test Plans
- Participate in Team Test Sessions
- Provide timely responses to Agency's UAT bugs and questions
- Fix all go-live critical bugs and log bugs not being fixed and provide a mitigation plan on when bug will be resolved

Agency Responsibilities:

- Develop Business Use Test cases for UAT
- Participate in team and independent test sessions
- Document UAT results
- Perform UAT and provide signoff

Once UAT has been completed, this milestone will be complete.
The project schedule will be updated to indicate the completion of the UAT milestone.

Go Live

Communication

Communicate to your community the upcoming changes and dates. We recommend including 3rd party plan reviewers and a few applicants in UAT to get feedback from them prior to launching

your new solution.

Launch

We recommend a *soft launch* approach by rolling out this solution to a small, targeted applicant pool. This will provide some time for everyone to settle in and get comfortable with the process changes, after which the Agency can expand the offering on more clients in a managed schedule.

Key Assumptions

1. The Client shall provide the required documentation for configuring the product as specified in this SOW.
2. The e-Plan Project Manager and Client POC will schedule conference calls throughout the life cycle of this project.
3. The Client **commits the necessary staff and dedicated resources** be available for the agreed upon project schedule Timeline.
4. Delays to the project caused by staff unavailability will negatively impact the project schedule.

Plan Review Workstations

1. EPR is supported on the *Chrome* and *EDGE* browsers although Chrome is the preferred browser.
2. EPR requires popups to be enabled for the specific domain to which EPR is deployed. (Any Client policy to disable browser popups must be allowed for your EPR URL.)
3. We recommend that *Adobe Reader* be installed on workstations.
4. EPR Reviewers should have at minimum, two 27" + inch monitors running in high definition (1920x1080p). A graphics card capable of supporting two 27-inch+ monitors is recommended.

Permit Intake Workstations

1. EPR is supported on the Chrome and *EDGE browsers* although Chrome is the preferred browser.
2. EPR requires popups to be enabled for the specific domain to which EPR is deployed. (Any Client policy to disable browser popups must be allowed for your EPR URL.)
3. We recommend that *Adobe Pro* be installed on the Permit Intake workstations.

Project Change Management

The purpose of Project Change Management is to define the process that will be utilized by the project to manage and account for changes to project scope, cost, and schedule. All project tasks must be approached with an understanding of the project scope and critically examined within the context of project scope, cost, and schedule management.

The purpose of Project Change Management is not to eliminate change, but rather to define a process allowing the proposed changes to be properly identified, evaluated, and escalated as necessary. The Change Order Process is defined anything that changes the Statement of Work, duration of the project or contract values. The Change Order Processes will follow the steps outlined below.

A Change Order Request Form must be completed for all changes requested by either e-PlanSoft or the Client that further clarify impact or deviate from the approved SOW or MSA. The e-PlanSoft Project Manager will be responsible for managing all Change Order requests submitted on the project in accordance with the following process:

1. All requests must be submitted in writing to the e-PlanSoft Project Manager either by e-mail or hard copy to be recognized as a formal request. Verbal requests or voice mails will not be considered formal change order requests. The Change Order Request Form, shown in an Appendix of this SOW, should be used to document in detail the change and provide justification for why it is needed. The initial submission must also document the estimated work effort and cost specifically for investigating what it would take to implement the change if approved. Based on the impact analysis and the estimated work effort and cost, representatives from both e-PlanSoft and the Client will jointly determine whether to proceed with the investigation. If the investigation is rejected, then the Change Order request is considered rejected and no further action is required. If it is accepted, then the requester (or its assignees) will then determine the impact of implementing the change on the project. The Client is responsible for completing any additional paperwork required as a result of this change (i.e., internal contract change documents).
2. In investigating the impact of the Change Order on the project, the requester (or its assignees) will determine the impact and change on the cost, schedule, and manpower originally estimated for the project. The requester will also determine the impact on the SOW and any revisions to the language that may be required, as well as the estimated work effort and cost to implement the Change Order. Once the investigation has been completed, the requester will complete the Change Order Request Form with the information gathered in this step and resubmit it to the project manager for coordinating the review and approval.
3. Based on the estimated work effort and cost, representatives from both e-PlanSoft and the Client will jointly determine whether to proceed with implementing the Change Order. If the implementation is rejected, then the Change Order request is considered rejected, and no further action is required. If the Change Order is accepted, the Change Order request is considered approved. Once all appropriate signatures have been obtained for the Change Order, the approved Change Order will become part of the overall agreement and an amendment to the SOW. The amended SOW will become the new baseline document upon which any new changes will be based.
4. Hourly rates defined in your Purchase Order/Sales Order will apply.

Change Order Form

Proposed Change(s) AND Reason/Justification for Change (Indicate Urgency Level)
Urgency Level: ☐ High ☐ Medium ☐ Low
Project Name and Control NUMBER:
Requestor:
Organization:
Date of Request:
Description of Change:
Impact of Change(s):
Impact on Resources:
Impact on Schedule:
Impact on Requirements:
Impact on Cost:
Assumptions / Risks:
Alternatives to Proposed Change(s) (if any):
SUMMARY of Total Impact of Change
Resources:
Schedule:
Requirements:
Cost:

Acceptance

Please indicate the Client contact responsible for authorizing this SOW:

City of Bradenton

Name:	
Title:	
Signature:	
Phone Number(s):	
Email:	
Date:	

Carahsoft

Name:	
Title:	
Signature:	
Phone Number(s):	
Email:	
Date:	

E-PLANSOFT SUBSCRIPTION TERMS AND CONDITIONS

MASTER LICENSING AGREEMENT

e-Plan, Inc. ("Licensor") is a provider of electronic plan review software as a service ("EPR"). As used herein, "EPR" includes all of Licensor's software products, including without limitation e-PlanREVIEW® and *goPost™* Public Portal.

This non-exclusive Master Licensing Agreement ("MLA"), entered into between Licensor and City of Bradenton, FL ("Licensee"), governs Licensee's use of the EPR.

Licensor and Licensee ("the Parties") may enter into one or more separate agreements, Sales Orders, or other arrangements whereby Licensor will provide Licensee with a subscription to the EPR. In all cases, however, as to the EPR, the terms of this MLA shall control and prevail over any conflicting terms or conditions.

1.0. Contract Documents. This MLA incorporates Licensor's Statement of Work dated _____, and also incorporates the attached Sales Order form in its entirety, including its exhibits, Exhibit A "Scope of Service" and Exhibit B "Software as a Service (Saas) Service Level Agreement." This MLA also incorporates any future Sales Orders entered into by the Parties during the term of this MLA.

2.0. Key Definitions

2.1. "Service" means, collectively, Licensor's EPR and SaaS (software as a service) products, maintenance updates, online documentation, and technical support materials. The Service is provided to Licensee on the basis of a non-exclusive license only, and subject to the subscription terms set forth in the applicable Sales Order. No perpetual license is granted to Licensee when using Service.

2.2. "Sales Order" means any form of agreement, including without limitation a written contract, proposal, estimate, quote, renewal notification, or purchase order, pursuant to which Licensor provides Licensee with a subscription to the Service. For Licensee to obtain a valid subscription, the corresponding Sales Order must set forth a defined number of unique Users and a defined period of time in which the subscription will be in effect.

2.3. "User" or "Users" means individuals who are authorized by Licensee to use the Service, and who have been supplied unique user identifications and passwords.

2.4. "Licensee Data" means all electronic data or information submitted to and stored in the Service by Users.

3.0. Non-Exclusive License and Licensor Intellectual Property Rights. Licensee's access to and use of the Service shall be on the basis of a non-exclusive license only. All rights, title and interest in and to the Service (including without limitation all intellectual property rights therein and all modifications, extensions, customizations, scripts or

other derivative works of the Service provided or developed by Licensor) are owned exclusively by Licensor. Except as provided in this MLA, the rights granted to Licensee do not convey any rights in the Service, express or implied, or ownership in the Service or any intellectual property rights thereto. Licensee grants Licensor a royalty free, worldwide, perpetual, irrevocable, transferable right to use, modify, distribute and incorporate into the Service (without attribution of any kind) any suggestions, enhancement request, recommendations, proposals, correction or other feedback or information provided by Licensee or any Users related to the operation or functionality of the Service. Any rights in the Service or Licensor's intellectual property not expressly granted herein by Licensor are reserved by Licensor. Licensee agrees not to display or use the Licensor trademarks, logos, and service marks in any manner without Licensor's express prior written permission. The trademarks, logos and service marks of Third-Party Application providers ("Marks") are the property of such third parties. Licensee is not permitted to use these Marks without the prior written consent of such Third-Party which may own the Mark.

4.0. **Access to the Service by Designated Users**. Licensee will purchase a subscription to the Service for a particular number of Users, to be specified in the applicable Sales Order. Licensee will specify and assign a unique User name for each authorized User. Each User login is for the designated User only, and cannot be shared or used by more than one User.

4.1. **Alterations to User Accounts**. If the Licensee chooses to deactivate a User account, create a new account for a new User, or re-activate an existing account, Licensee may do so as long as Licensee does not exceed the total number of authorized Users.

4.2. **Unauthorized Access**. Licensee will use commercially reasonable efforts to prevent unauthorized access to or use of the Service and will promptly notify Licensor of any unauthorized access or use of the Service and any loss or theft or unauthorized use of any User's password or name and/or Service account numbers.

4.3. **Audit of Authorized Users**. Licensee will maintain reasonable business practices and records necessary to ensure that the number of Users is in compliance with this MLA and any applicable Sales Orders, and Licensor at its sole discretion reserves the right to request Licensee records to verify such compliance. The Licensee will notify Licensor if any additional Users will be added to use the Service. Licensee must obtain additional Sales Order(s), or a signed written modification to existing Sales Order(s), in order to increase the total number of authorized Users. If Licensor determines that Licensee has more Users than authorized, the fees for additional Users become immediately due.

5.0. **General Terms of Service.** Licensee and its Users may only use the Service to perform electronic plan review, as advertised and outlined on Licensor's website. Licensee is responsible for all activities conducted under its User logins and for its Users' compliance

with this MLA. Licensee's use of the Service will not include service bureau use, outsourcing, renting, reselling, sublicensing, concurrent use of a single User login, or time-sharing of the Service. Licensee will not, and will not permit any third party within its control to: (a) copy, translate, create a derivative work of, reverse engineer, reverse assemble, disassemble, or decompile the Service or any part thereof or otherwise attempt to discover any source code or modify the Service in any manner or form unless expressly allowed in Licensor's user guides; (b) access or use the Service to circumvent or exceed Service account limitations or requirements; (c) use the Service for the purpose of building a similar or competitive product or service, (d) obtain unauthorized access to the Service (including without limitation permitting access to or use of the Service via another system or tool, the primary effect of which is to enable input of requests or transactions by other than authorized Users); (e) use the Service in a manner that is contrary to applicable law or in violation of any third-party rights of privacy or intellectual property rights; (f) intentionally publish, post, upload or otherwise transmit Licensee Data that contains any viruses, Trojan horses, worms, time bombs, corrupted files or other computer programming routines that are intended to damage, detrimentally interfere with, surreptitiously intercept or expropriate any systems, data, personal information or property of another; or (g) use or permit the use of any tools in order to probe, scan or attempt to penetrate or benchmark the Service. Licensee will comply with all applicable local, state, federal, and foreign laws, treaties, regulations, and conventions in connection with its use of the Service, including without limitation those related to privacy, electronic communications and anti-spam legislation. Licensee will comply with the export laws and regulations of the United States and other applicable jurisdictions in using the Service and obtain any permits, licenses and authorizations required for such compliance. Without limiting the foregoing, (i) Licensee represents that it is not named on any U.S. government list of persons or entities prohibited from receiving exports, (ii) Licensee will not permit Users to access or use the Service in violation of any U.S. export embargo, prohibition or restriction, and (iii) Licensee will comply with all applicable laws regarding the transmission of technical data exported from the United States and the country in which its Users are located. Licensee will not send any Electronic Communication from the Service that is unlawful, harassing, libelous, defamatory or threatening. Except as permitted by this MLA, no part of the Service may be copied, reproduced, distributed, republished, displayed, posted or transmitted in any form or by any means. Licensee agrees not to access the Service by any means other than through the interfaces that are provided by Licensor. Licensee will not do any "mirroring" or "framing" of any part of the Service, or create Internet links to the Service which include log-in information, User names, passwords, and/or secure cookies. Licensee will not in any way express or imply that any opinions contained in Licensee's Electronic Communications are endorsed by Licensor. Licensee will ensure that all access and use of the Service by Users is in accordance with the terms and conditions of this MLA. Any action or breach by any of such User will be deemed an action or breach by Licensee.

6.0. Transmission, Maintenance, and Confidentiality of Data

6.1. **Transmission of Data**. Licensee understands that the technical processing and transmission of Licensee's Electronic Communications (including any transfer of signs, signals, text, images, sounds, data or intelligence of any nature transmitted in whole or part electronically received and/or transmitted through the Service) is fundamentally necessary to use the Service. Licensee is responsible for securing DSL, cable or another highspeed Internet connection and up-to-date "browser" software to utilize the Service. Licensee expressly consents to Licensor's interception and storage of Electronic Communications and/or Licensee Data, and Licensee acknowledges and understands that Licensee's Electronic Communications will involve transmission over the Internet, and over various networks, only part of which may be owned and/or operated by Licensor. Licensee further acknowledges and understands that Electronic Communications may be accessed by unauthorized parties when communicated across the Internet, network communications facilities, telephone or other electronic means. Licensor is not responsible for any Electronic Communications and/or Licensee Data which are delayed, lost, altered, intercepted or stored during the transmission of any data whatsoever across networks not owned and/or operated by Licensor, including, but not limited to, the Internet and Licensee's local network. Licensee will also be responsible for all Electronic Communications, including those containing business information, account registration, account holder information, financial information, Licensee Data, and all other data of any kind contained within emails or otherwise entered electronically through the Service or under Licensee's account. Licensor will act as though any Electronic Communications it receives under Licensee's passwords, user name, and/or account number will have been sent by Licensee.

6.2. **Licensee Data**

6.2.1. As between Licensor and Licensee, all title and intellectual property rights in and to the Licensee Data is owned exclusively by Licensee. Licensee agrees that Licensor may use Licensee data to perform necessary and reasonable activities during software engineering activities to ensure that the Service functionality continues to work with Licensee's data.

6.2.2. Licensor will maintain commercially reasonable administrative, physical and technical safeguards designed for the protection, confidentiality and integrity of Licensee Data.

6.2.3. Following expiration or termination of any Sales Order and/or this MLA, Licensor may immediately deactivate the applicable Licensee account(s) and will be entitled to delete such Licensee account(s) from Licensor's "live" site following a forty (40) day period, after which Licensor will not be liable to Licensee nor to any third party for any termination of Licensee access to the Service or deletion of Licensee Data.

6.3. **HIPAA**. Licensee agrees that: (i) Licensor is not acting on Licensee's behalf as a Business Associate or subcontractor; (ii) the Service may not be used to store, maintain, process or transmit protected health information ("PHI") and (iii) the Service will not be used in any manner that would require Licensor or the Service to be compliant with the Health Insurance Portability and Accountability Act of 1996, as amended and supplemented ("HIPAA"). In the preceding sentence, the terms "Business Associate," "subcontractor," "protected" health information" or "PHI" will have the meanings described in HIPAA.

7.0. Modifications and Discontinuation of Service

7.1. **To the Service**. Licensor may make modifications to the Service or particular components of the Service from time to time and will use commercially reasonable efforts to notify Licensee of any material modifications. Licensor reserves the right to discontinue offering the Service at the conclusion of Licensee's then current subscription term for such Service. Licensor will not be liable to Licensee nor to any third party for any modification of the Service as described in this section.

7.2. **To Applicable Terms**. If Licensor makes a material change to any applicable terms of this MLA or a Sales Order, then Licensor will notify Licensee by either sending an email to the notification email address or posting a notice to the administrator in Licensee's account. If the change has a material adverse impact on Licensee and Licensee does not agree to the change, Licensee must so notify Licensor via mchegini@eplansoft.com within thirty (30) days after receiving notice of the change. If Licensee notifies Licensor as required, then Licensee will remain governed by the terms in effect immediately prior to the change until the end of the then current subscription term for the affected Service. If the affected Service is renewed, it will be renewed under Licensor's then current version of this MLA.

7.3. **Suspension for Ongoing Harm**. Licensor may with reasonably contemporaneous telephonic notice to Licensee suspend access to the Service if Licensor reasonably concludes that Licensee's Service is being used to engage in denial of service attacks, spamming, or illegal activity, and/or use of Licensee's Service is causing immediate, material and ongoing harm to Licensor or others. In the extraordinary event that Licensor suspends access to the Service, Licensor will use commercially reasonable efforts to limit the suspension to the offending portion of the Service and work with Licensee to resolve the issues causing the suspension of Service. Licensee agrees that Licensor will not be liable to Licensee nor to any third party for any suspension of the Service under such circumstances as described in this section.

8.0. **Third-Party Applications.** "Third-Party Applications" include applications, integrations, services, or implementation, customization and other consulting services related thereto, that interoperate with the Service and are provided by a party other than

Licensor. Licensor or Third-Party providers may offer Third-Party Applications through the Service or otherwise related to Licensee's use of the Service. Except as expressly set forth in the applicable Sales Order, Licensor does not warrant any such Third-Party Applications, regardless of whether or not such Third-Party Applications are provided by a Third Party that is a member of a Licensor partner program or otherwise designated by Licensor as "Built For Licensor," "certified," "approved" or "recommended." Any procurement by Licensee of such Third-Party Applications or services is solely between Licensee and the applicable Third-Party provider. Licensee may not use Third-Party Applications to enter and/or submit transactions to be processed and/or stored in the Service, unless Licensee has procured a subscription to the Service for such use and access. Licensor is not responsible for any aspect of Third-Party Applications that Licensee may procure or connect to through the Service, or any descriptions, promises or other information related to the foregoing. If Licensee installs or enables Third-Party Applications for use with the Service, Licensee agrees that Licensor may enable such Third-Party providers to access Licensee Data as required for the interoperation of such Third-Party Applications with the Service, and any exchange of data or other interaction between Licensee and a Third-Party provider is solely between Licensee and such Third-Party provider pursuant to a separate privacy policy or other terms governing Licensee's access to or use of the Third-Party Applications. Licensor will not be responsible for any disclosure, modification or deletion of Licensee Data resulting from any such access by Third-Party Applications or Third-Party providers. No procurement of Third-Party Applications is required to use the Service. If Licensee was referred to Licensor by a member of one of Licensor's partner programs, Licensee hereby authorizes Licensor to provide such member or its successor entity with access to Licensor's business information related to the procurement and use of the Service pursuant to this Agreement, including but not limited to User names and email addresses, support cases and billing/payment information.

9.0. Indemnification for Claims Concerning Licensor and Licensee Intellectual Property.

9.1. Infringement. Licensor will, at its own expense, defend Licensee from and against any and all allegations, threats, claims, suits, and proceedings brought by third parties (collectively "Claims") alleging that the Service, as used in accordance with this Agreement, infringes such third party's copyrights or trademarks, or misappropriates such third party's trade secrets, and will indemnify Licensee from and against liability, damages, and costs finally awarded or entered into in settlement (including, without limitation, reasonable attorneys' fees) (collectively, "Losses") to the extent based upon such a Claim. However, Licensor will have no liability for, or duty to defend or indemnify Licensee against, Claims to the extent arising from (a) use of the Service in violation of this MLA or applicable law, (b) use of the Service after Licensor notifies Licensee to discontinue use because of an infringement claim, (c) modifications to the Service not made by Licensor or made by Licensor based on Licensee specifications or requirements, (d) use of the Service in combination with any non-Licensor software, application or service, or (e) services offered by Licensee or revenue earned by Licensee for such services. If a Claim of infringement as set forth above is brought or threatened, Licensor may, at its

sole option and expense, use commercially reasonable efforts to (a) procure a license that will protect Licensee against such Claim without cost to Licensee; (b) modify or replace all or portions of the Service as needed to avoid infringement, such update or replacement having substantially similar or better capabilities; or (c) if (a) and (b) are not commercially feasible, terminate this MLA and refund to the Licensee a pro-rata refund of the subscription fees paid for under any applicable Sales Orders for the terminated portion of the term. The rights and remedies granted Licensee under this Section 8.1 state Licensor's entire liability, and Licensee's exclusive remedy, with respect to any claim of infringement of the intellectual property rights of a third party.

9.2. **Licensee's Indemnity**. To the fullest extent permitted by law, Licensee will, at its own expense, defend Licensor from and against any and all Claims (i) alleging that the Licensee Data or any trademarks or service marks, or any use thereof, infringes the copyright or trademark or misappropriates the trade secrets of a third party, or has caused harm to a third party, or (ii) arising out of Licensee's breach of this MLA, and will indemnify Licensor from and against liability for any Losses to the extent based upon such Claims.

9.3. **Indemnification Procedures and Survival**. In the event of a Claim within the purview of these indemnification provisions, the indemnitee shall control its own defense, and at the time of Claim resolution the indemnitor shall reimburse the indemnitee for those attorney fees and other defense costs reasonably incurred in that defense. To the extent that the indemnitee may incur fees and costs in the defense of claims other than a covered Claim, the indemnitor shall have no responsibility for such costs. The indemnification obligations contained in this section will survive for one year after termination or expiration of this MLA.

10.0. **U.S. Government Rights**. The Service is a "commercial item" as that term is defined at FAR 2.101. If Licensee or User is a US Federal Government (Government) Executive Agency (as defined in FAR 2.101), Licensor provides the Service, including any related software, technology, technical data, and/or professional services in accordance with the following: (a) if acquired by or on behalf of any Executive Agency (other than an agency within the Department of Defense (DoD), the Government acquires, in accordance with FAR 12.211 (Technical Data) and FAR 12.212 (Computer Software), only those rights in technical data and software customarily provided to the public as defined in this MLA; or (b) if acquired by or on behalf of any Executive Agency within the DoD, the Government acquires, in accordance with DFARS 227.7202-3 (Rights in commercial computer software or commercial computer software documentation), only those rights in technical data and software customarily provided in this MLA. In addition, DFARS 252.227-7015 (Technical Data – Commercial Items) applies to technical data acquired by DoD agencies. Any Federal Legislative Agency or Federal Judicial Agency will obtain only those rights in technical data and software customarily provided to the public as set forth in this MLA. If any Federal Executive Agency, Federal Legislative Agency, or Federal Judicial Agency has a need for rights not conveyed under the terms described in this Section, it must negotiate with Licensor to determine if there are acceptable terms

for transferring such rights, and a mutually acceptable written addendum specifically conveying such rights must be included in any applicable contract or agreement to be effective. This U.S. Government Rights Section is in lieu of, and supersedes, any other FAR, DFARS, or other clause, provision, or supplemental regulation that addresses Government rights in computer software or technical data under this MLA.

11.0. **Termination for Cause, Expiration**. Either party may immediately terminate this MLA and all applicable Sales Orders in the event the other party commits a material breach of any provision of this MLA which is not cured within thirty (30) days of written notice from the non-breaching party. Such notice by the complaining party will expressly state all of the reasons for the claimed breach in sufficient detail so as to provide the alleged breaching party a meaningful opportunity to cure such alleged breach and will be sent to the General Counsel of the alleged breaching party at the address listed in the heading of this MLA (or such other address that may be provided pursuant to this MLA). Upon termination or expiration of this MLA, Licensee will have no rights to continue use of the Service. If this MLA is terminated by Licensee for any reason other than a termination expressly permitted by this MLA, then Licensor will be entitled to all of the fees due under any applicable Sales Orders for the entire term. If this MLA is terminated as a result of Licensor's breach of this MLA, then Licensee will be entitled to a refund of the pro rata portion of any subscription fees paid by Licensee to Licensor under any applicable Sales Orders for the terminated portion of the term.

12.0. **General Provisions on the Integrity of this MLA**. Except as otherwise provided herein, this MLA may only be amended or modified via a writing signed by both Parties. If any term or provision of this MLA is found to be invalid or unenforceable by a court of competent jurisdiction, such term or provision will be severed from the remainder of the MLA, which will otherwise remain in full force and effect. No waiver of any provision of this MLA will be effective unless in writing and executed by the party waiving the right. Failure to properly demand compliance or performance will not constitute a waiver of a party's rights hereunder. The waiver by either party of a breach or right under this MLA will not constitute a waiver of any subsequent breach or right. This MLA will be governed by, and construed in accordance with, the substantive laws of the State of California without regard to conflict of law principles. The federal and state courts situated in Orange County, California will be the exclusive venue for the resolution of all disputes related to this MLA. The substantially prevailing party in any dispute arising out of this Agreement shall be entitled to recover its reasonable attorneys' fees. Neither party may assign any of its rights or obligations hereunder, whether by operation of law or otherwise, without the prior written consent of the other party (not to be unreasonably withheld). Notwithstanding the foregoing, either party may assign this MLA in its entirety, and any related Sales Orders, without consent of the other party, to an affiliate (defined as any entity which directly or indirectly, through one or more intermediaries, controls, or is controlled by, or is under common control with a party to this MLA, by way of majority voting stock ownership or the ability to otherwise direct or cause the direction of the management and policies of such party) or in connection with a merger, acquisition, corporate reorganization, or sale of all or substantially all of its assets not involving a direct competitor of the other party. A party's sole remedy for any purported assignment by the other party in breach of this paragraph shall be, at the

non-assigning party's election, termination of this MLA and any related Sales Order/subscription upon written notice to the assigning party. In the event of such a termination, Licensor will refund to Licensee any prepaid fees covering the remainder of the term of all subscriptions after the effective date of termination. Subject to the foregoing, this MLA shall bind and inure to the benefit of the Parties, their respective successors and permitted assigns; however, unless expressly stated otherwise, nothing herein is intended to benefit or create any rights in any third parties. As of the effective date of this MLA, this MLA sets forth the entire understanding between the Parties, subject only to subsequently agreed-to Sales Orders, and supersedes all prior agreements, representations, or promises, written or oral, with respect to the EPR.

This MLA is entered into, and effective as of _____, by and between e-PlanSoft, a California Corporation with its principal place of business at 111 Pacifica, Suite 100 Irvine, CA 92618 ("Licensor") and, City of Bradenton, FL ("Licensee"), with its principal place of business located at _____.

The individual signing this MLA on behalf of Licensee represents and warrants that he / she is authorized to enter into such agreement on behalf of Licensee.

City of Bradenton, FL	
Licensee	e-PlanSoft
	Paula Montoya
Full name	Full name
	Chief Operating Officer
Title	Title
Signature	Signature
Date	Date

Exhibit A – Scope of Service

As part of the software subscriptions identified on the attached Sales Order Form, e-Plan, Inc. ("Licensor") will provide ongoing maintenance and technical support. In addition, Licensor may provide Licensee with implementation, training, or other professional services. This Exhibit A describes the scope of Licensor's support services, and all other services included in the Sales Order Form, and supersedes any conflicting terms or conditions pertaining to the nature and extent of such services.

1.0. Scope of Professional Services

1.1. Not applicable. No optional professional services have been included under the attached Sales Order Form.

2.0. Scope of Technical Support; Service Level Agreement. Licensor will provide all maintenance and technical support for the EPR. Licensor's Service Level Agreement ("SLA") is attached hereto as Exhibit B, and sets forth Licensor's obligations in this regard. In addition, Licensor will provide Licensee with online help documentation and other online resources to assist Licensee in its use of the Service.

3.0. Scope Clarifications

3.1. Training. Licensee shall ensure that one or more designated Users have been trained and or certified in the use of Service. Such training should be provided by either Licensor or Licensor-certified trainers. If Licensee uses the service without at least one properly trained User, Licensor reserves the right to withhold any technical support services. The intent of this provision is to ensure that Licensor is not required to provide excessive levels of support service due to Licensee's lack of training.

3.2. Licensor's Warranty of Functionality. Licensor warrants that: (i) the EPR will achieve in all material respects the functionality described in Licensor's online user guides applicable to the EPR procured by Licensee, and (ii) such functionality of the EPR will not be materially decreased during the then-current subscription term. Licensee's sole and exclusive remedy for Licensor's breach of this warranty will be to require that Licensor use commercially reasonable efforts to modify the Service to achieve in all material respects the functionality described in the user guides. Licensor will have no obligation with respect to a warranty claim unless notified of such claim within sixty (60) days of the first instance of any material functionality problem, and such notice must be sent to billing@eplansoft.com. The warranties set forth in this section are made to and for the benefit of Licensee only. Such warranties will only apply if the applicable EPR has been utilized in accordance with the user guides, the MLA, and applicable law.

3.2.1. **Disclaimer of Warranties**. Except as stated above, Licensor makes no other warranties, express or implied, about the EPR or any service provided by Licensor under the attached Sales Order Form, including without limitation any warranty of merchantability, fitness for a particular purpose, or non-infringement of third-party rights.

3.3. **Fees and Payment**. Licensor's maintenance and support services are conditioned on Licensor's timely receipt of all subscription fees owed. Payment obligations are non-cancelable and fees paid are non-refundable. The number of authorized Users cannot be decreased during the relevant term stated in the Sales Order Form. Payment of invoices is due within thirty (30) days of receipt.

3.3.1. **Taxes**. Unless otherwise stated, Licensor fees do not include any taxes, levies, duties or similar governmental assessments of any nature, including but not limited to value-added, sales, use or withholding taxes, assessable by any local, state, provincial, federal or foreign jurisdiction (collectively, "Taxes"). Licensee is responsible for paying all Taxes associated with the use of Service. If Licensor has the legal obligation to pay or collect Taxes for which Licensee is responsible as a result of using Service, the appropriate amount will be invoiced to and paid by Licensee, unless Licensee provides Licensor with a valid tax exemption certificate authorized by the appropriate taxing authority.

4.0. Other Terms of Service

4.1. **Waiver of Consequential Damages**. Neither party shall be liable for consequential damages, such as lost profits or damages arising from the delay of a plan-review project, on any claim alleging or related to a breach of the MLA and/or a Sales Order Form, regardless of the particular legal theories or causes of action. This waiver of consequential damages shall not apply, however, to any claim brought by Licensor against Licensee based on Licensee's unauthorized duplication, distribution, or other misappropriation of Licensor's intellectual property.

4.2. **Limitation of Liability**. Except for Licensor's indemnity obligations set forth in the MLA, Licensor's total aggregate liability arising out of or connected with this Agreement, whether based upon breach of contract, warranty, negligence, misrepresentation or any other cause of action or theory of liability, and to the maximum extent permitted by applicable laws, shall in no case exceed the amount of subscription fees received by Licensor in the twelve (12) months immediately preceding the event from which the liability arises.

EXHIBIT B: SOFTWARE AS A SERVICE (SaaS)
SERVICE LEVEL AGREEMENT

e-PlanSoft ("The Company") agrees to provide 99.5% uptime with respect to the Client's Hosted Service during each calendar quarter for the term of service excluding regularly scheduled maintenance times for eplansoft REVIEW (**EPR**) and *goPost* Customer Portal.

Scheduled and Unscheduled Maintenance

Regularly scheduled maintenance time does not count as downtime. Maintenance time is regularly scheduled if it is communicated in accordance with the notice section set forth below at least four (4) business days in advance. Regularly scheduled maintenance time will occur on the weekends or off the hours on weekdays. The Company hereby provides advanced Notice for routine scheduled maintenance as needed.

The Company in its sole discretion may take the Service down for unscheduled maintenance and in that event will attempt to notify Client in advance in accordance with the Notice section set forth below. Such unscheduled maintenance will be counted against the uptime guarantee.

Updates/Notice

This Service Level Agreement may be amended by The Company, in its discretion, but only after providing thirty (30) day notice. Notices will be sufficient if provided to a user designated as an administrator of your account either: (a) as a note on the screen presented immediately after completion of the log in authentication credentials at the log in screen, or (b) by email to the registered email address provided for the administrator(s) for Client's account.

Exclusion of Sandbox and Beta Accounts

Product sandbox, beta, pilot and debugger and other test environments are expressly excluded from this or any other service level commitment.

Support Hours

Client support is available Monday-Friday's from 6am -6pm Pacific, excluding holidays.

Live-Production Incident Handling – Standard Support

The following incident handling and time frames are applicable to live-production environments only. Client will designate personnel who will interface with The Company's Client Support Department.

1. On Line Self Support: The Company will provide to Client at no expense an online Knowledge Base and Online Self Support Site where Client may research issues and questions, report maintenance incidents and receive information regarding new releases and patches.
2. Incident Handling: The Company will provide an incident handling mechanism for Client maintenance requests. The incident handling process will include the following:
    a. Access to the e-PlanSoft online ticketing system.
    b. All support tickets and bug reports will be recorded in the ticketing system.
    c. The Company will only respond to incidents reported via the online ticketing system.
    d. Client will receive an e-mail with the assigned ticket number.
    e. Bug Ticket Priority and Severity will be determined by the definitions below.

f. Support Tickets will be responded to in the order received. Initial confirmation response will occur within an Hour

g. Enhancement Requests will be responded to in the order received. Initial confirmation response will occur within an hour. Enhancement requests are each evaluated and determined for feasibility within the products. Not all enhancement requests are implemented.

3. Bug Handling: A priority is assigned to a specific bug ticket which therefore sets the order, timing and level of effort in resolving a case:

Severity	Description of Severity	Response Time	Resolution Time
Level 1 - **Critical**	Critical bug occurring on production system preventing business operations. A large number of users are prevented from working with no reasonable workaround.	The Company will respond with confirmation of receipt of incident. Follow-up will be provided via the ticket system every 60 minutes.	Upon confirmation of receipt, The Company begins continuous work on the problem and will put forth the effort to provide a workaround, fix, or estimated completion date within 72 hours after the problem has been diagnosed and/or replicated or provided there is an client representative available to assist with issue diagnosis and testing during the resolution process.
Level 2 - **High**	Major bug occurring on production system severely impacting business. A large number of users are impacted by issue, but they are still able to work in a limited capacity.	The Company will respond with confirmation of receipt of incident. Follow-up will be provided via the ticket system every 2 business days.	Upon confirmation of receipt, The Company will put forth the best effort to provide a workaround or fix or estimated completion date within 14 business days after the problem has been diagnosed and/or replicated.
Level 3 - **Medium**	A bug causing a partial or non-critical loss of functionality on production system. A small number of users are affected.	The Company will respond with confirmation of receipt of incident. Follow-up will be provided via the ticket system every 5 business days.	Upon confirmation of receipt, The Company will put forth the best effort to provide a workaround or fix or estimated completion date within 21 business days after the problem has been diagnosed and/or replicated.
Level 4 - **Low**	A bug occurring on non-production system or question, comment, feature request, documentation issue or other non-impacting issue.	The Company will respond with confirmation of receipt of incident. Follow-up will be provided via the ticket system every 7 business days.	Resolution for the issue may be released as a patch set or be incorporated into a future release of the product.

Definitions:

- Bug - A software bug is a flaw, failure, error or fault in a computer software or system that causes it to return unexpected or incorrect results.
- Enhancement Request - A enhancement request is for additional product functionality or changed behavior beyond the current intended behavior of the Maintained Software.
- Technical Support - General software support (How to) for the e-PlanSoft software products that are not bugs or enhancement requests.

Primary Customer Contact: Patrick Wenzel

Bill To: City of Bradenton
Agency Name: **Bradenton, FL**
Address: 101 Old Main St Bradenton, FL 34205

Contact: Patrick Wenzel
Email: Patrick.wenzel@cityofbradenton.com
Phone: (941) 932-9404

Order Form Effective Date: Date of Signature

Term: The term is one year following the Order Form Effective Date. Thereafter, the term of this Order Form automatically renews for successive one year periods, each commencing with an anniversary of the Order Form Effective Date ("Renewal Periods"), unless either party notifies the other of its intent not to renew at least 30 days prior to the start of any Renewal Period. In addition, the Licensee may terminate the MLA and any applicable sales orders for convenience upon 30 days' written notice to Licensor. Upon termination or expiration of the MLA, Licensee shall have no rights to continue use of the Service. If the MLA is terminated, Licensee shall be entitled to a refund of the pro rata portion of any subscription fees paid by Licensee to Licensor under all applicable Sales Orders for the terminated portion of the term.

Payment Terms: Due upon execution of this Order Form.

Purchase Order Information: Is a Purchase Order (PO) required for the purchase or payment of the Products and Services listed on this order form? (Customer to complete)

[ ] No
[ ] Yes – Please complete below

PO Number:
PO Amount:

FEE SCHEDULE:

Year	Item	Quantity	Unit Price	Total
1	goPost	1	10,000.00	10,000.00
	e-PlanREVIEW (Full namedLicense)	25	1,000.00	25,000.00
	Implementation Services	125	200.00	25,000.00
	Total Year 1			**60,000.00**
2	goPost	1	10,300.00	10,300.00
	e-PlanREVIEW (Full namedLicense)	25	1,030.00	25,750.00
	Total Year 2			**36,050.00**
3	e-PlanREVIEW (Full namedLicense)	25	1,060.90	26,522.50
	Total Year 3			**26,522.50**

City of Bradenton Information Security Vendor Addendum Rev 1.2

January 06, 2023

PURPOSE: The purpose of these requirements ("Requirements") is to establish minimum information security standards and data privacy requirements for any person or entity that performs services for the City of Bradenton's (herein referred to as "City") by **XXXXXXXXXXXX** (herein referred to as "Vendor"). Vendor must handle, treat, and otherwise protect the City in accordance with these Requirements and any contractual agreement between such Vendor and the City, or any third parties that shall have City approved access.

1.1 Compliance: Vendor shall comply with all applicable privacy and security laws to which it is subject, and shall not by act or omission place the City in violation of any applicable privacy or security law, including without limitation HIPAA. Vendor policies and practices must comply with all applicable laws, regulations, and contractual obligations under its agreements with the City. Where local laws appear to prevent compliance with these Requirements, Vendor is responsible for notifying the City to determine appropriate compensating controls.

1.2 Third Party Disclosure: Vendor shall not disclose City Data to any third party (including, without limitation, Vendor's subsidiaries and affiliates and any person or entity acting on behalf of Vendor) unless with respect to each such disclosure: (A) the disclosure is necessary in order to carry out Vendor's obligations under its agreements with the City; (B) such third party is bound by the same provisions and obligations as set forth in these Requirements; (C) Vendor has received the City's prior written consent; and (D) Vendor remains responsible for any breach of the obligations set forth herein to the same extent as if Vendor caused such breach.

1.3 Breach Notification: Vendor shall notify the City immediately but in no event later than 24 hours from the date of obtaining actual knowledge of any Data Security Breach, regardless if City Data is believed to be involved in the breach, and, at Vendor's cost and expense, assist and cooperate with the City concerning any investigation, or disclosures to affected parties, and other remedial measures as requested by the City or required under applicable law. Vendor shall indemnify the City from any resulting damages and costs, including, without limitation, identity protection assistance and services procured for data subjects and reasonable attorneys and technical consultant fees for the City' handling of the incident.

1.4 Data Owner: All data that received from the City shall be considered of a confidential nature, be held within the United States with applicable governing law, all systems and other resources intended for use by multiple users are located in secure physical facilities with access limited and restricted to authorized individuals only, and remain the sole property of the City. Upon termination of any agreements by either party, Vendor shall be liable for return of any shared data, along with third party proof of permanent destruction of this data from Vendor's computer storage systems. Nothing in these Requirements will be interpreted or construed as granting Vendor any license or other right under any patent, copyright, trademark, trade secret, or other proprietary right to City Data.

1.5 Derivative Data: Vendor shall not create or maintain data which are derivative of City Data, except for the purpose of performing its obligations under its agreements with the City and as authorized by The City. Any derivative of City Data, regardless of how created, shall be deemed City Data.

1.6 Background and Screening Checks: To the extent permitted by local law, Vendor shall conduct appropriate background and screening checks prior to permitting any employee or Vendor to have access to The City Data. Vendor shall in no event expose the City to a level of risk which is commercially unreasonable or sanctioned by law. The comprehensive background check on individuals shall include, at a minimum, the individual's, criminal record, and any additional industry standard background check requirements. The City may at its sole option require more extensive background checks for any employee or Vendor who will have access to Personal Data or other information deemed highly sensitive by The City.

1.7 Security Awareness and Education: Vendor shall appoint qualified personnel designated with responsibility to maintain its information security program. Vendor shall ensure that its security personnel have reasonable and necessary experience and training in information security. Upon request, Vendor shall provide the City with a point of contact for all information security related items. Vendor shall have a defined program to provide periodic information security awareness training to Vendor's employees and Vendors who will have access to City Data. Education and awareness training shall include Vendor's security policies and standards for the secure handling of The City Data. If Vendor's services include software development, Vendor training must include secure application development training to ensure Vendor developers are programming according to secure coding techniques and principles.

1.9 Audits: Vendor agrees to submit to reasonable data security and privacy compliance audits by The City and/or, at The City' request, by an independent third party, to verify compliance with these Requirements, applicable law, and any applicable contractual undertakings.

2.1: Coverages: Cyber Insurance. Vendor shall secure and maintain during the term of the Agreement data privacy and network security liability insurance, with a limit of not less $1,000,000 and on a per occurrence basis, with coverage extended top protect the City for (a) data breaches by Vendor or anyone causing the loss of use of electronic data; loss of personally identifiable information or City confidential information; violations of privacy regulations associated with the control and use of personally identifiable financial, medical or other sensitive information including but not limited to CJIS, HITECH; HIPPA; Gramm-Leach Bliley Act of 1999; Florida Breach of Security Act (Section 817.5681, Florida Statutes (2012); the Federal Trade Commission Act (15 U.S.C. 45(a)); violations of the identity Red Flags under the Fair and Accurate Credit Transactions Act of 2003; violations of any state, federal or foreign identity theft or privacy protection, notification and credit monitoring statutes (including any amendments thereto); (d) online defamation, advertising, libel, and slander-related exposures as well as emerging liabilities created by casual users of third parties accessing Vendor web site(s) or computer systems through private networks and the Internet; (e) network security breaches for failure of security measures to prevent a denial of service, unauthorized access, theft of electronic data, and inadvertent transmission of a virus or other malicious code; (f) infringement of intellectual property rights (e.g., patent, copyright, or trademark) in any telecommunications medium (e.g., cell phones, modems, text, videos, images, blogs, etc.) which result in a loss of City revenue or expense to the City due to a covered network outage or computer system loss; (f) cyber investigation expense incurred to investigate a data privacy or network security wrongful act; and, (g) cyber extortion for expenses incurred in the event of an extortion threat to cause a data privacy or network security wrongful act.

City of Bradenton Vendor Remote Access Policy (<u>Applicable to those Vendors who shall require access to the City's Computing Networks</u>):

3.1 Purpose: The purpose of this policy is to define rules and requirements for connecting to the City of Bradenton's network from any host. These rules and requirements are designed to minimize the potential exposure to City of Bradenton from damages which may result from unauthorized use of City of Bradenton resources. Damages include the loss of sensitive or company confidential data, intellectual property, damage to public image, damage to critical City of Bradenton internal systems, and fines or other financial liabilities incurred as a result of those losses.

3.2 Scope: This policy applies to all City of Bradenton employees, Vendors, vendors and agents with a City of Bradenton-owned or personally-owned computer or workstation used to connect to the City of Bradenton network. This policy applies to remote access connections used to do work on behalf of City of Bradenton, including all accessed resources, accidental or assigned. This policy covers any and all technical implementations or other use of remote access used to connect to City of Bradenton networks.

3.3 Policy: It is the responsibility of City of Bradenton employees, Vendors, vendors and agents with remote access privileges to City of Bradenton's corporate network to ensure that their remote access connection is given the same consideration as the user's on-site connection to City of Bradenton. When accessing the City of Bradenton network, Users are responsible for preventing access to any City of Bradenton computer resources or data by non-Authorized Users. Performance of illegal activities through the City of Bradenton network by any user (Authorized or otherwise) is prohibited. The Authorized User bears responsibility for and consequences of misuse of the Authorized User's access.

3.4 Requirements:

3.4.1 Secure remote access must be strictly controlled with encryption (i.e., SecureLink, Virtual Private Networks (VPNs)) and strong passwords and Multi-factor Authentication. Method of secure connection will be determined and established on a need to access basis by the City of Bradenton.

3.4.2 Authorized Users shall protect their login and password. Authorized Users shall be responsible for all damages using from misuse of their provided authentication method; as described in section 1.

3.4.3 While connected to City of Bradenton's network, Authorized Users shall ensure the remote host is not connected to any other network at the same time.

3.4.4 All hosts that are connected to City of Bradenton internal networks via remote access technologies must use the most up-to-date anti-virus software, this includes personal computers.

3.4.5 Confidentiality: Authorized Users hereby agree that any computing or communications equipment, software, network resource, and storage media provided to me by the City of Bradenton may contain confidential information and that this information remains the property of the City at all times.

3.4.6 The City of Bradenton does NOT provide ANY APPROVED WIRELESS OPEN NETWORKS or condone their use to conduct business on its behalf. Public networks, such as those found in hotels and airports should be considered not secure for use to access its networks.

3.5 Policy Compliance:

3.5.1 Compliance Measurement: The City of Bradenton reserves the right to monitor all activities related to an Authorized User. As such, compliance to this policy through various methods, including but not limited to systems and log monitoring, business tool reports, internal and external audits, and inspection will be performed at its discretion.

3.5.2 Non-Compliance: An Authorized User found to have violated this policy will be subject to immediate termination of access. In the event individuals are suspected of violating federal, state, or local laws, including those activities specified in Chapter 815 of the Florida Statutes (known as the Florida Computer

Crimes Act), all relevant material shall be made available to the appropriate law enforcement agency for investigation and possible prosecution.
Public Records Retention Requirements:

4.1 Public Records Retention Requirements for Vendors Operating within Florida Public Sector:

Public Records. Pursuant to the provisions of Section 119.0701, Fla.Stat., and to the extent applicable under Florida law, Vendor shall comply with the public records laws as follows:

4.1.1 Keep and maintain public records required by the City in order to perform the service.
4.1.2 Upon request from the City's custodian of public records, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Fla. Stat., or as otherwise provided by law.
4.1.3 Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the Vendor does not transfer the records to the City.
4.1.4 Upon completion of the contract, transfer, at no cost, to the City all public records in possession of Vendor or keep and maintain public records required by the City to perform the service. If the Vendor transfers all public records to the City upon completion of the contract, the Vendor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements.
4.1.5 All records stored electronically must be provided to the City, upon request of the City's custodian of public records, in a format that is compatible with the information technology systems of the City.
4.1.6 Vendor shall indemnify and hold harmless City, and City's officers, employees, agents and representatives, from and against any and all claims of loss, damages, liability, cost and expenses (including reasonable attorneys' fees and expenses) arising from the failure of Vendor to comply with the requirements of this Section 4.1 or the Florida Public Records Law, Chapter 119, Florida Statutes.
4.1.7 Required notice:

IF THE VENDOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT 941-932-9400; cityclerk@bradentonfl.gov; 101 12th Street West, Bradenton, FL 34205.

5.1 E-Verify: Section 448.09, Florida Statutes, makes it unlawful for any person to knowingly employ, hire, recruit, or refer, for private or public employment, an alien who is not duly authorized to work in the United States. Section 448.095, Florida Statutes, prohibits public employers, contractors, and subcontractors from entering into a contract unless each party to the contract registers and uses E-Verify. Vendor hereby represents that it is in compliance with the requirements of Sections 448.09 and 448.095, Florida Statutes. Vendor further represents that it will remain in compliance with the requirements of Sections 448.09 and 448.095, Florida Statutes, during the term of the Agreement. Vendor hereby

warrants that it has not been terminated by a public employer for violating Section 448.095, Florida Statutes, within the year preceding the effective date of this Agreement. If Vendor has a contract terminated by a public employer for any such violation during the term of this contract, it shall provide immediate notice thereof to the City.

6.1 Limitation on Indemnification: Notwithstanding any provisions contained in the contract, any indemnification provided by the City shall be subject to the monetary limitations of Section 768.28, Florida Statutes, and shall not be construed as a waiver of City's sovereign immunity.

Definitions Section:
For purposes of these Requirements, the following definitions shall apply:

"Data Security Breach" means: (A) the loss or misuse (by any means) of City Data, including, without limitation any unauthorized access or disclosure to unauthorized individuals; (B) the inadvertent, unauthorized and/or unlawful Processing, corruption, modification, transfer, sale or rental of City Data; or (C) any other act or omission that compromises the security, confidentiality, or integrity of City Data. Data Security Breach includes, without limitation, a breach resulting from or arising out of Vendor's internal use, Processing or other transmission of City Data, whether between or among Vendor's subsidiaries and affiliates or any other person or entity acting on behalf of Vendor.

"Highly Sensitive Personal Data" is that subset of Personal Data whose unauthorized disclosure or use could reasonably entail enhanced risk for the data subject. Highly Sensitive Personal Data includes (A) Social Security number, passport number, driver's license number, or similar national identifier; (B) financial or medical account authentication data, such as passwords or PINs; and (C) Cardholder Data, including credit card numbers and CVV codes.

"HIPAA" means the Health Insurance Portability and Accountability Act of 1996 and the regulations promulgated thereunder.

"PA-DSS" means Payment Application Data Security Standard at its current mandated level, its supporting documentation and any subsequent version(s) of said standard published by the PCI Security Standards Council or its successor(s).

"Payment Application" means any application that stores, processes, or transmits cardholder data as part of authorization or settlement.

"PCI-DSS" means the current version of the Payment Card Industry (PCI) Data Security Standard (DSS), its supporting documentation and any subsequent version(s) of said standard published by the PCI Security Standards Council or its successor(s).

"Personal Data" means any information that can be used to identify, locate, or contact an individual, including an employee, Vendor, customer of the City, including, without limitation: (A) first and last name; (B) home or other physical address; (C) telephone number; (D) email address or online identifier associated with an individual; or (E) any other information relating to an individual, including cookie information and usage and traffic data or profiles, that is combined with any of the foregoing. Personal Data specifically includes (F) Individually Identifiable Health Information as defined pursuant to HIPAA; (G) the meaning assigned under European Union Directive 96/46/EC and (H) criminal history, race, ethnicity, national origin, and information about sexual orientation or activity, political opinions, and religious beliefs.

"Processing" or "Process" means any operation or set of operations that is performed upon the City's Data, whether or not by automatic means, including without limitation collection, recording, organization, storage, access, adaptation, alteration, retrieval, consultation, use, disclosure, dissemination, alignment, combination, blocking, deletion, erasure, or destruction.

"City Data" means any non-public information which is commercially valuable, proprietary, privileged, or personal, the unauthorized disclosure of which could adversely affect the City and/or its employees and customers (e.g., competitively, by waiver of legal privilege, monetary loss, or violation of law or right of privacy). The City Data includes all data referencing employees, Vendors, customers, or potential customers of the City, any classified information the City receives in connection with participation in government programs, and any data the unauthorized disclosure of which could cause significant harm to The City or the individual to whom the information pertains.

"Technical and Organizational Security Measures" means security measures, consistent with the sensitivity of the City Data being Processed and the services being provided by Vendor, to protect The City Data, which measures shall implement best industry protections and include physical, electronic and procedural safeguards to protect The City Data supplied to Vendor against any Data Security Breach, and any security requirements, obligations, specifications, or event reporting procedures set forth in any agreement between Vendor and the City.

AGENDA ITEM NO. 6.i

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Kim Clayback, Public Works & Utilities

ITEM TYPE: Contract

AGENDA SECTION: CONSENT AGENDA

SUBJECT: Amendment to Piggyback 20-01KC-EX2 with Insituform Technologies, LLC

SUGGESTED ACTION: Council approval of the piggyback amendment and authorization for the Mayor to sign on behalf of the City of Bradenton

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
Due to significant cost increase in the industry, Insituform and the City of Daytona Beach agreed on a price increase for products associated with pipe lining. The amendment attached brings the City's piggyback in line with Insituform's contract with City of Daytona Beach.

FINANCIAL IMPACT:
Funds for sanitary pipe lining are currently in GL account 30358200-563000-22806.

ATTORNEY REVIEW/RECOMMENDATION:
No objection - revised piggyback agreement for consent agenda

SUGGESTED MOTION:
Motion to approve the Amendment to Piggyback agreement 20-01KC-EX2 with Insituform.

ATTACHMENTS:

Amendment to Piggyback 20-01KC-EX2

AMENDMENT #01
to PB-20-01KC-EX1 Agreement

This AMENDMENT (the "Amendment") is made this _____ day of January, 2023, by and between **Insituform Technologies, LLC** with a mailing address of 580 Goddard Avenue, Chesterfield, MO 63005 (the "Consultant") and the **City of Bradenton, FL** (the "Client"), collectively, the "Parties."

WITNESSETH

WHEREAS, the Parties entered into Agreement PB-20-01KC-EX1 on Dec. 16, 2020 ("Agreement");

WHEREAS, the Parties renewed the Agreement on April 14, 2022; and,

WHEREAS, the Parties desire to amend the Fee/Rate Schedule to delete Exhibit B to the Agreement and replace the same with Exhibit B-1, attached hereto and incorporated herein.

NOW, THEREFORE, in consideration of the premises and the mutual promises and covenants contained herein, the Parties hereby agree as follows:

1. **Recitals**. The Recitals set forth are true and correct and incorporated herein by references as if fully set forth herein.

2. **Amendment to the Agreement**. The Agreement is hereby amended to delete Exhibit B from the Agreement and replace the same with the attached Exhibit B-1.

3. **Affirmation**. Except as amended by the terms of this Amendment, all other terms, covenants and conditions of the Agreement, and the rights and obligations of the Parties thereunder, shall remain in full force and effect and are hereby ratified and affirmed.

4. **Effective Dat**e. This Amendment is effective as of the date of execution by the Client**.**

5. **Counterparts**. This Agreement may be executed in separate counterparts by the Parties as may be deemed necessary and convenient, each of which, when so executed, shall be deemed an original, but all such counterparts shall constitute one and the same instrument. A party's original signature on the Amendment hereto may be provided by facsimile or scanned and e-mailed and shall be effective upon transmission to the other party.

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, the Parties hereto accepted, made, and executed this Amendment upon the terms and conditions above stated.



Diane Patridge
Contracting and Attesting Officer, Insituform Technologies, LLC

1/27/2023
Date

Gene Brown
Mayor, City of Bradenton

Date

Jim McLellan, P.E.,
Director of Public Works and Utilities, City of Bradenton

01/30/2023
Date

EXHIBIT B-1

REQUEST FOR PROPOSALS
INVITATION

NOTICE IS HEREBY GIVEN that sealed proposals will be received in the office of the Purchasing Agent, Daytona Beach City Hall, Room 146, 301 South Ridgewood Avenue, Daytona Beach, Florida 32114, until September 17, 2018 at 2:00 PM, at which time they will be publicly opened for the following:

2018 CURED IN PLACE PIPE (CIPP) REHABILITATION SERVICES TERM CONTRACT

AWARD OF CONTRACT subject to the Purchasing Code of the City of Daytona Beach.

THE RFP MAY BE OBTAINED on-line at http://purchasing.codb.us by clicking on the link to "Public Solicitations" or as a hard copy at the office of the Purchasing Agent City Hall, 301 South Ridgewood Avenue, Room 146, Daytona Beach, FL 32114.

SCOPE OF WORK: Professional Cured In Place Pipe (CIPP) rehabilitation services for sanitary sewer gravity mains (8" – 42" diameter) and oval and round stormwater mains (8" – 72" diameter) on a continuing annual contract basis.

A NON-MANDATORY PRE-PROPOSAL CONFERENCE will be held at the Daytona Beach City Hall, 301 S. Ridgewood Ave., Room 149B, Daytona Beach, Florida 32114, on September 6, 2018 at 2:30 PM. Interested Proposers are *urged* to attend.

THE CITY RESERVES THE RIGHT to reject any or all proposals or parts thereof, or to accept the proposal(s) or parts thereof, when considered by it to be in the best interest of the City. Any proposal received after the time and date specified will not be considered. No proposer may withdraw their proposal for a period of sixty (60) days after the date of the opening of proposals. This time period is reserved for the purpose of reviewing proposals and investigating the qualifications of the proposers.

PROPOSALS SHALL BE ADDRESSED to the City of Daytona Beach, Purchasing Agent, 301 South Ridgewood Avenue, Room 146, Daytona Beach, Florida, 32114, and all proposals shall have the following plainly marked on the outside of the envelope:

PROPOSAL FOR**:** **2018 CURED IN PLACE PIPE (CIPP) REHABILITATION SERVICES TERM CONTRACT**

PROPOSAL NO**:** **0118-2600**

THE CITY OF DAYTONA BEACH
BY: JOANNE FLICK, CPPO
PURCHASING AGENT
ISSUED: August 28, 2018

THE CITY OF DAYTONA BEACH
REQUEST FOR PROPOSALS
2018 CURED IN PLACE PIPE (CIPP) REHABILITATION SERVICES TERM CONTRACT
No. 0118-2600

GENERAL CONDITIONS

THIS IS NOT A BID. This is a Request for Proposals for non-professional services issued in accordance with the City of Daytona Beach Code Chapter 30, Article II, Division 3, "Source Selection and Contract Formation". The Request for Proposal specifies the services needed, and lists the criteria upon which the Proposal responses will be evaluated. When received, Proposals will be reviewed and ranked in order, beginning with the one deemed most advantageous to the City. Contract negotiations will commence with the selected Proposer(s). Upon completion of satisfactory negotiations, the contract negotiated that best meets the needs of the City will be recommended for award to the City Commission. A copy of Chapter 30 may be obtained upon request.

GENERAL CONDITIONS

1. **INSTRUCTIONS TO PROPOSERS**: To insure consideration of your Proposal, please follow these instructions. One original and five (5) copies of all Proposal sheets must be executed and returned, unless otherwise directed. **Provide one pdf copy of the Proposal in its entirety on cd, dvd, or other electronic media.** All Proposals not in compliance with the conditions specified herein are subject to rejection.

2. **PROPOSAL ENVELOPE**: All Proposals must be returned in a sealed box or envelope addressed to the City of Daytona Beach and should contain *on the outside* the following information:

    a. Name and address of Proposer
    b. Proposal Number 0118-2600
    c. Date and time of Proposal opening

    PLEASE NOTE: The address of the Purchasing Division is:

    Daytona Beach City Hall
    301 South Ridgewood Avenue
    Room 146
    Daytona Beach, FL 32114

3. **REQUESTS FOR INTERPRETATIONS.** If the Proposer is in doubt as to the meaning of any of the RFP Documents or other Contract Documents included in this solicitation, the Proposer may submit a written request to the City for an interpretation, care of the Purchasing Agent at the address set forth in the Invitation

for delivery of the completed Proposal. Such requests must be received 10 days prior to Proposal opening in order to be considered. The City is not obligated to respond to such requests. Any clarification or interpretation issued by the City in the form of a written addendum will be deemed to be a part of the Proposal Documents.

No oral clarification or interpretation will be binding.

4. **EXECUTION OF PROPOSAL**: The Proposal must contain a manual signature of an individual or of an authorized representative of the firm making the Proposal, in the space provided on the Proposal Form, if provided as a part of the Proposal package, or on Proposer's own form, if a specific Proposal form is not provided. The Proposer's name shall be inserted on all sheets requiring the Proposer's name. In order to insure uniformity, Proposals must be submitted on the Proposal Form, if provided, and on the attached pages.

5. **PROPOSAL OPENING - LATE PROPOSALS**: Proposals will be opened publicly, the name of the Proposers read aloud and recorded, on the date and time indicated, at the location specified in this Request for Proposals. It is the Proposers' responsibility to make certain that his/her Proposal is in the hands of the Purchasing Agent prior to the opening time at the specified location. Any Proposal received thereafter will be rejected and returned to the Proposer.

6. **WITHDRAWAL OF PROPOSALS**: Proposals may be amended or withdrawn only by written notice prior to the Proposal opening. Proposal amendments must be submitted in a sealed envelope. Amendments or withdrawals received after the Proposal opening will not be effective, and the original Proposal submitted will be considered.

7. **CONSIDERATION OF PROPOSALS**: Telephonic, electronic, or faxed Proposals will not be considered. The Proposer agrees that his/her Proposal will not be withdrawn within sixty (60) calendar days following opening of the Proposals, and that during such time his Proposal will remain firm and irrevocable. The City reserves the right to reject any or all Proposals, and to waive any technical defects in Proposals.

8. **COOPERATIVE PURCHASING**: All proposers awarded contracts from this RFP are required to permit governmental entities in Volusia County to participate in the contract under the same prices, terms, and conditions except that allowances may be made for differences in delivery costs. At the option of the awarded proposer, the use of the contract resulting from this solicitation may be extended to other governmental agencies, cities, counties, and political subdivisions.

9. **GENERAL REVIEW PROCEDURES:** The Purchasing Code, Chapter 30, Code of the City of Daytona Beach, sets forth the general review procedures for competitive sealed proposals. Under the Purchasing Code, the City Manager is

required to evaluate and rank responsive Proposals in accordance with the criteria identified in the RFP. Before submitting a recommendation for final action on this RFP to the City Commission, the City Manager is authorized to "shortlist' and negotiate with one or more of the Proposers who submitted the highest ranked Proposals. As part of these negotiations, the City Manager may request revised Proposals from shortlisted Proposers.

The City Manager has adopted a policy delegating the task of initially ranking responsive Proposals to a Selection Committee. The Selection Committee may require personal interviews with Proposers before submitting its recommendations to the City Manager.

10. **LOCAL PREFERENCE**: Pursuant to the Purchasing Code, preferences may be given in the evaluation of responsive Proposals to Local Vendors. A "Local Vendor" is a vendor which has maintained a permanent place of business with full-time employees within the city limits of the City of Daytona Beach for a minimum of six months prior to the date Proposals were received for the contract at issue, which generally provides from such permanent place of business the kinds of services solicited, and which at the time of the solicitation fully complies with state and local laws, including City zoning and licensing ordinances.

In order to qualify as a Local Vendor, the Proposer must submit a properly completed Local Vendor affidavit as part of its Proposal. A Proposer who fails to properly complete and sign this affidavit or submit it with the Proposal will not be considered for local preference in this RFP. The City is the ultimate arbiter as to whether the Proposer qualifies as a Local Vendor; and the City may require the Proposer to submit additional documentation verifying that the Proposer qualifies as a Local Vendor.

A Proposer qualifying as a Local Vendor will be given the following Preferences:

a. At the City's discretion, the Proposer may be given bonus points of up to 10% of the total available points used to score Proposals for purposes of ranking them. The ranking process is described further in Paragraph 8, above. The exact percentage awarded may be adjusted based on the extent of work to be subcontracted to non-local vendors.

b. After the Selection Committee has evaluated and ranked Proposals, if the highest-ranked Local Vendor's Proposal would not otherwise be among the list of the highest–ranked Proposals submitted to the City Manager (See Paragraph 8 above), the list will be modified to include the highest-ranked Local Vendor's Proposal. In addition, if the evaluation criteria referenced in Paragraph 8, above, includes price, all of the Proposers on the modified short list will be given the opportunity to submit best and final fee proposals; and final ranking provided by the Selection Committee will be based on the best and final proposals. For purposes herein, the reference to "best and

final" will not serve to alter the City Manager's authority, as referenced in Paragraph 8, above, from requiring a short listed Proposer to submit a revised Proposal.

11. **AWARD**: The award will be made by the City to the firm most qualified and offering the best value to the City, which will be determined by evaluation of Proposals using the evaluation criteria contained in the RFP, and in accordance with applicable rules and regulations governing the purchase and contract adopted and established by the City, and the State of Florida.

    Any contract resulting from this solicitation may, in the alternative, be awarded by the City of Daytona Beach Community Redevelopment Agency (CRA). Therefore, any bids/proposals submitted in response to this solicitation shall be deemed to be offers to the CRA as well as the City. Any final written contract may be with the CRA instead of the City.

12. **NON-COLLUSION**: By submitting a Proposal in response to the request and signing the Anti-Collusion Statement form enclosed, the Proposer represents that, should the Proposal be accepted, the resulting contract(s) would not violate any provisions of federal law or regulations, or any ordinances or regulations established by the City. The Proposer warrants as an integral and essential part of his/her Proposal: (a) that he/she has not participated in nor is he/she obligated or bound by any agreement, arrangement or other understanding with any person, firm or corporation with respect to the allocation of the business afforded by or resulting from the acceptance of his/her Proposal; (b) that his/her Proposal is or is intended to be competitive and free from any collusion with any person, firm or corporation; and (c) that he/she is not a party to nor has participated in nor is he/she obligated or otherwise bound by any agreement, arrangement or other understanding with any person, firm or corporation relating to the exchange of information concerning Proposals, prices, terms or conditions upon which the contract(s) resulting from this acceptance is to be performed.

13. **PERMITS, ETC**.: All Proposals submitted shall include in the price the cost of any business or professional licenses, permits or fees required by the City and any agency having jurisdiction over the services solicited through this Request for Proposals.

14. **PATENT INFRINGEMENT, ETC**: By submission of a Proposal the Proposer certifies that the services to be furnished will not infringe any valid patent, copyright, or trademark and the successful Proposer shall, at his/her own expense, defend any and all actions or suits charging such infringement and hold the City harmless in case of any such infringements.

15. **TAXES**: All Proposals shall be exclusive of federal taxes. However, if the Proposer believes that certain other taxes are properly payable by the City, he/she may list

such taxes separately in each case directly below the respective item price. Tax exemption certificates will be furnished upon request.

16. **PERFORMANCE**: During the performance of the contract, the Proposer agrees as follows:

    a. The Proposer will not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin.

    b. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirement of this section.

17. **FLORIDA PUBLIC RECORDS LAW**: Sealed proposals received by the City pursuant to the Request for Proposals will be temporarily exempt from disclosure in accordance with Florida's Public Records Laws. Thereafter, all Proposals will be open for a personal inspection by any person pursuant to Public Records Law.

    If the Proposer believes that the Proposal or any portion thereof is permanently exempt from disclosure under the public records laws, the Proposer must state the grounds for this position in CAPITAL LETTERS on the cover sheet accompanying the sealed Proposal. The Proposer will be contacted prior to the opening of the Proposal and a determination will be made as to whether or not it is exempt prior to opening. If a determination is made that it is not exempt from disclosure, the Proposer may in writing request the return of the sealed Proposal.

18. **EVALUATION CRITERIA**: The weighted evaluation criteria will be used to evaluate Proposals and develop a recommendation to the City Manager as described in Section 8, above. Each criterion will be scored between 1 and 5; 1=poor, 2=below average, 3=average, 4=above average, 5=excellent. Scores will be multiplied by the criterion weight for a weighted score; weighted scores will be totaled for the weighted total score.

    Proposals will not exceed a total of 100 pages, inclusive of all resumes, technical data, charts, etc. Extraneous pages will be removed from the Proposal prior to distribution.

    A. **Ability of the Proposer and Performance of the Product**:
    Submit up to *5* similar projects performed by the Proposer in the State of Florida, completed within 5 years of the due date of this RFP, to verify the Proposer's performance on similar work in similar conditions as those found in the City of Daytona Beach. Provide references for each similar project submitted. Reference list shall include name and address of company/municipality, contact name; telephone number; email address, and date of installation completion. *Experience in coastal community systems is preferred.* If the CONTRACTOR has installed the product for The City of Daytona Beach, the CONTRACTOR must include the CITY

as a reference.

Provide a definitive statement from the manufacturer that the product meets the Minimum Qualifications in Special Instructions for the product as well as ASTM F1216-16 Standards.

Provide a letter from the Proposer's Surety confirming a minimum bonding capacity of $200,000 accompanied by a signed Power of Attorney.

Weight = 25

B. **Ability and Experience of the Project Team**
Provide resumes for key team members verifying the teams' experience.

Describe the Project Manager's experience with similar projects, where the individual has served as project manager within the 5 years prior to the due date of the RFP.

Describe the Superintendent's and Foreman's experience with similar projects, during the 7 years prior to the due date of the RFP where the individuals have served as superintendent and foreman, respectively.

Indicate projects on which the Project Manager, Superintendent, and Foreman have performed together in these positions during the 5 years prior to the due date of the RFP.

Provide a team organization chart including any proposed cleaning sub-contractors.

Weight = 20

C. **Approach to the Scope of Work - CIPP**
Provide a narrative of the project approach to be used for the CIPP lining of sanitary sewer mains and stormwater mains in systems with similar site conditions as those found in the City of Daytona Beach. Discuss any product restraints or restrictions.

CONTRACTOR shall provide a complete list of all equipment/vehicles to be used on this contract (to include year, make and model numbers.) Provide definitive statement that the ***equipment*** meets requirements for use and insertion of the resin impregnated line.

Weight = 10

D. **Approach to Scope of Work – Cleaning** Provide a narrative of the project approach to be used for the cleaning of sanitary sewer mains and stormwater

mains in systems with similar site conditions as those found in the City of Daytona Beach. Discuss any product restraints or restrictions.

CONTRACTOR shall provide a complete list of all equipment/vehicles to be used for cleaning on this contract (to include year, make and model numbers

Weight = 10

E. **Adequacy of the Proposer's Safety Practice and History**
Provide documentation, OSHA logs and references to verify the safety practices and safety history of the Proposer and sub-contractors proposed to perform work in the City of Daytona Beach. Proposer and all sub-contractors related to the performance of this contract shall provide copies of their company's safety logs submitted to the Occupational Health and Safety Administration (OSHA) including all OSHA cited violations for the 2013, 2014 and 2015 calendar years with the Proposal. **Proposals lacking the OSHA logs will be rejected as non-responsive.**

The CITY reserves the right to reject a Proposal based upon past safety performance as evidenced from submitted OSHA logs, references and other means as determined by the CITY. The determination of the responsible party, severity of injuries, frequency and severity of violations and magnitude of damages will be considered in the CITY's determination. Safety performance shall be demonstrated by the Proposer to the CITY's satisfaction.

Weight = 5

F. **Price**

Weight = 30

TOTAL WEIGHT = 100

19. **REFERENCES**: The contact person(s) listed as a reference shall be someone who has personal knowledge of the contractor's performance during the referenced project. Contact persons must have been informed that they are being used as a reference and that the City may be calling them. More than one person can be listed but all must have knowledge of the project. DO NOT list principals or officers who will not be able to answer specific questions regarding the project.

20. **REJECTION OF PROPOSALS**: The City reserves the right to reject any or all Proposals in whole or in part and to award by items, parts of items, or by any aggregate group of items specified. The City also reserves the right to waive technical defect when in its judgment the best interests of the City thereby will be served.

21. **QUALIFYING PROPOSERS**: Prior to awarding of Proposal, the City may require submission by Proposer of complete financial statement and questionnaire describing Proposer's financial ability and experience in performance of similar work.

22. **RULES AND REGULATIONS**: All work performed under this agreement shall be in strict compliance with local, State and Federal laws, rules and regulations. Proposer shall assume all liability for fines and penalties assessed by the authorities for any infractions.

23. **MINORITY AND WOMEN WORK FORCE PARTICIPATION**: The City has an established policy of: 1) promoting Minority and Women-Owned Business Enterprise participation in business contracts and 2) requiring Proposers doing business with the City to use good faith efforts to promote cultural diversity and minority participation in the work force, including managerial positions. Proposers must provide information as part of the Proposal acknowledging its understanding and willingness to comply with the Purchasing Code of The City of Daytona Beach.

24. **NO COSTS**: The City of Daytona Beach bears no responsibility for any costs incurred in the preparation of the Proposal.

25. **DRUG FREE WORKPLACE:** The selected firm must provide the Drug Free Workplace Form in accordance with Florida Statute 287.087, prior to Contract award.

26. **PROHIBITION OF LOBBYING**. Except for negotiations authorized by the City Purchasing Code, the Consultants Competitive Negotiations Act, or other state or federal law, lobbying by the Proposer, or the Proposer's principals, officers, employees, attorneys, or other agents, is strictly prohibited during the Blackout Period. Lobbying in violation of this section may cause the proposal to be rejected.

    "Lobbying" means influencing or attempting to influence action or non-action in connection with this RFP or the proposal, through direct or indirect oral or written communication with the Mayor, any member of the City Commission, the City Manager, or any other City employee. The following activities are not within the definition of "lobbying," and are permitted: requests for clarification submitted to the Purchasing Agent in accordance with this RFP, discussions with the Selection Committee as part of the selection process, the submission of additional information in response to a request by the City, and addressing the City Commission during the City Commission meeting at which the contract is awarded or all Proposals are rejected.

    The Blackout Period begins on the date that this RFP is issued and ends when the contract is awarded or all Proposals are rejected.

27. **SELECTION PROCESS:**

For the purpose of selecting the most qualified firm, the City will use a competitive selection process as set forth in pertinent City and State procurement requirements. The procedure will involve the following steps:

a. The City will advertise and mail notice of formal Requests For Proposals to interested Proposers.

b. The City's Selection Committee will review, rank, and shortlist all Proposals received by the established deadline for submission. Oral presentations by the short-listed Proposers to clarify their Proposals may be required. These presentations will serve to explain implementation techniques integral to their written Proposal. Subsequent to the receipt of Proposals, the City may schedule a time for each requested oral presentation at a place convenient to the City.

c. The City's Selection Committee will then rank each Proposal and prepare a recommendation for approval by the City Manager. Upon receipt of the City Manager's authorization, the City's Project Manager shall negotiate a contract with the highest ranked Proposer(s) approved by the City Manager. Should the Project Manager be unable to negotiate a satisfactory contract with the any of the shortlisted Proposers, the City Manager, or designee, shall terminate such negotiations with any or all of the shortlisted Proposers and begin negotiations with remaining Proposers based on ranking, until negotiations are successful or this RFP is cancelled.

d. **The City Commission has the sole authority to bind the City to the terms and conditions of a contract that has been approved in a public meeting of the City Commission. The City Commission reserves the right to modify or reject any contract for the acquisition of goods and/or services submitted to it for consideration**.

SPECIAL INSTRUCTIONS

SI #1 The CONTRACTOR will be required to provide payment and performance bonds on a per project basis, which will each be equal to 100% of the value of any Purchase Order issued exceeding $100,000.00 prior to commencing work ordered by the Purchase Order.

The surety company executing the bonds must be authorized to do business in the State of Florida and must be listed by the United States Treasury Department as being approved for writing bonds for federal projects on its current list in an amount not less than the required bond amount. The form of the bond must be approved by the City and must be accompanied by sufficient evidence of the authority of the issuing agent. The bonds must otherwise comply with the requirements of F.S. § 255.05.

In lieu of the required bonds, the CONTRACTOR may provide an alternative form of security as specified in F.S. § 255.05(7) upon the City's approval.

Any bonds used to comply with this Section must be in the form provided by the City; and prior to commencing construction the CONTRACTOR must have the bonds fully executed and recorded and provide the City certified copies of the recorded documents.

Upon the CONTRACTOR's (i) execution and recordation of payment and performance bonds complying with the foregoing provisions; and (ii) furnishing to the City a certified copy of the recorded bonds, proof of payment of CONTRACTOR's subcontractors and suppliers will not be required as a condition of making a required payment to CONTRACTOR; and to the extent that the General Conditions provide otherwise the General Conditions are superseded.

The CONTRACTOR must submit any required insurance on or before submission of the signed contract and must and submit recorded copies of any required payment and performance bonds prior to issuance of a notice to proceed.

SI #2 Minimum Qualifications: For a ***product*** to be considered commercially proven and to assure commercial viability, the manufacturer must document, to the satisfaction of the CITY, that it has provided the product on a minimum of 500,000 linear feet of successful *sanitary sewer system* installations in the United States. In addition, at least 150,000 linear feet of 8" through 18" diameter and 150,000 linear feet larger than 18" diameter of the product must have been in successful sanitary sewer service within the State of Florida for a minimum of five (5) years. Also, a minimum of 450,000 linear feet of successful *stormwater main system* installations in the United States must be documented to the satisfaction of the CITY to assure commercial viability and at least 150,000 linear feet (15" diameter or larger) of the product shall have been in successful *stormwater service* within the State of Florida for a minimum of five (5) years.

Failure of the proposed product to meet the minimum qualifications shall render the Proposal non-responsive and ineligible from further consideration.

STANDARD TERMS AND CONDITIONS

1. Severability. If one or more of the provisions contained in this Contract will for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability will not affect any other provisions of this Contract, and this Contract will then be construed as if such invalid, illegal or unenforceable provision had never been contained herein or therein.

2. Governing Law. This Contract will be governed by the laws of the State of Florida.

SCOPE OF WORK

I. General

The CITY requires professional Cured In Place Pipe (CIPP) rehabilitation services for sanitary sewer gravity mains and oval and round stormwater mains (8" – 72" diameter) on a continuing annual contract basis. Quantities listed are estimated for proposal purposes based on work projections and are subject to change. The term of the agreement will be for a period of one (1) year with an option to extend the agreement for four (4) additional one-year terms upon mutual agreement for the same prices and at the same terms and conditions. The contract shall not exceed five (5) years.

II. Summary of Work

The CONTRACTOR shall provide all work required for a completed project including but not necessarily limited to labor, supervision, traffic control, materials, equipment, installation, onsite material test samples showing compliance with manufacturer's recommended material, handling and incidentals required for the rehabilitation of various sized sanitary sewer gravity mains and oval and round stormwater mains with resin impregnated cured-in-place pipe (CIPP) in accordance with American Society for Testing and Materials (ASTM) standard F 1216-09 and all applicable CITY, manufacturer and industry preferred standards. The CONTRACTOR shall provide professional advice to CITY on the most cost-effective and efficient approach to resolve all challenges encountered during the performance of the work. Work assigned under this contract may include, but is not limited to, the following types of projects:

- Stormwater main and sanitary sewer main cleaning
- Stormwater main and sanitary sewer main pre- and post- work video inspections
- Easement access
- Maintenance of Traffic (MOT)
- Isolation and by-pass pumping
- Cured-In Place Pipe reconstruction
- Chemical and physical product testing
- Hydraulic capacity testing
- Reinstatement of services and pressure grouting
- Erosion and sediment control
- Site restoration

III. Product Performance

Standard lining products meeting product specifications outline in ASTM Designation: F1216-16 (Attachment A) are intended to have a 50-year design life and in order to minimize CITY's risk. Only proven products with substantial successful long-term track records will be approved.

Equipment/Vehicles

All CONTRACTOR/sub-contractor equipment shall be sufficient in size and number for work to be performed in a timely manner under this contract. All CONTRACTOR/sub-contractor equipment shall be maintained in good operating condition. The CITY reserves the right to reject any equipment deemed unsafe or insufficient in size and/or number to perform work under this contract. It shall be the sole responsibility of the CONTRACTOR/sub-contractor to replace rejected equipment in a timely manner and at no cost to the CITY. All equipment shall be equipped at a minimum with manufacturer's recommended sound muffling devices that will reduce noise levels to the State or Federal acceptable limit for residential neighborhoods.

IV. Materials

A. All materials specified by name, brand or manufacturer shall be delivered to the job site in original containers. CONTRACTOR shall obtain printed instruction and special bulletins for the manufacturer-recommended safety precautions. CONTRACTOR/sub-contractor personnel will have copies of the manufacturer-recommended safety precautions available at the work site to ensure all work is performed in a safe manner.

B. The CONTRACTOR shall use potable water from the CITY for the project. The CONTRACTOR must obtain a construction hydrant water meter and all appropriate fees paid prior to the start of work. The CONTRACTOR will be responsible for paying for all potable water used at standard CITY rates.

VII. Contractor Responsibilities

A. Backflow Prevention: The CONTRACTOR will properly install an approved backflow prevention device in-line to the fresh water fill line of all jetting and/or vacuum equipment

B. Staffing: The CONTRACTOR shall employ adequate staff to perform the services required, including but not limited to Project Representative, Project Manager, Field Supervisor and Senior Foreman. CONTRACTOR shall provide staff who are proficient and experienced in all phases of services required.

C. Site Assessment: The CONTRACTOR shall visit each site to assess site conditions including confirmation of the actual footage, material type and diameters and incorporate those findings in their initial cost and work proposal.

D. Vehicle Identification: The CONTRACTOR shall ensure that employee's vehicles display company logo on the side doors and company phone

numbers. The CONTRACTOR will not permit personal vehicles to be parked at the job site.

E. License and Confined Space: The CONTRACTOR shall be a licensed CONTRACTOR for the provision of these services in the State of Florida with full service offices in the State of Florida for the provision these services.

F. Cleaning of Stormwater Main and Sewer Lines: The CONTRACTOR shall remove and properly dispose of all debris from the inside of manholes, stormwater mains and/or sewer lines and provide a sufficiently dry interior environment that will not interfere with the installation's expected working life of a durable CIPP liner per the manufacturer's requirements.

G. Bypassing Stormwater and Sewage: The CONTRACTOR shall provide for the flow of stormwater and sewage around the sections of pipe designated for reconstruction. The CONTRACTOR shall make the bypass by plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole by way of restrained watertight pipe. The CONTRACTOR will provide pump(s) and bypass lines of adequate capacity and size to handle the average daily flow. The CONTRACTOR'S backup bypass pump(s) will be adequately sized and with full operational capabilities and will be on site at all times of by-pass pumping. The CONTRACTOR shall be responsible for all traffic control during operations and bypass pumping.

H. TV & Inspection of Pipelines: The CONTRACTOR will inspect pipelines using experienced personnel trained in locating breaks, obstacles and service connections by closed circuit television. The CONTRACTOR will carefully inspect the interior of the pipeline to determine the location of any conditions which may prevent proper installation of CIPP into the pipeline; the CONTRACTOR will notify the City so that these conditions can be corrected. The CONTRACTOR shall review all questionable host pipe areas with the CITY and provide advice on remedies to correct them. The CONTRACTOR will maintain a video and suitable log for later reference by the CITY. The CONTRACTOR will perform the post-construction inspection and will provide a video DVD and log to the CITY. The CONTRACTOR will ensure that all video inspection are witnessed by a CITY representative as it is being performed. The CONTRACTOR will include the cost of video inspection in the contract line items.

I. Manhole/Liner Interface: The CONTRACTOR shall make a watertight seal at the interface where the liner/host pipe meets the manhole or other attachment point. The CONTRACTOR'S removal of CIPP liner from areas where line placement was elected in lieu of resetting equipment shall be incidental to the placement of the CIPP.

J. Service Reconnection: Service reconnection refers to the reinstatement

of the house service connection at the sewer main after the installation of trenchless pipe reconnection system. The CONTRACTOR will accomplish this from within the sewer main via a remote controlled cutting device.

K. Service with Pressure Grouting: The CONTRACTOR will pressure grout the service wye after mainline has been rehabilitated and service line re-instated. The CONTRACTOR will use a non-shrinking chemical grout (Avanti 118/101 or Cues Quickseal 105 are acceptable). The CONTRACTOR shall provide trenchless reconstruction of service laterals and main line sewers. The CONTRACTOR shall perform services including but not limited to televised inspection, data collection, system flow analysis and pipeline reconstruction.

L. Safety and Worksite Control: The CONTRACTOR will provide services that include safety measures for both their workers and the public. The CONTRACTOR is completely responsible for the control of the environment of the work site during on-site operations including implementation, operation, maintenance and tear down of traffic control systems. The CONTRACTOR will take all precautions to protect the workers, public the CITY staff from the exposure to harmful or hazardous situations and substances within the stormwater and sewer systems.

M. Waste Materials: The CONTRACTOR will dispose all waste materials and shall transport waste materials to the nearest CITY Wastewater Treatment Plant for processing. The CONTRACTOR will obtain CITY approval of all waste material disposal schedules. The CONTRACTOR shall clean up all waste material spills and clean-up required due to the loading, hauling and unloading of the CONTRACTOR's equipment.

The CONTRACTOR shall conform to any and all requirements regarding hauling and disposal of waste from each work site in accordance with OSHA regulations and those that may be mandated by federal, state or local governments. The CONTRACTOR shall ensure that all waste material transporters possess all required federal, state and local regulations, including but without limitation, 40 CFR Part 263, "Standards Applicable to Transporters of Hazardous Waste" and Chapter 17-730, Part 3, Florida Administrative Code, as may be amended from time to time.

N. Curing Water: The CONTRACTOR will pay for all costs associated with disposal of curing water in accordance with CITY, State and Federal regulations.

O. TV Inspection Report: The CONTRACTOR will prepare and submit a report of each TV inspection and analysis to the CITY for review. The CITY shall consult with the CONTRACTOR and finalize the scope of work.

P. Schedule Coordination: The CONTRACTOR shall inform the CITY of its planned work schedules two weeks in advance of performing the work and provide the CITY reasonable opportunity to observe and inspect the work. The CONTRACTOR will advise the CITY of all schedule changes and notified when a work site is to be left for a 24-hour period when work is not complete.

VIII. Contractor / Sub-contractor Employee Conduct and Appearance

A. Conduct:

1. CONTRACTOR and sub-contractors shall follow all applicable industry standards, federal, state, and local laws/ordinances as related to described work.
2. CONTRACTOR'S on-site employees shall all have current confined space entry certification.
3. The CONTRACTOR will remove any employee or sub-contractor employee reporting to a work site under the influence and/or smelling of alcohol from the work site. CONTRACTOR will immediately replace the employee in a timely manner and at no cost to the CITY.
4. The CONTRACTOR will provide trained supervision at the work site to ensure work is performed in a safe manner.
5. The CONTRACTOR shall correct any damage resulting from the negligence of CONTRACTOR or sub-contractor employee(s) to CITY property or equipment in a timely manner, to the CITY's satisfaction and at the CONTRACTOR's sole expense.

B. Appearance:

1. CONTRACTOR and sub-contractor employees assigned to work under this contract will maintain a neat, clean, and professional appearance .
2. CONTRACTOR and sub-contractor employees shall wear uniforms consisting of, at minimum, wear a work shirt identifying their company name.
3. Licenses/Permits: The CONTRACTOR will obtain all necessary municipal and other governmental licenses/permits and approvals or consent from utilities or carriers such as communications companies, electric utilities, gas utilities and/or other persons/organizations upon whose property or authority performance of work under the contract might impinge.

IX. Scope of Work General Stormwater and Sanitary Sewer Main Lining

The CONTRACTOR will be compensated for oval stormwater mains at the unit cost for the round pipe diameter that meets or exceeds the oval pipe's square feet of flow-way area opening. Individual item quantities may be adjusted at the sole discretion of the City if necessary to compensate for unique project and site conditions.

A. **Stormwater main and Sanitary Sewer Cleaning**

Scope: Work performed under this section includes removal and disposal of all dirt, roots, grease, solids, or semi-solids from stormwater mains, sanitary sewer mains and manholes as indicated on the drawings and as specified herein to the extent that video inspection, flow isolation, and manhole inspection can be performed.

1. Quality Assurance: The CONTRACTOR shall conduct cleaning operations using experienced personnel who have previously been engaged in cleaning operations of similar size and complexity to the work described herein.

2. Submittals:

   a. The CONTRACTOR shall submit a Cleaning Log in a format acceptable to the CITY for the purposes of recording pertinent information relative to the stormwater main and sanitary sewer structures being cleaned. The CONTRACTOR will provide the Cleaning Log no later than 14 calendar days after the conclusion of the cleaning.

   b. The CONTRACTOR will submit Material Safety Data Sheets (MSDS) for all chemical cleaning agents proposed for use under this contract no later than 14 days after the effective date of the Contract.

B. **Products:** The CONTRACTOR shall utilizes cleaning equipment capable of removing all accumulated dirt, sand, grease, rocks and other deleterious materials and obstructions from the sanitary sewer mains and the oval and round stormwater mains. The CONTRACTOR will ensure that all equipment used for cleaning operations is designed and intended to do the type of work which is specified. The CONTRACTOR will utilize equipment which is self-contained to handle all operations, when possible. The CONTRACTOR will use equipment manufacturer that is actively engaged in the research, development and manufacturing of said equipment. The CONTRACTOR may be directed to remove equipment deemed sub-standard by the City and may be directed to replace the equipment with equipment meeting these specifications, at no additional cost to the CITY.

1. High Velocity Cleaning Equipment: The CONTRACTOR will supply all high velocity hydraulic sewer cleaning equipment mounted on trucks. The CONTRACTOR supplied equipment shall have a minimum of 500

feet of ¾ inch I.D. high pressure hose with a selection of two or more high velocity nozzles. The nozzles shall have a capacity of 30 GPM at a minimum working pressure of 1000 psi. The nozzles shall be capable of producing a scouring action from 15° to 45° in the direction of cleaning and perpendicular to the sewer axis in all size lines designated to be cleaned. The CONTRACTOR will supply a high velocity gun for washing and scouring manhole walls and floor. The gun capacity shall equal 3.5 to 27 GPM at between 200 and 800 psi. The gun shall be capable of producing flows from a fine spray to a long distance solid stream. The equipment shall carry its own 1200 gallon (minimum) water tank capable of holding corrosive or caustic cleaning, sanitizing or degreasing chemicals if required by the CITY, auxiliary engines and pumps, and hydraulically driving hose reel. All controls shall be located so that the equipment can be operated aboveground.

2. Hydraulically Propelled Cleaning Equipment: The CONTRACTOR will supply hydraulically propelled cleaning equipment of the movable dam type and be constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to protect against flooding of the storm or sewer systems. Storm/Sewer cleaning balls or other such equipment which cannot be collapsed instantly to provide an immediate unobstructed flow-way during emergency conditions will not be considered as acceptable cleaning equipment. The movable dam shall be of equal diameter as the pipe being cleaned and shall provide a flexible scraper around the outer periphery to ensure total removal of the grease or obstruction.

3. Mechanical Cleaning Equipment: The CONTRACTOR will provide bucket machines in pairs with each machine powered by a minimum of a 16 horsepower engine to ensure sufficient pulling power. Each machine shall be equipped with a two speed transmission and shall be able to pull at rates of 175 feet per minute in high speed. The belt clutch gear reduction shall be a combination of approximately 83 to 1 reduction in low speed and 55 to 1 in high speed. The power rodding machine shall be of a “continuous rod” type capable of holding a minimum of 750 feet of rod. The machine and rod shall be specially treated steel, designed for the purpose intended. The machine shall have a positive rod drive and produce a 2,000 pound rod pull. To ensure safe operation, the machine shall have a fully enclosed body and an automatic safety throw-out clutch or relief valve. The final pass shall be with a brush large enough to ensure that the line has been cleaned sufficiently. This brush shall be mechanically driven, with the power mechanism properly sized. The CONTRACTOR will arrange all electrical drops required by the CONTRACTOR.

4. Capture and Removal of Debris: The CONTRACTOR shall furnish equipment, either specialized or standard in the industry, for the purpose of preventing debris from being washed past the manhole downstream

of the line segment being cleaned, and for removing the debris from the manhole before any damage is caused to the system performance and or system equipment such as pump/lift stations, check valves, flow-ways, etc. The CONTRACTOR will bear the cost of all system down-time and repairs to restore operational status resulting from construction debris damage that in the CITY's opinion was reasonably preventable.

5. Water Metering Requirements: The CONTRACTOR will access CITY water via fire hydrants equipped with hydrant meters for cleaning, inversion and other work items requiring water. All costs incurred in obtaining and delivering the potable water shall be borne by the CONTRACTOR. The CONTRACTOR will use only potable water for this work.

B. **Execution:**

1. General: These specifications provide a basis by which a stormwater main or sanitary sewer line can be cleaned of all debris so that further work can be carried out. The CONTRACTOR will clean the designated stormwater main and/or sanitary sewer lines using high velocity, hydraulically propelled or mechanically powered sewer cleaning equipment as specified. The CONTRACTOR'S selection of the equipment used shall be based on the condition of the lines at the time the work commences. The CONTRACTOR will select equipment and methods that are satisfactory to the CITY. The CONTRACTOR will accomplish the cleaning of stormwater main or sewer lines by trapping and collecting all sand, debris, grease and other materials at the next manhole downstream of the line being cleaned, and removal and proper disposal of said materials. The CONTRACTOR'S cleaning operations may also provide a means by which the stormwater main or sewer line can be threaded, i.e., a cable inserted in the line so that the television camera may be pulled through. The CONTRACTOR will not clean upstream sections of pipe once that section of pipe has been televised and accepted as complete.

2. Site Visit: The CONTRACTOR will conduct a physical reconnaissance of the area to be cleaned in order to verify the location of known and/or accepted manholes.

3. The CONTRACTOR shall utilize a magnetic locator to attempt to identify the location of buried manhole covers and notify the CITY representative so that CITY personnel can excavate and bring the manhole up to grade prior to cleaning. Under no circumstances shall the CONTRACTOR excavate buried manholes without prior written authorization from the CITY.

D. **Hydraulic Cleaning Methodology:**

1. High Velocity Cleaning Methodology: High velocity hydro-cleaning shall consist of cleaning and flushing of the stormwater main or sewer line by

means of water pumped into the line at a high velocity. The CONTRACTOR shall accomplish cleaning using approved equipment to deliver water to a self-propelled nozzle to do the necessary cleaning and flushing. The CONTRACTOR will make as many passes as necessary to sufficiently clean the stormwater main or sewer line. The CONTRACTOR will take all precautions to protect the stormwater main or sewer line from damage that might be inflicted by the improper use of cleaning equipment.

2. Hydraulically Propelled Methodology: The CONTRACTOR will take precautions to ensure that the water does not cause damage of flooding to the public or private property being served by the manhole section involved whenever hydraulically propelled cleaning tools, which depend on water pressure to provide their cleaning force, or any tools which retard the flow of water in the stormwater main or sewer line are used.

3. Capture and Removal of Debris: The CONTRACTOR will construct a suitable weir or dam in the downstream manhole in such a manner that both the solids and water shall be trapped when hydraulic cleaning equipment is used, shall be constructed. The CONTRACTOR will pump this trapped solution using a method approved by the CITY, from the manhole into a retention chamber aboveground. The retention chamber shall contain not less than two baffles to ensure complete settlement of the solids before returning the liquid to the stormwater main or sewer line.

E. **Mechanical Cleaning Methodology:**

1. Rodding: The CONTRACTOR will perform cleaning by rodding with a power-driven continuous steel rod of sufficient length and gauge with the proper cleaning heads or augers, so as to loosen all solids or other materials. It shall also provide a means to thread a cable for the power winch.

2. Bucket Machine: The CONTRACTOR will remove all solids, materials and other debris by means of a clam-shell type bucket and/or other appliances dragged through the stormwater main or sewer line with power winches of suitable size and horsepower.

3. Supplemental Cleaning: The CONTRACTOR will perform a minimum of one pass using hydraulic cleaning methods after all material has been removed by mechanical cleaning, to ensure complete removal of material from the walls of the pipe. The CONTRACTOR will repair any damage to pipes.

4. Capture and Removal of Debris: The CONTRACTOR will capture debris in the downstream manhole in a manner approved in writing by the CITY, or as described above when mechanical cleaning equipment is used. .

F. **Special Cleaning Requirements for Cast Iron Pipe**: The CONTRACTOR will clean pipes of tuberculation, including rust build-up and mineral deposits after cleaning pipe of normal sewage deposits such as sand and grease by methods above. The CONTRACTOR may choose any equipment necessary to remove the tuberculation for pipe diameters greater than 24-inch, such as a "pig" or rodder; however, no equipment shall be used which may damage the pipe, manholes, street or downstream pump stations. The CONTRACTOR will remove all tuberculations for pipe diameters less than or equal to 24-inch, using a high pressure water blaster capable of delivering a minimum of 40 gallons per minute at a pressure of 10,000 psi. Where practical, the line shall be proofed by pulling a slip lining pulling head for the size of the pipe involved through the pipe to insure that no restrictions remain. The CONTRACTOR may choose a similar proofing device if deemed acceptable, in writing, by CITY.

G. **Sanitary Sewer Manhole Modifications:** The CONTRACTOR will make any modifications to manholes to facilitate cleaning which will be subject to prior written approval by the CITY. CONTRACTOR shall salvage and reuse all manhole covers and rings that are removed during sewer line and manhole rehabilitation.

H. **Material Removal and Cleanup:**

1. Material Removal: The CONTRACTOR will remove all sludge, dirt, sand, rocks, grease and other solid or semi-solid material resulting from the cleaning operation at the downstream manhole of the section being cleaned. Passing material from manhole section to manhole section will not be permitted. Under no circumstances will the CONTRACTOR be allowed to accumulate debris, sand, etc., on the site of work beyond the time limit approved by the CITY, except in totally enclosed containers, and only with the prior written approval of the CITY. The CONTRACTOR will remove all solids or semi-solids resulting from the cleaning operations from the site and disposed of at a location approved by the CITY.

2. Root Removal: The CONTRACTOR will remove all roots. The CONTRACTOR will give special attention during the cleaning operation to assure complete removal of roots from joints in lines and manholes. The CONTRACTOR may use chemical root treatment at the option of the CONTRACTOR.

   When the CONTRACTOR uses chemicals to aid in removal of roots, the chemical shall be EPA registered and labeled for use in sewer lines and manholes and in compliance with all applicable CITY, State and Federal regulations. All material and mixing/application procedures for chemical root treatment shall be consistent with the latest standards, requirements and recommendations of the manufacturer of the chemical root treatment material used. The CONTRACTOR shall protect waterways, ponds and other water bodies from chemical contamination.

I. **Degree of Cleaning**: The CONTRACTOR will remove all dirt, debris, roots and other solid and liquid materials from the sections of stormwater system or sewer system being cleaned to the extent that closed circuit television inspection can be performed. The CONTRACTOR will only perform light cleaning on all stormwater main and sanitary sewer main. A CITY representative shall define the extent of the cleaning to be performed on existing pipes included within a given work order. The level of cleaning is defined as follows:

1. Light Cleaning: The removal of ¼ pipe diameter depth or less of sand and/or debris from a section of pipe. The removal of roots and/or tuberculation will be paid under a separate line item.
2. Medium Cleaning: The removal of greater than ¼ and up to and including ½ pipe diameter depth of sand and/or debris from a section of pipe. The removal of roots and/or tuberculation will be paid under a separate line item.
3. Heavy Cleaning: The removal of greater than ½ pipe diameter depth of sand and/or debris from a section of pipe. The removal of roots and/or tuberculation will be paid under a separate line item

J. **Dewatering:** When by CITY and CONTRACTOR prior inspection and agreement it is determined that the pipe cannot be cleaned due to infiltration of groundwater, and the CONTRACTOR is required to temporarily halt the infiltration of groundwater by de-watering system means, the cost shall be included in the unit prices for cleaning as an incidental cost..

K. **Manhole Clean-up**: Clean-up operations shall consist of cleaning all debris out of the manhole and off the ground around the manhole. The CONTRACTOR will remove all debris from the stormwater system and sanitary sewer system and shall disposed of such debris properly off site in areas provided by the CONTRACTOR at the CONTRACTOR'S expense. The CONTRACTOR will provide transportation of debris or other material by the CONTRACTOR in vehicles or equipment which contain the debris or other material in such a manner to minimize objectionable odor and avoid the possibility of dripping, spilling, scattering, leaking or blowing. , The CONTRACTOR will clean up any debris or other material to the satisfaction of the CITY or other authorities having jurisdiction should spillage of debris resulting from overloading of trucks or for any other reason. The CONTRACTOR will ensure that all vehicles transporting debris or other material do not exceed the maximum allowable load limits of any road being used.

L. **Restoration:** The CONTRACTOR will repair all damage to public and/or private property which occurs as a direct result of the cleaning operations. The cost of restoring any damaged area to conditions prior to cleaning shall be borne by the CONTRACTOR.

M. **Additional Cleaning:** The CONTRACTOR will re-clean the line at no additional expense to the CITY should subsequent video inspection of cleaned stormwater main or sewers reveal that additional cleaning is required. The CONTRACTOR will provide any additional video inspection or re-setup of video equipment required due to re-cleaning at no additional expense to the CITY.

N. **Pre- and Post-Work Inspections**

The CONTRACTOR will video tape the stormwater main or sewer lines under the direct supervision of a CITY representative, prior to commencement of any proposed CIPP work and prior to acceptance of any completed CIPP work,. A CITY representative must be on site during the entire inspection procedure period. In the event the CONTRACTOR performs video inspection without a CITY representative present, the video will not be accepted by the CITY and must be re-done in the presence of a CITY representative. The CONTRACTOR will provide one (1) copy of the DVD video and associated video logs to the CITY prior to scheduling the post-cleaning and final inspections. CONTRACTOR shall meet with CITY staff to determine the acceptable method of repair if defects or problems are observed on the video. The CONTRACTOR will make all necessary repairs or correct the noted deficiencies at no cost to the CITY.

The CONTRACTOR will provide mandatory television inspection on all stormwater main and sewer mains that CIPP work has been performed under this contract. Only pan and tilt type cameras will be allowed. The CONTRACTOR will provide two (2) copies each of the written report and DVD video record of the inspection with audible description of run, direction, location and description of any defect or abnormality to the CITY at the time of the inspection. The video will be in color with good clarity. No black and white or poor quality videos will be accepted. The CONTRACTOR will schedule television inspection a minimum of seventy-two (72) hours in advance and a CITY representative is required to be on-site during entire length of each television inspection; otherwise the television inspection will be deemed invalid. The CONTRACTOR will clean all lines prior to videoing in accordance with Technical Specifications.

O. Maintenance of Traffic (MOT)

CONTRACTOR shall furnish all traffic control in accordance with the Florida Department of Transportation (FDOT) specifications as outlined in the "Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System" (latest edition) and the United States Department of Transportation/Federal Highway Administration (USDOT/FHWA) "Manual on Uniform Traffic Control Devices" (latest edition) for all aspects of assigned work.

CONTRACTOR shall perform all construction activity so that access to businesses can be maintained at all times and access to occupied homes can be maintained during non-working hours. The CONTRACTOR will

provide written notice prior to access blockage to the blocked business/resident a minimum of forty-eight (48) hours in advance, either mailed or hand-delivered with a copy of each furnished to the CITY.

The CONTRACTOR shall maintain at least one lane of vehicular traffic at all times. The CONTRACTOR shall also provide safety barricades, business entrance signage and flag persons as required to properly maintain traffic flow. The CONTRACTOR shall prepare and submit a traffic maintenance plan for approval by the CITY prior to the start of work if directed by the CITY. The CONTRACTOR will include the cost of all work, materials and costs required for completed traffic control in the unit cost of the traffic control pay items in the pricing sheet.

P. Locates

CONTRACTOR is responsible for all utility locates.

Q. Isolation and Bypass Operations

1. CONTRACTOR shall provide all isolation and bypass operations: The CONTRACTOR's objective of flow bypass and/or diversion pumping is to maintain an efficient and uninterrupted level of service to wastewater collection system and stormwater main users while maintenance or construction operations (including rehabilitation, repair or replacement) are being performed on the segment(s) being bypassed and/or from which flow is being diverted by:
    a. Ensuring that bypass and diversion pumps are adequately fueled, lubricated and maintained.
    b. Ensuring backup spare parts are expeditiously applied to the flow bypass and/or diversion pumping system in the event of component breakdown.
    c. Ensure an emergency backup plan is smoothly implemented in the event of system failure.
    d. Preventing backup, spillage, flooding or overflow onto streets, yards and unpaved areas or into building, adjacent ditches, stormwater mains and waterways while flow bypass or diversion pumping takes place, and
    e. Ensuring that installation, startup and subsequent disassembly of the flow bypass and diversion pumping system is smoothly transitioned.
2. The CONTRACTOR will provide flow bypass and diversion pumping in such a manner so as not to damage private or public property, or create a nuisance or public menace. The CONTRACTOR will enclose the pumped sewage in a hose or pipe that is adequately protected from traffic and shall be redirected into the wastewater collection system. The CONTRACTOR will return flow to the sewer and will remove all temporary equipment after the work is completed. The CONTRACTOR

will enclose the pumped storm water in an enclosed hose or pipe that is adequately protected from traffic and shall be redirected into the stormwater system. The CONTRACTOR shall return flow to the stormwater mains and all temporary equipment removed after the work is completed.

3. The CONTRACTOR will provide an experienced bypass/diversion pump maintenance operator/mechanic and/or deputy on site continuously to monitor the operation of the entire bypass/diversion system when pumps are operating. The operator/mechanic shall comprehensively, methodically and continuously:

   a. Adjust pump speed as appropriate so as not to adversely impact upstream or downstream flow condition levels

   b. Check that the effectiveness and security of bulkheads, dams, diaphragms, plugs, valves, weirs and all other flow control devices are working effectively and according to plan.

   c. Check the integrity of hoses and couplings along the entire bypass/diversion system.

   d. Monitor lubrication levels and top off as necessary

   e. Facilitate minor repairs as required

   f. Report to CITY on problems arising.

4. The CONTRACTOR shall plan and execute sewer flow control, bypass and diversion pumping operations. The CONTRACTOR shall be entirely liable for damages to private or public property that may result from his/her operations and for all cleanup, disinfection, damages, and resultant fines in the event of spillage, flooding or overflow.

5. The CONTRACTOR shall immediately stop the overflow and take action to clean up and disinfect the spillage in the event of accidental overflow or spillage. The CONTRACTOR shall notify the CITY immediately and in any event not less than twenty-four (24) hours following the occurrence.

   The CONTRACTOR is deemed to be entirely responsible should fines be subsequently imposed as a direct result of the overflow or spillage and the CONTRACTOR shall pay such fines as are imposed by the authorities. The CITY shall pay no fine(s) where it is shown the CONTRACTOR was entirely responsible for any overflow or spillage.

6. The CONTRACTOR shall complete work as efficiently as possible without interruption once by-pass pumping is underway at any given site.

7. The CONTRACTOR will ensure the level of noise emitted from pumps is within local regulations/ordinance parameters.

R. Work Integration

1. Hours of Operation: The CONTRACTOR will conduct all work during CITY acceptable work hours (typically 7:30 a.m. to 6:00 p.m.), Monday through Friday with the exception of CITY-observed events or holidays, unless circumstances prevent such scheduling. Such circumstances may include, but are not limited to, structures with high peak flows, significant negative impact on business or schools or excessive pedestrian and vehicular traffic flow if structure is located in vehicular or pedestrian thoroughfare. In such circumstances, "off hours" work will be required. This work may include late night and/or early morning hours and weekends. Such scheduling shall be agreed upon by both the CONTRACTOR and the CITY prior to the start of work. CONTRACTOR overtime and other CONTRACTOR-related costs shall be borne by the CONTRACTOR.
2. Work Coordination: The CONTRACTOR shall coordinate all work between a single point of contact for the CONTRACTOR and the CITY designated project manager. The CONTRACTOR will conduct discussion of structure conditions before work starts and final payment based on conditions agreed to at time of commencement of work or in subsequently approved change orders.
3. The CONTRACTOR will notify the CITY a minimum of seventy-two (72) hours prior to the commencement of work in order for CITY personnel to be available for onsite activities.

S. Work Product Submittals

1. Bypass Pumping: The CONTRACTOR will provide submittals for the by-pass pumping plan and those plans approved no less than two weeks prior to execution of the work. The CONTRACTOR will not mobilize prior to approval of the pumping plan.
2. Videotaping: CONTRACTOR will submit one copy of each of two video inspections; one prior to the start of work and one after CIPP lining is completed for each project. The video shall be of *high visual quality with complete and clear annotation on screen* to trace the route of camera travel and accurately determine the pipe condition in compatibility with the route and inspection information in the condition assessment log.

T. Site Restoration

The CONTRACTOR shall restore the work site(s) on a daily basis where practical. The CONTRACTOR will clear all obstructions from roadways, sidewalks, bike paths and other public thoroughfares daily, to the largest extent possible. The CONTRACTOR will not create a public nuisance during restoration activities. The CONTRACTOR will complete all restoration activities within a minimum of fourteen (14) calendar days of work being

finished in a work area. Site restoration is ancillary item for the CIPP reconstruction and shall be included in the LF cost.

U. Ordering and Payment

1. Work will be ordered by the City through delivery of a work order request e-mail that includes a due date for the work order proposal to be submitted, a brief description of the work to be done and an aerial map with a schematic detail of the pipe system. The work order request will include a request for a fee and a time for completion. The City's work order request to the Contractor is based on an annual prioritized list of projects or a request from the Field Operations staff. It may or may not include the need for special conditions such as a compressed timeframe for response and the work schedule based upon the urgency/conditions such as an impending or partial road collapse. Acceptance of the work order proposal shall be documented by issuance of a City Purchase Order. Work shall not commence until issuance of an electronic Notice to Proceed (i.e., an email) for the work order.

2. The CONTRACTOR will submit monthly invoices to the CITY inspector for review and agreement prior to submitting to the CITY project manager for final acceptance and processing of payment.

V. Mobilization Mobilization charges shall include movement of equipment and material to and from the site and other costs not included as a separate line item to commence work on a work authorization.

W. Line Reconstruction

1. **Sanitary:** Includes open cut and installation of SDR-26 PVC Sanitary Sewer. Furnished and Installed. Open cut and Construct Sanitary Sewer line includes all labor, materials, and equipment necessary for dewatering, excavation, sheeting, shoring bracing installation of SDR26 PVC sanitary sewer, rigid fernco connections or manhole boots as required, pipeline identification and warning tape, disposal of excess material and old pipe, suitable backfill, replacement of existing improvements, pavement repair, testing, sodding and cleanup**.**

2. **Sanitary:** Incudes open cut installation of C900 Sanitary sewer. Furnished and Installed. Open cut and Construct Sanitary Sewer line includes all labor, materials, and equipment necessary for dewatering, excavation, sheeting, shoring bracing installation of C900 sanitary sewer, rigid fernco connections or manhole boots as required, pipeline identification and warning tape, disposal of excess material and old pipe, suitable backfill, replacement of existing improvements such as connections, testing, sodding and cleanup**.**

3. **Stormwater:** Incudes open cut installation of RCP stormwater pipeline. Furnished and Installed. Open cut and Construct stormwater line, includes all labor, materials, and equipment necessary for dewatering, excavation, sheeting, shoring, bracing installation of RCP stormwater pipeline identification and warning tape, disposal of excess material and old pipe, suitable backfill, replacement of existing improvements such as connections, testing, sodding, pavement repair, brick and mortar installation and any connection to a structure and cleanup**. FDOT** Concrete collars are required on RCP to connect pipe and incidental to installation of the stormwater PVC line.

4. **Stormwater:** Incudes open cut installation of HDPE stormwater pipeline. Furnished and Installed. Open cut and Construct stormwater line includes all labor, materials, and equipment necessary for dewatering, excavation, sheeting, shoring, bracing installation of HDPE stormwater pipeline identification and warning tape, disposal of excess material and old pipe, suitable backfill, replacement of existing improvements such as connections, testing, sodding, pavement repair, brick and mortar installation and any connection to a structure and cleanup**.** HDPE collars are incidental to installation of the stormwater HDPE line.

X. Grout Fill Abandoned Lines Grout fill will be required where the City determines it best to replace the entire line in a different alignment. The unit price will be paid by the cubic yard. Payment will be for the furnishing and placement of the grout mixture and will include all necessary excavation, connections, restoration and all other accommodations to properly perform the work.

Y. Manhole Cleaning the CONTRACTOR will remove all dirt, debris, roots and other solid and liquid materials from the sections of stormwater or sewer manhole being cleaned to the extent that closed circuit television inspection can be performed.

	CIPP REHABILITATION - SANITARY SEWER MAINS				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
A	**8" diameter**				
A-1	6.0 mm normal thickness (.236”)	5,000	LF	$	$
A-2	7.5 mm normal thickness (.295”)	5,000	LF	$	$
A-3	9.0 mm normal thickness (.354”)	10,000	LF	$	$
				TOTAL "A"	$
B	**10" diameter**				
B-1	6.0 mm normal thickness (.236”)	400	LF	$	$
B-2	7.5 mm normal thickness (.295”)	400	LF	$	$
B-3	9.0 mm normal thickness (.354”)	400	LF	$	$
				TOTAL "B"	$
C	**12" diameter**				
C-1	6.0 mm normal thickness (.236”)	400	LF	$	$
C-2	7.5 mm normal thickness (.295”)	400	LF	$	$
C-3	9.0 mm normal thickness (.354”)	600	LF	$	$
				TOTAL "C"	$
D	**15" diameter**				
D-1	6.0 mm normal thickness (.236”)	400	LF	$	$
D-2	7.5 mm normal thickness (.295”)	400	LF	$	$
D-3	9.0 mm normal thickness (.354”)	600	LF	$	$
				TOTAL "D"	$
E	**18" diameter**				
E-1	6.0 mm normal thickness (.236”)	300	LF	$	$
E-2	7.5 mm normal thickness (.0295”)	300	LF	$	$
E-3	9.0 mm normal thickness (.354”)	300	LF	$	$
E-4	10.5 mm normal thickness (.413”)	200	LF	$	$
				TOTAL "E"	$
F	**21" diameter**				
F-1	6.0 mm normal thickness (.236”)	300	LF	$	$
F-2	7.5 mm normal thickness (.295”)	300	LF	$	$
F-3	9.0 mm normal thickness (.354”)	300	LF	$	$
F-4	10.5 mm normal thickness (.413”)	300	LF	$	$
F-5	12.0 mm normal thickness (.472”)	200	LF	$	$
F-6	Charge for each 1.5 mm thickness increase per LF exceeding 12.0 mm	100	LF	$	$
				TOTAL "F"	$

	CIPP REHABILITATION - SANITARY SEWER MAINS				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
G	**24" diameter**				
G-1	9.0 mm normal thickness (.354”)	300	LF	$	$
G-2	10.5 mm normal thickness (.413”)	300	LF	$	$
G-3	12.0 mm normal thickness (.472”)	300	LF	$	$
G-4	13.5 mm normal thickness (.531”)	300	LF	$	$
G-5	15.0 mm normal thickness (.591”)	200	LF	$	$
G-6	Charge for each 1.5 mm thickness increase per LF exceeding 15.0 mm	100	LF	$	$
				TOTAL "G"	$
H	**27" diameter**				
H-1	9.0 mm normal thickness (.354”)	100	LF	$	$
H-2	10.5 mm normal thickness (.413”)	100	LF	$	$
H-3	12.0 mm normal thickness(.472”)	100	LF	$	$
H-4	13.5 mm normal thickness (.531”)	50	LF	$	$
H-5	15.0 mm normal thickness (.591”)	50	LF	$	$
H-6	Charge for each 1.5 mm thickness increase per LF exceeding 15.0 mm	100	LF	$	$
				TOTAL "H"	$
I	**30" diameter**				
I-1	9.0 mm normal thickness (.354”)	100	LF	$	$
I-2	10.5 mm normal thickness (.413”)	100	LF	$	$
I-3	12.0 mm normal thickness (.472”)	100	LF	$	$
I-4	13.5 mm normal thickness (.531”)	100	LF	$	$
I-5	15.0 mm normal thickness (.591”)	100	LF	$	$
I-6	Charge for each 1.5 mm thickness increase per LF exceeding 15.0 mm	100	LF	$	$
				TOTAL "I"	$
J	**36" diameter**				
J-1	10.5 mm normal thickness (.413”)	100	LF	$	$
J-2	12.0 mm normal thickness (.472”)	100	LF	$	$
J-3	13.5 mm normal thickness (.531”)	100	LF	$	$
J-4	15.0 mm normal thickness (.591”)	100	LF	$	$
J-5	16.5 mm normal thickness (.650”)	100	LF	$	$
J-6	18.0 mm normal thickness (.709”)	100	LF	$	$
J-7	Charge for each 1.5 mm thickness increase per LF exceeding 18.0 mm	100	LF	$	$
				TOTAL "J"	$

	CIPP REHABILITATION - SANITARY SEWER MAINS				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
K	**42" diameter**				
K-1	10.5 mm normal thickness (.413")	100	LF	$	$
K-2	12.0 mm normal thickness (.472")	100	LF	$	$
K-3	13.5 mm normal thickness (.531")	100	LF	$	$
K-4	15.0 mm normal thickness (.591")	100	LF	$	$
K-5	16.5 mm normal thickness (.650")	50	LF	$	$
K-6	18.0 mm normal thickness (.709")	50	LF	$	$
K-7	Charge for each 1.5 mm thickness increase per LF exceeding 18.0 mm	100	LF	$	$
				TOTAL "K"	$
	TOTAL "A" THRU "K"				$
	CLEAN & INSPECTION - SANITARY SEWER MAINS				
L	**Light Cleaning and Inspection**				
L-1	8" – 12" diameter	6,000	LF	$	$
L-2	14" – 18" diameter	6,000	LF	$	$
L-3	20" – 24" diameter	6,000	LF	$	$
L-4	27" – 42" diameter	6,000	LF	$	$
L-5	48" – 72" diameter	6,000	LF	$	$
				TOTAL "L"	$
M	**Medium Cleaning**				
M-1	8" – 12" diameter	6,000	LF	$	$
M-2	14" – 18" diameter	6,000	LF	$	$
M-3	20" – 24" diameter	6,000	LF	$	$
M-4	27" – 42" diameter	6,000	LF	$	$
M-5	48" – 72" diameter	6,000	LF	$	$
				TOTAL "M"	$
N	**Heavy Cleaning**				
N-1	8" – 12" diameter	6,000	LF	$	$
N-2	14" – 18" diameter	6,000	LF	$	$
N-3	20" – 24" diameter	6,000	LF	$	$
N-4	27" – 42" diameter	6,000	LF	$	$
N-5	48" – 72" diameter	6,000	LF	$	$
		6,000	LF	$	$
				TOTAL "N"	$
O	**Root Removal**				
O-1	8" – 12" diameter	6,000	LF	$	$
O-2	14" – 18" diameter	6,000	LF	$	$
O-3	20" – 24" diameter	6,000	LF	$	$
O-4	27" – 42" diameter	6,000	LF	$	$
O-5	48" – 72" diameter	6,000	LF	$	$
				TOTAL "O"	$

	CLEAN & INSPECTION - SANITARY SEWER MAINS				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
P	**Tuberculation Cleaning**				
P-1	8" – 12" diameter	6,000	LF	$	$
P-2	14" – 18" diameter	6,000	LF	$	$
P-3	20" – 24" diameter	6,000	LF	$	$
P-4	27" – 42" diameter	6,000	LF	$	$
P-5	48" – 72" diameter	6,000	LF	$	$
				TOTAL "P"	$
	TOTAL "L" THRU "P"				$
	LATERAL CIPP LINING-TOP HAT/FULL WRAP - UP TO 36"				
Q					
Q-1	Four (4) inch lateral connection	20	EA	$	$
Q-2	Six (6) inch lateral connection	20	EA	$	$
Q-3	Eight (8) inch lateral connection	20	EA	$	$
Q-4	Lateral lining 0 to 30'	100	LF	$	$
Q-1	Additional Lateral Lining > 30'	100	LF	$	$
Q-2	Lateral Cutout	20	EA	$	$
Q-3	Lateral Grout	20	EA	$	$
	TOTAL "Q"				$
	MANHOLE/LIFT STATION REFURBISHMENT				
R					
R-1	Interior Manhole Application (Precast)	2,000	SF	$	$
R-2	Interior Manhole Application (Brick)	2,000	SF	$	$
R-3	Interior Lift Station Application (Precast)	2,000	SF	$	$
R-4	Interior Lift Station Application (Brick)	2,000	SF	$	$
R-5	Bench/Invert Repair	2,000	EA	$	$
	TOTAL "R"				$

	CLEANOUT INSTALLATION				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
S					
S-1	Four (4) inch cleanout	20	EA	$	$
S-2	Six (6) inch cleanout	20	EA	$	$
S-3	Eight (8) inch cleanout	20	EA	$	$
	TOTAL "S"				$
	LINE RECONSTRUCTION SDR 26 LESS THAN 10' DEPTH				
T					
T-1	15”	100	LF	$	$
T-2	18”	100	LF	$	$
T-3	24”	100	LF	$	$
T-4	30”	100	LF	$	$
T-5	36”	100	LF	$	$
T-6	42”	100	LF	$	$
T-7	48”	100	LF	$	$
T-8	54”	100	LF	$	$
T-9	60"	100	LF	$	$
T-10	66”	50	LF	$	$
T-11	72”	50	LF	$	$
	TOTAL "T"				$
	LINE RECONSTRUCTION C900 GREATER THAN 10' DEPTH				
U					
U-1	15”	100	LF	$	$
U-2	18”	100	LF	$	$
U-3	24”	100	LF	$	$
U-4	30”	100	LF	$	$
U-5	36”	100	LF	$	$
U-6	42”	100	LF	$	$
U-7	48”	100	LF	$	$
U-8	54”	100	LF	$	$
U-9	60”	100	LF	$	$
U-10	66”	50	LF	$	$
U-11	72”	50	LF	$	$
	TOTAL "U"				$

	MANHOLE CLEANING				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
V					
V-1	Manhole cleaning	2,000	SF	$	$
	TOTAL "V"				$
	CIPP REHABILITATION - STORMWATER MAINS				
W	**8" diameter**				
W-1	6.0 mm normal thickness (.236")	500	LF	$	$
				TOTAL "W"	$
X	**10" diameter**				
X-1	6.0 mm normal thickness (.236")	400	LF	$	$
X-2	7.5 mm normal thickness (.295")	400	LF	$	$
				TOTAL "X"	$
Y	**12" diameter**				
Y-1	6.0 mm normal thickness (.236")	750	LF	$	$
Y-2	7.5 mm normal thickness (.295")	750	LF	$	$
				TOTAL "Y"	$
Z	**15" diameter**				
Z-1	6.0 mm normal thickness (.236")	1,000	LF	$	$
Z-2	7.5 mm normal thickness (.295")	1,500	LF	$	$
Z-3	9.0 mm normal thickness (.354")	1,000	LF	$	$
Z-4	Charge for each 1.5 mm thickness increase per LF exceeding 9.0 mm	100	LF	$	$
				TOTAL "Z"	$
AA	**18" diameter**				
AA-1	6.0 mm normal thickness (.236")	1,250	LF	$	$
AA-2	7.5 mm normal thickness (.295")	1,250	LF	$	$
AA-3	9.0 mm normal thickness (.354")	1,250	LF	$	$
AA-4	10.5 mm normal thickness (.413")	1,250	LF	$	$
AA-5	Charge for each 1.5 mm thickness increase per LF exceeding10.5 mm	100	LF	$	$
				TOTAL "AA"	$
BB	**21" diameter**				
BB-1	6.0 mm normal thickness (.236")	220	LF	$	$
BB-2	7.5 mm normal thickness (.295")	220	LF	$	$
BB-3	9.0 mm normal thickness (.354")	220	LF	$	$
BB-4	10.5 mm normal thickness (.413")	220	LF	$	$
BB-5	12.0 mm normal thickness (.472")	200	LF	$	$
BB-6	Charge for each 1.5 mm thickness increase per LF exceeding 12.0 mm	100	LF	$	$
				TOTAL "BB"	$

	CIPP REHABILITATION - STORMWATER MAINS				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
CC	**24" diameter**				
CC-1	9.0 mm normal thickness (.354”)	700	LF	$	$
CC-2	10.5 mm normal thickness (.413”)	700	LF	$	$
CC-3	12.0 mm normal thickness (.472”)	700	LF	$	$
CC-4	13.5 mm normal thickness (.531”)	700	LF	$	$
CC-5	15.0 mm normal thickness (.591”)	700	LF	$	$
CC-6	Charge for each 1.5 mm thickness increase per LF exceeding 15.0 mm	100	LF	$	$
				TOTAL "CC"	$
DD	**27" diameter**				
DD-1	9.0 mm normal thickness (.354”)	220	LF	$	$
DD-2	10.5 mm normal thickness (.413”)	220	LF	$	$
DD-3	12.0 mm normal thickness (.472”)	220	LF	$	$
DD-4	13.5 mm normal thickness (.531”)	220	LF	$	$
DD-5	15.0 mm normal thickness (.591”)	220	LF	$	$
DD-6	Charge for each 1.5 mm thickness increase per LF exceeding 15.0 mm	100	LF	$	$
				TOTAL "DD"	$
EE	**30" diameter**				
EE-1	9.0 mm normal thickness (.354”)	600	LF	$	$
EE-2	10.5 mm normal thickness (.413”)	600	LF	$	$
EE-3	12.0 mm normal thickness (.472”)	600	LF	$	$
EE-4	13.5 mm normal thickness (.531”)	600	LF	$	$
EE-5	15.0 mm normal thickness (.591”)	600	LF	$	$
EE-6	Charge for each 1.5 mm thickness increase per LF exceeding 15.0 mm	100	LF	$	$
				TOTAL "EE"	$
FF	**36" diameter**				
FF-1	10.5 mm normal thickness (.413”)	500	LF	$	$
FF-2	12.0 mm normal thickness (.472”)	500	LF	$	$
FF-3	13.5 mm normal thickness (.531”)	500	LF	$	$
FF-4	15.0 mm normal thickness (.591”)	500	LF	$	$
FF-5	16.5 mm normal thickness (.650”)	250	LF	$	$
FF-6	18.0 mm normal thickness (.709”)	250	LF	$	$
FF-7	Charge for each 1.5 mm thickness increase per LF exceeding 18.0 mm	100	LF	$	$
				TOTAL "FF"	$

	CIPP REHABILITATION - STORMWATER MAINS				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
GG	**42" diameter**				
GG-1	10.5 mm normal thickness (.413”)	250	LF	$	$
GG-2	12.0 mm normal thickness (.472”)	250	LF	$	$
GG-3	13.5 mm normal thickness (.531”)	250	LF	$	$
GG-4	15.0 mm normal thickness (.591”)	250	LF	$	$
GG-5	16.5 mm normal thickness (.650”)	250	LF	$	$
GG-6	18.0 mm normal thickness (.709”)	250	LF	$	$
GG-7	Charge for each 1.5 mm thickness increase per LF exceeding 18.0 mm	100	LF	$	$
				TOTAL "GG"	$
HH	**48" diameter**				
HH-1	12.0 mm normal thickness (.472”)	200	LF	$	$
HH-2	13.5 mm normal thickness (.531”)	200	LF	$	$
HH-3	15.0 mm normal thickness (.591”)	200	LF	$	$
HH-4	16.5 mm normal thickness (.650”)	200	LF	$	$
HH-5	18.0 mm normal thickness (.709”)	200	LF	$	$
HH-6	19.5 mm normal thickness (.768”)	100	LF	$	$
HH-7	21.0 mm normal thickness (.827”)	100	LF	$	$
HH-8	Charge for each 1.5 mm thickness increase per LF exceeding 21.0 mm	100	LF	$	$
				TOTAL "HH"	$
II	**52" diameter**				
II-1	10.5 mm normal thickness (.413”)	25	LF	$	$
II-2	12.0 mm normal thickness (.472”)	25	LF	$	$
II-3	13.5 mm normal thickness (.531”)	25	LF	$	$
II-4	15.0 mm normal thickness (.591”)	25	LF	$	$
II-5	16.5 mm normal thickness (.650”)	25	LF	$	$
II-6	18.0 mm normal thickness (.709”)	25	LF	$	$
II-7	19.5 mm normal thickness (.768”)	25	LF	$	$
II-8	21.0 mm normal thickness (.827”)	25	LF	$	$
II-9	22.5 mm normal thickness (.886”)	100	LF	$	$
II-10	Charge for each 1.5 mm thickness increase per LF exceeding 22.5 mm	100	LF	$	$
				TOTAL "II"	$

	CIPP REHABILITATION - STORMWATER MAINS				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
JJ	**54" diameter**				
JJ-1	10.5 mm normal thickness (.413”)	25	LF	$	$
JJ-2	12.0 mm normal thickness (.472”)	25	LF	$	$
JJ-3	13.5 mm normal thickness (.531”)	25	LF	$	$
JJ-4	15.0 mm normal thickness (.591”)	25	LF	$	$
JJ-5	16.5 mm normal thickness (.650”)	25	LF	$	$
JJ-6	18.0 mm normal thickness (.709”)	25	LF	$	$
JJ-7	19.5 mm normal thickness (.768”)	25	LF	$	$
JJ-8	21.0 mm normal thickness (.827”)	25	LF	$	$
JJ-9	22.5 mm normal thickness (.886”)	100	LF	$	$
JJ-10	Charge for each 1.5 mm thickness increase per LF exceeding 22.5 mm	100	LF	$	$
				TOTAL "JJ"	$
KK	**60" diameter**				
KK-1	10.5 mm normal thickness (.413”)	25	LF	$	$
KK-2	12.0 mm normal thickness (.472”)	25	LF	$	$
KK-3	13.5 mm normal thickness (.531”)	25	LF	$	$
KK-4	15.0 mm normal thickness (.591”)	25	LF	$	$
KK-5	16.5 mm normal thickness (.650”)	25	LF	$	$
KK-6	18.0 mm normal thickness (.709”)	25	LF	$	$
KK-7	19.5 mm normal thickness (.768”)	25	LF	$	$
KK-8	21.0 mm normal thickness (.827”)	25	LF	$	$
KK-9	22.5 mm normal thickness (.886”)	100	LF	$	$
KK-10	Charge for each 1.5 mm thickness increase per LF exceeding 22.5 mm	100	LF	$	$
				TOTAL "KK"	$
LL	**72" diameter**				
LL-1	10.5 mm normal thickness (.413”)	25	LF	$	$
LL-2	12.0 mm normal thickness (.472”)	25	LF	$	$
LL-3	13.5 mm normal thickness (.531”)	25	LF	$	$
LL-4	15.0 mm normal thickness (.591”)	25	LF	$	$
LL-5	16.5 mm normal thickness (.650”)	25	LF	$	$
LL-6	18.0 mm normal thickness (.709”)	25	LF	$	$
LL-7	19.5 mm normal thickness (.768”)	25	LF	$	$
LL-8	21.0 mm normal thickness (.827”)	25	LF	$	$
LL-9	22.5 mm normal thickness (.886”)	100	LF	$	$
LL-10	Charge for each 1.5 mm thickness increase per LF exceeding 22.5 mm	100	LF	$	$
				TOTAL "LL"	$
	Total CIPP Rehabilitiation - Stormwater Mains ("W" THRU "LL")				$

	CLEAN & INSPECTION - STORMWATER MAINS				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
MM	**Light Cleaning and inspection**				
MM-1	8"- 12" diameter	6,000	LF	$	$
MM-2	14" - 18" diameter	6,000	LF	$	$
MM-3	20" - 24" diameter	6,000	LF	$	$
MM-4	27" - 42" diameter	6,000	LF	$	$
MM-5	48" - 72" diameter	6,000	LF	$	$
				TOTAL "MM"	$
NN	**Medium Cleaning**				
NN-1	8" - 12" diameter	6,000	LF	$	$
NN-2	14"- 18" diameter	6,000	LF	$	$
NN-3	20" - 24" diameter	6,000	LF	$	$
NN-4	27" - 42" diameter	6,000	LF	$	$
NN-5	48"- 72" diameter	6,000	LF	$	$
				TOTAL "NN"	$
OO	**Heavy Cleaning**				
OO-1	8" - 12" diameter	6,000	LF	$	$
OO-2	14" - 18" diameter	6,000	LF	$	$
OO-3	20" - 24" diameter	6,000	LF	$	$
OO-4	27"- 42" diameter	6,000	LF	$	$
OO-5	48"- 72" diameter	6,000	LF	$	$
				TOTAL "OO"	$
PP	**Root Removal**				
PP-1	8" - 12" diameter	6,000	LF	$	$
PP-2	14" - 18" diameter	6,000	LF	$	$
PP-3	20" - 24" diameter	6,000	LF	$	$
PP-4	27" - 42" diameter	6,000	LF	$	$
PP-5	48"- 72" diameter	6,000	LF	$	$
				TOTAL "PP"	$
QQ	**Tuberculation Cleaning**				
QQ-2	8" - 12" diameter	6,000	LF	$	$
QQ-2	14" - 18" diameter	6,000	LF	$	$
QQ-2	20" - 24" diameter	6,000	LF	$	$
QQ-2	27"- 42" diameter	6,000	LF	$	$
QQ-2	8" - 72" diameter	6,000	LF	$	$
				TOTAL "QQ"	$
	TOTAL "MM" THRU "QQ"				$

	ANCILLARY GENERAL SERVICES				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
RR	**By-Pass Pumping**				
RR-1	8" diameter	5	LS	$	$
RR-2	10" diameter	5	LS	$	$
RR-3	12" diameter	5	LS	$	$
RR-4	15" diameter	5	LS	$	$
RR-5	18" diameter	5	LS	$	$
RR-6	21" diameter	5	LS	$	$
RR-7	24" diameter	5	LS	$	$
RR-8	27" diameter	5	LS	$	$
RR-9	30" diameter	5	LS	$	$
RR-10	36" diameter	5	LS	$	$
				TOTAL "RR"	$
SS	**Standard Service Reconnection**	**25**	Each	$	$
				TOTAL "SS"	$
TT	**Service Connection Pressure Grouting**	**25**	Each	$	$
				TOTAL "TT"	$
UU	**Traffic Control - FDOT Right of Way**				
UU-1	Flagman	10	Setup	$	$
UU-2	Arrow Board	10	Setup	$	$
UU-3	Barricades	10	Setup	$	$
UU-4	Lane Dividers	10	Setup	$	$
				TOTAL "UU"	$
VV	**Traffic Control - City Right of Way**				
VV-1	Flagman	10	Setup	$	$
VV-2	Arrow Board	10	Setup	$	$
VV-3	Barricades	10	Setup	$	$
VV-4	Lane Dividers	10	Setup	$	$
				TOTAL "VV"	$
WW	**Traffic Control - County Right of Way**				
WW-1	Flagman	10	Setup	$	$
WW-2	Arrow Board	10	Setup	$	$
WW-3	Barricades	10	Setup	$	$
WW-4	Lane Dividers	10	Setup	$	$
				TOTAL "WW"	$

	ANCILLARY GENERAL SERVICES				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
XX	**Easement Access**				$
XX-1	6" to 12" diameter	100	LF	$	$
XX-2	14" to 18" diameter	100	LF	$	$
XX-3	20" to 24" diameter	100	LF	$	$
XX-4	27" to 30" diameter	100	LF	$	$
XX-5	36” to 42” diameter	100	LF	$	$
XX-6	48” to 54” diameter	100	LF	$	$
				TOTAL "XX"	$
YY	**Line Reconstruction (concrete collars are incidental) greater than 8’ depth and under roadways**				
YY-1	15” RCP	250	LF	$	$
YY-2	18” RCP	250	LF	$	$
YY-3	24” RCP	250	LF	$	$
YY-4	30” RCP	250	LF	$	$
YY-5	36 ‘RCP	250	LF	$	$
YY-6	48” RCP	250	LF	$	$
YY-7	54” RCP	250	LF	$	$
YY-8	60” RCP	250	LF	$	$
YY-9	72” RCP	500	LF	$	$
				TOTAL "YY"	$
ZZ	**HDPE Line Reconstruction less than 8’**				
ZZ-1	15” HDPE	250	LF	$	$
ZZ-2	18” HDPE	250	LF	$	$
ZZ-3	24” HDPE	250	LF	$	$
ZZ-4	30” HDPE	250	LF	$	$
ZZ-5	36” HDPE	250	LF	$	$
ZZ-6	42” HDPE	250	LF	$	$
ZZ-7	48” HDPE	250	LF	$	$
ZZ-8	54” HDPE	250	LF	$	$
ZZ-9	60” HDPE	250	LF	$	$
ZZ-10	70” HDPE	500	LF	$	$
				TOTAL "ZZ"	$
AAA	**Manhole Cleaning**	2,800	SF	$	$
				TOTAL "AAA"	$
BBB	**Grout fill abandoned pipe**	1,000	CY	$	$
				TOTAL "BBB"	$

	ANCILLARY GENERAL SERVICES				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
CCC	**Chemical and physical product testing**	10	EA	$	$
				TOTAL "CCC"	$
DDD	**Erosion and sediment control**	10	EA	$	$
				TOTAL "DDD"	$
EEE	**Mobilization**	20	Setup	$	$
				TOTAL "EEE"	$
FFF	**Bonds**	100,000	Percentage	%	$
				TOTAL "FFF"	$
	TOTAL "GG" THRU "FFF"				$
	TOTAL ESTIMATED BID AMOUNT				$

ANTI-COLLUSION STATEMENT

By signing this form, the Proposer agrees that this Proposal is made without any other understanding, agreement, or connection with any person, corporation, or firm submitting a Proposal for the same purpose and that the Proposal is in all respects fair and without collusion or fraud.

Sign in ink in the space provided below. Unsigned Proposals will be considered incomplete, and will be disqualified and rejected.

IT IS AGREED BY THE UNDERSIGNED PROPSER THAT THE SIGNING AND DELIVERY OF THE PROPSAL REPRESENTS THE PROPOSER'S ACCEPTANCE OF THE TERMS AND CONDITIONS OF THE FORGOING TERMS AND CONDITIONS AND SCOPE OF SERVICES, AND IF AWARDED, THIS CONTRACT WILL REPRESENT THE AGREEMENT BETWEEN THE PARTIES.

NAME OF FIRM:_____

SIGNATURE:_____
(MUST BE SIGNED BY A COMPANY OFFICER OR AUTHORIZED AGENT)

NAME TYPED: _____TITLE:_____

ADDRESS:_____

CITY AND STATE:_____

TELEPHONE:_____EMAIL: _____

DRUG FREE WORKPLACE FORM

The undersigned, in accordance with the Florida Statue 287.087 hereby certifies that _____ does:
(Proposer)

1. Publish a statement notifying that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violation of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, any Available drug counseling, rehabilitation, employee assistance programs and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under Proposal a copy of the statement specified in Paragraph 1.

4. In the statement specified in Paragraph 1, notify the employees that, as a condition of working on the commodities or contractual services that the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contender to any violation of Chapter 1893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is convicted.

6. Make a good faith effort to continue to maintain a drug free workplace through implementation of Paragraph 1, through Paragraph 5.

As the person authorized to sign this statement, I certify that this firm fully complies with the above requirements.

Date: _____ _____
Signature & Title

SWORN STATEMENT PURSUANT TO SECTION 287.133(3)(a), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to _____
(print name of the public entity)
by _____
(print individual's name and title)
for_____
(print name of entity submitting sworn statement)
whose business address is

_____

_____

and (if applicable) its Federal Employer Identification Number (FEIN) is _____

(If the entity has no FEIN, insert the Social Security Number of the individual signing this sworn statement above:

2. I understand that a "public entity crime" as defined in Paragraph 287.133(l)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any Proposal or CONTRACT for goods or services, any lease for real property, or any CONTRACT for the construction or repair of a public building or public work, involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

3. I understand that "convicted" or "conviction" as defined In Paragraph 287.133(l)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

4. I understand that an "affiliate" as defined in Paragraph 287.133(l)(a), Florida Statutes means:

   (a) A predecessor or successor of a person convicted of a public entity crime, or

SWORN STATEMENT PURSUANT TO SECTION 287.133(3)(a), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES, cont.

(b) An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, will be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months will be considered an affiliate.

5. I understand that a "person" as defined in Paragraph 287.133(l)(e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding CONTRACT and which bids or applies to Proposal on CONTRACTs for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

Based on Information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (*Indicate which statement applies.)*

_____ Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted VENDOR list *(attach a copy of the final order.)*

SWORN STATEMENT PURSUANT TO SECTION 287.133(3)(a), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES, cont.

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

_____
[Signature]

Sworn to and subscribed before me this _____ day of _____, 20____.

Personally known _____

OR Produced Identification _____ (Type of identification)

Notary Public - State of _____

By: _____

My commission expires _____

_____
(Printed typed or stamped
commissioned name of Notary Public)

Form PUR 7068 (Rev. 06/18/92)

LOCAL VENDOR AFFIDAVIT

Complete and submit this form ONLY if you qualify for local preference as provided in the City of Daytona Beach Purchasing Code.

A copy of the Proposer's Daytona Beach Business Tax Receipt must be submitted with this Affidavit.

NAME OF PROPOSER: _____

LOCAL BUSINESS ADDRESS *(street address being used to claim Local Preference, including. zip code):*

_____

The undersigned certifies under penalty of perjury each of the following:

The Local Business Address has continuously been used as a Permanent Place of Business with at least one full-time employee since _____.
(Insert date)

The Local Business Address has consistently offered or provided the goods or services being solicited by the City of Daytona Beach during the time referenced above.

The Local Business Address has not been established with the sole purpose of obtaining the advantages that may be granted pursuant to the Local Preference provisions of the City of Daytona Beach Purchasing Code.

_____
Signature *(Must be same person as person signing the Proposal*

_____
Print Name/Title

Subscribed and sworn to before me

This _____ day of _____ 20_____

_____
(Signature of Notary Public)
My commission expires: _____

The City of Daytona Beach reserves authority to require a copy of the corporate charter, corporate income tax filing return, and any other documents(s) to evaluate the Proposer's Local Preference claim.

GENERAL SERVICES CONTRACT
CONTRACT NO. 0118-2600

THE PARTIES TO THIS CONTRACT are the City of Daytona Beach, a Florida municipal corporation (the "City"), and ***[insert full legal name of Contractor, include state where formed if Contractor is anything other than an individual person]*** ("Contractor").

In consideration of the mutual covenants herein contained, the Parties agree as follows:

Section 1. Scope of Services. Contractor will provide Cured in Place Pipe Lining and associated services as further described in Exhibit A, attached hereto and incorporated herein, to the City from time to time at the direction of the City during the Term of this Contract.

Section 2. *Reserved.*

Section 3. Fee(s).

For the services provided under this Contract, CITY will pay CONTRACTOR Fees based upon the Fee/ Rate Schedule attached hereto as Exhibit B

Unless the Exhibits specifically provides for reimbursement of expenses, the Fees described herein will be CONTRACTOR's sole compensation for the services to be provided. If the Exhibits specifically provide for reimbursement of expenses, such expenses must be commercially reasonable. Except for any reimbursable expenses specifically authorized by Exhibit, CONTRACTOR will be solely responsible for all of costs CONTRACTOR incurs in meeting its obligations herein.

Section 4. Billing; Manner of Payment. In addition to requirements for payment established by applicable federal, state, or local law including the City Code, payment terms are as follows:

(a) Unless provided otherwise herein, the City will pay 30 days after receipt of a valid invoice or receipt of goods or services, whichever is later.

(b) In order to be considered to be valid, an invoice must include all information that the City needs to verify the accuracy of the invoice and the amount of payment due based on the specific requirements of this Contract, such as where partial payments are due upon completion of specific tasks, or where payments are based on hourly rates. In addition, where payment of reimbursable expenses is specifically provided for, an invoice for such expenses will not be valid unless sufficient documentation is provided to verify that such expenses were incurred and that other conditions have been met.

(c) If an invoice submitted by Contractor is not valid, within 30 days after receipt the City will provide notice to the Contractor identifying the deficiencies.

Section 5. Standard of Performance. Contractor's services will at a minimum meet the level care and skill ordinarily used by members of Contractor's profession performing the type of services provided herein within the State of Florida.

Section 6. Relationship between Parties. This Contract does not create an employee-employer relationship between the City and Contractor. Contractor is an independent contractor of the City and will be in control of the means and the method in which the requested work is performed. As an independent contractor, Contractor will be solely responsible for payment of all federal, state and local income tax, and self-employment taxes, arising from this Contract; and Contractor agrees to indemnify and hold harmless the City from any obligations relating to such taxes. The City will not make deductions from payments due, for such taxes, or for social security, unemployment insurance, worker's compensation, or other employment or payroll taxes.

Section 7. Documents and Records.

(a) All reports, estimates, logs, original drawings, and other materials furnished, prepared or executed by Contractor during the term of and in accordance with the provisions of this Contract will be the property of the City and delivered to the City upon demand or, if no demand has previously been made, upon completion of the particular task for which such materials were prepared, executed, or otherwise required.

(b) To the extent applicable, Contractor will comply with the requirements of Florida Statutes Section 119.0701, which may include the following:

(1) Keeping and maintaining public records that ordinarily and necessarily would be required by the public agency in order to perform the service provided herein.

(2) Providing the public with access to public records on the same terms and conditions that the City would provide the records and at a cost that does not exceed the cost provided in Ch. 119, Florida Statutes, or as otherwise provided by law.

(3) Ensuring that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law.

(4) Meeting all requirements for retaining public records and transfer, at no cost, to the City all public records in possession of Contractor upon termination of this Contract for any reason, and destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. When such records are stored electronically, providing the City all records stored electronically in a format that is compatible with the City's information technology systems.

Section 8. Effective Date and Term. The Effective Date of this Contract is the date on which the last Party signs it. The Term of this Contract is one year, commencing on the Effective Date. The City will have the option to renew this Contract for up to 4 Terms of one-year each, by providing Contractor written notice at least 60 days before the end of the current Term.

If this Contract specifically provides that some or all of Contractor's services will be required only after issuance of a City work authorization, any work authorizations previously issued by the City will remain in effect after the expiration of this Contract unless the City terminates this Contract dues to Contractor's material breach after notifying Contractor to suspend such services as provided below.

Section 9. Termination.

(a) The City may by written notice to Contractor terminate this Contract, in whole or in part, at any time, either for the City's convenience or because of the failure of the Contractor to fulfill its contractual obligations.

(1) Before terminating for convenience, City must provide Contractor at least 30 day's advance notice of termination. This Contract will terminate automatically and without need for further notice upon the expiration of the notice period.

(2) Before terminating due to Contractor's material breach of its contractual obligations, City must provide Contractor prior written notice, specifying the breach and demanding Contractor remedy the breach within 10 days of the notice, or within such longer period as may be reasonably required if the nature of the breach is that it cannot be remedied within 10 days of notice. This Contract will terminate automatically and without need for further notice if Contractor fails to remedy the material breach within the period described in the City's notice of breach.

In either instance described above, upon termination Contractor will immediately discontinue all services affected, unless the notice directs otherwise, and deliver to the City all data, drawings, specifications, reports, estimates, summaries, and any and all such other information and services of whatever type or nature as may have been accumulated by Contractor in performing this Contract, whether completed or in process.

(b) If the termination is for convenience, Contractor will be paid compensation for authorized services performed to the date of termination. If termination is due to Contractor's material breach, the City reserves all rights and remedies it may have under law due to such breach. Among other things, the City may take over the work and prosecute the same to completion by other agreements or otherwise; and in such case, the Contractor will be liable to the City for all reasonable additional costs occasioned to the City thereby.

(c) If after notice of termination for the Contractor's failure to fulfill contractual obligations it is judicially determined by a court of law that the Contractor had not so failed,

the termination will be conclusively deemed to have been effected for the City's convenience. In such event, adjustment in payment to Contractor will be made as provided in subsection (b) of this Section for a termination for convenience.

(d) The rights and remedies of City provided for in this Section are in addition and supplemental to any and all other rights and remedies provided by law or under this Contract.

Section 10. Suspension of Services. If the notice of material breach issued by the City pursuant to the preceding Section so directs, Contractor will suspend services immediately upon receipt thereof, other than the work required to remedy the material breach.

Section 11. Indemnification. Contractor will indemnify and hold harmless the City, including the City's officers, employees, and agents, from liabilities, damages, losses, and costs, including, but not limited to, reasonable attorneys' fees, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of Contractor, or Contractor's officers, employees, or agents, including subcontractors and other persons employed or use by Contractor in the performance of this Contract. This indemnification agreement is separate and apart from, and in no way limited by, any insurance provided pursuant to this agreement or otherwise.

Section 12. Insurance. Contractor will provide and maintain at Contractor's own expense, insurance of the kinds of coverage and in the amounts set forth in this Section. All such insurance will be primary and non-contributory with the City's own insurance. In the event any request for the performance of services presents exposures to the City not covered by the requirements set forth below, the City reserves the right to add insurance requirements that will cover such an exposure.

(a) Coverage and Amounts.

(1) Workers Compensation Insurance as required by Florida Statutes, Chapter 440, Workers' Compensation Insurance, for all employees of Contractor, employed at the site of the service or in any way connected with the work, which is the subject of this service. The insurance required by this provision will comply fully with the Florida Workers' Compensation Law and include Employers' Liability Insurance with limits of not less than $500,000 per occurrence. Any associated or subsidiary company involved in the service must be named in the Workers' Compensation coverage. If Contractor wishes to claim an exemption from worker's compensation insurance requirements, Contractor will notify the Risk Manager in writing on Contractor's official letterhead.

(**2) Liability Insurance**, including (i) **Commercial general liability coverage** for operations, independent contractors, products-completed operations, broad form property damage, and personal injury on an "occurrence" basis insuring Contractor and any other interests, including but not limited to any associated or subsidiary companies

involved in the work; and (ii) **Automobile Liability Insurance**, which will insure claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle used by the Contractor in the performance of this Contract.

THE COMMERCIAL GENERAL LIABILITY INSURANCE POLICY WILL NAME THE City AS AN ADDITIONAL INSURED. Contractor's Commercial General Liability insurance policy shall provide coverage to Contractor, and City when required to be named as an additional insured either by endorsement or pursuant to a blanket additional insured endorsement, for those sources of liability which would be covered by the latest edition of the standard Commercial General Liability Coverage Form (ISO Form CG 00 01) without the attachment of any endorsements excluding or limiting coverage for Products/Completed Operations, Independent Contractors, Property of City in Contractor's Care, Custody or Control or Property of City on which contracted operations are being performed, Explosion, Collapse or Underground hazards (XCU Coverage, Contractual Liability or Separation of Insureds. When City is added as additional insured by endorsement, ISO Endorsements CG 20 10 and CG 20 37 or their equivalent shall be used to provide such Additional Insured status.

Unless specifically waived hereafter in writing by the Risk Manager, Contractor agrees that the insurer shall waive its rights of subrogation, if any, against the City on each of the above listed insurance coverages.

(b) Proof of Insurance. Contractor will furnish proof of insurance acceptable to the City prior to or at the time of execution of this Contract. Contractor will not commence work until all proof of such insurance has been filed with and approved by the City. Contractor will furnish evidence of all required insurance in the form of certificates of insurance which will clearly outline all hazards covered as itemized above, the amounts of insurance applicable to each hazard, the expiration dates. The certificates will also contain the following language as to cancellation:

> "In the event of cancellation of this policy by the insurer or any insured, this Company will give not less than 30 days advance written notice to:
>
> Risk Manager
> The City of Daytona Beach
> P.O. Box 2451
> Daytona Beach, Florida 32115-2451"

If requested by the City, Contractor will furnish copies of the insurance contracts to support the certificates of insurance and the copies of said insurance must be acceptable to the City.

(c) Subcontractors' Insurance. Each of Contractor's subcontractors will be required to provide insurance in substantially similar form to the insurance required of CONTRACTOR above based on services provided.

(d) Cancellation; Replacement Required. Contractor will file replacement certificates 30 days prior to expiration or termination of the required insurance occurring prior to the acceptance of the work by the City. If a required policy is canceled without Contractor's prior knowledge Contractor will immediately notify the City immediately upon becoming aware that a required insurance coverage has been canceled for any reason, and promptly replace the canceled policy. The City expressly reserves the right or replace the canceled policy at Contractor's expense of Contractor fails to do so.

(d) Termination of Insurance. Contractor may not cancel the insurance required by this Contract until the work is completed, accepted by the City and Contractor has received written notification from the Risk Management Division of the City that Contractor may cancel the insurance required by this Contract and the date upon which the insurance may be canceled. The Risk Management Division of the City will provide such written notification at the request of Contractor if the request is made no earlier than two weeks before the work is to be completed.

(e) Liabilities Unaffected. Contractor's liabilities under this Contract will survive and not be terminated, reduced or otherwise limited by any expiration or termination of insurance coverages. Similarly, Contractor's liabilities under this Contract will not be limited to the extent of by the existence of any exclusions or limitations in insurance coverages, or by Contractor's failure to obtain insurance coverage.

Contractor will not be relieved from responsibility to provide required insurance by any failure of the City to demand such coverage, or by City's approval of a policy submitted by Contractor that does not meet the requirements of this Contract.

Section 13. Notice. Unless otherwise expressly agreed herein, all notices, requests, and demands to or upon the Parties will be delivered by hand, delivered by a courier service, provided to a nationally recognized delivery service for overnight delivery, ***[delete the following yellow-highlighted clause if no fax is provided]*** transmitted to a receiving fax machine followed by hard copy within two days, or by U.S. mail, postage prepaid by registered or certified mail, return receipt requested, to the addresses set forth herein:

To the City:
Kimberly Dixon, Engineer II
Daytona Beach Utilities
125 Basin St., Suite >
Daytona Beach, FL 32114
Fax: 386-671-5963

To Contractor:
_____
_____
_____
_____
Fax: _____

provided, however, that either Party may change the person or address designated for receipt of the Party's notices, by providing written notice to the other Party.

Section 14. Personnel. ***[Delete the following sentence if non-applicable]*** In order to induce the City into entering this Contract, Contractor represents that ***[insert name***

and title] will generally perform or directly supervise the tasks assigned to Contractor herein, and that Contractor will not replace ***[insert name]*** without the City's prior written approval. Contractor represents that Contractor has or will secure at Contractor's own expense, all personnel required in performing the services under this Contract. Such personnel will not be employees of or have any contractual relationship with the City.

All personnel engaged in the work will be fully qualified and will be authorized under state and local law to perform such services.

Section 15. City's Responsibilities. The City agrees to make available for review and use by the Contractor, reports, studies, and data relating to the services required. The City will establish a project manager to meet periodically with the Contractor to facilitate coordination and ensure expeditious review of work product.

Section 16. Limitation on Waivers. Neither the City's review, approval, or acceptance of, or payment for, any of the services provided by Contractor, will be construed to operate as a waiver of the City's rights under this Contract. Contractor will be and always remain liable to the City in accordance with applicable law for any and all damages to the City caused by the Contractor's negligent or wrongful provision of any of the services furnished under this Contract.

Failure of the City to exercise any right or option arising out of a breach of this Contract will not be deemed a waiver of any right or option with respect to any subsequent or different breach, or the continuance of any existing breach. Furthermore, the failure of the City at any time to insist upon strict performance of any condition, promise, agreement or understanding set forth herein will not be construed as a waiver or relinquishment of the City's right to insist upon strict performance of the same condition, promise, agreement or understanding at a future time.

Section 17. Dispute Resolution.

If a dispute exists concerning this Contract, the Parties agree to use the following procedure prior to pursuing any judicial remedies.

(a) Negotiations. A Party will request in writing that a meeting be held between representatives of each Party within 14 calendar days of the request or such later date that the Parties may agree to. Each Party will attend and will include, at a minimum, a senior level decision maker (an owner, officer, or employee of each organization) empowered to negotiate on behalf of their organization. The purpose of this meeting is to negotiate in the matters constituting the dispute in good faith. The Parties may mutually agree in writing to waive this step and proceed directly to mediation as described below.

(b) Non-Binding Mediation. Mediation is a forum in which an impartial person, the mediator, facilitates communication between parties to promote reconciliation, settlement, or understanding among them. Within 30 days after the procedure described in Subsection (a) proves unsuccessful or the Parties mutually waive the subsection (a)

procedure, the Parties will submit to a non-binding mediation. The mediation, at a minimum, will provide for (i) conducting an on-site investigation, if appropriate, by the mediator for fact gathering purposes, (ii) a meeting of all Parties for the exchange of points of view and (iii) separate meetings between the mediator and each Party to the dispute for the formulation of resolution alternatives. The Parties will select a mediator trained in mediation skills and certified to mediate by the Florida Bar, to assist with resolution of the dispute. The Parties will act in good faith in the selection of the mediator and give consideration to qualified individuals nominated to act as mediator. Nothing in this Contract prevents the Parties from relying on the skills of a person who also is trained in the subject matter of the dispute or a contract interpretation expert. Each Party will attend will include, at a minimum, a senior level decision maker (an owner, officer, or employee of each organization) empowered to negotiate on behalf of their organization.

If the Parties fail to reach a resolution of the dispute through mediation, then the Parties are released to pursue any judicial remedies available to them.

Section 18. General Terms and Conditions.

(a) Amendments. Except as otherwise provided herein, no change or modification of this Contract will be valid unless the same is in writing and signed by both Parties**.**

(b) Assignments and Subcontracting. No assignment or subcontracting will be permitted without the City's written approval.

(c) Compliance with Laws and Regulations. In providing all services pursuant to this Contract, Contractor will abide by all statutes, ordinances, rules, and regulations pertaining to, or regulating the provisions of, such services including those now in effect and hereafter adopted. Any violation of said statutes, ordinances, rules, or regulations will constitute a material breach of this Contract and will entitle the City to terminate this Contract immediately upon delivery of written notice of termination to the Contractor.

(d) Truth in Negotiations Certificate. Contractor hereby certifies that the wages and other factual unit costs supporting the compensation herein are accurate, complete, and current at the time of this Contract.

(e) No Third Party Beneficiaries. There are no third party beneficiaries of Contractor's services under this Contract.

(f) Contingency Fee. Contractor warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for Contractor, to solicit or secure this Contract and that it has not paid or agreed to pay any person, company, corporation, individual or firm, other than a bona fide employee working solely for Contractor, any fee, commission, percentage, gift, or any other consideration, contingent upon or resulting from the award or making of this Contract.

(g) Nondiscrimination. Contractor will not discriminate against any employee or applicant for employment because of race, color, sex, or national origin. Contractor will take affirmative action to ensure that applicants are employed and the employees are treated during employment without regard to their sex, race, creed, color, or national origin. Further, Contractor agrees to comply with all local, state, and federal laws and ordinances regarding discrimination in employment against any individual on the basis of race, color, religion, sex, national origin, physical or mental impairment, or age. In particular, Contractor agrees to comply with the provisions of Title 7 of the Civil Rights Act of 1964, as amended, and applicable executive orders including, but not limited to, Executive Order No. 11246.

(h) Principles in Construing Contract. This Contract will be governed by and construed in accordance with the laws of the State of Florida. Captions and paragraph headings used herein are for convenience only, are not a part of this Contract and will not be deemed to limit or alter any provisions hereof or to be relevant in construing this Contract. The use of any gender herein will be deemed to be or include the other genders, and the use of the singular herein will be deemed to be or include the plural (and vice versa), wherever appropriate. If any word, phrase, clause, sentence or provision of the Contract, or the application of same to any person or set of circumstances is for any reason held to be unconstitutional, invalid or unenforceable, that finding will only effect such word, phrase, clause, sentence or provision, and such finding will not affect the remaining portions of this Contract; this being the intent of the Parties in entering into the Contract; and all provisions of the Contract are declared to be severable for this purpose.

(i) Venue. The exclusive venue for any litigation arising out of this Contract will be Volusia County, Florida if in state court, or the U.S. District Court, Middle District of Florida if in federal court.

(j) Litigation Costs. Except where specifically provided herein, in case of litigation between the Parties concerning this Contract, each party will bear all of its litigation costs, including attorney's fees.

(k) Force Majeure. A force majeure event is an act of God or of the public enemy, riots, civil commotion, war, acts of government or government immobility (whether federal, state, or local) fire, flood, epidemic, quarantine restriction, strike, freight embargo, or unusually severe weather; provided, however, that no event or occurrence will be deemed to be a force majeure event unless the failure to perform is beyond the control and without any fault or negligence of the Party charged with performing or that Party's officers, employees, or agents. Whenever this Contract imposes a deadline for performing upon a Party, the deadline will be extended by one day for each day that a Force Majeure event prevents the Party from performing; provided, however, that the Party charged with performing and claiming delay due to a Force Majeure event will promptly notify the other Party of the Event and will use its best efforts to minimize any resulting delay.

(l) Jury Trial Waived. THE PARTIES HEREBY WAIVE THEIR RESPECTIVE RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF THIS CONTRACT, OR ANY DEALINGS BETWEEN THE PARTIES. THE SCOPE OF THIS WAIVER IS INTENDED TO BE ALL ENCOMPASSING OF ANY DISPUTES BETWEEN THE PARTIES THAT MAY BE FILED IN ANY COURT AND THAT RELATE TO THE SUBJECT MATTER, INCLUDING WITHOUT LIMITATION, CONTRACT CLAIMS, TORT CLAIMS, BREACH OF DUTY CLAIMS AND ALL OTHER COMMON LAW AND STATUTORY CLAIMS.

(m) Authority to Bind Contractor. The undersigned representative of Contractor represents and warrants the he or she is fully authorized to bind Contractor to the terms and conditions of this Contract.

(n) Incorporation of RFP and Proposal. The City's Request for Proposals 0118-2600, and the Contractor's responsive proposal are incorporated herein by reference as Composite Exhibit C and will remain on file in the Office of the Purchasing Agent. In case of conflicts between the RFP and Proposal, the RFP will govern. In case of conflicts between Composite Exhibit C and other provisions of this Contract, including Exhibits A and B, this Contract will govern.

(o) Integration. This Contract represents the entire agreement of the parties with respect to the subject matter hereof. No representations, warranties, inducements or oral agreements have been made by either Party except as expressly set forth herein, or in other contemporaneous written agreements.

IN WITNESS WHEREOF, the Parties through their undersigned representatives have caused this Contract to be executed in duplicate original.

THE CITY

By: _____
Derrick L. Henry, Mayor

Date: _____

CONTRACTOR

By: _____
Printed Name: _____
Title: _____
Date: _____

Attest: _____
Letitia LaMagna, City Clerk

Approved as to legal form:

By: _____
Robert Jagger, City Attorney

EXHIBIT A: Scope of Services

EXHIBIT B

COMPOSITE EXHIBIT C
is incorporated by reference and will remain on file in the Office of the Purchasing Agent

THE CITY OF DAYTONA BEACH
OFFICE OF THE PURCHASING AGENT

Post Office Box 2451
Daytona Beach, Florida 32115-2451

Phone (386) 671-8080
Fax (386) 671-8085

** Notice of Intent to Award **

Date: **December 12, 2018**
Subject RFP: **0118-2600**
2018 Cured In Place Pipe Rehabilitation Services Term Contract
Contractor: **Insutuform Technologies, LLC**

City Contact: **Eric Smith**
Commission Meeting: **1/9/2019**

The Daytona Beach City Commission will consider award of the subject contract at their regular meeting on listed above to:

Recommended Vendor: **Insituform Technologies, LLC**
17988 Edison Ave
Chesterfield, MO 63005

The referenced contract has been successfully negotiated.

The recommended Contractor listed above will:

1. Print one *single-sided* copy of the contract, complete the Notice information in Section 13, sign it, email it to the sender, and send the original to Joanne Flick, Purchasing Agent, Daytona Beach Purchasing Division, PO Box 2451, Daytona Beach, FL 32115-2451.

2. Email a copy of insurance certificate(s) evidencing the required coverage at the contractual limits to Joanne Flick (purchasing@codb.us). Risk Management will review the certificate to ensure it is compliant with the contract and you will be advised of any discrepancies.

3. Upon award by the commission, a copy of the fully executed will be provided for your records.

4. Also, please send a copy of your W-9 to (purchasing@codb.us) if this is your first contract award by the City.

Should you have any questions regarding this notice please contact us at 386-671-8080. The City appreciates the time and effort of all parties responding to this solicitation.

Remember to register with the City of Daytona Beach at
www.vendorregistry.com to be notified of
future bid opportunities with the City.

GENERAL SERVICES CONTRACT
CONTRACT NO. 0118-2600

THE PARTIES TO THIS CONTRACT are the City of Daytona Beach, a Florida municipal corporation (the "City"), and Insituform Technologies, LLC, a foreign limited liability company ("Contractor").

In consideration of the mutual covenants herein contained, the Parties agree as follows:

Section 1. Scope of Services. Contractor will provide Cured in Place Pipe Lining and associated services as further described in **Exhibit A**, attached hereto and incorporated herein, to the City from time to time at the direction of the City during the Term of this Contract.

Section 2. Services Must Be Authorized in Writing. This Contract, in and of itself, does not require the Contractor to perform any services or obligate the City to pay for any services rendered. No services will be provided under this Contract, and no payment obligation will arise for performance of services, except when specifically authorized by work authorization issued in accordance with the City's procurement policies. A work authorization may consist of a contract document signed by both the City and Contractor; or it may consist of Contractor's written quotation/proposal, identifying the work to be performed and the Fees for such work as established below; and the City's purchase order issued in response to and accepting the proposal. No work authorization may alter the terms and conditions of this Contract. In case of a conflict with a work authorization this Contract will govern. The work authorization may provide more detailed parameters for the services to be provided, such as deliverables, deadlines, and required conditions for payment of Fees, consistent with the provisions of this Contract.

Section 3. Fee(s). For the services provided under this Contract, City will pay Contractor Fees based upon the Fee/Rate Schedule attached hereto as **Exhibit B**.

The Fees described in **Exhibit B** will be Contractor's sole compensation for the services to be provided. Except for any reimbursable expenses specifically authorized by Exhibit, Contractor will be solely responsible for all of costs Contractor incurs in meeting its obligations herein.

Section 4. Billing; Manner of Payment. In addition to requirements for payment established by applicable federal, state, or local law including the City Code, payment terms are as follows:

(a) Unless provided otherwise herein, the City will pay 30 days after receipt of a valid invoice or receipt of goods or services, whichever is later.

(b) In order to be considered to be valid, an invoice must include all information that the City needs to verify the accuracy of the invoice and the amount of payment due based on the specific requirements of this Contract, such as where partial payments are due upon completion of specific tasks, or where payments are based on hourly rates. In

addition, where payment of reimbursable expenses is specifically provided for, an invoice for such expenses will not be valid unless sufficient documentation is provided to verify that such expenses were incurred and that other conditions have been met. In addition, where any portion of the work was performed by subcontractors, Contractor must provide proof of payment/release of subcontractors' liens except as provided in Section 12A.

(c) If an invoice submitted by Contractor is not valid, within 30 days after receipt the City will provide notice to the Contractor identifying the deficiencies.

Section 5. Standard of Performance. Contractor's services will at a minimum meet the level care and skill ordinarily used by members of Contractor's profession performing the type of services provided herein within the State of Florida.

Section 6. Relationship between Parties. This Contract does not create an employee-employer relationship between the City and Contractor. Contractor is an independent contractor of the City and will be in control of the means and the method in which the requested work is performed. As an independent contractor, Contractor will be solely responsible for payment of all federal, state and local income tax, and self-employment taxes, arising from this Contract; and Contractor agrees to indemnify and hold harmless the City from any obligations relating to such taxes. The City will not make deductions from payments due, for such taxes, or for social security, unemployment insurance, worker's compensation, or other employment or payroll taxes.

Section 7. Documents and Records.

(a) All reports, estimates, logs, original drawings, and other materials furnished, prepared or executed by Contractor during the term of and in accordance with the provisions of this Contract will be the property of the City and delivered to the City upon demand or, if no demand has previously been made, upon completion of the particular task for which such materials were prepared, executed, or otherwise required.

(b) To the extent applicable, Contractor will comply with the requirements of Florida Statutes Chapter 119, which may include the following:

(1) Keeping and maintaining public records that ordinarily and necessarily would be required by the public agency in order to perform the service provided herein.

(2) Upon the request of the City Clerk of the City (i) providing the City Clerk with a copy of requested public records, or (ii) allowing inspection or copying of public records, within a reasonable tim after receipt of the City Clerk's request, at a cost that does not exceed the cost provided in Ch. 119, Florida Statutes, or as otherwise provided by law.

(3) Ensuring that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by

law until completion of the work required by a work authorization, and following such completion if Contractor fails to transfer such records to the City.

(4) Upon completion of the work required by a work authorization, keep and maintain public records required by the City to perform the service. Contractor will meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City upon the request of the City Clerk, in a format that is compatible with the City's information technology systems.

IF CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTRACTOR MUST CONTACT THE CITY CLERK, WHOSE CONTACT INFORMATION IS AS FOLLOWS:

(Phone)	386 671-8023
(Email)	clerk@codb.us
(Address)	301 S. Ridgewood Avenue Daytona Beach, FL 32114

Section 8. Effective Date and Term. The Effective Date of this Contract is the date on which the last Party signs it. The Term of this Contract is one year, commencing on the Effective Date. The City will have the option to renew this Contract for up to 4 Terms of one-year each, by providing Contractor written notice. Such notice must be provided at least 60 days before the end of the current Term unless waive by Contractor.

If this Contract specifically provides that some or all of Contractor's services will be required only after issuance of a City work authorization, any work authorizations previously issued by the City will remain in effect after the expiration of this Contract unless the City terminates this Contract dues to Contractor's material breach after notifying Contractor to suspend such services as provided below.

Section 9. Termination.

(a) The City may by written notice to Contractor terminate this Contract, in whole or in part, at any time, either for the City's convenience or because of the failure of the Contractor to fulfill its contractual obligations.

(1) Before terminating for convenience, City must provide Contractor at least 30 day's advance notice of termination. This Contract will terminate automatically and without need for further notice upon the expiration of the notice period.

(2) Except as provided in Section 10(a)(3), before terminating due to Contractor's material breach of its contractual obligations, City must provide Contractor prior written notice, specifying the breach and demanding Contractor remedy the breach

within 10 days of the notice, or within such longer period as may be reasonably required if the nature of the breach is that it cannot be remedied within 10 days of notice. This Contract will terminate automatically and without need for further notice if Contractor fails to remedy the material breach within the period described in the City's notice of breach.

(3) The City may terminate this Contract upon Contractor's breach without providing Contractor an opportunity to remedy the breach as referenced immediately above, if Contractor or any of Contractor's personnel, in connection with the services or rights provided herein, commit a criminal act or engage in activity that poses a material risk of injury to persons or damage to property. Such termination will be effective immediately upon providing Contractor written notice.

(b) If the termination is for convenience, Contractor will be paid compensation for authorized services performed to the date of termination. If termination is due to Contractor's material breach, the City reserves all rights and remedies it may have under law due to such breach. Among other things, the City may take over the work and prosecute the same to completion by other agreements or otherwise; and in such case, the Contractor will be liable to the City for all reasonable additional costs occasioned to the City thereby.

(c) If after notice of termination for the Contractor's failure to fulfill contractual obligations it is judicially determined by a court of law that the Contractor had not so failed, the termination will be conclusively deemed to have been effected for the City's convenience. In such event, adjustment in payment to Contractor will be made as provided in subsection (b) of this Section for a termination for convenience.

(d) The rights and remedies of City provided for in this Section are in addition and supplemental to any and all other rights and remedies provided by law or under this Contract.

Section 10. Suspension of Services. The City may suspend Contractor's services if the notice of material breach provided pursuant to Section 10(a)(2) so directs. The City may also suspend Contractor's services in lieu of termination, under the conditions set forth in Section 10(a)(3), by providing Contractor written notice of suspension. Contractor will suspend activities immediately upon receipt thereof; and in such instance Contractor's rights to provide services referenced herein will also automatically be suspended for the period of such suspension.

Section 11. Indemnification. Contractor will indemnify and hold harmless the City, including the City's officers, employees, and agents, from liabilities, damages, losses, and costs, including, but not limited to, reasonable attorneys' fees, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of Contractor, or Contractor's officers, employees, or agents, including subcontractors and other persons employed or use by Contractor in the performance of this Contract. This indemnification agreement is separate and apart from, and in no way limited by, any insurance provided pursuant to this agreement or otherwise.

Section 12. Insurance. Contractor will provide and maintain at Contractor's own expense, insurance of the kinds of coverage and in the amounts set forth in this Section. All such insurance will be primary and non-contributory with the City's own insurance. In the event any request for the performance of services presents exposures to the City not covered by the requirements set forth below, the City reserves the right to add insurance requirements that will cover such an exposure.

(a) Coverage and Amounts.

(1) Workers Compensation Insurance as required by Florida Statutes, Chapter 440, Workers' Compensation Insurance, for all employees of Contractor, employed at the site of the service or in any way connected with the work, which is the subject of this service. The insurance required by this provision will comply fully with the Florida Workers' Compensation Law and include Employers' Liability Insurance with limits of not less than $500,000 per occurrence. Any associated or subsidiary company involved in the service must be named in the Workers' Compensation coverage. If Contractor wishes to claim an exemption from worker's compensation insurance requirements, Contractor will notify the Risk Manager in writing on Contractor's official letterhead.

(2) Liability Insurance, including (i) **Commercial general liability coverage** for operations, independent contractors, products-completed operations, broad form property damage, and personal injury on an "occurrence" basis insuring Contractor and any other interests, including but not limited to any associated or subsidiary companies involved in the work; and (ii) **Automobile Liability Insurance**, which will insure claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle used by the Contractor in the performance of this Contract.

THE COMMERCIAL GENERAL LIABILITY INSURANCE POLICY WILL NAME THE CITY AS AN ADDITIONAL INSURED. Contractor's Commercial General Liability insurance policy shall provide coverage to Contractor, and City when required to be named as an additional insured either by endorsement or pursuant to a blanket additional insured endorsement, for those sources of liability which would be covered by the latest edition of the standard Commercial General Liability Coverage Form (ISO Form CG 00 01) without the attachment of any endorsements excluding or limiting coverage for Products/Completed Operations, Independent Contractors, Property of City in Contractor's Care, Custody or Control or Property of City on which contracted operations are being performed, Explosion, Collapse or Underground hazards (XCU Coverage, Contractual Liability or Separation of Insureds). When City is added as additional insured by endorsement, ISO Endorsements CG 20 10 and CG 20 37 or their equivalent shall be used to provide such Additional Insured status.

The limit of liability for each policy will be a combined single limit for bodily injury and property damage of no less than $1,000,000 per occurrence. If insurance is provided

with a general aggregate, then the aggregate will be in an amount of no less than $2,000,000. The Risk Manager may authorize lower liability limits for the automobile policy only, at the Risk Manager's sole discretion.

Unless specifically waived hereafter in writing by the Risk Manager, Contractor agrees that the insurer shall waive its rights of subrogation, if any, against the City on each of the above listed insurance coverages.

(b) Proof of Insurance. Contractor will furnish proof of insurance acceptable to the City prior to or at the time of execution of this Contract. Contractor will not commence work until all proof of such insurance has been filed with and approved by the City. Contractor will furnish evidence of all required insurance in the form of certificates of insurance which will clearly outline all hazards covered as itemized above, the amounts of insurance applicable to each hazard, the expiration dates. The certificates will also contain the following language as to cancellation:

> "In the event of cancellation of this policy by the insurer or any insured, this Company will give not less than 30 days advance written notice to:
>
> Risk Manager
> The City of Daytona Beach
> P.O. Box 2451
> Daytona Beach, Florida 32115-2451"

If requested by the City, Contractor will furnish copies of the insurance contracts to support the certificates of insurance and the copies of said insurance must be acceptable to the City.

(c) Subcontractors' Insurance. Each of Contractor's subcontractors will be required to provide insurance in substantially similar form to the insurance required of Contractor above based on services provided.

(d) Cancellation; Replacement Required. Contractor will file replacement certificates 30 days prior to expiration or termination of the required insurance occurring prior to the acceptance of the work by the City. If a required policy is canceled without Contractor's prior knowledge Contractor will immediately notify the City immediately upon becoming aware that a required insurance coverage has been canceled for any reason, and promptly replace the canceled policy. The City expressly reserves the right or replace the canceled policy at Contractor's expense of Contractor fails to do so.

(e) Termination of Insurance. Contractor may not cancel the insurance required by this Contract until the work is completed, accepted by the City and Contractor has received written notification from the Risk Management Division of the City that Contractor may cancel the insurance required by this Contract and the date upon which the insurance may be canceled. The Risk Management Division of the City will provide such written notification at the request of Contractor if the request is made no earlier than two weeks before the work is to be completed.

(f) Liabilities Unaffected. Contractor's liabilities under this Contract will survive and not be terminated, reduced or otherwise limited by any expiration or termination of insurance coverages. Similarly, Contractor's liabilities under this Contract will not be limited to the extent of by the existence of any exclusions or limitations in insurance coverages, or by Contractor's failure to obtain insurance coverage.

Contractor will not be relieved from responsibility to provide required insurance by any failure of the City to demand such coverage, or by City's approval of a policy submitted by Contractor that does not meet the requirements of this Contract.

Section 12A. Bonds. Contractor will be required to provide payment and performance bonds on a per project basis, which will each be equal to 100% of the value of any Work Authorization issued exceeding $100,000.00 prior to commencing the referenced work.

The surety company executing the bonds must be authorized to do business in the State of Florida and must be listed by the United States Treasury Department as being approved for writing bonds for federal projects on its current list in an amount not less than the required bond amount. The form of the bond must be approved by the City and must be accompanied by sufficient evidence of the authority of the issuing agent. The bonds must otherwise comply with the requirements of F.S. § 255.05.

In lieu of the required bonds, Contractor may provide an alternative form of security as specified in F.S. § 255.05(7) upon the City's approval. Any bonds used to comply with this Section must be in the form provided by the City; and Contractor must record the executed bonds and provide the City certified copies of the recorded documents before commencing work. Upon Contractor's (i) execution and recordation of payment and performance bonds complying with the foregoing provisions; and (ii) furnishing to the City a certified copy of the recorded bonds, proof of payment of Contractor's subcontractors and suppliers will not be required as a condition of making a required payment to Contractor; and to the extent that the General Conditions provide otherwise the General Conditions are superseded.

Section 13. Notice. Unless otherwise expressly agreed herein, all notices, requests, and demands to or upon the Parties will be delivered by hand, delivered by a courier service, provided to a nationally recognized delivery service for overnight delivery, transmitted to a receiving fax machine followed by hard copy within two days, or by U.S. mail, postage prepaid by registered or certified mail, return receipt requested, to the addresses set forth herein:

To the City:
Eric Smith, Engineer II
Daytona Beach Utilities
125 Basin St., Suite 100
Daytona Beach, FL 32114
Fax: 386-671-8502

To Contractor:
Insituform Technologies, LLC
Attn: Diane Partridge, Contracting and Attesting Officer
17988 Edison Avenue
Chesterfield, MO 63005
Fax: (636) 530-8701

provided, however, that either Party may change the person or address designated for receipt of the Party's notices, by providing written notice to the other Party.

Section 14. Personnel. In order to induce the City into entering this Contract, Contractor represents that Brandt Curvel, Project Manager; Al Yeomans, General Superintendent; and Jason Burnell, Field Superintendent will generally perform or directly supervise the tasks assigned to Contractor herein, and that Contractor will not replace the named individuals without the City's prior written approval. Contractor represents that Contractor has or will secure at Contractor's own expense, all personnel required in performing the services under this Contract. Such personnel will not be employees of or have any contractual relationship with the City.

All personnel engaged in the work will be fully qualified and will be authorized under state and local law to perform such services.

Section 15. City's Responsibilities. The City agrees to make available for review and use by the Contractor, reports, studies, and data relating to the services required. The City will establish a project manager to meet periodically with the Contractor to facilitate coordination and ensure expeditious review of work product.

Section 16. Limitation on Waivers. Neither the City's review, approval, or acceptance of, or payment for, any of the services provided by Contractor, will be construed to operate as a waiver of the City's rights under this Contract. Contractor will be and always remain liable to the City in accordance with applicable law for any and all damages to the City caused by the Contractor's negligent or wrongful provision of any of the services furnished under this Contract.

Failure of the City to exercise any right or option arising out of a breach of this Contract will not be deemed a waiver of any right or option with respect to any subsequent or different breach, or the continuance of any existing breach. Furthermore, the failure of the City at any time to insist upon strict performance of any condition, promise, agreement or understanding set forth herein will not be construed as a waiver or relinquishment of the City's right to insist upon strict performance of the same condition, promise, agreement or understanding at a future time.

Section 17. Dispute Resolution.

If a dispute exists concerning this Contract, the Parties agree to use the following procedure prior to pursuing any judicial remedies.

(a) Negotiations. A Party will request in writing that a meeting be held between representatives of each Party within 14 calendar days of the request or such later date that the Parties may agree to. Each Party will attend and will include, at a minimum, a senior level decision maker (an owner, officer, or employee of each organization) empowered to negotiate on behalf of their organization. The purpose of this meeting is to negotiate in the matters constituting the dispute in good faith. The Parties may mutually agree in writing to waive this step and proceed directly to mediation as described below.

(b) Non-Binding Mediation. Mediation is a forum in which an impartial person, the mediator, facilitates communication between parties to promote reconciliation, settlement, or understanding among them. Within 30 days after the procedure described in Subsection (a) proves unsuccessful or the Parties mutually waive the subsection (a) procedure, the Parties will submit to a non-binding mediation. The mediation, at a minimum, will provide for (i) conducting an on-site investigation, if appropriate, by the mediator for fact gathering purposes, (ii) a meeting of all Parties for the exchange of points of view and (iii) separate meetings between the mediator and each Party to the dispute for the formulation of resolution alternatives. The Parties will select a mediator trained in mediation skills and certified to mediate by the Florida Bar, to assist with resolution of the dispute. The Parties will act in good faith in the selection of the mediator and give consideration to qualified individuals nominated to act as mediator. Nothing in this Contract prevents the Parties from relying on the skills of a person who also is trained in the subject matter of the dispute or a contract interpretation expert. Each Party will attend and will include, at a minimum, a senior level decision maker (an owner, officer, or employee of each organization) empowered to negotiate on behalf of their organization.

If the Parties fail to reach a resolution of the dispute through mediation, then the Parties are released to pursue any judicial remedies available to them.

Section 18. General Terms and Conditions.

(a) Amendments. Except as otherwise provided herein, no change or modification of this Contract will be valid unless the same is in writing and signed by both Parties.

(b) Assignments and Subcontracting. No assignment or subcontracting will be permitted without the City's written approval.

(c) Compliance with Laws and Regulations. In providing all services pursuant to this Contract, Contractor will abide by all federal, state, and local statutes, ordinances, rules, and regulations pertaining to, or regulating the provisions of, such services including those now in effect and hereafter adopted; including, but not limited to, Occupational Safety and Health Administration's (OSHA) Excavation Safety Standard, 29 C.F.R.s 1926.650 Sub Part P, and the Trench Safety Act, Florida Statutes Section 553.60 *et seq*.

For purposes herein, the aforementioned laws and regulations include the current stormwater permit issued to the City pursuant to the National Pollutant Discharge Elimination System (NPDES) program, a copy of which will be made available upon request.

Any violation of said statutes, ordinances, rules, or regulations will constitute a material breach of this Contract and will entitle the City to terminate this Contract immediately upon delivery of written notice of termination to the Contractor.

(d) Truth in Negotiations Certificate. Contractor hereby certifies that the wages and other factual unit costs supporting the compensation herein are accurate, complete, and current at the time of this Contract.

(e) No Third Party Beneficiaries. There are no third party beneficiaries of Contractor's services under this Contract.

(f) Contingency Fee. Contractor warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for Contractor, to solicit or secure this Contract and that it has not paid or agreed to pay any person, company, corporation, individual or firm, other than a bona fide employee working solely for Contractor, any fee, commission, percentage, gift, or any other consideration, contingent upon or resulting from the award or making of this Contract.

(g) Nondiscrimination. Contractor will not discriminate against any employee or applicant for employment because of race, color, sex, or national origin. Contractor will take affirmative action to ensure that applicants are employed and the employees are treated during employment without regard to their sex, race, creed, color, or national origin. Further, Contractor agrees to comply with all local, state, and federal laws and ordinances regarding discrimination in employment against any individual on the basis of race, color, religion, sex, national origin, physical or mental impairment, or age. In particular, Contractor agrees to comply with the provisions of Title 7 of the Civil Rights Act of 1964, as amended, and applicable executive orders including, but not limited to, Executive Order No. 11246.

(h) Principles in Construing Contract. This Contract will be governed by and construed in accordance with the laws of the State of Florida. Captions and paragraph headings used herein are for convenience only, are not a part of this Contract and will not be deemed to limit or alter any provisions hereof or to be relevant in construing this Contract. The use of any gender herein will be deemed to be or include the other genders, and the use of the singular herein will be deemed to be or include the plural (and vice versa), wherever appropriate. If any word, phrase, clause, sentence or provision of the Contract, or the application of same to any person or set of circumstances is for any reason held to be unconstitutional, invalid or unenforceable, that finding will only effect such word, phrase, clause, sentence or provision, and such finding will not affect the remaining portions of this Contract; this being the intent of the Parties in entering into the Contract; and all provisions of the Contract are declared to be severable for this purpose.

(i) Venue. The exclusive venue for any litigation arising out of this Contract will be Volusia County, Florida if in state court, or the U.S. District Court, Middle District of Florida if in federal court.

(j) Litigation Costs. Except where specifically provided herein, in case of litigation between the Parties concerning this Contract, each party will bear all of its litigation costs, including attorney's fees.

(k) Force Majeure. A force majeure event is an act of God or of the public enemy, riots, civil commotion, war, acts of government or government immobility (whether federal, state, or local) fire, flood, epidemic, quarantine restriction, strike, freight embargo, or unusually severe weather; provided, however, that no event or occurrence will be deemed to be a force majeure event unless the failure to perform is beyond the control and without any fault or negligence of the Party charged with performing or that Party's officers, employees, or agents. Whenever this Contract imposes a deadline for performing upon a Party, the deadline will be extended by one day for each day that a Force Majeure event prevents the Party from performing; provided, however, that the Party charged with performing and claiming delay due to a Force Majeure event will promptly notify the other Party of the Event and will use its best efforts to minimize any resulting delay.

(l) Jury Trial Waived. THE PARTIES HEREBY WAIVE THEIR RESPECTIVE RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF THIS CONTRACT, OR ANY DEALINGS BETWEEN THE PARTIES. THE SCOPE OF THIS WAIVER IS INTENDED TO BE ALL ENCOMPASSING OF ANY DISPUTES BETWEEN THE PARTIES THAT MAY BE FILED IN ANY COURT AND THAT RELATE TO THE SUBJECT MATTER, INCLUDING WITHOUT LIMITATION, CONTRACT CLAIMS, TORT CLAIMS, BREACH OF DUTY CLAIMS AND ALL OTHER COMMON LAW AND STATUTORY CLAIMS.

(m) Authority to Bind Contractor. The undersigned representative of Contractor represents and warrants the he or she is fully authorized to bind Contractor to the terms and conditions of this Contract.

(n) Incorporation of RFP and Proposal. The City's Request for Proposals 0118-2600, and the Contractor's responsive proposal are incorporated herein by reference as **Composite Exhibit C** and will remain on file in the Office of the Purchasing Agent. In case of conflicts between the RFP and Proposal, the RFP will govern. In case of conflicts between **Composite Exhibit C** and other provisions of this Contract, including **Exhibits A** and **B**, this Contract will govern.

(o) Integration. This Contract represents the entire agreement of the parties with respect to the subject matter hereof. No representations, warranties, inducements or oral agreements have been made by either Party except as expressly set forth herein, or in other contemporaneous written agreements.

IN WITNESS WHEREOF, the Parties through their undersigned representatives have caused this Contract to be executed in duplicate original.

THE CITY

By: _____
Derrick L. Henry, Mayor

Date: 9/19/19

Attest: _____
Letitia LaMagna, City Clerk

Approved as to legal form:

By: _____
Robert Jagger, City Attorney

CONTRACTOR

By: _____
Printed Name: Diane Partridge
Title: Contracting and Attesting Officer
Date: January 3, 2019

INSITUFORM TECHNOLOGIES, LLC

PRESIDENT APPOINTMENT OF
CONTRACTING AND ATTESTING OFFICERS

The undersigned, being the President of Insituform Technologies, LLC, a Delaware Limited Liability Company (the "Company"), and pursuant to the authority set forth in the Limited Liability Company Operating Agreement of the Company, hereby determines that:

1. Christlanda Adkins, Laura M. Andreski, Janet Hass, Jana Lause, Diane Partridge, Whittney Schulte, and Ursula Youngblood are appointed as Contracting and Attesting Officers of the Company, each with the authority, individually and in the absence of the others, subject to the control of the Board of Managers of the Company, to: (i) certify and attest to the signature of any officer of the Company; (ii) enter into and bind the Company to perform pipeline rehabilitation activities of the Company and all matters related thereto, including the maintenance of one or more offices and facilities of the Company; (iii) execute and to deliver documents on behalf of the Company; and (iv) take such other action as is or may be necessary and appropriate to carry out the project, activities and work of the Company.

2. Any person previously appointed or serving as a Contracting and Attesting Officer of the Company prior to the date hereof and who is not named above is hereby removed from any such appointment.

Dated: December 1, 2018

Charles R. Gordon
President

EXHIBIT A
SCOPE OF WORK

I. General

The CITY requires professional Cured In Place Pipe (CIPP) rehabilitation services for sanitary sewer gravity mains and oval and round stormwater mains (8" – 72" diameter) on a continuing annual contract basis. Quantities listed are estimated for proposal purposes based on work projections and are subject to change. The term of the agreement will be for a period of one (1) year with an option to extend the agreement for four (4) additional one-year terms upon mutual agreement for the same prices and at the same terms and conditions. The contract shall not exceed five (5) years.

II. Summary of Work

The CONTRACTOR shall provide all work required for a completed project including but not necessarily limited to labor, supervision, traffic control, materials, equipment, installation, onsite material test samples showing compliance with manufacturer's recommended material, handling and incidentals required for the rehabilitation of various sized sanitary sewer gravity mains and oval and round stormwater mains with resin impregnated cured-in-place pipe (CIPP) in accordance with American Society for Testing and Materials (ASTM) ~~standard F 1216-09~~ Designation F1216-16 and all applicable CITY, manufacturer and industry preferred standards. The CONTRACTOR shall provide professional advice to CITY on the most cost-effective and efficient approach to resolve all challenges encountered during the performance of the work. Work assigned under this contract may include, but is not limited to, the following types of projects:

- Stormwater main and sanitary sewer main cleaning
- Stormwater main and sanitary sewer main pre- and post- work video inspections
- Easement access
- Maintenance of Traffic (MOT)
- Isolation and by-pass pumping
- Cured-In Place Pipe reconstruction
- Chemical and physical product testing
- Hydraulic capacity testing
- Reinstatement of services and pressure grouting
- Erosion and sediment control
- Site restoration

III. Product Performance

A. Lining

Standard lining products meeting product specifications outline in ASTM Designation: F1216-16 (Attachment A) are intended to have a 50-year design life and in order to minimize CITY's risk. Only proven products with substantial successful long-term track records will be approved. All thicknesses expressed on the Bid Item Schedule are the *finished thicknesses* of the liner after curing.

B. Equipment/Vehicles

All CONTRACTOR/sub-contractor equipment shall be sufficient in size and number for work to be performed in a timely manner under this contract. All CONTRACTOR/sub-contractor equipment shall be maintained in good operating condition. The CITY reserves the right to reject any equipment deemed unsafe or insufficient in size and/or number to perform work under this contract. It shall be the sole responsibility of the CONTRACTOR/sub-contractor to replace rejected equipment in a timely manner and at no cost to the CITY. All equipment shall be equipped at a minimum with manufacturer's recommended sound muffling devices that will reduce noise levels to the State or Federal acceptable limit for residential neighborhoods.

IV. Materials

A. All materials specified by name, brand or manufacturer shall be delivered to the job site in original containers. CONTRACTOR shall obtain printed instruction and special bulletins for the manufacturer-recommended safety precautions. CONTRACTOR/sub-contractor personnel will have copies of the manufacturer-recommended safety precautions available at the work site to ensure all work is performed in a safe manner.

B. The CONTRACTOR shall use potable water from the CITY for the project. The CONTRACTOR must obtain a construction hydrant water meter and all appropriate fees paid prior to the start of work. The CONTRACTOR will be responsible for paying for all potable water used at standard CITY rates.

VII. Contractor Responsibilities

A. Backflow Prevention: The CONTRACTOR will properly install an approved backflow prevention device in-line to the fresh water fill line of all jetting and/or vacuum equipment

B. Staffing: The CONTRACTOR shall employ adequate staff to perform the services required, including but not limited to Project Representative, Project Manager, Field Supervisor and Senior Foreman. CONTRACTOR shall provide staff who are proficient and experienced in all phases of services required.

C. Site Assessment: The CONTRACTOR shall visit each site to assess site conditions including confirmation of the actual footage, material type and diameters and incorporate those findings in their initial cost and work proposal.

D. Vehicle Identification: The CONTRACTOR shall ensure that employee's vehicles display company logo on the side doors and company phone numbers. The CONTRACTOR will not permit personal vehicles to be parked at the job site.

E. License and Confined Space: The CONTRACTOR shall be a licensed CONTRACTOR for the provision of these services in the State of Florida with full service

offices in the State of Florida for the provision these services.

F. **Cleaning of Stormwater Main and Sewer Lines**: The CONTRACTOR shall remove and properly dispose of all debris from the inside of manholes, stormwater mains and/or sewer lines and provide a sufficiently dry interior environment that will not interfere with the installation's expected working life of a durable CIPP liner per the manufacturer's requirements.

G. **Bypassing Stormwater and Sewage**: The CONTRACTOR shall provide for the flow of stormwater and sewage around the sections of pipe designated for reconstruction. The CONTRACTOR shall make the bypass by plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole by way of restrained watertight pipe. The CONTRACTOR will provide pump(s) and bypass lines of adequate capacity and size to handle the average daily flow. The CONTRACTOR'S backup bypass pump(s) will be adequately sized and with full operational capabilities and will be on site at all times of by-pass pumping. The CONTRACTOR shall be responsible for all traffic control during operations and bypass pumping.

H. **TV & Inspection of Pipelines**: The CONTRACTOR will inspect pipelines using experienced personnel trained in locating breaks, obstacles and service connections by closed circuit television. The CONTRACTOR will carefully inspect the interior of the pipeline to determine the location of any conditions which may prevent proper installation of CIPP into the pipeline; the CONTRACTOR will notify the City so that these conditions can be corrected. The CONTRACTOR shall review all questionable host pipe areas with the CITY and provide advice on remedies to correct them. The CONTRACTOR will maintain a video and suitable log for later reference by the CITY. The CONTRACTOR will perform the post-construction inspection and will provide a video DVD and log to the CITY. The CONTRACTOR will ensure that all video inspection are witnessed by a CITY representative as it is being performed. The CONTRACTOR will include the cost of video inspection in the contract line items.

I. **Manhole/Liner Interface**: The CONTRACTOR shall make a watertight seal at the interface where the liner/host pipe meets the manhole or other attachment point. The CONTRACTOR'S removal of CIPP liner from areas where line placement was elected in lieu of resetting equipment shall be incidental to the placement of the CIPP.

J. **Service Reconnection**: Service reconnection refers to the reinstatement of the house service connection at the sewer main after the installation of trenchless pipe reconnection system. The CONTRACTOR will accomplish this from within the sewer main via a remote controlled cutting device.

K. **Service with Pressure Grouting**: The CONTRACTOR will pressure grout the service wye after mainline has been rehabilitated and service line re-instated. The CONTRACTOR will use a non-shrinking chemical grout (Avanti 118/101 or Cues Quickseal 105 are acceptable). The CONTRACTOR shall provide trenchless reconstruction of service laterals and main line sewers. The CONTRACTOR shall perform services including but not limited to televised inspection, data collection, system flow analysis and pipeline reconstruction in accordance with ASTM Designation F2454-05, attached as Attachment B.

L. **Safety and Worksite Control**: The CONTRACTOR will provide services that include safety measures for both their workers and the public. The CONTRACTOR is completely responsible for the control of the environment of the work site during on-site operations including implementation, operation, maintenance and tear down of traffic control systems. The CONTRACTOR will take all precautions to protect the workers, public the CITY staff from the exposure to harmful or hazardous situations and substances within the stormwater and sewer systems.

M. **Waste Materials**: The CONTRACTOR will dispose all waste materials and shall transport waste materials to the nearest CITY Wastewater Treatment Plant for processing. The CONTRACTOR will obtain CITY approval of all waste material disposal schedules. The CONTRACTOR shall clean up all waste material spills and clean-up required due to the loading, hauling and unloading of the CONTRACTOR's equipment.

The CONTRACTOR shall conform to any and all requirements regarding hauling and disposal of waste from each work site in accordance with OSHA regulations and those that may be mandated by federal, state or local governments. The CONTRACTOR shall ensure that all waste material transporters possess all required federal, state and local regulations, including but without limitation, 40 CFR Part 263, "Standards Applicable to Transporters of Hazardous Waste" and Chapter 17-730, Part 3, Florida Administrative Code, as may be amended from time to time.

N. **Curing Water**: The CONTRACTOR will pay for all costs associated with disposal of curing water in accordance with CITY, State and Federal regulations.

O. **TV Inspection Report**: The CONTRACTOR will prepare and submit a report of each TV inspection and analysis to the CITY for review. The CITY shall consult with the CONTRACTOR and finalize the scope of work.

P. **Schedule Coordination**: The CONTRACTOR shall inform the CITY of its planned work schedules two weeks in advance of performing the work and provide the CITY reasonable opportunity to observe and inspect the work. The CONTRACTOR will advise the CITY of all schedule changes and notified when a work site is to be left for a 24-hour period when work is not complete.

Q. **Rights of Various Interests**: Wherever work being done by the City's forces or by other contractors is contiguous to Work covered by this Contract, the respective rights of the various interests involved shall be established by the City to secure the completion of the various portions of the work in general harmony.

R. **Separate Contracts**: The City reserves the right to let other contracts in connection with this work. Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate Contractor's work with theirs.

S. **Patent Fees and Royalties**: CONTRACTOR will be responsible at all times for compliance with applicable patents and copyrights encompassing, in whole or in part, any design, device, material, or process utilized, directly or indirectly, in the performance of the work or the formulation or presentation of its bid. CONTRACTOR will

pay all royalties and license fees and will provide, prior to commencement of a Project hereunder and at all times during the performance of same, for lawful use of any design, device, material or process covered by letters, patent or copyright by suitable legal agreement with the patentee, copyright holder, or their duly authorized representative whether or not the OWNER specifies a particular design, device, material, or process. CONTRACTOR will defend all suits or claims for infringement of any patent or copyright and will save the OWNER harmless from any loss or liability, direct or indirect, arising with respect to CONTRACTOR's process in the formulation of its Bid or the performance of the Work or otherwise arising in connection therewith. The OWNER will have the right to stop the Work or terminate this Contract at any time if CONTRACTOR fails to disclose to the OWNER that CONTRACTOR's work methodology includes the use of any infringing design, device, material, or process.

VIII. Contractor / Sub-contractor Employee Conduct and Appearance

A. Conduct:

1. CONTRACTOR and sub-contractors shall follow all applicable industry standards, federal, state, and local laws/ordinances as related to described work.

2. CONTRACTOR'S on-site employees shall all have current confined space entry certification.

3. The CONTRACTOR will remove any employee or sub-contractor employee reporting to a work site under the influence and/or smelling of alcohol from the work site. CONTRACTOR will immediately replace the employee in a timely manner and at no cost to the CITY.

4. The CONTRACTOR will provide trained supervision at the work site to ensure work is performed in a safe manner.

5. The CONTRACTOR shall correct any damage resulting from the negligence of CONTRACTOR or sub-contractor employee(s) to CITY property or equipment in a timely manner, to the CITY's satisfaction and at the CONTRACTOR's sole expense.

B. Appearance:

1. CONTRACTOR and sub-contractor employees assigned to work under this contract will maintain a neat, clean, and professional appearance.

2. CONTRACTOR and sub-contractor employees shall wear uniforms consisting of, at minimum, wear a work shirt identifying their company name.

3. Licenses/Permits: The CONTRACTOR will obtain all necessary municipal and other governmental licenses/permits and approvals or consent from utilities or carriers such as communications companies, electric utilities, gas utilities and/or other persons/organizations upon whose property or authority performance of work under the contract might impinge.

IX. Scope of Work General Stormwater and Sanitary Sewer Main Lining

The CONTRACTOR will be compensated for oval stormwater mains at the unit cost for the round pipe diameter that meets or exceeds the oval pipe's square feet of flow-way

area opening. Individual item quantities may be adjusted at the sole discretion of the City if necessary to compensate for unique project and site conditions.

A. Stormwater Main and Sanitary Sewer Cleaning

Scope: Work performed under this section includes removal and disposal of all dirt, roots, grease, solids, or semi-solids from stormwater mains, sanitary sewer mains and manholes as indicated on the drawings and as specified herein to the extent that video inspection, flow isolation, and manhole inspection can be performed.

1. Quality Assurance: The CONTRACTOR shall conduct cleaning operations using experienced personnel who have previously been engaged in cleaning operations of similar size and complexity to the work described herein.

2. Submittals:

a. The CONTRACTOR shall submit a Cleaning Log in a format acceptable to the CITY for the purposes of recording pertinent information relative to the stormwater main and sanitary sewer structures being cleaned. The CONTRACTOR will provide the Cleaning Log no later than 14 calendar days after the conclusion of the cleaning.

b. The CONTRACTOR will submit Material Safety Data Sheets (MSDS) for all chemical cleaning agents proposed for use under this contract no later than 14 days after the effective date of the Contract.

B. Products: The CONTRACTOR shall utilizes cleaning equipment capable of removing all accumulated dirt, sand, grease, rocks and other deleterious materials and obstructions from the sanitary sewer mains and the oval and round stormwater mains. The CONTRACTOR will ensure that all equipment used for cleaning operations is designed and intended to do the type of work which is specified. The CONTRACTOR will utilize equipment which is self-contained to handle all operations, when possible. The CONTRACTOR will use equipment manufacturer that is actively engaged in the research, development and manufacturing of said equipment. The CONTRACTOR may be directed to remove equipment deemed sub-standard by the City and may be directed to replace the equipment with equipment meeting these specifications, at no additional cost to the CITY.

1. High Velocity Cleaning Equipment: The CONTRACTOR will supply all high velocity hydraulic sewer cleaning equipment mounted on trucks. The CONTRACTOR supplied equipment shall have a minimum of 500 feet of ¾ inch I.D. high pressure hose with a selection of two or more high velocity nozzles. The nozzles shall have a capacity of 30 GPM at a minimum working pressure of 1000 psi. The nozzles shall be capable of producing a scouring action from 15° to 45° in the direction of cleaning and perpendicular to the sewer axis in all size lines designated to be cleaned. The CONTRACTOR will supply a high velocity gun for washing and scouring manhole walls and floor. The gun capacity shall equal 3.5 to 27 GPM at between 200 and 800 psi. The gun shall be capable of producing flows from a fine spray to a long distance solid stream. The equipment shall carry its own 1200 gallon (minimum) water tank capable of holding corrosive or caustic cleaning, sanitizing or degreasing chemicals if required by the CITY, auxiliary engines and pumps, and hydraulically driving hose reel. All controls shall be located so that the equipment can be operated aboveground.

2. Hydraulically Propelled Cleaning Equipment: The CONTRACTOR will supply hydraulically propelled cleaning equipment of the movable dam type and be constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to protect against flooding of the storm or sewer systems. Storm/Sewer cleaning balls or other such equipment which cannot be collapsed instantly to provide an immediate unobstructed flow-way during emergency conditions will not be considered as acceptable cleaning equipment. The movable dam shall be of equal diameter as the pipe being cleaned and shall provide a flexible scraper around the outer periphery to ensure total removal of the grease or obstruction.

3. Mechanical Cleaning Equipment: The CONTRACTOR will provide bucket machines in pairs with each machine powered by a minimum of a 16 horsepower engine to ensure sufficient pulling power. Each machine shall be equipped with a two speed transmission and shall be able to pull at rates of 175 feet per minute in high speed. The belt clutch gear reduction shall be a combination of approximately 83 to 1 reduction in low speed and 55 to 1 in high speed. The power rodding machine shall be of a "continuous rod" type capable of holding a minimum of 750 feet of rod. The machine and rod shall be specially treated steel, designed for the purpose intended. The machine shall have a positive rod drive and produce a 2,000 pound rod pull. To ensure safe operation, the machine shall have a fully enclosed body and an automatic safety throw-out clutch or relief valve. The final pass shall be with a brush large enough to ensure that the line has been cleaned sufficiently. This brush shall be mechanically driven, with the power mechanism properly sized. The CONTRACTOR will arrange all electrical drops required by the CONTRACTOR.

4. Capture and Removal of Debris: The CONTRACTOR shall furnish equipment, either specialized or standard in the industry, for the purpose of preventing debris from being washed past the manhole downstream of the line segment being cleaned, and for removing the debris from the manhole before any damage is caused to the system performance and or system equipment such as pump/lift stations, check valves, flow-ways, etc. The CONTRACTOR will bear the cost of all system down-time and repairs to restore operational status resulting from construction debris damage that in the CITY's opinion was reasonably preventable.

5. Water Metering Requirements: The CONTRACTOR will access CITY water via fire hydrants equipped with hydrant meters for cleaning, inversion and other work items requiring water. All costs incurred in obtaining and delivering the potable water shall be borne by the CONTRACTOR. The CONTRACTOR will use only potable water for this work.

C. Execution:

1. General: These specifications provide a basis by which a stormwater main or sanitary sewer line can be cleaned of all debris so that further work can be carried out. The CONTRACTOR will clean the designated stormwater main and/or sanitary sewer lines using high velocity, hydraulically propelled or mechanically powered sewer cleaning equipment as specified. The CONTRACTOR'S selection of the equipment used shall be based on the condition of the lines at the time the work commences. The CONTRACTOR will select equipment and methods that are satisfactory to the CITY. The CONTRACTOR will accomplish the cleaning of stormwater main or sewer lines by trapping and collecting all sand, debris, grease and other materials at the next manhole downstream of the line being cleaned,

and removal and proper disposal of said materials. The CONTRACTOR'S cleaning operations may also provide a means by which the stormwater main or sewer line can be threaded, i.e., a cable inserted in the line so that the television camera may be pulled through. The CONTRACTOR will not clean upstream sections of pipe once that section of pipe has been televised and accepted as complete.

2. Site Visit: The CONTRACTOR will conduct a physical reconnaissance of the area to be cleaned in order to verify the location of known and/or accepted manholes.

3. The CONTRACTOR shall utilize a magnetic locator to attempt to identify the location of buried manhole covers and notify the CITY representative so that CITY personnel can excavate and bring the manhole up to grade prior to cleaning. Under no circumstances shall the CONTRACTOR excavate buried manholes without prior written authorization from the CITY

D. Hydraulic Cleaning Methodology:

1. High Velocity Cleaning Methodology: High velocity hydro-cleaning shall consist of cleaning and flushing of the stormwater main or sewer line by means of water pumped into the line at a high velocity. The CONTRACTOR shall accomplish cleaning using approved equipment to deliver water to a self-propelled nozzle to do the necessary cleaning and flushing. The CONTRACTOR will make as many passes as necessary to sufficiently clean the stormwater main or sewer line. The CONTRACTOR will take all precautions to protect the stormwater main or sewer line from damage that might be inflicted by the improper use of cleaning equipment.

2. Hydraulically Propelled Methodology: The CONTRACTOR will take precautions to ensure that the water does not cause damage of flooding to the public or private property being served by the manhole section involved whenever hydraulically propelled cleaning tools, which depend on water pressure to provide their cleaning force, or any tools which retard the flow of water in the stormwater main or sewer line are used.

3. Capture and Removal of Debris: The CONTRACTOR will construct a suitable weir or dam in the downstream manhole in such a manner that both the solids and water shall be trapped when hydraulic cleaning equipment is used, shall be constructed. The CONTRACTOR will pump this trapped solution using a method approved by the CITY, from the manhole into a retention chamber aboveground. The retention chamber shall contain not less than two baffles to ensure complete settlement of the solids before returning the liquid to the stormwater main or sewer line.

E. Mechanical Cleaning Methodology:

1. Rodding: The CONTRACTOR will perform cleaning by rodding with a power-driven continuous steel rod of sufficient length and gauge with the proper cleaning heads or augers, so as to loosen all solids or other materials. It shall also provide a means to thread a cable for the power winch.

2. Bucket Machine: The CONTRACTOR will remove all solids, materials and other debris by means of a clam-shell type bucket and/or other appliances dragged through the stormwater main or sewer line with power winches of suitable size and horsepower.

3. Supplemental Cleaning: The CONTRACTOR will perform a minimum of one pass using hydraulic cleaning methods after all material has been removed by mechanical cleaning, to ensure complete removal of material from the walls of the pipe. The CONTRACTOR will repair any damage to pipes.

4. Capture and Removal of Debris: The CONTRACTOR will capture debris in the downstream manhole in a manner approved in writing by the CITY, or as described above when mechanical cleaning equipment is used. .

F. Special Cleaning Requirements for Cast Iron Pipe: The CONTRACTOR will clean pipes of tuberculation, including rust build-up and mineral deposits after cleaning pipe of normal sewage deposits such as sand and grease by methods above. The CONTRACTOR may choose any equipment necessary to remove the tuberculation for pipe diameters greater than 24-inch, such as a "pig" or rodder; however, no equipment shall be used which may damage the pipe, manholes, street or downstream pump stations. The CONTRACTOR will remove all tuberculations for pipe diameters less than or equal to 24-inch, using a high pressure water blaster capable of delivering a minimum of 40 gallons per minute at a pressure of 10,000 psi. Where practical, the line shall be proofed by pulling a slip lining pulling head for the size of the pipe involved through the pipe to insure that no restrictions remain. The CONTRACTOR may choose a similar proofing device if deemed acceptable, in writing, by CITY.

G. Sanitary Sewer Manhole Modifications: The CONTRACTOR will make any modifications to manholes to facilitate cleaning which will be subject to prior written approval by the CITY. CONTRACTOR shall salvage and reuse all manhole covers and rings that are removed during sewer line and manhole rehabilitation.

H. Material Removal and Cleanup:

1. Material Removal: The CONTRACTOR will remove all sludge, dirt, sand, rocks, grease and other solid or semi-solid material resulting from the cleaning operation at the downstream manhole of the section being cleaned. Passing material from manhole section to manhole section will not be permitted. Under no circumstances will the CONTRACTOR be allowed to accumulate debris, sand, etc., on the site of work beyond the time limit approved by the CITY, except in totally enclosed containers, and only with the prior written approval of the CITY. The CONTRACTOR will remove all solids or semi-solids resulting from the cleaning operations from the site and disposed of at a location approved by the CITY.

2. Root Removal: The CONTRACTOR will remove all roots. The CONTRACTOR will give special attention during the cleaning operation to assure complete removal of roots from joints in lines and manholes. The CONTRACTOR may use chemical root treatment at the option of the CONTRACTOR.

When the CONTRACTOR uses chemicals to aid in removal of roots, the chemical shall be EPA registered and labeled for use in sewer lines and manholes and in compliance with all applicable CITY, State and Federal regulations. All material and mixing/application procedures for chemical root treatment shall be consistent with the latest standards, requirements and recommendations of the manufacturer of the chemical root

treatment material used. The CONTRACTOR shall protect waterways, ponds and other water bodies from chemical contamination.

I. **Degree of Cleaning**: The CONTRACTOR will remove all dirt, debris, roots and other solid and liquid materials from the sections of stormwater system or sewer system being cleaned to the extent that closed circuit television inspection can be performed. The CONTRACTOR will only perform light cleaning on all stormwater main and sanitary sewer main. A CITY representative shall define the extent of the cleaning to be performed on existing pipes included within a given work order. The level of cleaning is defined as follows:

1. Light Cleaning: The removal of ¼ pipe diameter depth or less of sand and/or debris from a section of pipe. The removal of roots and/or tuberculation will be paid under a separate line item.

2. Medium Cleaning: The removal of greater than ¼ and up to and including ½ pipe diameter depth of sand and/or debris from a section of pipe. The removal of roots and/or tuberculation will be paid under a separate line item.

3. Heavy Cleaning: The removal of greater than ½ pipe diameter depth of sand and/or debris from a section of pipe. The removal of roots and/or tuberculation will be paid under a separate line item

J. **Dewatering:** When by CITY and CONTRACTOR prior inspection and agreement it is determined that the pipe cannot be cleaned due to infiltration of groundwater, and the CONTRACTOR is required to temporarily halt the infiltration of groundwater by de-watering system means, the cost shall be included in the unit prices for cleaning as an incidental cost..

K. **Manhole Clean-up**: Clean-up operations shall consist of cleaning all debris out of the manhole and off the ground around the manhole. The CONTRACTOR will remove all debris from the stormwater system and sanitary sewer system and shall disposed of such debris properly off site in areas provided by the CONTRACTOR at the CONTRACTOR'S expense. The CONTRACTOR will provide transportation of debris or other material by the CONTRACTOR in vehicles or equipment which contain the debris or other material in such a manner to minimize objectionable odor and avoid the possibility of dripping, spilling, scattering, leaking or blowing. , The CONTRACTOR will clean up any debris or other material to the satisfaction of the CITY or other authorities having jurisdiction should spillage of debris resulting from overloading of trucks or for any other reason. The CONTRACTOR will ensure that all vehicles transporting debris or other material do not exceed the maximum allowable load limits of any road being used.

L. **Restoration**: The CONTRACTOR will repair all damage to public and/or private property which occurs as a direct result of the cleaning operations. The cost of restoring any damaged area to conditions prior to cleaning shall be borne by the CONTRACTOR.

M. **Additional Cleaning:** The CONTRACTOR will re-clean the line at no additional expense to the CITY should subsequent video inspection of cleaned stormwater main or sewers reveal that additional cleaning is required. The CONTRACTOR will provide any additional video inspection or re-setup of video equipment required due to re-cleaning at no additional expense to the CITY.

N. **Pre- and Post-Work Inspections**

The CONTRACTOR will video tape the stormwater main or sewer lines under the direct supervision of a CITY representative, prior to commencement of any proposed CIPP work and prior to acceptance of any completed CIPP work,. A CITY representative must be on site during the entire inspection procedure period. In the event the CONTRACTOR performs video inspection without a CITY representative present, the video will not be accepted by the CITY and must be re-done in the presence of a CITY representative. The CONTRACTOR will provide one (1) copy of the DVD video and associated video logs to the CITY prior to scheduling the post-cleaning and final inspections. CONTRACTOR shall meet with CITY staff to determine the acceptable method of repair if defects or problems are observed on the video. The CONTRACTOR will make all necessary repairs or correct the noted deficiencies at no cost to the CITY.

The CONTRACTOR will provide mandatory television inspection on all stormwater main and sewer mains that CIPP work has been performed under this contract. Only pan and tilt type cameras will be allowed. The CONTRACTOR will provide two (2) copies each of the written report and DVD video record of the inspection with audible description of run, direction, location and description of any defect or abnormality to the CITY at the time of the inspection. The video will be in color with good clarity. No black and white or poor quality videos will be accepted. The CONTRACTOR will schedule television inspection a minimum of seventy-two (72) hours in advance and a CITY representative is required to be on-site during entire length of each television inspection; otherwise the television inspection will be deemed invalid. The CONTRACTOR will clean all lines prior to videoing in accordance with Technical Specifications.

O. Maintenance of Traffic (MOT)

CONTRACTOR shall furnish all traffic control in accordance with the Florida Department of Transportation (FDOT) specifications as outlined in the "Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System" (latest edition) and the United States Department of Transportation/Federal Highway Administration (USDOT/FHWA) "Manual on Uniform Traffic Control Devices" (latest edition) for all aspects of assigned work.

CONTRACTOR shall perform all construction activity so that access to businesses can be maintained at all times and access to occupied homes can be maintained during non-working hours. The CONTRACTOR will provide written notice prior to access blockage to the blocked business/resident a minimum of forty-eight (48) hours in advance, either mailed or hand-delivered with a copy of each furnished to the CITY.

The CONTRACTOR shall maintain at least one lane of vehicular traffic at all times. The CONTRACTOR shall also provide safety barricades, business entrance signage and flag persons as required to properly maintain traffic flow. The CONTRACTOR shall prepare and submit a traffic maintenance plan for approval by the CITY prior to the start of work if directed by the CITY. The CONTRACTOR will include the cost of all work, materials and costs required for completed traffic control in the unit cost of the traffic control pay items in the pricing sheet.

P. Locates CONTRACTOR is responsible for all utility locates.

Q. Isolation and Bypass Operations

1. CONTRACTOR shall provide all isolation and bypass operations: The CONTRACTOR's objective of flow bypass and/or diversion pumping is to maintain an efficient and uninterrupted level of service to wastewater collection system and stormwater main users while maintenance or construction operations (including rehabilitation, repair or replacement) are being performed on the segment(s) being bypassed and/or from which flow is being diverted by:

a. Ensuring that bypass and diversion pumps are adequately fueled, lubricated and maintained

b. Ensuring backup spare parts are expeditiously applied to the flow bypass and/or diversion pumping system in the event of component breakdown.

c. Ensure an emergency backup plan is smoothly implemented in the event of system failure.

d. Preventing backup, spillage, flooding or overflow onto streets, yards and unpaved areas or into building, adjacent ditches, stormwater mains and waterways while flow bypass or diversion pumping takes place, and

e. Ensuring that installation, startup and subsequent disassembly of the flow bypass and diversion pumping system is smoothly transitioned.

2. The CONTRACTOR will provide flow bypass and diversion pumping in such a manner so as not to damage private or public property, or create a nuisance or public menace. The CONTRACTOR will enclose the pumped sewage in a hose or pipe that is adequately protected from traffic and shall be redirected into the wastewater collection system. The CONTRACTOR will return flow to the sewer and will remove all temporary equipment after the work is completed. The CONTRACTOR will enclose the pumped storm water in an enclosed hose or pipe that is adequately protected from traffic and shall be redirected into the stormwater system. The CONTRACTOR shall return flow to the stormwater mains and all temporary equipment removed after the work is completed.

3. The CONTRACTOR will provide an experienced bypass/diversion pump maintenance operator/mechanic and/or deputy on site continuously to monitor the operation of the entire bypass/diversion system when pumps are operating. The operator/mechanic shall comprehensively, methodically and continuously:

a. Adjust pump speed as appropriate so as not to adversely impact upstream or downstream flow condition levels

b. Check that the effectiveness and security of bulkheads, dams, diaphragms, plugs, valves, weirs and all other flow control devices are working effectively and according to plan.

c. Check the integrity of hoses and couplings along the entire bypass/diversion system.

d. Monitor lubrication levels and top off as necessary

e. Facilitate minor repairs as required

f. Report to CITY on problems arising.

4. The CONTRACTOR shall plan and execute sewer flow control, bypass and diversion pumping operations. The CONTRACTOR shall be entirely liable for damages to private or public property that may result from his/her operations and for all cleanup, disinfection, damages, and resultant fines in the event of spillage, flooding or overflow.

5. The CONTRACTOR shall immediately stop the overflow and take action to clean up and disinfect the spillage in the event of accidental overflow or spillage. The CONTRACTOR shall notify the CITY immediately and in any event not less than twenty-four (24) hours following the occurrence.

The CONTRACTOR is deemed to be entirely responsible should fines be subsequently imposed as a direct result of the overflow or spillage and the CONTRACTOR shall pay such fines as are imposed by the authorities. The CITY shall pay no fine(s) where it is shown the CONTRACTOR was entirely responsible for any overflow or spillage.

6. The CONTRACTOR shall complete work as efficiently as possible without interruption once by-pass pumping is underway at any given site.

7. The CONTRACTOR will ensure the level of noise emitted from pumps is within local regulations/ordinance parameters.

R. Work Integration

1. Hours of Operation: The CONTRACTOR will conduct all work during CITY acceptable work hours (typically 7:30 a.m. to 6:00 p.m.), Monday through Friday with the exception of CITY-observed events or holidays, unless circumstances prevent such scheduling. Such circumstances may include, but are not limited to, structures with high peak flows, significant negative impact on business or schools or excessive pedestrian and vehicular traffic flow if structure is located in vehicular or pedestrian thoroughfare. In such circumstances, "off hours" work will be required. This work may include late night and/or early morning hours and weekends. Such scheduling shall be agreed upon by both the CONTRACTOR and the CITY prior to the start of work. CONTRACTOR overtime and other CONTRACTOR-related costs shall be borne by the CONTRACTOR.

2. Work Coordination: The CONTRACTOR shall coordinate all work between a single point of contact for the CONTRACTOR and the CITY designated project manager. The CONTRACTOR will conduct discussion of structure conditions before work starts and final payment based on conditions agreed to at time of commencement of work or in subsequently approved change orders.

3. The CONTRACTOR will notify the CITY a minimum of seventy-two (72) hours prior to the commencement of work in order for CITY personnel to be available for onsite activities.

S. Work Product Submittals

1. Bypass Pumping: The CONTRACTOR will provide submittals for the by-pass pumping plan and those plans approved no less than two weeks prior to execution of the work. The CONTRACTOR will not mobilize prior to approval of the pumping plan.

2. Videotaping: CONTRACTOR will submit one copy of each of two video inspections; one prior to the start of work and one after CIPP lining is completed for each

project. The video shall be of *high visual quality with complete and clear annotation on screen* to trace the route of camera travel and accurately determine the pipe condition in compatibility with the route and inspection information in the condition assessment log.

T. Site Restoration

The CONTRACTOR shall restore the work site(s) on a daily basis where practical. The CONTRACTOR will clear all obstructions from roadways, sidewalks, bike paths and other public thoroughfares daily, to the largest extent possible. The CONTRACTOR will not create a public nuisance during restoration activities. The CONTRACTOR will complete all restoration activities within a minimum of fourteen (14) calendar days of work being finished in a work area. Site restoration is ancillary item for the CIPP reconstruction and shall be included in the LF cost.

U. Ordering and Payment

1. Work will be ordered by the City through delivery of a work order request e-mail that includes a due date for the work order proposal to be submitted, a brief description of the work to be done and an aerial map with a schematic detail of the pipe system. The work order request will include a request for a fee and a time for completion. The City's work order request to the Contractor is based on an annual prioritized list of projects or a request from the Field Operations staff. It may or may not include the need for special conditions such as a compressed timeframe for response and the work schedule based upon the urgency/conditions such as an impending or partial road collapse. Acceptance of the work order proposal shall be documented by issuance of a City Purchase Order. Work shall not commence until issuance of an electronic Notice to Proceed (i.e., an email) for the work order.

2. The CONTRACTOR will submit monthly invoices to the CITY inspector for review and agreement prior to submitting to the CITY project manager for final acceptance and processing of payment.

V. Mobilization Mobilization charges shall include movement of equipment and material to and from the site and other costs not included as a separate line item to commence work on a work authorization.

W. Line Reconstruction

1. Sanitary: Includes open cut and installation of SDR-26 PVC Sanitary Sewer. Furnished and Installed. Open cut and Construct Sanitary Sewer line includes all labor, materials, and equipment necessary for dewatering, excavation, sheeting, shoring bracing installation of SDR26 PVC sanitary sewer, rigid fernco connections or manhole boots as required, pipeline identification and warning tape, disposal of excess material and old pipe, suitable backfill, replacement of existing improvements, pavement repair, testing, sodding and cleanup.

2. Sanitary: Incudes open cut installation of C900 Sanitary sewer. Furnished and Installed. Open cut and Construct Sanitary Sewer line includes all labor, materials, and equipment necessary for dewatering, excavation, sheeting, shoring bracing installation of C900 sanitary sewer, rigid fernco connections or manhole boots as required,

pipeline identification and warning tape, disposal of excess material and old pipe, suitable backfill, replacement of existing improvements such as connections, testing, sodding and cleanup.

3. Stormwater: Incudes open cut installation of RCP stormwater pipeline. Furnished and Installed. Open cut and Construct stormwater line, includes all labor, materials, and equipment necessary for dewatering, excavation, sheeting, shoring, bracing installation of RCP stormwater pipeline identification and warning tape, disposal of excess material and old pipe, suitable backfill, replacement of existing improvements such as connections, testing, sodding, pavement repair, brick and mortar installation and any connection to a structure and cleanup. **FDOT** Concrete collars are required on RCP to connect pipe and incidental to installation of the stormwater PVC line.

4. Stormwater: Incudes open cut installation of HDPE stormwater pipeline. Furnished and Installed. Open cut and Construct stormwater line includes all labor, materials, and equipment necessary for dewatering, excavation, sheeting, shoring, bracing installation of HDPE stormwater pipeline identification and warning tape, disposal of excess material and old pipe, suitable backfill, replacement of existing improvements such as connections, testing, sodding, pavement repair, brick and mortar installation and any connection to a structure and cleanup. HDPE collars are incidental to installation of the stormwater HDPE line.

X. Grout Fill Abandoned Lines Grout fill will be required where the City determines it best to replace the entire line in a different alignment. The unit price will be paid by the cubic yard. Payment will be for the furnishing and placement of the grout mixture and will include all necessary excavation, connections, restoration and all other accommodations to properly perform the work.

Y. Manhole Cleaning the CONTRACTOR will remove all dirt, debris, roots and other solid and liquid materials from the sections of stormwater or sewer manhole being cleaned to the extent that closed circuit television inspection can be performed.

	CIPP REHABILITATION - SANITARY SEWER MAINS				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
A	**8" diameter**				
A-1	6.0 mm normal thickness (.236")	10,000	LF	$ 23.10	$ 231,000.00
A-2	7.5 mm normal thickness (.295")	10,000	LF	$ 25.20	$ 252,000.00
A-3	9.0 mm normal thickness (.354")	5,000	LF	$ 26.00	$ 130,000.00
				TOTAL "A"	$ 613,000.00
B	**10" diameter**				
B-1	6.0 mm normal thickness (.236")	400	LF	$ 27.30	$ 10,920.00
B-2	7.5 mm normal thickness (.295")	400	LF	$ 29.70	$ 11,880.00
B-3	9.0 mm normal thickness (.354")	400	LF	$ 31.00	$ 12,400.00
				TOTAL "B"	$ 35,200.00
C	**12" diameter**				
C-1	6.0 mm normal thickness (.236")	400	LF	$ 30.40	$ 12,160.00
C-2	7.5 mm normal thickness (.295")	400	LF	$ 32.90	$ 13,160.00
C-3	9.0 mm normal thickness (.354")	600	LF	$ 39.30	$ 23,580.00
				TOTAL "C"	$ 48,900.00
D	**15" diameter**				
D-1	6.0 mm normal thickness (.236")	400	LF	$ 38.00	$ 15,200.00
D-2	7.5 mm normal thickness (.295")	400	LF	$ 42.10	$ 16,840.00
D-3	9.0 mm normal thickness (.354")	600	LF	$ 49.10	$ 29,460.00
				TOTAL "D"	$ 61,500.00
E	**18" diameter**				
E-1	6.0 mm normal thickness (.236")	300	LF	$ 37.90	$ 11,370.00
E-2	7.5 mm normal thickness (.0295")	300	LF	$ 45.00	$ 13,500.00
E-3	9.0 mm normal thickness (.354")	300	LF	$ 57.70	$ 17,310.00
E-4	10.5 mm normal thickness (.413")	200	LF	$ 61.20	$ 12,240.00
				TOTAL "E"	$ 54,420.00
F	**21" diameter**				
F-1	6.0 mm normal thickness (.236")	300	LF	$ 44.00	$ 13,200.00
F-2	7.5 mm normal thickness (.295")	300	LF	$ 48.00	$ 14,400.00
F-3	9.0 mm normal thickness (.354")	300	LF	$ 67.50	$ 20,250.00
F-4	10.5 mm normal thickness (.413")	300	LF	$ 73.30	$ 21,990.00
F-5	12.0 mm normal thickness (.472")	200	LF	$ 78.90	$ 15,780.00
F-6	Charge for each 1.5 mm thickness increase per LF exceeding 12.0 mm	100	LF	$ 4.20	$ 420.00
				TOTAL "F"	$ 86,040.00

	CIPP REHABILITATION - SANITARY SEWER MAINS				
ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	EXTENDED PRICE
G	**24" diameter**				
G-1	9.0 mm normal thickness (.354")	300	LF	$ 70.00	$ 21,000.00
G-2	10.5 mm normal thickness (.413")	300	LF	$ 82.50	$ 24,750.00
G-3	12.0 mm normal thickness (.472")	300	LF	$ 89.90	$ 26,970.00
G-4	13.5 mm normal thickness (.531")	300	LF	$ 94.90	$ 28,470.00
G-5	15.0 mm normal thickness (.591")	200	LF	$ 100.20	$ 20,040.00
G-6	Charge for each 1.5 mm thickness increase per LF exceeding 15.0 mm	100	LF	$ 4.30	$ 430.00
				TOTAL "G"	**$ 121,660.00**
H	**27" diameter**				
H-1	9.0 mm normal thickness (.354")	100	LF	$ 74.00	$ 7,400.00
H-2	10.5 mm normal thickness (.413")	100	LF	$ 89.70	$ 8,970.00
H-3	12.0 mm normal thickness(.472")	100	LF	$ 97.90	$ 9,790.00
H-4	13.5 mm normal thickness (.531")	50	LF	$ 104.20	$ 5,210.00
H-5	15.0 mm normal thickness (.591")	50	LF	$ 110.30	$ 5,515.00
H-6	Charge for each 1.5 mm thickness increase per LF exceeding 15.0 mm	100	LF	$ 3.90	$ 390.00
				TOTAL "H"	**$ 37,275.00**
I	**30" diameter**				
I-1	9.0 mm normal thickness (.354")	100	LF	$ 76.00	$ 7,600.00
I-2	10.5 mm normal thickness (.413")	100	LF	$ 101.10	$ 10,110.00
I-3	12.0 mm normal thickness (.472")	100	LF	$ 109.50	$ 10,950.00
I-4	13.5 mm normal thickness (.531")	100	LF	$ 115.90	$ 11,590.00
I-5	15.0 mm normal thickness (.591")	100	LF	$ 121.80	$ 12,180.00
I-6	Charge for each 1.5 mm thickness increase per LF exceeding 15.0 mm	100	LF	$ 5.50	$ 550.00
				TOTAL "I"	**$ 52,980.00**
J	**36" diameter**				
J-1	10.5 mm normal thickness (.413")	100	LF	$ 90.00	$ 9,000.00
J-2	12.0 mm normal thickness (.472")	100	LF	$ 134.50	$ 13,450.00
J-3	13.5 mm normal thickness (.531")	100	LF	$ 142.80	$ 14,280.00
J-4	15.0 mm normal thickness (.591")	100	LF	$ 150.70	$ 15,070.00
J-5	16.5 mm normal thickness (.650")	100	LF	$ 157.40	$ 15,740.00
J-6	18.0 mm normal thickness (.709")	100	LF	$ 166.10	$ 16,610.00
J-7	Charge for each 1.5 mm thickness increase per LF exceeding 18.0 mm	100	LF	$ 5.60	$ 560.00
				TOTAL "J"	**$ 84,710.00**

	CIPP REHABILITATION - SANITARY SEWER MAINS				
ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	EXTENDED PRICE
K	**42" diameter**				
K-1	10.5 mm normal thickness (.413")	100	LF	$ 119.80	$ 11,980.00
K-2	12.0 mm normal thickness (.472")	100	LF	$ 158.80	$ 15,880.00
K-3	13.5 mm normal thickness (.531")	100	LF	$ 167.60	$ 16,760.00
K-4	15.0 mm normal thickness (.591")	100	LF	$ 176.40	$ 17,640.00
K-5	16.5 mm normal thickness (.650")	50	LF	$ 185.20	$ 9,260.00
K-6	18.0 mm normal thickness (.709")	50	LF	$ 192.80	$ 9,640.00
K-7	Charge for each 1.5 mm thickness increase per LF exceeding 18.0 mm	100	LF	$ 7.10	$ 710.00
				TOTAL "K"	**$ 81,870.00**
	TOTAL "A" THRU "K"				**$ 1,277,555.00**
	CLEAN & INSPECTION - SANITARY SEWER MAINS				
L	**Light Cleaning and Inspection**				
L-1	8" – 12" diameter	6,000	LF	$ 2.50	$ 15,000.00
L-2	14" – 18" diameter	6,000	LF	$ 5.00	$ 30,000.00
L-3	20" – 24" diameter	6,000	LF	$ 7.00	$ 42,000.00
L-4	27" – 42" diameter	6,000	LF	$ 10.00	$ 60,000.00
L-5	48" – 72" diameter	6,000	LF	$ 12.10	$ 72,600.00
				TOTAL "L"	**$ 219,600.00**
M	**Medium Cleaning**				
M-1	8" – 12" diameter	6,000	LF	$ 3.70	$ 22,200.00
M-2	14" – 18" diameter	6,000	LF	$ 7.00	$ 42,000.00
M-3	20" – 24" diameter	6,000	LF	$ 10.00	$ 60,000.00
M-4	27" – 42" diameter	6,000	LF	$ 13.10	$ 78,600.00
M-5	48" – 72" diameter	6,000	LF	$ 15.10	$ 90,600.00
				TOTAL "M"	**$ 293,400.00**
N	**Heavy Cleaning**				
N-1	8" – 12" diameter	6,000	LF	$ 3.30	$ 19,800.00
N-2	14" – 18" diameter	6,000	LF	$ 8.00	$ 48,000.00
N-3	20" – 24" diameter	6,000	LF	$ 12.10	$ 72,600.00
N-4	27" – 42" diameter	6,000	LF	$ 16.10	$ 96,600.00
N-5	48" – 72" diameter	6,000	LF	$ 18.10	$ 108,600.00
		6,000	LF		$ -
				TOTAL "N"	**$ 345,600.00**
O	**Root Removal**				
O-1	8" – 12" diameter	6,000	LF	$ 1.60	$ 9,600.00
O-2	14" – 18" diameter	6,000	LF	$ 2.60	$ 15,600.00
O-3	20" – 24" diameter	6,000	LF	$ 4.80	$ 28,800.00
O-4	27" – 42" diameter	6,000	LF	$ 5.30	$ 31,800.00
O-5	48" – 72" diameter	6,000	LF	$ 6.30	$ 37,800.00
				TOTAL "O"	**$ 123,600.00**

	CLEAN & INSPECTION - SANITARY SEWER MAINS				
ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	EXTENDED PRICE
P	Tuberculation Cleaning				
P-1	8" – 12" diameter	6,000	LF	$ 19.00	$ 114,000.00
P-2	14" – 18" diameter	6,000	LF	$ 21.70	$ 130,200.00
P-3	20" – 24" diameter	6,000	LF	$ 22.70	$ 136,200.00
P-4	27" – 42" diameter	6,000	LF	$ 23.30	$ 139,800.00
P-5	48" – 72" diameter	6,000	LF	$ 25.90	$ 155,400.00
				TOTAL "P"	$ 675,600.00
	TOTAL "L" THRU "P"				$ 1,657,800.00
	SANITARY SEWER				
	LATERAL CIPP LINING-TOP HAT/FULL WRAP - UP TO 36"				
Q					
Q-1	Four (4) inch lateral connection per ASTM F1216-16	20	EA	$ 2,009.90	$ 40,198.00
Q-2	Six (6) inch lateral connection per ASTM F1216-16	20	EA	$ 2,009.90	$ 40,198.00
Q-3	Eight (8) inch lateral connection per ASTM F1216-16	20	EA	$ 2,009.90	$ 40,198.00
Q-4	Lateral lining 0 to 30' per ASTM F1216-16	100	LF	$ 79.30	$ 7,930.00
Q-5	Additional Lateral Lining > 30' per ASTM F1216-16	100	LF	$ 37.00	$ 3,700.00
Q-6	Lateral Cutout	20	EA	$ 195.00	$ 3,900.00
Q-4	Lateral Grout	20	EA	$ 390.20	$ 7,804.00
	TOTAL "Q"				$ 143,928.00
	SANITARY SEWER				
	MANHOLE/LIFT STATION REFURBISHMENT				
R					
R-1	Interior Manhole Application (Precast)	2,000	SF	$ 19.00	$ 38,000.00
R-2	Interior Manhole Application (Brick)	2,000	SF	$ 23.30	$ 46,600.00
R-3	Interior Lift Station Application (Precast)	2,000	SF	$ 21.20	$ 42,400.00
R-4	Interior Lift Station Application (Brick)	2,000	SF	$ 26.40	$ 52,800.00
R-5	Bench/Invert Repair	200	EA	$ 528.90	$ 105,780.00
	TOTAL "R"				$ 285,580.00
	SANITARY SEWER				
	CLEANOUT INSTALLATION				
ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	EXTENDED PRICE
S					
S-1	Four (4) inch cleanout	20	EA	$ 528.90	$ 10,578.00
S-2	Six (6) inch cleanout	20	EA	$ 634.70	$ 12,694.00
S-3	Eight (8) inch cleanout	20	EA	$ 793.40	$ 15,868.00
	TOTAL "S"				$ 39,140.00

	MANHOLE CLEANING				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
T	Manhole cleaning	2,000	SF	$ 5.30	$ 10,600.00
	TOTAL "T"				$ 10,600.00
	TOTAL "Q" THRU "T"				$ 479,248.00
	CIPP REHABILITATION - STORMWATER MAINS				
U	**8" diameter**				
U-1	6.0 mm normal thickness (.236")	500	LF	$ 39.50	$ 19,750.00
				TOTAL "U"	$ 19,750.00
V	**10" diameter**				
V-1	6.0 mm normal thickness (.236")	400	LF	$ 45.50	$ 18,200.00
V-2	7.5 mm normal thickness (.295")	400	LF	$ 48.00	$ 19,200.00
				TOTAL "V"	$ 37,400.00
W	**12" diameter**				
W-1	6.0 mm normal thickness (.236")	750	LF	$ 48.80	$ 36,600.00
W-2	7.5 mm normal thickness (.295")	750	LF	$ 51.50	$ 38,625.00
				TOTAL "W"	$ 75,225.00
X	**15" diameter**				
X-1	6.0 mm normal thickness (.236")	1,000	LF	$ 55.00	$ 55,000.00
X-2	7.5 mm normal thickness (.295")	1,500	LF	$ 64.50	$ 96,750.00
X-3	9.0 mm normal thickness (.354")	1,000	LF	$ 76.90	$ 76,900.00
X-4	Charge for each 1.5 mm thickness increase per LF exceeding 9.0 mm	100	LF	$ 2.10	$ 210.00
				TOTAL "X"	$ 228,860.00
Y	**18" diameter**				
Y-1	6.0 mm normal thickness (.236")	1,250	LF	$ 52.20	$ 65,250.00
Y-2	7.5 mm normal thickness (.295")	1,250	LF	$ 67.60	$ 84,500.00
Y-3	9.0 mm normal thickness (.354")	1,250	LF	$ 79.40	$ 99,250.00
Y-4	10.5 mm normal thickness (.413")	1,250	LF	$ 82.90	$ 103,625.00
Y-5	Charge for each 1.5 mm thickness increase per LF exceeding10.5 mm	100	LF	$ 4.20	$ 420.00
				TOTAL "Y"	$ 353,045.00
Z	**21" diameter**				
Z-1	6.0 mm normal thickness (.236")	220	LF	$ 59.70	$ 13,134.00
Z-2	7.5 mm normal thickness (.295")	220	LF	$ 63.50	$ 13,970.00
Z-3	9.0 mm normal thickness (.354")	220	LF	$ 90.10	$ 19,822.00
Z-4	10.5 mm normal thickness (.413")	220	LF	$ 96.10	$ 21,142.00
Z-5	12.0 mm normal thickness (.472")	200	LF	$ 104.40	$ 20,880.00
Z-6	Charge for each 1.5 mm thickness increase per LF exceeding 12.0 mm	100	LF	$ 4.20	$ 420.00
				TOTAL "Z"	$ 89,368.00

CIPP REHABILITATION - STORMWATER MAINS					
ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	EXTENDED PRICE
AA	24" diameter				
AA-1	9.0 mm normal thickness (.354")	700	LF	$ 95.00	$ 66,500.00
AA-2	10.5 mm normal thickness (.413")	700	LF	$ 106.70	$ 74,690.00
AA-3	12.0 mm normal thickness (.472")	700	LF	$ 116.80	$ 81,760.00
AA-4	13.5 mm normal thickness (.531")	700	LF	$ 122.00	$ 85,400.00
AA-5	15.0 mm normal thickness (591")	700	LF	$ 127.50	$ 89,250.00
AA-6	Charge for each 1.5 mm thickness increase per LF exceeding 15.0 mm	100	LF	$ 4.30	$ 430.00
				TOTAL "AA"	$ 398,030.00
BB	27" diameter				
BB-1	9.0 mm normal thickness (.354")	220	LF	$ 100.00	$ 22,000.00
BB-2	10.5 mm normal thickness (.413")	220	LF	$ 113.70	$ 25,014.00
BB-3	12.0 mm normal thickness (.472")	220	LF	$ 124.60	$ 27,412.00
BB-4	13.5 mm normal thickness (.531")	220	LF	$ 131.20	$ 28,864.00
BB-5	15.0 mm normal thickness (.591")	220	LF	$ 137.60	$ 30,272.00
BB-6	Charge for each 1.5 mm thickness increase per LF exceeding 15.0 mm	100	LF	$ 4.50	$ 450.00
				TOTAL "BB"	$ 134,012.00
CC	30" diameter				
CC-1	9.0 mm normal thickness (.354")	600	LF	$ 100.00	$ 60,000.00
CC-2	10.5 mm normal thickness (.413")	600	LF	$ 113.70	$ 68,220.00
CC-3	12.0 mm normal thickness (.472")	600	LF	$ 123.30	$ 73,980.00
CC-4	13.5 mm normal thickness (.531")	600	LF	$ 129.90	$ 77,940.00
CC-5	15.0 mm normal thickness (.591")	600	LF	$ 135.90	$ 81,540.00
CC-6	Charge for each 1.5 mm thickness increase per LF exceeding 15.0 mm	100	LF	$ 5.50	$ 550.00
				TOTAL "CC"	$ 362,230.00
DD	36" diameter				
DD-1	10.5 mm normal thickness (.413")	500	LF	$ 108.00	$ 54,000.00
DD-2	12.0 mm normal thickness (.472")	500	LF	$ 151.70	$ 75,850.00
DD-3	13.5 mm normal thickness (.531")	500	LF	$ 160.30	$ 80,150.00
DD-4	15.0 mm normal thickness (.591")	500	LF	$ 168.30	$ 84,150.00
DD-5	16.5 mm normal thickness (.650")	250	LF	$ 175.10	$ 43,775.00
DD-6	18.0 mm normal thickness (.709")	250	LF	$ 184.00	$ 46,000.00
DD-7	Charge for each 1.5 mm thickness increase per LF exceeding 18.0 mm	100	LF	$ 5.60	$ 560.00
				TOTAL "DD"	$ 384,485.00

	CIPP REHABILITATION - STORMWATER MAINS				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
EE	**42" diameter**				
EE-1	10.5 mm normal thickness (.413")	250	LF	$ 120.00	$ 30,000.00
EE-2	12.0 mm normal thickness (.472")	250	LF	$ 140.00	$ 35,000.00
EE-3	13.5 mm normal thickness (.531")	250	LF	$ 185.80	$ 46,450.00
EE-4	15.0 mm normal thickness (.591")	250	LF	$ 194.80	$ 48,700.00
EE-5	16.5 mm normal thickness (.650")	250	LF	$ 203.80	$ 50,950.00
EE-6	18.0 mm normal thickness (.709")	250	LF	$ 211.50	$ 52,875.00
EE-7	Charge for each 1.5 mm thickness increase per LF exceeding 18.0 mm	100	LF	$ 7.10	$ 710.00
				TOTAL "EE"	$ 264,685.00
FF	**48" diameter**				
FF-1	12.0 mm normal thickness (.472")	200	LF	$ 150.00	$ 30,000.00
FF-2	13.5 mm normal thickness (.531")	200	LF	$ 160.00	$ 32,000.00
FF-3	15.0 mm normal thickness (.591")	200	LF	$ 225.30	$ 45,060.00
FF-4	16.5 mm normal thickness (.650")	200	LF	$ 235.60	$ 47,120.00
FF-5	18.0 mm normal thickness (.709")	200	LF	$ 244.60	$ 48,920.00
FF-6	19.5 mm normal thickness (.768")	100	LF	$ 262.20	$ 26,220.00
FF-7	21.0 mm normal thickness (.827")	100	LF	$ 270.90	$ 27,090.00
FF-8	Charge for each 1.5 mm thickness increase per LF exceeding 21.0 mm	100	LF	$ 8.00	$ 800.00
				TOTAL "FF"	$ 257,210.00
GG	**52" diameter**				
GG-1	10.5 mm normal thickness (.413")	25	LF	$ 145.00	$ 3,625.00
GG-2	12.0 mm normal thickness (.472")	25	LF	$ 155.00	$ 3,875.00
GG-3	13.5 mm normal thickness (.531")	25	LF	$ 165.00	$ 4,125.00
GG-4	15.0 mm normal thickness (.591")	25	LF	$ 196.50	$ 4,912.50
GG-5	16.5 mm normal thickness (.650")	25	LF	$ 204.20	$ 5,105.00
GG-6	18.0 mm normal thickness (.709")	25	LF	$ 262.20	$ 6,555.00
GG-7	19.5 mm normal thickness (.768")	25	LF	$ 279.30	$ 6,982.50
GG-8	21.0 mm normal thickness (.827")	25	LF	$ 290.40	$ 7,260.00
GG-9	22.5 mm normal thickness (.886")	100	LF	$ 302.60	$ 30,260.00
GG-10	Charge for each 1.5 mm thickness increase per LF exceeding 22.5 mm	100	LF	$ 9.60	$ 960.00
				TOTAL "GG"	$ 73,660.00

	CIPP REHABILITATION - STORMWATER MAINS				
ITEM	**DESCRIPTION**	**ESTIMATED QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**EXTENDED PRICE**
HH	**54" diameter**				
HH-1	10.5 mm normal thickness (.413")	25	LF	$ 150.00	$ 3,750.00
HH-2	12.0 mm normal thickness (.472")	25	LF	$ 160.00	$ 4,000.00
HH-3	13.5 mm normal thickness (.531")	25	LF	$ 170.00	$ 4,250.00
HH-4	15.0 mm normal thickness (.591")	25	LF	$ 210.00	$ 5,250.00
HH-5	16.5 mm normal thickness (.650")	25	LF	$ 215.00	$ 5,375.00
HH-6	18.0 mm normal thickness (.709")	25	LF	$ 288.90	$ 7,222.50
HH-7	19.5 mm normal thickness (.768")	25	LF	$ 305.50	$ 7,637.50
HH-8	21.0 mm normal thickness (.827")	25	LF	$ 406.10	$ 10,152.50
HH-9	22.5 mm normal thickness (.886")	100	LF	$ 419.70	$ 41,970.00
HH-10	Charge for each 1.5 mm thickness increase per LF exceeding 22.5 mm	100	LF	$ 9.80	$ 980.00
				TOTAL "HH"	$ 90,587.50
II	**60" diameter**				
II-1	10.5 mm normal thickness (.413")	25	LF	$ 302.40	$ 7,560.00
II-2	12.0 mm normal thickness (.472")	25	LF	$ 319.00	$ 7,975.00
II-3	13.5 mm normal thickness (.531")	25	LF	$ 330.20	$ 8,255.00
II-4	15.0 mm normal thickness (.591")	25	LF	$ 341.20	$ 8,530.00
II-5	16.5 mm normal thickness (.650")	25	LF	$ 350.40	$ 8,760.00
II-6	18.0 mm normal thickness (.709")	25	LF	$ 445.50	$ 11,137.50
II-7	19.5 mm normal thickness (.768")	25	LF	$ 468.90	$ 11,722.50
II-8	21.0 mm normal thickness (.827")	25	LF	$ 483.90	$ 12,097.50
II-9	22.5 mm normal thickness (.886")	100	LF	$ 499.10	$ 49,910.00
II-10	Charge for each 1.5 mm thickness increase per LF exceeding 22.5 mm	100	LF	$ 13.50	$ 1,350.00
				TOTAL "II"	$ 127,297.50
JJ	**72" diameter**				
JJ-1	10.5 mm normal thickness (.413")	25	LF	$ 500.10	$ 12,502.50
JJ-2	12.0 mm normal thickness (.472")	25	LF	$ 506.20	$ 12,655.00
JJ-3	13.5 mm normal thickness (.531")	25	LF	$ 519.70	$ 12,992.50
JJ-4	15.0 mm normal thickness (.591")	25	LF	$ 532.80	$ 13,320.00
JJ-5	16.5 mm normal thickness (.650")	25	LF	$ 546.60	$ 13,665.00
JJ-6	18.0 mm normal thickness (.709")	25	LF	$ 680.50	$ 17,012.50
JJ-7	19.5 mm normal thickness (.768")	25	LF	$ 763.20	$ 19,080.00
JJ-8	21.0 mm normal thickness (.827")	25	LF	$ 781.80	$ 19,545.00
JJ-9	22.5 mm normal thickness (.886")	100	LF	$ 796.30	$ 79,630.00
JJ-10	Charge for each 1.5 mm thickness increase per LF exceeding 22.5 mm	100	LF	$ 14.70	$ 1,470.00
				TOTAL "JJ"	$ 201,872.50
	Total CIPP Rehabilitiation - Stormwater Mains ("U" THRU "JJ")				$ 3,097,717.50

	CLEAN & INSPECTION - STORMWATER MAINS				
ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	EXTENDED PRICE
KK	Light Cleaning and inspection				
KK-1	8"- 12" diameter	6,000	LF	$ 6.00	$ 36,000.00
KK-2	14" - 18" diameter	6,000	LF	$ 8.00	$ 48,000.00
KK-3	20" - 24" diameter	6,000	LF	$ 9.00	$ 54,000.00
KK-4	27" - 42" diameter	6,000	LF	$ 12.10	$ 72,600.00
KK-5	48" - 72" diameter	6,000	LF	$ 16.10	$ 96,600.00
				TOTAL "KK"	$ 307,200.00
LL	Medium Cleaning				
LL-1	8" - 12" diameter	6,000	LF	$ 9.00	$ 54,000.00
LL-2	14"- 18" diameter	6,000	LF	$ 11.10	$ 66,600.00
LL-3	20" - 24" diameter	6,000	LF	$ 14.10	$ 84,600.00
LL-4	27" - 42" diameter	6,000	LF	$ 17.10	$ 102,600.00
LL-5	48"- 72" diameter	6,000	LF	$ 20.10	$ 120,600.00
				TOTAL "LL"	$ 428,400.00
MM	Heavy Cleaning				
MM-1	8" - 12" diameter	6,000	LF	$ 11.10	$ 66,600.00
MM-2	14" - 18" diameter	6,000	LF	$ 16.10	$ 96,600.00
MM-3	20" - 24" diameter	6,000	LF	$ 20.10	$ 120,600.00
MM-4	27"- 42" diameter	6,000	LF	$ 26.10	$ 156,600.00
MM-5	48"- 72" diameter	6,000	LF	$ 32.20	$ 193,200.00
				TOTAL "MM"	$ 633,600.00
NN	Root Removal				
NN-1	8" - 12" diameter	6,000	LF	$ 1.60	$ 9,600.00
NN-2	14" - 18" diameter	6,000	LF	$ 2.60	$ 15,600.00
NN-3	20" - 24" diameter	6,000	LF	$ 4.80	$ 28,800.00
NN-4	27" - 42" diameter	6,000	LF	$ 5.30	$ 31,800.00
NN-5	48"- 72" diameter	6,000	LF	$ 6.30	$ 37,800.00
				TOTAL "NN"	$ 123,600.00
OO	Tuberculation Cleaning				
OO-1	8" - 12" diameter	6,000	LF	$ 19.00	$ 114,000.00
OO-2	14" - 18" diameter	6,000	LF	$ 21.70	$ 130,200.00
OO-3	20" - 24" diameter	6,000	LF	$ 22.70	$ 136,200.00
OO-4	27"- 42" diameter	6,000	LF	$ 23.30	$ 139,800.00
OO-5	8" - 72" diameter	6,000	LF	$ 25.90	$ 155,400.00
				TOTAL "OO"	$ 675,600.00
PP	Stormwater Manhole Cleaining	2,800	SF	$ 5.30	$ 14,840.00
				TOTAL "PP"	$ 14,840.00
	TOTAL "KK" THRU "PP"				$ 2,183,240.00

	ANCILLARY GENERAL SERVICES				
ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	EXTENDED PRICE
QQ	By-Pass Pumping				
QQ-1	8" diameter	5	LS	$ 317.40	$ 1,587.00
QQ-2	10" diameter	5	LS	$ 317.40	$ 1,587.00
QQ-3	12" diameter	5	LS	$ 1,586.80	$ 7,934.00
QQ-4	15" diameter	5	LS	$ 6,347.00	$ 31,735.00
QQ-5	18" diameter	5	LS	$ 11,107.30	$ 55,536.50
QQ-6	21" diameter	5	LS	$ 12,694.10	$ 63,470.50
QQ-7	24" diameter	5	LS	$ 14,280.80	$ 71,404.00
QQ-8	27" diameter	5	LS	$ 15,867.60	$ 79,338.00
QQ-9	30" diameter	5	LS	$ 17,454.30	$ 87,271.50
QQ-10	36" diameter	5	LS	$ 19,041.10	$ 95,205.50
				TOTAL "QQ"	$ 495,069.00
RR	Standard Service Reconnection	25	Each	$ 195.00	$ 4,875.00
				TOTAL "RR"	$ 4,875.00
SS	Traffic Control - FDOT Right of Way				
SS-1	Flagman	10	Setup	$ 655.90	$ 6,559.00
SS-2	Arrow Board	10	Setup	$ 190.40	$ 1,904.00
SS-3	Barricades	10	Setup	$ 359.70	$ 3,597.00
SS-4	Lane Dividers	10	Setup	$ 15.90	$ 159.00
				TOTAL "SS"	$ 12,219.00
TT	Traffic Control - City Right of Way				
TT-1	Flagman	10	Setup	$ 655.90	$ 6,559.00
TT-2	Arrow Board	10	Setup	$ 190.40	$ 1,904.00
TT-3	Barricades	10	Setup	$ 264.50	$ 2,645.00
TT-4	Lane Dividers	10	Setup	$ 15.90	$ 159.00
				TOTAL "TT"	$ 11,267.00
UU	Traffic Control - County Right of Way				
UU-1	Flagman	10	Setup	$ 655.90	$ 6,559.00
UU-2	Arrow Board	10	Setup	$ 190.40	$ 1,904.00
UU-3	Barricades	10	Setup	$ 359.70	$ 3,597.00
UU-4	Lane Dividers	10	Setup	$ 15.90	$ 159.00
				TOTAL "UU"	$ 12,219.00

	ANCILLARY GENERAL SERVICES				
ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	EXTENDED PRICE
VV	Easement Access				
VV-1	6" to 12" diameter	100	LF	$ 3.70	$ 370.00
VV-2	14" to 18" diameter	100	LF	$ 4.80	$ 480.00
VV-3	20" to 24" diameter	100	LF	$ 6.10	$ 610.00
VV-4	27" to 30" diameter	100	LF	$ 9.80	$ 980.00
VV-5	36" to 42" diameter	100	LF	$ 10.80	$ 1,080.00
VV-6	48" to 54" diameter	100	LF	$ 16.10	$ 1,610.00
				TOTAL "VV"	$ 5,130.00
WW	Manhole Cleaning	2,800	SF	$ 5.30	$ 14,840.00
				TOTAL "WW"	$ 14,840.00
XX	Grout fill abandoned pipe	1,000	CY	$ 158.70	$ 158,700.00
				TOTAL "XX"	$ 158,700.00
YY	Chemical and physical product testing	10	EA	$ 264.50	$ 2,645.00
				TOTAL "YY"	$ 2,645.00
ZZ	Erosion and sediment control				
ZZ-1	Silt Fencing	200	LF	$ 4.20	$ 840.00
ZZ-2	Floating Turbidity Barrier	200	LF	$ 15.90	$ 3,180.00
ZZ-3	Gutter Buddy	100	EA	$ 52.90	$ 5,290.00
				TOTAL "ZZ"	$ 9,310.00
AAA	Mobilization	20	Setup	$ 3,578.40	$ 71,568.00
				TOTAL "AAA"	$ 71,568.00
BBB	Bonds	100,000	Percentage	$ 0.03	$ 3,000.00
				TOTAL "BBB"	$ 3,000.00
	TOTAL "QQ" THRU "BBB"				$ 800,842.00
	TOTAL ESTIMATED BID AMOUNT				$ 9,496,402.50

	ADDITIVE ALTERNATE No. 1				
	SANITARY SEWER				
	LINE RECONSTRUCTION SDR 26 LESS THAN 10' DEPTH				
CCC					
CCC-1	15"	100	LF	$ 272.00	$ 27,200.00
CCC-2	18"	100	LF	$ 292.20	$ 29,220.00
CCC-3	24"	100	LF	$ 385.60	$ 38,560.00
CCC-4	30"	100	LF	$ 464.10	$ 46,410.00
CCC-5	36"	100	LF	$ 582.90	$ 58,290.00
CCC-6	42"	100	LF	$ 594.10	$ 59,410.00
CCC-7	48"	100	LF	$ 1,193.20	$ 119,320.00
CCC-8	54"	100	LF	$ 1,500.00	$ 150,000.00
CCC-9	60"	100	LF	$ 2,000.00	$ 200,000.00
CCC-10	66"	50	LF	$ 2,500.00	$ 125,000.00
CCC-11	72"	50	LF	$ 3,000.00	$ 150,000.00
				TOTAL "CCC"	**$ 1,003,410.00**
	SANITARY SEWER				
	LINE RECONSTRUCTION C900 GREATER THAN 10' DEPTH				
DDD					
DDD-1	15"	100	LF	$ 333.30	$ 33,330.00
DDD-2	18"	100	LF	$ 358.30	$ 35,830.00
DDD-3	24"	100	LF	$ 469.00	$ 46,900.00
DDD-4	30"	100	LF	$ 578.50	$ 57,850.00
DDD-5	36"	100	LF	$ 745.00	$ 74,500.00
DDD-6	42"	100	LF	$ 1,391.10	$ 139,110.00
DDD-7	48"	100	LF	$ 1,500.00	$ 150,000.00
DDD-8	54"	100	LF	$ 2,000.00	$ 200,000.00
DDD-9	60"	100	LF	$ 2,500.00	$ 250,000.00
DDD-10	66"	50	LF	$ 3,000.00	$ 150,000.00
DDD-11	72"	50	LF	$ 3,500.00	$ 175,000.00
				TOTAL "DDD"	**$ 1,312,520.00**

	STORMWATER MAINS				
EEE	**Line Reconstruction (concrete collars are incidental) greater than 8' depth and under roadways**				
EEE-1	15" RCP	250	LF	$ 161.30	$ 40,325.00
EEE-2	18" RCP	250	LF	$ 171.10	$ 42,775.00
EEE-3	24" RCP	250	LF	$ 188.60	$ 47,150.00
EEE-4	30" RCP	250	LF	$ 227.30	$ 56,825.00
EEE-5	36 'RCP	250	LF	$ 256.20	$ 64,050.00
EEE-6	48" RCP	250	LF	$ 324.20	$ 81,050.00
EEE-7	54" RCP	250	LF	$ 386.40	$ 96,600.00
EEE-8	60" RCP	250	LF	$ 424.70	$ 106,175.00
EEE-9	72" RCP	500	LF	$ 548.60	$ 274,300.00
				TOTAL "EEE"	$ 809,250.00
FFF	**HDPE Line Reconstruction less than 8'**				
FFF-1	15" HDPE	250	LF	$ 133.60	$ 33,400.00
FFF-2	18" HDPE	250	LF	$ 142.20	$ 35,550.00
FFF-3	24" HDPE	250	LF	$ 160.60	$ 40,150.00
FFF-4	30" HDPE	250	LF	$ 203.10	$ 50,775.00
FFF-5	36" HDPE	250	LF	$ 209.80	$ 52,450.00
FFF-6	42" HDPE	250	LF	$ 231.70	$ 57,925.00
FFF-7	48" HDPE	250	LF	$ 279.80	$ 69,950.00
FFF-8	54" HDPE	250	LF	$ 310.00	$ 77,500.00
FFF-9	60" HDPE	250	LF	$ 353.50	$ 88,375.00
FFF-10	70" HDPE	500	LF	$ 390.00	$ 195,000.00
				TOTAL "FFF"	$ 701,075.00
	TOTAL "CCC" THRU "FFF"				$ 3,826,255.00

(COMPOSITE EXHIBIT C is not attached but will remain on file in in the Office of the Purchasing Agent and will be available upon request)

THE CITY OF DAYTONA BEACH
OFFICE OF THE PURCHASING AGENT

Post Office Box 2451
Daytona Beach, Florida 32115-2451

Phone (386) 671-8080
Fax (386) 671-8085

RENEWAL OF CONTRACT

August 9, 2021

EMAIL
dpartridge@aegion.com

Insituform Technologies, LLC
Diane Partridge
17988 Edison Avenue
Chesterfield, MO 63005

Re: Renewal of 0118-2600
Cured-In-Place Pipe (CIPP)

Dear Diane Partridge:

Insituform Technologies, LLC is currently providing Cured-In-Place Pipe (CIPP) to the City of Daytona Beach under an agreement entered into by the two parties by the above referenced bid. Section 8 of the contract allows the City the option to renew for up to 4 additional one year terms by providing the Contractor written notice at least 60 days before the end of the current term.

The City of Daytona Beach desires to exercise the third of four renewal options to have this service continued by Insituform Technologies, LLC for the period effective 2/6/2022 through 2/5/2023 under the same terms and conditions.

THE CITY OF DAYTONA BEACH

Deric C. Feacher, City Manager

8-10-21
Date

9L011

FIRST AMENDMENT TO GENERAL SERVICES CONTRACT

Contract No. 0118-2600

This First Amendment ("Amendment") to the **General Services Contract, Contract No. 0118-2600** ("Contract") is made and entered into as of the date of last execution below ("Effective Date"). The City of Daytona Beach, a Florida municipal corporation ("City") and Insituform Technologies, LLC, a foreign limited liability company ("Contractor"), hereby agree to amend the Contract.

1. Section 3. Fees. is amended as follows (additions indicated with underline and deletions indicated with ~~strikethroughs~~):

> **Section 3. Fee(s)**. For the services provided under this Contract, City will pay Contractor Fees based upon the Fee/Rate Schedule attached hereto as Exhibit B-1.
>
> The Fees described in Exhibit B-1 will be Contractor's sole compensation for the services to be provided. Except for any reimbursable expenses specifically authorized by Exhibit B-1, Contractor will be solely responsible for all ~~of~~ costs Contractor incurs in meeting its obligations herein.

2. Exhibit B is deleted and replaced with Exhibit B-1 attached hereto.

3. This Amendment shall apply to services invoiced after the Effective Date for Work Authorization 4

4. In the event Contractor's costs de-escalate on 50% of the line items in Exhibit B-1 by more than 10% during the remainder of the Contract term, Contractor shall submit a new Fee/Rate Schedule. In addition, Contractor shall provide a materials cost analysis upon request from the City.

5. All other provisions of the Contract remain in full force and effect.

IN WITNESS WHEREOF, the City and the Contractor have set their hands and seals, effective on the date that the last party has signed below.

The City:

By: _____

Derrick L. Henry, Mayor

Contractor: Insituform Technologies, LLC

By: Diane Partridge

Printed Name: Diane Partridge

Title: Contracting and Attesting Officer

Date: June 30, 2022

Attest: _____

Letitia LaMagna, City Clerk

Date: _____

Approved as to Legal Form:

By: _____
Robert Jagger, City Attorney

CITY OF DAYTONA BEACH
CONTRACT No. 0118-2600
CONTINUING SERVICES CONTRACT
CURED-IN-PLACE PIPE (CIPP)

EXHIBIT B-1

ITEM NO.	DESCRIPTION	UNIT	ORIGINAL UNIT PRICE	NEW PRICING (May 2022)	INCREASE
	CIPP Rehab. Sanitary Sewer Mains				
A	**8" diameter**				
A-1	6.0 mm normal thickness (.236)	LF	$23.10	$27.30	18.18%
A-2	7.5 mm normal thickness (.0295)	LF	$25.20	$29.80	18.25%
A-3	9.0 mm normal thickness (.354)	LF	$26.00	$30.80	18.46%
B	**10" diameter**				
B-1	6.0 mm normal thickness (.236)	LF	$27.30	$32.20	17.95%
B-2	7.5 mm normal thickness (.0295)	LF	$29.70	$35.10	18.18%
B-3	9.0 mm normal thickness (.354)	LF	$31.00	$36.70	18.39%
C	**12" diameter**				
C-1	6.0 mm normal thickness (.236)	LF	$30.40	$35.70	17.43%
C-2	7.5 mm normal thickness (.0295)	LF	$32.90	$38.80	17.93%
C-3	9.0 mm normal thickness (.354)	LF	$39.30	$46.50	18.32%
D	**15" diameter**				
D-1	6.0 mm normal thickness (.236)	LF	$38.00	$44.50	17.11%
D-2	7.5 mm normal thickness (.0295)	LF	$42.10	$49.50	17.58%
D-3	9.0 mm normal thickness (.354)	LF	$49.10	$57.80	17.72%
E	**18" diameter**				
E-1	6.0 mm normal thickness (.236)	LF	$37.90	$44.70	17.94%
E-2	7.5 mm normal thickness (.0295)	LF	$45.00	$53.10	18.00%
E-3	9.0 mm normal thickness (.354)	LF	$57.70	$68.20	18.20%
E-4	10.5 mm normal thickness (.413)	LF	$61.20	$72.50	18.46%
F	**21" diameter**				
F-1	6.0 mm normal thickness (.236)	LF	$44.00	$51.80	17.73%
F-2	7.5 mm normal thickness (.0295)	LF	$48.00	$56.60	17.92%
F-3	9.0 mm normal thickness (.354)	LF	$67.50	$79.60	17.93%
F-4	10.5 mm normal thickness (.413)	LF	$73.30	$86.50	18.01%
F-5	12.0 mm normal thickness (.472)	LF	$78.90	$93.40	18.38%
F-6	Charge for 1.5mm increaser per LF	LF	$4.20	$5.00	19.05%
G	**24" diameter**				
G-1	9.0 mm normal thickness (.354)	LF	$70.00	$82.40	17.71%
G-2	10.5 mm normal thickness (.413)	LF	$82.50	$97.20	17.82%
G-3	12.0 mm normal thickness (.472)	LF	$89.90	$106.00	17.91%
G-4	13.5 mm normal thickness (.531)	LF	$94.90	$112.00	18.02%
G-5	15.0 mm normal thickness (.591)	LF	$100.20	$118.50	18.26%
G-6	Charge for 1.5mm increaser per LF	LF	$4.30	$5.10	18.60%
H	**27" diameter**				
H-1	9.0 mm normal thickness (.354)	LF	$74.00	$87.00	17.57%
H-2	10.5 mm normal thickness (.413)	LF	$89.70	$105.60	17.73%
H-3	12.0 mm normal thickness(.472)	LF	$97.90	$115.50	17.98%
H-4	13.5 mm normal thickness (.531)	LF	$104.20	$123.00	18.04%
H-5	15.0 mm normal thickness (.591)	LF	$110.30	$130.50	18.31%
H-6	Charge for 1.5mm increaser per LF	LF	$3.90	$4.70	20.51%
I	**30" diameter**				
I-1	9.0 mm normal thickness (.354)	LF	$76.00	$89.50	17.76%
I-2	10.5 mm normal thickness (.413)	LF	$101.10	$119.20	17.90%
I-3	12.0 mm normal thickness (.472)	LF	$109.50	$129.20	17.99%
I-4	13.5 mm normal thickness (.531)	LF	$115.90	$137.00	18.21%
I-5	15.0 mm normal thickness (.591)	LF	$121.80	$144.50	18.64%
I-6	Charge for 1.5mm increaser per LF	LF	$5.50	$6.60	20.00%
J	**36" diameter**				
J-1	10.5 mm normal thickness (.413)	LF	$90.00	$106.00	17.78%
J-2	12.0 mm normal thickness (.472)	LF	$134.50	$158.50	17.84%
J-3	13.5 mm normal thickness (.531)	LF	$142.80	$168.50	18.00%
J-4	15.0 mm normal thickness (.591)	LF	$150.70	$178.00	18.12%
J-5	16.5 mm normal thickness (.650)	LF	$157.40	$186.00	18.17%

J-6	18.0 mm normal thickness (.709)	LF	$166.10	$196.50	18.30%
J-7	Charge for 1.5mm increaser per LF	LF	$5.60	$6.70	19.64%
K	**42" diameter**				
K-1	10.5 mm normal thickness (.413)	LF	$119.80	$141.00	17.70%
K-2	12.0 mm normal thickness (.472)	LF	$158.80	$187.00	17.76%
K-3	13.5 mm normal thickness (.531)	LF	$167.60	$197.50	17.84%
K-4	15.0 mm normal thickness (.591)	LF	$176.40	$208.00	17.91%
K-5	16.5 mm normal thickness (.650)	LF	$185.20	$219.00	18.25%
K-6	18.0 mm normal thickness (.709)	LF	$192.80	$228.50	18.52%
K-7	Charge for 1.5mm increaser per LF	LF	$7.10	$8.50	19.72%
	Clean & Inspection - Sanitary				
L	**Light Cleaning and inspection**				
L-1	8" - 12" diameter	LF	$2.50	$2.70	8.00%
L-2	14" - 18" diameter	LF	$5.00	$5.40	8.00%
L-3	20" - 24" diameter	LF	$7.00	$7.55	7.86%
L-4	27" - 42" diameter	LF	$10.00	$10.80	8.00%
L-5	48" - 72" diameter	LF	$12.10	$13.05	7.85%
M	**Medium Cleaning**				
M-1	8" - 12" diameter	LF	$3.70	$4.00	8.00%
M-2	14" - 18" diameter	LF	$7.00	$7.55	7.86%
M-3	20" - 24" diameter	LF	$10.00	$10.80	8.00%
M-4	27" - 42" diameter	LF	$13.10	$14.15	8.00%
M-5	48" - 72" diameter	LF	$15.10	$16.30	7.95%
N	**Heavy Cleaning**				
N-1	8" - 12" diameter	LF	$3.30	$3.55	7.58%
N-2	14" - 18" diameter	LF	$8.00	$8.65	8.13%
N-3	20" - 24" diameter	LF	$12.10	$13.05	7.85%
N-4	27" - 42" diameter	LF	$16.10	$17.40	8.07%
N-5	48" - 72" diameter	LF	$18.10	$19.55	8.00%
O	**Root Removal**				
O-1	8" - 12" diameter	LF	$1.60	$1.75	9.37%
O-2	14" - 18" diameter	LF	$2.60	$2.80	7.69%
O-3	20" - 24" diameter	LF	$4.80	$5.20	8.33%
O-4	27" - 42" diameter	LF	$5.30	$5.75	8.49%
O-5	48" - 72" diameter	LF	$6.30	$6.80	8.00%
P	**Tuberculation Cleaning**				
P-1	8" - 12" diameter	LF	$19.00	$20.50	7.89%
P-2	14" - 18" diameter	LF	$21.70	$23.45	8.06%
P-3	20" - 24" diameter	LF	$22.70	$24.50	7.93%
P-4	27" - 42" diameter	LF	$23.30	$25.15	7.94%
P-5	48" - 72" diameter	LF	$25.90	$28.00	8.11%
Q	**Lateral CIPP Lining-Top Hat/ Full Wrap - Sanitary**				
Q-1	Four(4) inch lateral connection per ASTM F1216-16	EA	$2,009.90	$2,470.10	22.90%
Q-2	Six(6) inch lateral connection per ASTM F1216-16	EA	$2,009.90	$2,470.10	22.90%
Q-3	Eight(8) inch lateral connection per ASTM F1216-16	EA	$2,009.90	$2,470.10	22.90%
Q-4	Lateral lining 0 to 30' per ASTM F1216-16	LF	$79.30	$97.30	22.70%
Q-5	Additional Lateral Lining > 30' per ASTM F1216-16	LF	$37.00	$44.40	20.00%
Q-6	Lateral Cutout	EA	$195.00	$195.00	0.00%
Q-4	Lateral Grout	EA	$390.20	$390.20	0.00%
R	**Manhole/ Lift Station Refurbishment - Sanitary**				
R-1	Interior Manhole Application(Precast)	SF	$19.00	$19.00	0.00%
R-2	Interior Manhole Application(Brick)	SF	$23.30	$23.30	0.00%
R-3	Interior Lift Station Application(Precast)	SF	$21.20	$21.20	0.00%
R-4	Interior Lift Station Application(Brick)	SF	$26.40	$26.40	0.00%
R-5	Bench/Invert Repair	EA	$528.90	$528.90	0.00%
S	**Cleanout Installation - Sanitary**				
S-1	Four(4) inch cleanout	EA	$528.90	$528.90	0.00%
S-2	Six(6) inch cleanout	EA	$634.70	$634.70	0.00%
S-3	Eight(8) inch cleanout	EA	$793.40	$793.40	0.00%
	Manhole Cleaning - Sanitary				
T	Manhole Cleaning	SF	$5.30	$5.30	0.00%
	CIPP Rehab. Storm Sewer Mains				
U	**8" diameter**				
U-1	6.0 mm normal thickness (.236)	LF	$39.50	$46.70	18.23%
V	**10" diameter**				
V-1	6.0 mm normal thickness (.236)	LF	$45.50	$53.65	17.91%

V-2	7.5 mm normal thickness (.0295)	LF	$48.00	$56.70	18.13%
W	**12" diameter**				
W-1	6.0 mm normal thickness (.236)	LF	$48.80	$57.30	17.42%
W-2	7.5 mm normal thickness (.0295)	LF	$51.50	$60.75	17.96%
X	**15" diameter**				
X-1	6.0 mm normal thickness (.236)	LF	$55.00	$64.40	17.09%
X-2	7.5 mm normal thickness (.0295)	LF	$64.50	$75.80	17.52%
X-3	9.0 mm normal thickness (.354)	LF	$76.90	$90.50	17.69%
X-4	Charge for 1.5mm increaser per LF	LF	$2.10	$2.50	19.05%
Y	**18" diameter**				
Y-1	6.0 mm normal thickness (.236)	LF	$52.20	$61.55	17.91%
Y-2	7.5 mm normal thickness (.0295)	LF	$67.60	$79.80	18.05%
Y-3	9.0 mm normal thickness (.354)	LF	$79.40	$93.85	18.20%
Y-4	10.5 mm normal thickness (.413)	LF	$82.90	$98.20	18.46%
Y-5	Charge for 1.5mm increaser per LF	LF	$4.20	$5.00	19.05%
Z	**21" diameter**				
Z-1	6.0 mm normal thickness (.236)	LF	$59.70	$70.30	17.76%
Z-2	7.5 mm normal thickness (.0295)	LF	$63.50	$74.90	17.95%
Z-3	9.0 mm normal thickness (.354)	LF	$90.10	$106.30	17.98%
Z-4	10.5 mm normal thickness (.413)	LF	$96.10	$113.40	18.00%
Z-5	12.0 mm normal thickness (.472)	LF	$104.40	$123.60	18.39%
Z-6	Charge for 1.5mm increaser per LF	LF	$4.20	$5.00	19.05%
AA	**24" diameter**				
AA-1	9.0 mm normal thickness (.354)	LF	$95.00	$111.80	17.68%
AA-2	10.5 mm normal thickness (.413)	LF	$106.70	$125.70	17.81%
AA-3	12.0 mm normal thickness (.472)	LF	$116.80	$137.85	18.02%
AA-4	13.5 mm normal thickness (.531)	LF	$122.00	$143.70	17.79%
AA-5	15.0 mm normal thickness (.591)	LF	$127.50	$150.80	18.27%
AA-6	Charge for 1.5mm increaser per LF	LF	$4.30	$5.10	18.60%
BB	**27" diameter**				
BB-1	9.0 mm normal thickness (.354)	LF	$100.00	$117.55	17.55%
BB-2	10.5 mm normal thickness (.413)	LF	$113.70	$133.85	17.72%
BB-3	12.0 mm normal thickness	LF	$124.60	$147.00	17.98%
BB-4	13.5 mm normal thickness (.531)	LF	$131.20	$154.90	18.06%
BB-5	15.0 mm normal thickness (.591)	LF	$137.60	$162.80	18.31%
BB-6	Charge for 1.5mm increaser per LF	LF	$4.50	$5.40	20.00%
CC	**30" diameter**				
CC-1	9.0 mm normal thickness (.354)	LF	$100.00	$117.75	17.75%
CC-2	10.5 mm normal thickness (.413)	LF	$113.70	$134.10	17.94%
CC-3	12.0 mm normal thickness (.472)	LF	$123.30	$145.40	17.92%
CC-4	13.5 mm normal thickness (.531)	LF	$129.90	$155.10	19.40%
CC-5	15.0 mm normal thickness (.591)	LF	$135.90	$160.35	17.99%
CC-6	Charge for 1.5mm increaser per LF	LF	$5.50	$6.50	18.18%
DD	**36" diameter**				
DD-1	10.5 mm normal thickness (.413)	LF	$108.00	$127.20	17.78%
DD-2	12.0 mm normal thickness (.472)	LF	$151.70	$178.75	17.83%
DD-3	13.5 mm normal thickness (.531)	LF	$160.30	$182.20	13.66%
DD-4	15.0 mm normal thickness (.591)	LF	$168.30	$198.60	18.00%
DD-5	16.5 mm normal thickness (.650)	LF	$175.10	$206.85	18.13%
DD-6	18.0 mm normal thickness (.709)	LF	$184.00	$217.40	18.15%
DD-7	Charge for 1.5mm increaser per LF	LF	$5.60	$6.70	19.64%
EE	**42" diameter**				
EE-1	10.5 mm normal thickness (.413)	LF	$120.00	$141.25	17.71%
EE-2	12.0 mm normal thickness (.472)	LF	$140.00	$164.85	17.75%
EE-3	13.5 mm normal thickness (.531)	LF	$185.80	$218.90	17.81%
EE-4	15.0 mm normal thickness (.591)	LF	$194.80	$229.70	17.92%
EE-5	16.5 mm normal thickness (.650)	LF	$203.80	$241.00	18.25%
EE-6	18.0 mm normal thickness (.709)	LF	$211.50	$250.70	18.53%
EE-7	Charge for 1.5mm increaser per LF	LF	$7.10	$8.50	19.72%
FF	**48" diameter**				
FF-1	12.0 mm normal thickness (.472)	LF	$150.00	$176.70	17.80%
FF-2	13.5 mm normal thickness (.531)	LF	$160.00	$188.60	17.88%
FF-3	15.0 mm normal thickness (.591)	LF	$225.30	$265.70	17.93%
FF-4	16.5 mm normal thickness (.650)	LF	$235.60	$278.00	18.00%
FF-5	18.0 mm normal thickness (.709)	LF	$244.60	$289.40	18.32%
FF-6	19.5 mm normal thickness (.768)	LF	$262.20	$310.40	18.38%

FF-7	21.0 mm normal thickness (.827)	LF	$270.90	$320.90	18.46%
FF-8	Charge for 1.5mm increaser per LF	LF	$8.00	$9.50	18.75%
GG	**52" diameter**				
GG-1	10.5 mm normal thickness (.413)	LF	$145.00	$171.00	17.93%
GG-2	12.0 mm normal thickness (.472)	LF	$155.00	$183.00	18.06%
GG-3	13.5 mm normal thickness (.531)	LF	$165.00	$195.00	18.18%
GG-4	15.0 mm normal thickness (.591)	LF	$196.50	$232.30	18.22%
GG-5	16.5 mm normal thickness (.650)	LF	$204.20	$241.50	18.27%
GG-6	18.0 mm normal thickness (.709)	LF	$262.20	$310.20	18.31%
GG-7	19.5 mm normal thickness (.768)	LF	$279.30	$330.50	18.33%
GG-8	21.0 mm normal thickness (.827)	LF	$290.40	$344.00	18.46%
GG-9	22.5 mm normal thickness (.886)	LF	$302.60	$358.70	18.54%
GG-10	Charge for 1.5mm increaser per LF	LF	$9.60	$11.50	19.79%
HH	**54" diameter**				
HH-1	10.5 mm normal thickness (.413)	LF	$150.00	$176.50	17.67%
HH-2	12.0 mm normal thickness (.472)	LF	$160.00	$188.40	17.75%
HH-3	13.5 mm normal thickness (.531)	LF	$170.00	$200.25	17.79%
HH-4	15.0 mm normal thickness (.591)	LF	$210.00	$247.40	17.81%
HH-5	16.5 mm normal thickness (.650)	LF	$215.00	$253.40	17.86%
HH-6	18.0 mm normal thickness (.709)	LF	$288.90	$341.00	18.03%
HH-7	19.5 mm normal thickness (.768)	LF	$305.50	$361.00	18.17%
HH-8	21.0 mm normal thickness (.827)	LF	$406.10	$481.00	18.44%
HH-9	22.5 mm normal thickness (.886)	LF	$419.70	$497.50	18.54%
HH-10	Charge for 1.5mm increaser per LF	LF	$9.80	$11.70	19.39%
II	**60" diameter**				
II-1	10.5 mm normal thickness (.413)	LF	$302.40	$356.50	17.89%
II-2	12.0 mm normal thickness (.472)	LF	$319.00	$376.20	17.93%
II-3	13.5 mm normal thickness (.531)	LF	$330.20	$389.70	18.02%
II-4	15.0 mm normal thickness (.591)	LF	$341.20	$402.70	18.02%
II-5	16.5 mm normal thickness (.650)	LF	$350.40	$414.00	18.15%
II-6	18.0 mm normal thickness (.709)	LF	$445.50	$527.00	18.29%
II-7	19.5 mm normal thickness (.768)	LF	$468.90	$555.00	18.36%
II-8	21.0 mm normal thickness (.827)	LF	$483.90	$573.00	18.41%
II-9	22.5 mm normal thickness (.886)	LF	$499.10	$591.50	18.51%
II-10	Charge for 1.5mm increaser per LF	LF	$13.50	$16.10	19.26%
JJ	**72" diameter**				
JJ-1	10.5 mm normal thickness (.413)	LF	$500.10	$587.00	17.38%
JJ-2	12.0 mm normal thickness (.472)	LF	$506.20	$594.50	17.44%
JJ-3	13.5 mm normal thickness (.531)	LF	$519.70	$610.70	17.51%
JJ-4	15.0 mm normal thickness (.591)	LF	$532.80	$627.00	17.68%
JJ-5	16.5 mm normal thickness (.650)	LF	$546.60	$643.50	17.73%
JJ-6	18.0 mm normal thickness (.709)	LF	$680.50	$802.00	17.85%
JJ-7	19.5 mm normal thickness (.768)	LF	$763.20	$901.00	18.06%
JJ-8	21.0 mm normal thickness (.827)	LF	$781.80	$925.00	18.32%
JJ-9	22.5 mm normal thickness (.886)	LF	$796.30	$944.00	18.55%
JJ-10	Charge for 1.5mm increaser per LF	LF	$14.70	$17.50	19.05%
	Clean & Inspection - Storm				
KK	**Light Cleaning and inspection**				
KK-1	8" - 12" diameter	LF	$6.00	$6.50	8.33%
KK-2	14" - 18" diameter	LF	$8.00	$8.65	8.13%
KK-3	20" - 24" diameter	LF	$9.00	$9.75	8.33%
KK-4	27" - 42" diameter	LF	$12.10	$13.05	7.85%
KK-5	48" - 72" diameter	LF	$16.10	$17.40	8.07%
LL	**Medium Cleaning**				
LL-1	8" - 12" diameter	LF	$9.00	$9.75	8.33%
LL-2	14" - 18" diameter	LF	$11.10	$12.00	8.11%
LL-3	20" - 24" diameter	LF	$14.10	$15.25	8.16%
LL-4	27" - 42" diameter	LF	$17.10	$18.50	8.19%
LL-5	48" - 72" diameter	LF	$20.10	$21.70	7.96%
MM	**Heavy Cleaning**				
MM-1	8" - 12" diameter	LF	$11.10	$12.00	8.11%
MM-2	14" - 18" diameter	LF	$16.10	$17.40	8.07%
MM-3	20" - 24" diameter	LF	$20.10	$21.70	7.96%
MM-4	27" - 42" diameter	LF	$26.10	$28.20	8.05%
MM-5	48" - 72" diameter	LF	$32.20	$34.80	8.07%
NN	**Root Removal**				

NN-1	8" - 12" diameter	LF	$1.60	$1.75	9.37%
NN-2	14" - 18" diameter	LF	$2.60	$2.80	7.69%
NN-3	20" - 24" diameter	LF	$4.80	$5.20	8.33%
NN-4	27" - 42" diameter	LF	$5.30	$5.75	8.49%
NN-5	48" - 72" diameter	LF	$6.30	$6.80	8.00%
OO	**Tuberculation Cleaning**				
OO-1	8" - 12" diameter	LF	$19.00	$20.50	7.89%
OO-2	14" - 18" diameter	LF	$21.70	$23.45	8.06%
OO-3	20" - 24" diameter	LF	$22.70	$24.50	7.93%
OO-4	27" - 42" diameter	LF	$23.30	$25.15	7.94%
OO-5	48" - 72" diameter	LF	$25.90	$28.00	8.11%
PP	**Stormwater Manhole Cleaning**	SF	$5.30	$5.30	0.00%
	Ancillary Services				
QQ	**By-Pass Pumping**				
QQ-1	8" diameter	LS	$317.40	$317.40	0.00%
QQ-2	10" diameter	LS	$317.40	$317.40	0.00%
QQ-3	12" diameter	LS	$1,586.80	$1,586.80	0.00%
QQ-4	15" diameter	LS	$6,347.00	$6,347.00	0.00%
QQ-5	18" diameter	LS	$11,107.30	$11,107.30	0.00%
QQ-6	21" diameter	LS	$12,694.10	$12,694.10	0.00%
QQ-7	24" diameter	LS	$14,280.80	$14,280.80	0.00%
QQ-8	27" diameter	LS	$15,867.60	$15,867.60	0.00%
QQ-9	30" diameter	LS	$17,454.30	$17,454.30	0.00%
QQ-10	36" diameter	LS	$19,041.10	$19,041.10	0.00%
RR	**Standard Service Reconnection**	each	$195.00	$195.00	0.00%
SS	**Traffic Control - FDOT Right of Way**				
SS-1	Flagman	setup	$655.90	$700.00	6.72%
SS-2	Arrow Board	setup	$190.40	$190.40	0.00%
SS-3	Barricades	setup	$359.70	$359.70	0.00%
SS-4	Lane Dividers	setup	$15.90	$15.90	0.00%
TT	**Traffic Control - City Right of Way**				
TT-1	Flagman	setup	$655.90	$700.00	6.72%
TT-2	Arrow Board	setup	$190.40	$190.40	0.00%
TT-3	Barricades	setup	$264.50	$264.50	0.00%
TT-4	Lane Dividers	setup	$15.90	$15.90	0.00%
UU	**Traffic Control - County Right of Way**				
UU-1	Flagman	setup	$655.90	$700.00	6.72%
UU-2	Arrow Board	setup	$190.40	$190.40	0.00%
UU-3	Barricades	setup	$359.70	$359.70	0.00%
UU-4	Lane Dividers	setup	$15.90	$15.90	0.00%
VV	**Easement Access**				
VV-1	6" to 12" diameter	LF	$3.70	$3.70	0.00%
VV-2	14" to 18" diameter	LF	$4.80	$4.80	0.00%
VV-3	20" to 24" diameter	LF	$6.10	$6.10	0.00%
VV-4	27" to 30" diameter	LF	$9.80	$9.80	0.00%
VV-5	36" to 42" diameter	LF	$10.80	$10.80	0.00%
VV-6	48" to 54" diameter	LF	$16.10	$16.10	0.00%
WW	**Manhole Cleaning**	SF	$5.30	$5.30	0.00%
XX	**Grout fill abandoned pipe**	CY	$158.70	$158.70	0.00%
YY	**Chemical and physical product testing**	EA	$264.50	$264.50	0.00%
ZZ	**Erosion and sediment control**				
ZZ-1	Silt Fencing	LF	$4.20	$4.20	0.00%
ZZ-2	Floating Turbidity Barrier	LF	$15.90	$15.90	0.00%
ZZ-3	Gutter Buddy	EA	$52.90	$52.90	0.00%
	Additive Alternate No. 1				
	Sanitary Sewer				
	Line Reconstruction SDR 26 Less than 10' Depth				
CCC					
CCC-1	**15"**	LF	$272.00	$272.00	0.00%
CCC-2	**18"**	LF	$292.20	$292.20	0.00%
CCC-3	**24"**	LF	$385.60	$385.60	0.00%
CCC-4	**30"**	LF	$464.10	$464.10	0.00%
CCC-5	**36"**	LF	$582.90	$582.90	0.00%
CCC-6	**42"**	LF	$594.10	$594.10	0.00%
CCC-7	**48"**	LF	$1,193.20	$1,193.20	0.00%

CCC-8	**54"**	LF	$1,500.00	$1,500.00	0.00%
CCC-9	**60"**	LF	$2,000.00	$2,000.00	0.00%
CCC-10	**66"**	LF	$2,500.00	$2,500.00	0.00%
CCC-11	**72"**	LF	$3,000.00	$3,000.00	0.00%
	Sanitary Sewer Line Reconstruction C900 Greater than 10' Depth				
DDD					
DDD-1	**15"**	LF	$333.30	$333.30	0.00%
DDD-2	**18"**	LF	$358.30	$358.30	0.00%
DDD-3	**24"**	LF	$469.00	$469.00	0.00%
DDD-4	**30"**	LF	$578.50	$578.50	0.00%
DDD-5	**36"**	LF	$745.00	$745.00	0.00%
DDD-6	**42"**	LF	$1,391.10	$1,391.10	0.00%
DDD-7	**48"**	LF	$1,500.00	$1,500.00	0.00%
DDD-8	**54"**	LF	$2,000.00	$2,000.00	0.00%
DDD-9	**60"**	LF	$2,500.00	$2,500.00	0.00%
DDD-10	**66"**	LF	$3,000.00	$3,000.00	0.00%
DDD-11	**72"**	LF	$3,500.00	$3,500.00	0.00%
	Stormwater Mains Line Reconstruction(concrete collars are incidental) greater than 8' depth and under roadways				
EEE					
EEE-1	**15" RCP**	LF	$161.30	$161.30	0.00%
EEE-2	**18" RCP**	LF	$171.10	$171.10	0.00%
EEE-3	**24" RCP**	LF	$188.60	$188.60	0.00%
EEE-4	**30" RCP**	LF	$227.30	$227.30	0.00%
EEE-5	**36" RCP**	LF	$256.20	$256.20	0.00%
EEE-6	**48" RCP**	LF	$324.20	$324.20	0.00%
EEE-7	**54" RCP**	LF	$386.40	$386.40	0.00%
EEE-8	**60" RCP**	LF	$424.70	$424.70	0.00%
EEE-9	**72" RCP**	LF	$548.60	$548.60	0.00%
FFF	**HDPE Line Reconstruction less than 8'**				
FFF-1	**15" HDPE**	LF	$133.60	$133.60	0.00%
FFF-2	**18" HDPE**	LF	$142.20	$142.20	0.00%
FFF-3	**24" HDPE**	LF	$160.60	$160.60	0.00%
FFF-4	**30" HDPE**	LF	$203.10	$203.10	0.00%
FFF-5	**36" HDPE**	LF	$209.80	$209.80	0.00%
FFF-6	**42" HDPE**	LF	$231.70	$231.70	0.00%
FFF-7	**48" HDPE**	LF	$279.80	$279.80	0.00%
FFF-8	**54" HDPE**	LF	$310.00	$310.00	0.00%
FFF-9	**60" HDPE**	LF	$353.50	$353.50	0.00%
FFF-10	**70" HDPE**	LF	$390.00	$390.00	0.00%
AAA	**Mobilization**	Setup	$3,578.40	$4,100.00	14.58%
BBB	**Bonds - 1.5%**	%			

AGENDA ITEM NO. 6.j

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Mindy Piantanida, Public Works & Utilities

ITEM TYPE: Budget Adjustment

AGENDA SECTION: CONSENT AGENDA

SUBJECT: Budget Adjustment BA23-3

SUGGESTED ACTION: Approval

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
Budget adjustment for the purpose of funding rental fees associated with generators needed in an emergency due to control panel failures, increased costs of capital items, and reallocating project budgets.

FINANCIAL IMPACT:
Contingency funds and cash carryforward funds will be utilized to offset expenses.

ATTORNEY REVIEW/RECOMMENDATION:
N/A

SUGGESTED MOTION:
Motion to approve Budget Adjustment BA23-3.

ATTACHMENTS:
Budget Adjustment BA23-3

RESOLUTION NUMBER BA23-3

A RESOLUTION OF THE CITY OF BRADENTON, FLORIDA, AMENDING/ADJUSTING THE 2022-2023 ANNUAL BUDGET; PROVIDING AN EFFECTIVE DATE.

WHEREAS, Florida Statute 166.241(4) allows a municipality to amend (change budget total) or adjust (move funds without changing budget total) its budget, as necessary, at any time within a fiscal year; and

WHEREAS, this Statute also indicates the budget shall be changed in the same manner as its original adoption which, in the City of Bradenton's case, is by resolution; and

WHEREAS, City policy dictates that all budget amendments, and any budget adjustments greater than $10,000 must have City Council approval, adjustments less than $10,000 require approval by the City Administrator; and

WHEREAS, the City's Public Works and Utilities Department requests to amend or adjust the budget at this time, in an amount greater than $10,000, for the purpose of funding rental fees associated with generators needed in an emergency due to control panel failures; increased costs of capital purchases; and reallocating project budgets.

NOW, THEREFORE, BE IT RESOLVED by the City Council for the City of Bradenton, as follows:

1. The attached Budget Adjustment Form has been submitted by the above-named department, and reviewed and approved by City's Finance Department.
2. Upon Council approval, the Finance Department shall process the form adjusting the City's budget, and will maintain the original documents as required.
3. Per Florida Statute 166.241(5) this adjustment will be posted on the City's website.
4. This Resolution shall become effective immediately upon its adoption.

PASSED AND DULY ADOPTED BY THE CITY COUNCIL FOR THE CITY OF BRADENTON, FLORIDA, WITH A QUORUM PRESENT AND VOTING ON THIS 8TH DAY OF FEBRUARY, 2023.

_____
Gene Brown, Mayor

ATTEST:

_____
Tamara Melton, City Clerk

APPROVED AS TO FORM:

_____
Scott Rudacille, City Attorney

City of Bradenton Budget Adjustment Form

1. Complete and sign this Budget Adjustment form. Adjustment number available from Clerk Department.
2. Attach supporting documentation.
3. Submit to Linda Guth in the Finance Department.

Budget adjustments MUST balance

Requested by: Mindy Piantanida

For: Public Works and Utilities

Date: February 8, 2023

Budget Adjustment #: BA23-3

Amendments to the total budget, and/or adjustments over $10,000 in a single line item, require Resolution and Consent Agenda Memorandum for City Council approval.

Explanation for Adjustment: Public Works and Utilities first quarter budget adjustments for the purpose of funding rental fees associated with generators needed in an emergency due to control panel failures; increased costs of capital purchases; and reallocating project budgets.

Please provide the account number and the line item description for each transaction.-
For example: Account Number: 00151940 546200
Line item description: Equipment Repair & Maintenance in Electrical Maintenance Dept.

Account Number: 40253320 544200
Line item description: Rentals and Leases in Water Treatment Division

Increase (in $): 15,205 Decrease (in $):

Account Number: 40253320 546200
Line item description: Equipment Repair & Maintenance in Water Treatment Division

Increase (in $): Decrease (in $): 15,205

Account Number: 40254110 564000
Line item description: Machinery & Equipment – Capital Outlay in Engineering Division

Increase (in $): 33,895 Decrease (in $):

Account Number: 40205 369150
Line item description: Cash Carryforward in Water-Sewer Fund

Increase (in $): 33,895 Decrease (in $):

Account Number: 46053412 543200
Line item description: Tonnages-Utilities in Solid Waste Fund

Increase (in $): Decrease (in $): 27,188

Account Number: 46053412 564000
Line item description: Machinery & Equipment – Capital Outlay in Solid Waste Commercial Division

Increase (in $): 27,188 Decrease (in $):

Account Number: 30258200 563000 19801
Line item description: Riverwalk in Half Cent Infrastructure Tax Fund

Increase (in $): 582,403 Decrease (in $):

Account Number: 30258200 563000 PSOC
Line item description: Public Safety Operations Center in Half Cent Infrastructure Tax Fund

Increase (in $): 199,725 Decrease (in $):

Account Number: 30258100 599100
Line item description: Reserve for Contingency in Half Cent Infrastructure Tax Fund

Increase (in $): Decrease (in $): 261,799

Account Number: 30205 369150
Line item description: Cash Carryforward in Half Cent Infrastructure Tax Fund

Increase (in $): 520,329 Decrease (in $):

Account Number: 40859000 563000 20502
Line item description: Water Replacement Proj Yr 7 in Infrastructure Fund

Increase (in $): Decrease (in $): 517,032

Account Number: 40859000 563000 21502
Line item description: Water Replacement Proj Yr 8 in Infrastructure Fund

Increase (in $): Decrease (in $): 29,972

Account Number: 40859000 563000 23505
Line item description: Manhole and Wetwell Lining in Infrastructure Fund

Increase (in $): 547,004 Decrease (in $):

Approved by:

Department Head / Manager

City Administrator

Approved by City Council: _____
(Date)

Posted by Accounting: _____
(Date)

AGENDA ITEM NO. 6.k

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE:	February 8, 2023
SUBMITTED BY:	Kim Clayback, Public Works & Utilities
ITEM TYPE:	Contract
AGENDA SECTION:	CONSENT AGENDA
SUBJECT:	Piggyback PB 21-01KC-EX1 with Bearing Point Construction
SUGGESTED ACTION:	Council approval of piggyback contract and authorization for the Mayor to sign on behalf of the City

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
Bearing Point Construction, Inc agrees to enter into an agreement with the City of Bradenton, Florida to perform as mechanical (plant and lift station) maintenance, repair and rehabilitation services for the City of Bradenton. This agreement is in accordance with the specifications per the City of St. Petersburg agreement.

FINANCIAL IMPACT:
None at this time

ATTORNEY REVIEW/RECOMMENDATION:
No objections

SUGGESTED MOTION:
Motion to approve of piggyback contract PB 21-01KC-EX1

ATTACHMENTS:
PB 21-01KC-EX1 with Bearing Point
Maintenance and Repair Agreement

CITY OF BRADENTON
BRADENTON, FLORIDA

AGREEMENT BETWEEN THE CITY OF BRADENTON AND BEARING POINT CONSTRUCTION, LLC

Bearing Point Construction, LLC[1] agrees to enter into an agreement with the City of Bradenton, Florida to provide maintenance and repair the City of Bradenton. This agreement is in accordance with the specifications per the City of St. Petersburg Contract dated December 1, 2019 for Purchase Order No. 228205, a copy of which is attached hereto and incorporated herein as Exhibit "A," and all amendments thereto, including pricing, for a base contract period dated from the authorized signing of this document by Gene Brown, Mayor through January 30, 2026, with one option to renew for a two year period, with the following modifications:

1. All references to "City of St. Petersburg" and "City" shall be replaced with "City of Bradenton, Florida."

2. "Procurement and Supply Management Department" and "Procurement Department" shall be replaced with "Public Works and Utilities."

3. "Procurement Analyst" shall be replaced with "Project Manager."

4. "Project Manager" shall be Jim McLellan, Director of Public Works and Utilities, 1411 9th Street West, Bradenton, Florida 34205, jim.mclellan@bradentonFL.gov.

2. Section 8, Notices, shall be revised to reflect the following information for notice to the City:

To City: City of Bradenton
Attn: Kim Clayback,PE
Bradenton, Florida 34205

With a copy to: Blalock Walters, P.A

[1] Bearing Point Construction, LLC was formerly known as Bearing Point Construction, Inc. prior to its conversion to a LLC.

Attn: Scott E. Rudacille, Esquire
802 11th Street West
Bradenton, Florida 34205

4. Section 13, Governing Law and Venue, shall be revised to reflect that venue shall lie in Manatee County, Florida.

5. Section 36B, Public Records, shall be deleted in its entirety and replaced with the following:

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

City Clerk
101 Old Main Street West
Bradenton, FL 34205
Phone: 941-923-9400
Email: Cityclerk@cityofbradenton.com

6. A new Section 38, E-Verify, shall be added as follows:

E-VERIFY. Section 448.09, Florida Statutes, makes it unlawful for any person to knowingly employ, hire, recruit, or refer, for private or public employment, an alien who is not duly authorized to work in the United States. Section 448.095, Florida Statutes, prohibits public employers, contractors, and subcontractors from entering into a contract unless each party to the contract registers and uses E-Verify. The Contractor hereby represents that it is in compliance with the requirements of Sections 448.09 and 448.095, Florida Statutes. The Contractor further represents that it will remain in compliance with the requirements of Sections 448.09 and 448.095, Florida Statutes, during the term of this contract. The Contractor hereby warrants that it has not had a contract terminated by a public employer for violating Section 448.095, Florida Statutes, within the year preceding the effective date of this contract. If the Contractor has a contract terminated by a public employer for any such violation during the term of this contract, it shall provide immediate notice thereof to the City.

Bearing Point Construction Inc. will provide the City of Bradenton with the same pricing as set forth in City of St. Petersburg Contract dated December 1, 2019 for Purchase Order No. 228205.

This Agreement is authorized by Section 2-237(9) of the City of Bradenton Code of Ordinances, which provides that in lieu of issuing requests for bids of proposals, the city may utilize previous bidding procedures and bid lists for any other political subdivision of the State of Florida, the State of Florida itself, its agencies, counties, independent special districts, any municipality and any list of the United States Government and United States Federal Agencies. The utilization of such bid lists and procedures shall not require the city to contract with the lowest bidder but with the best bidder as per the provisions of its bidding requirements.

Justin Randolph, President of
Bearing Point Construction, LLC

1/24/23
Date

Gene Brown
Mayor

Date

Jim McLellan

01/25/2023

Jim McLellan, P.E., Director
City of Bradenton Public Works and Utilities

Date

PB 21-01KC-EX1
3630835v1

CSP BPA FORM

City of St. Petersburg

BLANKET PURCHASE AGREEMENT

PURCHASE ORDER NO	REVISION	DATE
228205	**10**	**09-DEC-2022**

This Purchase Order No must appear on all invoices, packing lists and correspondence related to this order.

SHIP TO:

Requesting Department
Saint Petersburg, FL 33701
United States

VENDOR: **VENDOR NO:** 135679

Bearing Point Construction Inc
10315 Technology Terrace
Bradenton , FL 34211

BILL TO:

FINANCE DEPARTMENT ACCOUNTS PAYABLE
CITY OF ST PETERSBURG
PO BOX 1257
Saint Petersburg, FL 33731
United States

Blanket Purchase Agreement Do Not Ship

Description: Maintenance and Repairs, Industrial
Effective: 01-DEC-2019
End Date: 30-NOV-2024
Buyer/Phone: Christiaan Cavallaro / 727-893-7224
Email: Christiaan.Cavallaro@stpete.org
Vendor/Phone: / (941) 755-2176
Ship Via: Best Way
Freight Terms: Prepaid
Terms: NET 30
FOB: FOB Destination
Agreed Amount: $2,540,600.00

Supplier Notes: Change Notice No. 10: To renew the Terms of Agreement for 968.95 Maintenance and Repair, Industrial through November 30, 2024 under the same terms and conditions, and increase the agreed amount by $1,100,000 making the new agreed amount $2,540,600 per Council approval CR 22-547 on November 10, 2022.

LINE	DESCRIPTION	UOM	UNIT PRICE
1	Project Management, Project Manager - Regular Business hours, 7:00 a.m. to 4:00 p.m.	HOUR	115.00
2	Project Management, Field Foremen - Regular Business hours, 7:00 a.m. to 4:00 p.m.	HOUR	115.00
3	General Work, Laborer - Regular Business hours, 7:00 a.m. to 4:00 p.m.	HOUR	45.00
4	General Work, Skilled Laborer - Regular Business hours, 7:00 a.m. to 4:00 p.m.	HOUR	45.00

LINE	DESCRIPTION	UOM	UNIT PRICE
5	Welding, Certified Welder, Fabrication, Site Rate - Regular Business hours, 7:00 a.m. to 4:00 p.m.	HOUR	85.00
6	Welding, Certified Welder, Fabrication, Shop Rate - Regular Business hours, 7:00 a.m. to 4:00 p.m.	HOUR	65.00
7	Mechanical, Maintenance Mechanic	HOUR	85.00
8	Mechanical, Millwright - Regular Business hours, 7:00 a.m. to 4:00 p.m.	HOUR	85.00
9	Project Management, Project Manager - After business hours, 4 :01 p.m. to 6:59 a.m.	HOUR	115.00
10	Project Management, Field Foremen - After business hours, 4 :01 p.m. to 6:59 a.m.	HOUR	143.50
11	General Work, Laborer - After business hours, 4 :01 p.m. to 6:59 a.m.	HOUR	67.50
12	General Work, Skilled Laborer - After business hours, 4 :01 p.m. to 6:59 a.m.	HOUR	67.50
13	Welding, Certified Welder, Fabrication, Site Rate - After business hours, 4 :01 p.m. to 6:59 a.m.	HOUR	103.00
14	Welding, Certified Welder, Fabrication, Shop Rate - After business hours, 4 :01 p.m. to 6:59 a.m.	HOUR	97.50
15	Mechanical, Maintenance Mechanic - After business hours, 4 :01 p.m. to 6:59 a.m.	HOUR	103.00
16	Mechanical, Millwright - After business hours, 4 :01 p.m. to 6:59 a.m.	HOUR	103.00
17	Miscellaneous line for use of materials required for projects.	DOLLAR	1.00

Blanket Purchase Agreement Do Not Ship

State Sales Tax Exemption Number 85-8012740154C-1
Federal Employer ID Number 59-6000424

Procurement Director

Acceptance and Acknowledgement:

Please log in to the iSupplier Portal and acknowledge acceptance of the terms and conditions of this agreement and all change notices.

Once logged in, follow the steps outlined below to acknowledge this purchase order:
1. Click on 'Orders' tab
2. Select 'Purchase Orders to Acknowledge' from the View Menu
3. Select the specific purchase order
4. Click the 'Acknowledge' button
5. Select 'Accept Entire Order'
6. On next screen, click 'Submit'

If login information is unknown or difficulties are experienced please contact Registration@stpete.org for assistance.

Blanket Purchase Agreement Do Not Ship

Contract Terms and Conditions

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City of St Petersburg Solicitation Documents

AGREEMENT

Base Agreement - Services Contract

AGREEMENT - SERVICES CONTRACT

THIS AGREEMENT, ("Agreement") is made and entered into on the Effective Date set forth in the attached CSP BPA FORM or CSP CPA FORM, as applicable ("BPA/CPA Form") by and between the Vendor set forth in the BPA/CPA Form ("Contractor" or "Vendor") and the City of St. Petersburg, Florida, ("City") (collectively, "Parties").

WITNESSETH:

NOW, THEREFORE, in consideration of the promises and covenants contained herein, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Parties agree as follows:

1. **Contractor Duties.** Contractor shall perform the scope of services set forth in Appendix A of this Agreement ("Scope of Services") for the City in full and complete accordance with this Agreement. Upon receipt of a purchase order issued by the City to Contractor in accordance with this Agreement (individually, "Purchase Order" and collectively, "Purchase Orders"), Contractor shall furnish the City with the services ordered, to the extent such services are set forth in this Agreement.

2. **Agreement Components.**

A. The agreement components are the BPA/CPA Form, this Agreement, the appendices to this Agreement, Purchase Orders, if any, and the following documents, which are made a part hereof by reference ("Other Documents"):

(i) The City's Solicitation documents (e.g. Request for Proposals, Invitation for Bids, etc.) ("Document 1")

(ii) Best & Final Offer, if any ("Document 2")

(iii) Questions & Clarifications, if any ("Document 3")

(iv) Contractor's Response to City's Solicitation Documents (e.g. Proposal, Offer, etc.) ("Document 4")

B. In the event of an inconsistency or conflict between or among the documents referenced in this Agreement, the following order of precedence shall govern: (i) the BPA/CPA Form, (ii) this Agreement, exclusive of its appendices, (iii) the appendices to this Agreement, (iv) Purchase Orders, if any, and (v) the Other Documents. In the event of an inconsistency or conflict between or among the Other Documents, the order of precedence shall be the order the documents are listed above (e.g. Document 1 shall govern over Document 2, Document 2 shall govern over Document 3, etc.).

3. **Term.** The initial Term of this Agreement shall commence on the Effective Date, and terminate on the End Date set forth in the BPA/CPA Form ("Term"), unless this Agreement is earlier terminated as provided for herein. The City reserves the right to extend this Agreement under the same terms and conditions for one (1) two-year period at the end of the initial Term, provided such extension is mutually agreed upon by both Parties in writing. References in this Agreement to "Term" shall include the initial Term and all renewal Terms.

4. **Ordering.** The City will issue Purchase Orders on an as-needed basis. Nothing contained herein shall be construed to obligate the City to issue any Purchase Orders under this Agreement. When ordering, the City will furnish Contractor with a Purchase Order number; name of department; name of person placing the order, date of order; description of services ordered; and any required schedule.

5. **Payment.**

A. Provided Contractor faithfully performs its obligations contained in this Agreement, the City shall pay Contractor for the services rendered in accordance with the prices for such services set forth in Appendix B of this Agreement ("Services Pricing"); provided, however, that the City shall not be required to pay Contractor for services unless they conform to the requirements of this Agreement, and further provided that the total amount paid to Contractor pursuant to this Agreement, which shall be inclusive of any out-of-pocket expenses (including but not limited to transportation, mileage, lodging, and meals) shall not exceed the Agreed Amount set forth in the BPA/CPA Form ("Agreed Amount") for the initial Term. Contractor shall invoice the City for services in accordance with procedures established by the City. The Services Pricing and the Agreed Amount may be increased only in strict accordance with this Agreement.

B. The Services Pricing shall remain firm for the initial Term. If the Parties opt to renew this Agreement, any increase in the Services Pricing shall be made by mutual agreement between the Parties in writing, provided that Contractor notified the City thirty (30) days prior to expiration of the then-current Term of its intent to increase the Services Pricing. Further, Contractor shall maintain competitive prices for the Term, and such prices shall be comparable to those provided to other customers receiving similar services as the City.

6. **Indemnification.**

A. Contractor shall defend at its expense, pay on behalf of, hold harmless and indemnify the City, its officers, employees, agents, elected and appointed officials and volunteers (collectively, "Indemnified Parties") from and against any and all claims, demands, liens, liabilities, penalties, fines, fees, judgments, losses and damages (collectively, "Claims"), whether or not a lawsuit is filed, including, but not limited to Claims for damage to property or bodily or personal injuries, including death at any time resulting therefrom, sustained by any persons or entities; and costs, expenses and attorneys' and experts' fees at trial and on appeal, which Claims are alleged or claimed to have arisen out of or in connection with, in whole or in part, directly or indirectly:

(i) The performance of this Agreement (including any amendments thereto) by Contractor, its employees, agents, representatives or subcontractors; or

(ii) The failure of Contractor, its employees, agents, representatives or subcontractors to comply and conform with applicable Laws (as defined herein); or

(iii) Any negligent act or omission of Contractor, its employees, agents, representatives, or subcontractors, whether or not such negligence is claimed to be either solely that of Contractor, its employees, agents, representatives or subcontractors, or to be in conjunction with the claimed negligence of others, including that of any of the Indemnified Parties;

(iv) Any reckless or intentional wrongful act or omission of Contractor, its employees, agents, representatives, or subcontractors; or

(v) Contractor's failure to maintain, preserve, retain, produce, or protect records in accordance with this Agreement and applicable Laws (including but not limited to Florida laws regarding public records).

B. The provisions of this paragraph are independent of, and will not be limited by, any insurance required to be obtained by Contractor pursuant to this Agreement or otherwise obtained by Contractor, and shall

survive the expiration or earlier termination of this Agreement with respect to any claims or liability arising in connection with any event occurring prior to such expiration or termination.

7. **Insurance.**

A. Contractor shall carry the following minimum types and amounts of insurance at its own expense:

(i) Commercial general liability insurance in an amount of at least One Million Dollars ($1,000,000) per occurrence, Two Million Dollars ($2,000,000) aggregate in occurrences form. This policy shall include coverage for (i) personal injury or death or property damage or destruction; (ii) business interruption; (iii) fire legal liability in the minimum amount of One Hundred Thousand Dollars ($100,000); and (iv) contractual liability under this Agreement.

(ii) Automobile liability insurance of $1,000,000 combined single limit covering all owned, hired and non-owned vehicles.

(iii) Workers' Compensation insurance as required by Florida law and Employers' Liability Insurance in an amount of at least $100,000 each accident, $100,000 per employee, and $500,000 for all diseases.

B. All of Contractor's insurance policies, except Workers' Compensation, shall name the Indemnified parties as additional insureds.

C. All policies shall provide that the City will be provided notice at least thirty (30) days prior to any cancellation, reduction or material change in coverage.

D. Contractor shall provide the City with Certificates of Insurance on a standard ACORD form reflecting all required coverage. At the City's request, Contractor shall provide copies of current policies with all applicable endorsements.

E. All insurance required shall be provided by responsible insurers licensed in the State of Florida and rated at least A- in the then current edition of Best's Insurance Guide.

F. Contractor hereby waives all subrogation rights of its insurance carriers in favor of the Indemnified Parties. This provision is intended to waive fully, and for the benefit of the Indemnified Parties, any rights or claims which might give rise to a right of subrogation in favor of any insurance carrier.

G. The City shall have the right to reasonably increase the amount or expand the scope of insurance to be maintained by Contractor hereunder from time to time.

8. **Notices.** Unless and to the extent otherwise provided in this Agreement, all notices, demands, requests for approvals and other communications which are required to be given by either party to the other shall be in writing and shall be deemed given and delivered on the date delivered in person, upon the expiration of five (5) days following the date mailed by registered or certified mail, postage prepaid, return receipt requested to the address provided below, or upon the date delivered by overnight courier (signature required) to the address provided below.

CITY:

City of St. Petersburg

Procurement and Supply Management Department

P. O. Box 2842

St. Petersburg, FL 33731

Phone: 727-893-7027

Attention: Louis Moore

CONTRACTOR:

The address listed for the Vendor in the BPA/CPA Form

9. **Severability.** Should any paragraph or portion of any paragraph of this Agreement be rendered void, invalid or unenforceable by any court of law for any reason, such determination shall not render void, invalid or unenforceable any other paragraph or portion of this Agreement.

10. **Due Authority.** Each party to this Agreement that is not an individual represents and warrants to the other party that (i) it is a duly organized, qualified and existing entity authorized to do business under the laws of the State of Florida, and (ii) all appropriate authority exists so as to duly authorize the person executing this Agreement to so execute the same and fully bind the party on whose behalf he or she is executing.

11. **Assignment.** Contractor shall make no assignment of this Agreement without the prior written consent of the City. Any assignment of this Agreement contrary to this paragraph shall be void and shall confer no rights upon the assignee.

12. **Termination.**

A. This Agreement may be terminated at any time by the City for convenience upon thirty (30) days written notice to Contractor.

B. The City may terminate this Agreement upon written notice to Contractor in the event Contractor defaults on any of the terms and conditions of this Agreement and such failure continues for a period of thirty (30) days following notice from the City specifying the default; provided, however, that the City may immediately terminate this Agreement, without providing Contractor with notice of default or an opportunity to cure, if the City determines that Contractor has failed to comply with any of the terms and conditions of this Agreement related to safety, indemnification or insurance coverage.

C. The City may terminate this Agreement as provided in Florida Statute section 287.135.

D. Termination of this Agreement shall act as a termination of the BPACPA Form, any Purchase Orders issued by the City, and the Other Documents.

13. **Governing Law and Venue.** The laws of the State of Florida shall govern this Agreement. Venue for any action brought in state court shall be in Pinellas County, St. Petersburg Division. Venue for any action brought in federal court shall be in the Middle District of Florida, Tampa Division, unless a division shall be created in St. Petersburg or Pinellas County, in which case the action shall be brought in that division. Each party waives any defense, whether asserted by motion or pleading, that the aforementioned courts are an improper or inconvenient venue. Moreover, the Parties consent to the personal jurisdiction of the aforementioned courts and irrevocably waive any objections to said jurisdiction.

14. **Amendment.** This Agreement may be amended only in writing executed by the Parties.

15. **Entire Agreement.** This Agreement constitutes the entire agreement between the Parties and supersedes all prior and contemporaneous agreements, whether oral or written, between them.

16. **Compliance with Laws.** Contractor shall comply at all times with all federal, state, and local statutes, rules, regulations and ordinances, the federal and state constitutions, and the orders and decrees of lawful authorities having jurisdiction over the matter at issue (collectively, "Laws"), including but not limited to Florida laws regarding public records. Contractor hereby makes all certifications required under Florida Statute section 287.135. Contractor shall also comply with all applicable City policies and procedures.

17. **Third Party Beneficiary.** Notwithstanding anything to the contrary contained in this Agreement, persons or entities not a party to this Agreement may not claim any benefit hereunder or as third party beneficiaries hereto.

18. **No Liens.** Contractor shall not suffer any liens to be filed against any City property by reason of any work, labor, services or materials performed at or furnished to City property, to Contractor, or to anyone using City property through or under Contractor. Nothing contained in this Agreement shall be construed as a consent on the part of the City to subject City property or any part thereof to any lien or liability under any Laws.

19. **No Construction against Preparer of Agreement**. This Agreement has been prepared by the City and reviewed by Contractor and its professional advisors. The City, Contractor and Contractor's professional advisors believe that this Agreement expresses their agreement and that it should not be interpreted in favor of either the City or Contractor or against the City or Contractor merely because of their efforts in preparing it.

20. **Use of Name.** Subject to the requirements of Florida laws regarding public records, neither party shall use the other party's name in conjunction with any endorsement, sponsorship, or advertisement without the written consent of the named party, except that Contractor may refer to the City in client list.

21. **Non-appropriation.** The obligations of the City as to any funding required pursuant to this Agreement shall be limited to an obligation in any given year to budget, appropriate and pay from legally available funds, after monies for essential City services have been budgeted and appropriated, sufficient monies for the funding that is required during that year. Notwithstanding the foregoing, the City shall not be prohibited from pledging any legally available non-ad valorem revenues for any obligations heretofore or hereafter incurred, which pledge shall be prior and superior to any obligation of the City pursuant to this Agreement.

22. **City Consent and Action.**

A. For purposes of this Agreement, any required written permission, consent, acceptance, approval, or agreement by the City means the approval of the Mayor or his authorized designee, unless otherwise set forth in this Agreement or unless otherwise required to be exercised by City Council pursuant to the City Charter or applicable Laws.

B. For purposes of this Agreement, any right of the City to take any action permitted, allowed, or required by this Agreement may be exercised by the Mayor or his authorized designee, unless otherwise set forth in this Agreement or unless otherwise required to be exercised by City Council pursuant to the City Charter or applicable Laws.

23. **Captions.** Captions are for convenience only and shall not control or affect the meaning or construction of any of the provisions of this Agreement.

24. **Books and Records.** Contractor shall prepare in accordance with generally accepted accounting practice and shall keep, at the address for delivery of notices set forth in this Agreement, accurate books of account. All books and records with respect to this Agreement shall be kept by Contractor and shall be open to examination or audit by the City for the Term and for the retention periods set forth in the most recent General Records Schedule GS1-SL for State and Local Government Agencies. Nothing herein shall be construed to allow destruction of records that may be required to be retained longer by the statutes of the State of Florida.

25. **Survival.** All obligations and rights of any party arising during or attributable to the period prior to expiration or earlier termination of this Agreement, including but not limited to those obligations and rights related to indemnification, shall survive such expiration or earlier termination.

26. **Force Majeure.** In the event that either party hereto shall be delayed or hindered in or prevented from the performance required hereunder by reason of strikes, lockouts, labor troubles, failure of power, riots, insurrection, war, acts of God, or other reason of like nature not the fault of the party delayed in performing work or doing acts ("Permitted Delay"), such party shall be excused for the period of time equivalent to the delay caused by such Permitted Delay. Notwithstanding the foregoing, any extension of time for a Permitted Delay shall be conditioned upon the party seeking an extension of time delivering written notice of such Permitted Delay to the other party within ten (10) days of the event causing the Permitted Delay.

27. **No Waiver.** No provision of this Agreement will be deemed waived by either party unless expressly waived in writing signed by the waiving party. No waiver shall be implied by delay or any other act or omission of either party. No waiver by either party of any provision of this Agreement shall be deemed a waiver of such provision with respect to any subsequent matter relating to such provision, and the City's consent respecting any action by Contractor shall not constitute a waiver of the requirement for obtaining the City's consent respecting any subsequent action.

28. **Permits and Licenses.** Contractor shall be responsible for obtaining any and all necessary permits, licenses, certifications and approvals which may be required by any government agency in connection with Contractor's performance of this Agreement. Upon request of the City, Contractor shall provide the City with written evidence of such permits, licenses, certifications and approvals.

29. **Successors and Assigns.** This Agreement shall inure to the benefit of and be enforceable by and against the Parties, their heirs, personal representatives, successors, and assigns, including successors by way of reorganization.

30. **Subcontract.** The hiring or use of outside services or subcontractors in connection with the performance of Contractor's obligations under this Agreement shall not be permitted without the prior written approval of the City, which approval may be withheld by the City in its sole and absolute discretion. Contractor shall promptly pay all subcontractors and suppliers.

31. **Relationship of Parties.** Nothing contained herein shall be deemed or construed by the Parties, or by any third party, as creating the relationship of principal and agent or of partnership or of joint venture between the Parties, it being understood and agreed that nothing contained herein, nor any acts of the Parties, shall be deemed to create any relationship between the Parties other than the relationship of independent contractors and principals of their own accounts.

32. **Contract Adjustments.**

A. Either party may propose additions, deletions or modifications to the Scope of Services ("Contract Adjustments") in whatever manner such party determines to be reasonably necessary for proper compliance with this Agreement. Proposals for Contract Adjustments shall be submitted to the non-requesting party in the form agreed to by the Parties. Contract Adjustments shall be effected through amendments to this Agreement made in accordance with this Agreement.

B. There shall be no increase in the Services Pricing or the Agreed Amount on account of any Contract Adjustment made necessary or appropriate as a result of the mismanagement, improper act, or other failure of Contractor or its employees, agents or subcontractors to properly perform their obligations and functions under this Agreement.

C. In the event Contractor proposes a Contract Adjustment and the City does not approve such Contract Adjustment, Contractor will continue to perform the original Scope of Services in accordance with the terms and conditions of this Agreement.

D. Notwithstanding anything to the contrary contained in this Agreement, there shall be no increase in the Services Pricing or the Agreed Amount except pursuant to an amendment to this Agreement made in accordance with this Agreement.

33. **Warranties.** In addition to any other warranties that may exist, Contractor warrants to the City that the services required to be performed by Contractor pursuant to this Agreement will be performed in a workmanlike manner consistent with industry standards reasonably applicable to the performance of such services.

34. **Non-Exclusive Agreement.** This Agreement shall impose no obligation on the City to utilize Contractor for all of the work and services of this type, which may be needed during the Term. This is not an exclusive agreement. The City specifically reserves the right to concurrently contract with other companies for similar work and services

if it deems such action to be in the City's best interest.

35. **Contractor Personnel.** The City reserves the right to require Contractor to replace any persons performing services pursuant to this Agreement, including but not limited to Contractor's employees and any affiliates' or subcontractors' employees, whom the City judges to be incompetent, careless, unsuitable or otherwise objectionable, or whose continued use is deemed contrary to the best interests of the City.

36. **Public Records.**

A. Contractor shall (i) keep and maintain public records (as defined in Florida's Public Records law) required by the City to perform the services pursuant to this Agreement; (ii) upon request from the City Clerk's Office, provide the City (at no cost to the City) with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided under Florida's Public Records law or other applicable Laws; (iii) ensure that public records in Contractor's possession that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by applicable Laws for the Term and after the expiration or earlier termination of this Agreement; and (iv) after the expiration or earlier termination of this Agreement, at the City's request, either transfer, at no cost, to the City all public records in Contractor's possession within ten (10) days following the City's request and/or keep and maintain any public records required by the City to perform the services pursuant to this Agreement. If Contractor transfers all public records to the City upon the expiration or earlier termination of this Agreement, Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If Contractor keeps and maintains public records upon the expiration or earlier termination of this Agreement, Contractor shall meet all applicable requirements for retaining public records in accordance with this Agreement and all applicable Laws. At the City's request, all public records stored electronically by Contractor shall be provided to the City in a format approved by the City.

B. IF CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, AS TO CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CITY CLERK'S OFFICE (THE CUSTODIAN OF PUBLIC RECORDS) AT (727) 893-7448, CITY.CLERK@STPETE.ORG, OR 175 FIFTH ST. N., ST. PETERSBURG FL 33701.

C. Nothing contained herein shall be construed to affect or limit Contractor's obligations including but not limited to Contractor's obligations to comply with all other applicable Laws and to maintain books and records pursuant to this Agreement.

37. **Appendices.** Each appendix to this Agreement, including all attachments to each appendix, is an essential part hereof and is attached hereto.

Contractor hereby acknowledges and accepts the terms and conditions contained in this Agreement by clicking "I accept" or similar affirming language in the iSupplier Portal.

00299806S-04. IDIQ/on-demand services agreement no signature. Attachments: Appendix A: Scope of Services; Appendix B: Services Pricing

Scope of Services

1. Scope of Work

Contractor shall provide all labor, materials, supervision, tools, equipment, and vehicles necessary for providing as-needed industrial maintenance services. The services will be for municipal water/wastewater treatment and pumping facilities maintenance activities. The bids shall include pricing for services performed by the Contractor's personnel according to job classification (Skill Discipline) using either of two methods depending on the specific job requirements. Method one will be on a strictly hourly labor calculation. Example: A specific skill discipline works x number hours at the bid price equaling total cost. Method two will be a bid lump sum turnkey job cost based on the Contractor's estimated total hours times the hourly labor price for each skill discipline required plus material costs. Pricing shall include rates for services performed at City facilities ("Site Work Rate") and at Contractor's facility ("Shop Work Rate").

The Contractor's staff could be used to supplement City staff or independently in turnkey job requirements. The Contractor shall provide supplemental or turnkey maintenance services typical of industrial/municipal plant maintenance activities including but not limited to the following:

a. Repairing, rebuilding or replacing electromechanical equipment typically found in municipal utility facilities. This equipment could include but not be limited to; aeration equipment, bar screens, belt filter presses, blowers, catwalk bridges, clarifier drives and assemblies, conveyors, gear boxes, gravity belt thickeners, process piping, pumps and other miscellaneous equipment.

b. Fabrication and welding services for, both field and shop.

c. Cooperative work with City staff in shutting down, cleaning, repairing and placing back in-service processes and tanks.

d. Millwright services including but not limited to; installing equipment and machinery by following blue prints, drawings and schematics, dismantling, moving and rigging equipment and machinery, removing, rebuilding and re-installing equipment.

2. Term of Agreement

The initial term of agreement will be for three years with one two-year renewal period by mutual agreement of the parties.

3. Contractor Responsibilities

At a minimum, Contractor shall provide and meet the following responsibilities:

a. Contractor shall provide a single point of contact (Account Manager) to administer the Agreement

b. Contractor shall maintain Minimum Qualifications as stated in bid for the term of Agreement

c. Except as stated herein, the Contractor shall be responsible for supplying all miscellaneous incidental materials to perform the services required under this Agreement. The cost of incidental materials and supplies billed to the City shall be in addition to the labor charges and shall be billed by separate line items. When invoicing the City for materials and supplies a copy of the priced invoice to the Contractor from Contractor's supplier will be submitted with the Contractor's invoice to the City

d. Contractor shall for each occurrence of a service call where the cost will exceed $500, the Contractor shall submit to the City a written estimate of the proposed services prior to any actual work being performed. Such estimates shall include a detailed breakdown by skill discipline, hours and material costs. Final invoices shall also include this breakdown. Unforeseen conditions that affect original estimated service cost shall be approved in writing by the city's Project Manager prior to completion.

e. Contractor shall not charge for work estimates, whether or not the work is done.

f. Contractor shall not perform any work prior to receiving written authorization from the city's Project Manager.

g. Contractor shall verify with the city's Project Manager if the city will be providing any portion of parts or materials required and shall identify and make note of any and all such parts; or materials prior to beginning work.

h. Contractor shall verify with the city's Project Manager the quality of materials, parts or supplies to be used to complete the services prior to beginning work.

i. All work performed by Contractor shall be in accordance with manufacturer's recommendations or industry best practices. Contractor shall be required to provide proof thereof to the satisfaction of the City's Project Manager.

j. Contractor shall advise the Procurement and Supply Management Department's Procurement Analyst, in writing via e-mail of any change in contact person, address, phone or e-mail, Contractor's name or Federal Tax identification Number within three (3) working days of its occurrence.

4. City's Responsibilities

At a minimum, City shall provide and meet the following responsibilities:

a. City shall provide a single point of contact (City Project Manager) to administer the Agreement.

b. City Project Manager shall assist with planning, strategy and objectives prior to performance of the

Work.

c. City Project Manager shall promptly respond to issues and inquiries so as not to hinder the progress, completion, or compensation for the Work.

5. Account Management

Contractor shall provide an Account Manager, who will be readily available during normal business hours to administer the Agreement. Contractor is responsible for notifying the City with any changes in account manager or contact information. Account Manager's responsibilities shall include, but are not limited to, overseeing all aspects of implementation, servicing, reporting, and issue resolution.

6. Summary of Total Service Charges and Fees

Contractor shall furnish the Procurement and Supply Management Department, when requested, a detailed summary of purchases, charges and fees in electronic spreadsheet format. The summary shall include an itemized description of products and services delivered and dollar amount and quantity of each. Failure to provide this information within five (5) business days following the request may result in Contractor being found in default.

7. Personnel

Contractor shall assign all key personnel identified in its proposal and this Agreement to complete all of their responsibilities in connection with performance of its obligations. Contractor shall obtain written approval of the City prior to reassigning any key personnel. Replacement of key personnel, upon written approval by the City, shall be with personnel of equal or greater ability and qualifications. Contractor's replacement of key personnel shall not be grounds for an increase in the total Agreement price or extension of the time for completion of the services required. The unauthorized change of key personnel by Contractor shall be considered by the City as a material breach of the Agreement and grounds for termination.

8. Working Hours

Contractor shall provide services during regular business hours, 7:00 a.m. to 4:00 p.m., Monday through Friday, excluding city holidays unless authorized by the city's project manager. Contractor shall be available after hours, on weekends and holidays as required by the nature of the services needed. Services will be provided at locations described in Service Location List (Attachment A).

In the event of emergency work as identified by the city's Project Manager, the Contractor will be required to have a representative on site within 4 hours of verbal notification and mobilize crew, equipment and materials within 8 hours of verbal notification, including evenings, weekends and holidays. Work not previously identified by Project Manager as emergency work, overtime and work performed during normal working hours as described herein is not considered emergency work.

9. Non-Performance

a. If Contactor is found in non-performance per the Agreement requirements and responsibilities, and/or fails to satisfactorily remedy or cure non-performance, the City Project Manager will file a vendor complaint report with the Procurement Department. The Procurement Department will notify the Contractor in writing. Contractor shall reply in writing within ten (10) business days with detailed corrective action to remedy the non-performance, including Completion Deadline date and time. Follow up or call back work to correct such non-performance shall be solely at Contractor's expense.

b. City Project Manager shall conduct inspection immediately after Completion Deadline and advise the Procurement Department in writing regarding satisfactory resolution or of any remaining deficiencies.

c. If Contractor fails to remedy or cure deficiencies identified in a vendor complaint report by the Completion Deadline, the City may deduct the costs from payment of Contractor invoices to obtain service elsewhere.

d. In the event the Contractor consistently fails to perform per the Agreement requirements, the City may terminate agreement with cause and Contractor may be removed from the bidder's list for up to a three-year period.

10. Safety

a. Contractor shall be responsible for ensuring that Contractor's staff follow all established safety regulations pertaining to the work to be performed per OSHA and/or City standards.

b. Contractor's employees will keep doors closed and locked while servicing facilities after hours or when instructed by Facility Manager or Representative.

11. Training

Contractor shall provide all job skills training and safety training required for its employees. Safety training shall instruct employees on the correct and safe use of the safety equipment required and of general safety procedures for the job and materials handling requirements.

12. Cooperation between Contractors

The City reserves the right to contract for and perform other or additional work on or near the work covered by these specifications. When separate contracts are let within the limits of any one project, each contractor shall conduct its work so as not to interfere with or hinder the progress or completion of the work being performed by other contractors. Contractors working on the same project shall cooperate with each other as directed. Each contractor involved shall assume all liability, financial or otherwise, in connection with its contract. Contractor shall protect and save harmless the City from any and all damages or claims that may arise because of inconvenience, delays or loss experienced by Contractor because of the presence and operations of other contractors working within the limits of the same project.

13. Service Rendering Facility

a. City reserves the right to inspect the business location and any other business location the Contractor may operate prior to award of a contract and, upon reasonable notice to inspect the business location at any time during the term

of this contract.

b. Contractor shall provide access to all testing, storage, operations, and other areas, as requested by the City's representatives.

c. City reserves the right to conduct an on-site inspection of any subcontractor facilities prior to award and during the term of Agreement.

d. Contractor and its subcontractors shall notify the city, in writing, within 30 days of any relocation of it servicing facility.

14. Limitation of Project Value

No single project, purchase or release against this Agreement shall exceed $49,999 without prior written consent by the Procurement Director or his designee.

15. Addition and Deletion of Service Locations

a. City reserves the right to add or delete service locations at any time during the term of the Agreement. Contractor shall visit new sites and provide a quote for service(s) within five business days of request by the City. Upon written approval from the City Project Manager, Contractor shall begin servicing new locations within 10 business days of the date of the written notice. Written notice shall be made via electronic Purchase Order from the Procurement and Supply Management Department.

b. Contractor shall provide services at all requesting City locations, including but not limited to city facilities which are managed by third party firms. Upon request by the management firm, Contractor shall provide services, billed to the third-party management firm, at the same prices extended to the city under this Agreement.

16. Price Escalation/De-escalation

All prices ("base prices") shall remain firm for the first 12 months of the agreement term. After the first 12 months,} Adjustments in prices shall not exceed the U. S. Bureau of Labor Statistics Employment Cost Index ("ECI") percent change for the most recent twelve month period (see http://www.bls.gov/, Employment Cost Index, ECI Multi-Screen Data Search, Total Compensation, Private Industry, Not Seasonally Adjusted, Service-providing, Blue collar occupations Series Index CIU201S000B00000A). Approval of the price adjustment will establish a new base price, from which subsequent adjustments will be calculated.

17. Emergency Services

a. Contractor shall provide the city with evening, weekend, and holiday service, as necessary, to cope with any emergency situation which threatens public health and safety, as determined by the City. Contractor shall furnish a 24-hour contact telephone number in the event of such an emergency.

b. Contractor shall provide first-priority services to the city in the event of a hurricane, flood or other natural disaster, as defined by the city.

18. Conditions for Acceptance

Upon completion of all the work and services required by the contract pursuant to the City's satisfaction and at the City's sole discretion, the City will approve the Work, after which payment shall be authorized.

Special Provisions for Services

1. **Identification of Employees**

Contractor's employees shall wear uniforms or company identification badges displaying contractor's name and employee's name at all time while on city property.

2. **Background Check**

The City requires background checks on all Contractor employees, who perform services at all City facilities. Contractor shall provide the name, sex, race, date of birth, driver's license number and issuing state, and social security number for each individual who will perform services at City facilities. The City requires up to 14 calendar days to process background checks. In addition to other considerations, persons with one or more of the following criteria will fail the City's background check and will not be allowed to access to City locations:

a. Be listed on the FBI's list of suspected terrorists.

b. Have an outstanding arrest warrant against them.

c. Been convicted of, or have pending charges for, a 1st or 2nd Degree Felony

d. Been convicted of, or have pending charges for, drugs or lewd and lascivious behavior.

Additional background checks may be conducted by the city on Contractor's employees who provide services at high level security sites (e.g., Police, Port, and Water Resource's facilities)

Florida Statutes state that any person requiring entry to a restricted access area including the city's Port, must have a State background check per the minimum standards and a Federal credential TWIC card. Refer to § 311.12 (4) (a) 1 and (6) (a) for current requirements.

3. **e-Payables**

The city's preferred method for invoice payment is electronic remittance of invoices via designated credit account assigned to Contractor instead of paper checks. Contractor is encouraged to adopt the city's electronic payment option, which is designed to deliver payables quickly and more efficiently than check payments. This procedure is consistent with the city's obligations and purpose, with an overall intent to utilize technology to provide value to the taxpayers.

4. **Ghost Card Payment**

Where practicable, the City may process all payments under the Agreement by Ghost Card (virtual City credit card). Ghost Card payments are electronic purchasing-card-based payments to the Contractor through City issued virtual accounts. Reconciliation occurs through the Contractor's standard point-of-sale terminals instead of through individual invoices and checks, after fulfillment of a City-issued purchase order. Ghost Cards shall have effectivity dates and authorization for specific supplies, services and users pursuant to the terms of the Agreement. Unauthorized purchases will be the responsibility of the Contractor.

5. **Multiple SourceAward**

A multiple source award may be issued when awarded to two (2) or more Contractors for similar products when necessary for adequate delivery, service, or product compatibility. Multiple source awards shall not be made when a

single award will meet the City's needs without sacrifice of economy or service. Awards shall not be made for the purpose of dividing the business, making available product or supplier selection to allow for user preference unrelated to utility or economy, or avoiding the resolution of the offers. Any such awards shall be limited to the least number of suppliers necessary to meet the valid requirements.

6. **Product Labels and MSDS**

Contractor shall provide, prior to beginning work, manufacturer's labels and MSDS information for all chemicals to be used in the performance of Agreement. Manufacturer's labels must include (a) name and manufacturer of chemical; (b) customary use; c) application process; (d) possible hazards; (e) special precautions; (f) emergency treatment in the event chemical is used improperly.

In compliance with Florida's Occupational Health and Safety Statue (Chapter 442), MSDS information submitted must include: (a) chemical and common names of the substance; (b) hazards or risks in the use; c) proper precautions, handling practices, necessary personal protective equipment, and other safety precautions in the use of or exposure/overexposure to the substance; (d) emergency procedures for spills, fire, disposal and first aid; (e) description, in lay terms, of the known specific potential health risks posed by the substance; (f) the year and month (if available) the MSDS information was compiled and the name, address and emergency telephone number of the manufacturer responsible for preparing the information.

7. **Orders and Invoices**

a. Orders will be placed against this Agreement via E-mail, and shall be accompanied by Purchase Order Numbers. All open orders are accessible by Contractor for reconciliation through their online supplier profile.

b. Unless otherwise agreed to, all performance under this Agreement must be accompanied by delivery tickets or sales slips that must contain the following information as a minimum:

(1) Name of Contractor.

(2) Agreement Number.

(3) Purchase Order Number.

(4) A description of services furnished or supplies delivered, including model number, National Stock Number (NSN) and City's item number.

(5) Task/delivery order number.

(6) Date of purchase.

(7) Quantity, unit price, and extension of each item (unit prices and extensions need not be shown when incompatible with the use of automated systems; provided, that the invoice is itemized to show the information).

(8) Date of performance.

c. Invoices must be submitted to **ap@stpete.org** within the task/delivery order transmission issued against this Agreement. The Contractor's invoice must include, at a minimum, the following:

(1) City's Agreement Release or Purchase Order numbers.

(2) Name of Contractor.

(3) Date of preparation.

(4) Contractor's invoice number.

(5) Address to which payment should be mailed.

(6) City's Agreement Release or Purchase Order numbers.

(7) A description of services furnished or supplies, including quantities, unit prices and extensions.

(8) Discount payment terms.

(9) Name of requesting department for whom the shipment was made.

8. **Accessibility**

Contractor shall fully inform itself regarding any peculiarities and limitations of the spaces available for the performance of work under this Agreement. Contractor shall exercise due and particular caution to determine that all parts of its work are made quickly and easily accessible.

9. **Damage**

a. Contractor shall be held responsible for any breakage, loss of the City's equipment or supplies through negligence of Contractor or its employees, subcontractors and agents while working on the City's premises. Contractor shall be responsible for restoring or replacing any equipment, facilities, and other property so damaged.

b. Contractor shall immediately report to the City any damages to the premises resulting from performance under this Agreement. Failure or refusal to restore or replace such damaged property will be a breach of this Agreement.

10. **Completion of Work**

If Contractor fails to comply with the conditions of this Agreement, or fails to complete the required work or furnish the required materials within the time stipulated, the City reserves the right to purchase in the open market, or to complete the required work, at the expense of Contractor. The City may seek recourse including but not limited to, the provisions of the performance bond if such bond is required under the conditions of this Agreement.

11. **Summary of Total Sales**

Contractor shall furnish the Purchasing Department as requested, a detailed summary of sales. The sales summary shall include an itemized description of services or supplies delivered and dollar amount of each. Failure to provide this information within 30 calendar days following the request may result in Contractor being found in default.

12. **Performance Evaluation**

During this Agreement term, Contractor's performance will be evaluated on multiple criteria including service, quality, accessibility, responsiveness, documentation, skills, creativity and innovation, customer interfaces and flexibility. Non or substandard performance may be grounds for termination of this Agreement.

13. **Insurance Certificate Maintenance**

Expiration notifications for the City's insurance certificates are managed by an authorized third party firm on behalf of the City. The firm shall contact the Contractor directly via email to request updated certificates prior to expiration. Contractor shall respond directly to the firm as requested.

Security Standards - Water Resources Treatment and Distribution Division

City of St. Petersburg
Water Resources Department
Water Treatment and Distribution Division

SECURITY STANDARDS

1. The Division of Water Treatment and Distribution has a Terrorist Threat Response Plan (Separate Cover). Questions regarding security should be directed to that document or the Manager, Water Treatment & Distribution. In some cases, there may be a conflict between this document and the Terrorist Threat Response Plan. If that is so, then the Terrorist Threat Response Plan takes precedence over this document.

2. Background checks: Since September 11, 2001, the Homeland Security / EPA agencies advise that we take extra precautions and be diligent in protection of our water facilities infrastructure. A Vulnerability Assessment Study of these facilities has been completed and one recommendation made was that background checks be conducted on all personnel working at our water treatment and distribution facilities. This includes contractors and their employees as well as the city staff.

3. The Water Resources Department, in response to the recommendations of the Vulnerability Assessment study, is now conducting background checks of all workers at their water treatment facilities. Before coming on site to work, the contractor will provide a list of the following:

· Full names of the employees assigned to be on-site
· Their Social Security Numbers and;
· Their Birth Date

The Water Resources Department project coordinator or his designee will conduct a background check prior to allowing workers on site. In order to give us time to conduct these background checks, we request this information be given to us at least 72 hours in advance. The contractor will be notified as to who passed the background check and allowed on our sites and who did not.

4. Contractors using "day-labor" will provide the same information as above and with as much notice as possible. While it may not always be possible to give us the 72 hours notice, we still will not allow "temporary" workers on site until they have been checked out. We will try our best to conduct these background checks in a timely manner, but, for many reasons, it may not be possible to get them completed in the time manner that the contractor would desire (web sites may be down, computers may not be working, staff may be busy with other problems, etc.). Nevertheless, temporary day laborers will not be allowed on site until they have had a complete background check. So, the more advanced notice we have, the more likely we will be able to complete the background check as quickly as possible.

5. Delivery personnel, engineers, visitors, etc. that are just visiting the plant (or picking up / dropping off materials) do not have to go thru an extensive background check as those people who are working, unescorted and unsupervised at our facilities. Depending upon what level of alert we are in on the Terrorist Threat Response Plan determines what precautions we take allowing or not allowing these personnel in our facilities.

6. In order to fail a background check, the individual would have to have one or more of the following criteria apply to them:

· Be wanted by the FBI as a suspected terrorist or someone they suspect to have ties with terrorism.
· Have an outstanding arrest warrant issued against them.
· Have been convicted of a 1st or 2nd Degree Felony in a court of law.

· Is considered a habitual felony offender (convicted of two or more felony or 1st degree misdemeanors offenses within 5 years after their 18th birthday).

IF THERE ARE ANY QUESTIONS REGARDING THESE SECURITY STANDARDS PLEASE SEE ONE OF THE FOLLOWING DIVISION OF WATER TREATMENT AND DISTRIBUTION PROJECT COORDINATORS:

Manager, Water Treatment and Distribution

Water Plant Chief Operator

Plant Maintenance Supervisor

Plant Maintenance Coordinator

Effective date: October 2003

Water Resources Standards

City of St. Petersburg
Water Resources Department
Water Treatment and Distribution Division

CONSTRUCTION STANDARDS
CONTRACTOR WORK STANDARDS
ENGINEERING DESIGN STANDARDS

A. STAGING AREA:

1. The Contractor's use of plant property for storage of materials, parking of trailers, employee parking, and other uses, shall be as shown on the Plans. If no area is designated or if there are no plans for this project, the Contractor shall submit a staging plan to the Engineer/Project Manager for approval prior to mobilizing to the site. The Engineer/Project Manager and the Chief Water Plant Operator will jointly approve this plan.

2. Contractors shall restrict operations to approved staging areas and parking areas. Use of unpaved areas for roadways and parking shall not be permitted, except if approved in writing by the Engineer/Project Manager.

3. On-site, temporary fuel storage will not be allowed unless the method of storage is pre-approved by the Engineer/Project Manager. All fuel storage is to be properly contained to prevent accidental spills from leaking into the surrounding environment.

B. UTILITIES:

1. The Contractor shall provide his own telephone and sanitary facilities for his employees. The Contractor may connect to existing plant electrical and water outlets, if not in use by the City, and if use of these utilities does not affect operation of the plant.

All temporary electric utilities must be pre-approved by the Engineer/Project Manager prior

to installation. In most cases, we want temporary electric utilities to follow NEC as if the installation were permanent.

C. EMPLOYEE DRESS AND APPEARANCE:

1. All Contractors, subcontractors, sales representatives, and their employees, must be dressed in such standards as not to bring discredit to the City of St. Petersburg. In all cases, all workers and employees working at these facilities shall wear shoes, full length pants, and shirts. No verbiage can be on the clothing which would discredit the City. All persons shall be professionally dressed and act professionally while on City property.

D. UNLOADING AND DELIVERY OF MATERIALS AND EQUIPMENT:

1. The Contractor shall have adequate staff and equipment at the site to receive materials and equipment. City employees and City equipment shall not be used to assist the Contractor in receiving deliveries.

E. USE OF CITY FACILITIES:

1. Except as otherwise authorized, the Contractor shall not use City telephones, restrooms, break rooms, or other facilities provided for City employees' comfort.

2. The Contractor shall not use the Plant's mailing address as its own. The City will not accept mail or packages for the Contractor addressed to our Facilities.

F. CLEANUP:

1. Any waste or extra materials (including sandblast, rubble, brush, dirt, trash, sludge, packing crates, boxes, etc.), or equipment and materials replaced, will be the Contractor's responsibility for proper disposal. Disposal onsite or use of City dumpster should not be considered automatic.

2. Permission may be granted, on a case-by-case basis, for onsite disposal.

3. Maintaining a clean plant is an ongoing effort. The Contractor shall do a thorough cleanup of the construction area daily.

4. All wire scraps, pipes, fittings, paper scraps, boxes, paint cans, scrap metal, etc., must be cleaned up daily. Metal scrap shall be placed in the City's metal dumpster located at the Plant. If the work is in an area of existing plant structures, floors shall be swept clean and wet mopped; and equipment that was soiled by the construction shall be dusted, on a daily basis.

5. Any damage to the existing plant facility, equipment, grass, landscaping, pavement, or surrounding structures, shall be restored to original condition by the Contractor as soon as the Contractor has completed work in the area of damage.

G. CONSTRUCTION PROGRESS MEETINGS:

1. Construction progress meetings shall be held on a periodic basis. The Contractor and the City (and / or their representative) shall attend this meeting. Any major subcontractors shall also attend these meetings if their portion of work is scheduled between meetings. The Contractor shall be represented, as a minimum, by their superintendent of record.

2. Formal monthly construction progress meetings shall be held if the total length of time of construction is expected to be 180 days or more. The Engineer/Project Manager may request more meetings if deemed necessary.

3. Meeting dates / time / place shall be determined by the City (or their representative).

4. On projects that have less than a 6 month construction period, weekly progress meetings, at the discretion of the City, can be held on-site, by telephone or via email. All other progress meetings must be held on site.

5. The City (or their representative) shall send out an agenda of the progress meeting prior to the meeting. At a minimum, the agenda shall include:

a. Introduction of Attendees

b. Review of Last Progress Meeting Minutes

c. Unresolved Action Items

d. Submittal Status

e. Progress of Work / Schedule

f. Delivery Schedules

g. Proposal Requests / Requests for Information and Field Order Status

h. Claims

i. Safety

j. Other Business

k. Adjournment and Next Meeting Date / Time

6. Progress meeting minutes shall be kept of all progress meetings. The City (or their representative) shall be responsible for providing meeting minutes and distribution of these minutes to all interested parties.

7. For all progress meetings, the Contractor shall be prepared to inform the City of all intended work to be done during the current week plus thru to the next scheduled progress meeting.

H. MISCELLANEOUS:

1. The Contractor shall not assume that existing valves may be closed and be drip proof. After closing valves, the Contractor shall conduct adequate tests to determine the leakage of the valve and shall submit a procedure to the Engineer/Project Manager for handling this leakage during the shutdown period.

2. All materials and equipment furnished under this Contract shall be as specified or required of a domestic origin or manufacture (unless otherwise specified). In the absence of a particular specification, materials and equipment shall be the best of their respective kinds, of a model or type currently being manufactured, of new stock, unused and not deteriorated.

3. Quality of materials and workmanship not specified shall conform to the highest quality of standards of that trade.

4. Coordination of the Contractor's work that requires special procedures of the plant operating personnel shall be shown on the Project Schedule and shall be reconfirmed to the Engineer/Project Manager 48 hours prior to requiring the coordination. Major shutdowns requires a seven (7) day notice. The City reserves the right to deny or reschedule work, if such action is needed due to operating demands, personnel availability, or other factors that will impact the City's use of the facility. The City may grant a time extension to the Contract period if rescheduling impacts the completion time. Shutdowns should not be scheduled unless the contractor has all the required equipment and materials on hand to complete the work that the shutdown is intended for. If, upon review by the City, it is determined that the contractor does not

have the necessary equipment or materials, then the shutdown will be postponed.

5. Unless otherwise specified, the Contractor shall restrict his scheduled hours of work to the period 7:00 a.m. to 4:00 p.m. weekdays, excluding city approved holidays. Work required to be performed during other periods of time should be shown on the Project Schedule. Emergency work required to be performed after hours shall be subject to approval by the City.

6. If a warranty is requested then the begin date shall be when the Final Completion of the project is determined. Final Completion is defined as when completion of all work required under the contract is in accordance with the contract documents, to the satisfaction of the City. Completion includes not only construction of work and the completion of all punch list items but also the satisfactory submittal of as-built drawings approved by the City, operations and maintenance manuals, lien releases, and all other documentation required by the contract specifications.

7. Equipment labeling at all of our facilities should be labeled using a numbering system. We do not want to label using a directional system or lettering system. We also want equipment labeled number 1, number 2, etc. from left to right as you face the equipment. We also want the equipment to be labeled with the description first, then the number .. e.g. Transfer Pump No. 1 (instead of No. 1 Transfer Pump). Please use the abbreviation of "No." instead of "#" sign. The Chief Water Plant Operator shall be consulted and have final approval as to the description of all labels (whether on tag names, labels on the equipment, or descriptions on plans and specifications).

8. Regarding graffiti: We believe that markings with pencils, pens, markers, etc. on equipment, walls, inside of cabinet doors, on conduits, wires, etc. is considered graffiti and we do not want this. If it is worth writing down, then it is worth writing down correctly in the use of labels or on prints, sketches, etc. Please do not allow graffiti of any kind at our facilities.

I. ELECTRICAL:

1. Electrical conduit shall be rigid, hot dipped galvanized, threaded metallic in all above ground, indoor or outdoor installations. The use of threadless rigid conduit connectors may be used in certain situations. Before beginning or quoting work, ask for authorization to use threadless connections. We will review this use on a case-by-case basis.

2. The use of non-metallic conduit is authorized for direct burial underground, in areas where corrosive vapors are constantly present or in wet, high humidity areas. Conduit must be schedule 40 or 80, and whenever breaking the surface must be changed to rigid metallic. Whenever the situation arises where non-metallic conduit appears to be best suited, the electrician must receive authorization from plant management before installation.

3. New conduit installations are to be painted. Conduits must have a prime coat and a finish coat. See painting standards for more details. In some cases, conduits do not have to be painted. This will be pointed out in the design drawings. However, unless instructed by the plans or specifications, all conduit will be painted to the color code.

4. Flexible conduit will not be used except in areas prone to vibration or high maintenance. When flexible conduit is specified, shortest possible runs of no greater than 36" will be used using liquid tight flexible conduit and terminated on both ends with moisture proof, wire meshed gripped fittings. When using or specifying flexible conduit, use the light gray colored conduit, otherwise any other colored, flexible conduit will have to be painted a light gray in accordance with our painting / color standards.

5. When using permanently installed flexible cord and cable installations, such as power cords, wire mesh grips (such as Kellems) will be used to relieve stress on any end that is flexed or under tension.

6. The use of factory installed plug in power cords is discouraged for any permanently installed equipment. Whenever possible and practical, the equipment should be hard wired using conduit. Exceptions to this would be for equipment totally enclosed, including the power outlet. The city shall have final say as to whether factory installed plug in power cords may be used.

7. All conduit installations are to conform to the NEC standards. When the conduit is stubbed from concrete, the conduit will be sealed to prevent moisture from getting into the conduit.

8. When using connectors to connect wire with any other object, the connectors must be compatible (like material or suitably treated) to prevent electrolysis.

9. All equipment will be protected from electrical surges as best as practical. Surge arresters will comply with article 280 of the NEC.

10. All equipment must be grounded in accordance with article 250 of the NEC. You cannot assume that the existing grounding system is adequate. All grounding connections are to be cadwelded. All ground grids must have 5 ohms or less resistance and have a minimum of 30' ground rods. Each ground rod installed (minimum depth of 30 feet) shall be checked for resistance to ground. If a 0 to 5 ohm reading is not obtained, extend 10' rod lengths and continue driving rods until the required reading is obtained. No rod can be connected to the bonding cable without the required ohm reading. The system must also be tied into the existing plant system. All structures constructed must be installed with air terminals and tied into the ground grid at each terminal and connected together at the terminal height. When driving ground rods, the Engineer/Project Manager must be present to witness the driving of these ground rods.

11. All wiring installations will be neat and trained. The use of wire trays, instead of electrical conduit, are encouraged for indoor, dry areas.

12. When using pull boxes, the boxes are to be easily accessible and the covers facing outward to make maintenance easy.

13. All receptacles, whether new installation or replacement, are to be ground fault circuit interruptible. Receptacles and switches, if subject to high humidity conditions or corrosive vapors, must be placed in a moisture proof box made for outdoor installation.

14. Control circuit schematics (ladder diagrams) are to be provided for emergency troubleshooting while construction is in progress.

15. All wires and cables shall be banded with an identifying number and color code at each end termination and at each splice point in junction boxes. The identifying number of each wire shall be determined at the point of circuit origin, and shall continue unchanged to the point of circuit termination. The wire identifying numbers shall include the following circuit designation information:

Circuit Number Legend

AA 0 - 00 - 0

| | || |

| | || |— wire number or letter to distinguish individual wires

| | ||------ numbers to distinguish individual circuits to equipment

| |---------- number to distinguish between pieces of equipment

|---------- letter(s) prefix to identify types of equipment

Examples

MOV1-01-P Motor Operated Valve No. 1 Power Positive Conductor
MOV1-01-N Motor Operated Valve No. 1 Power Negative Conductor
MOV1-01-G Motor Operated Valve No. 1 Power Ground Conductor

MOV1-02-1 Motor Operated Valve No. 1 Control Circuit
MOV1-02-2 Motor Operated Valve No. 1 Control Circuit

16. The contractor / designer shall submit to the Chief Operator suggested numbering / wording of these circuit numbers for approval prior to installation

17. The wire identifying numbers and color codes shall be applied as plastic sleeves wire

markers placed between ½" to 1 ½" from the end of the wire insulation. The markers shall be as manufactured by Brady Co., Thomas and Betts Co., or approved equal.

18. Where conduits enter motor control centers, switchgear terminal cabinets, electrical enclosures, power distribution panels and the like, the identification tag shall be held by an adjustable, self-locking nylon "Ty-Rap" as manufactured by Thomas and Betts Co., Brady Co., or approved equal. The identifying tag shall be of aluminum, brass or plastic, and shall be engraved or stamped with the scheduled conduit number.

19. The point to point as built drawings should identify each wire by its proper wire number as well as terminated locations.

20. Wire colors:

$ In AC circuits use green as ground and white as common; use any other color for other wires.

$ In DC Circuits of 12 volts or greater, use red as positive and black as negative.

$ In telemetry circuits of less than 12 volts, use multicolored to identify each circuit.

21. Outdoor lighting shall be high pressure sodium vapor installed with a photocell on every light. Outdoor spotlighting shall be high intensity halogen lights with a photocell on every light.

22. Indoor lighting shall be fluorescent, shatter protected for low ceiling application or high intensity metal-halide for high ceilings.

23. In some wiring cases the NEC offers several options. In these cases, we have identified some of the choices in our construction standards. Other choices will be the option of the engineer and user department, not the contractor or electrician doing the work.

24. All motor leads must be terminated using compression lugs or rings such as 3M - M or MC series.

25. In some cases, where terminal blocks are not used for wire connections or where extra protection is needed (such as motor leads), tape splices are made. When using tape splices the first layer is to be a 3M varnish tape, the second layer is a 3M 130C (for fill and shock protection), and the third and final layer is 3M 33+ tape. Requests must be made in advance to substitute the 3M brand tape.

26. Nylon pull ropes will be placed in all conduits suitable for adding future wires. The

contractor will advise the Project Manager (in advance) if they do not believe that the conduit is suitable for future use. Both ends of the nylon rope will be marked with a tag identifying the location of the other end of the rope.

27. Stranded wire shall be used in all electrical installations of 110 - 480 volt applications. In rare circumstances, we will allow the use of solid wire but only when permission is sought and given (in advance). Insulation standards for all wiring must comply with the NEC Article 310 and have a XHHW-2 value (no substitutes!).

28. Identification of switches and receptacles shall be made on any new or reworked installations. Identification shall be made by using an engraved plastic nameplate mounted directly above the switch or receptacle. Indoor mounting (except for high heat or humidity areas) may be done with silicone. All other mounting must be done using stainless steel machine bolts. Identify all switches as to what the switch actually controls (i.e. conference room lights, north exhaust fan, etc.). Identify electrical receptacles as to where the power is located (e.g.. panel c, breaker 32; panel 2a, breaker 3; etc.). Contractors are to ask our Chief Operator as to exact wording on these nameplates.

29. Prior to installing conduits, all conduit runs shall be either shown clearly on the plans or shown on a detailed sketch made by the contractor / mechanic. If sketches are used, then they layout must be pre-approved by the inspector / project manager.

J. ENCLOSURES:

1. Any enclosure exposed to the weather or high humidity must be stainless steel, powder coated stainless steel or aluminum, NEMA 3R Gasketed with 3 point latching mechanism, and sized properly to facilitate easy maintenance. Plans and specifications should indicate the type and size of enclosure. If, in cases where the plans and specifications do not indicate type and size, then the Contractor will provide their recommendations in the shop drawings. The Engineer/Project Manager will have final approval of the shop drawing recommendations.

2. Indoor mounted enclosure may be painted mild steel, stainless steel, powder coated stainless steel or aluminum depending on the application. Indoor enclosures shall be NEMA 12 and sized properly to facilitate easy maintenance. Plans and specifications should indicate the type and size of enclosure. If, in cases where the plans and specifications do not indicate type and size, then the Contractor will provide their recommendations in the shop drawings. The Engineer/Project Manager will have final approval of the shop drawing recommendations.

3. Any enclosure exposed to chemical vapors must be powder coated stainless steel, plastic or fiberglass, NEMA 4 Gasketed, and sized properly to facilitate easy maintenance. Plans and specifications should indicate the type and size of enclosure. If, in cases where the plans and specifications do not indicate type and size, then the Contractor will provide their

recommendations in the shop drawings. The Engineer/Project Manager will have final approval of the shop drawing recommendations.

4. Any junction boxes or electrical disconnect boxes shall be painted mild steel, stainless steel, powder coated stainless steel or aluminum, NEMA 4 Gasketed if outdoors Or NEMA 12 if indoors, and sized properly to facilitate easy maintenance. Plans and specifications should indicate the type and size of enclosure. If, in cases where the plans and specifications do not indicate type and size, then the Contractor will provide their recommendations in the shop drawings. The Engineer/Project Manager will have final approval of the shop drawing recommendations.

5. All enclosures shall be mounted to the supporting member using the same fasteners as the enclosure. i.e. stainless steel enclosure shall be mounted with stainless steel bolts, nuts, etc. All supporting structures shall be concrete or galvanized steel if outdoors. If indoors, the structure can be painted mild steel if the enclosure is painted mild steel, if the enclosure is stainless or aluminum, then the supporting structure shall be galvanized or concrete. No wooden structure is allowed. Supporting hardware must be of like material and compatible with the enclosure, i.e. we do not want to install a stainless steel box to a mild steel post using mild steel bolts and an aluminum cross member.

6. All electrical, telemetry, or signal line conduit shall enter the enclosure using thru-the-wall fittings equipped with an "O" ring or ring & retainer type seal. While we prefer conduits to enter the bottom of boxes only, we understand, on occasions, that entering the top, back or sides of a box is desirable. The electrician needs to check with the engineer / project manager as to whether or not it is ok to enter the enclosure from any other place other than the bottom.

7. All air lines, sample lines, etc. shall enter the bottom of the enclosure using bulkhead fittings. There may be rare exceptions which we allow entry other than the bottom. This shall be determined by the engineer and user department, not by the contractor or electrician.

8. If a drain is advisable in the bottom of the enclosure, it shall be manufactured as a drain using a proper drain fitting.

9. All wires entering an enclosure, splice box, etc. shall be terminated using terminal blocks. With rare exceptions shall we allow the use of wire nuts, crimped splices, etc. If the specifications are not clear, the contractor shall seek approval, prior to installation, for the use of wire nuts or crimped splices.

10. Terminal strips shall be stainless steel or brass (depending on application) and approved by the Project Manager prior to installation. All terminal strips shall be mounted using stainless steel bolts and screws.

11. Terminal strips to be indelibly marked to correspond with wire numbers.

12. Wires placed on terminal strips shall have ring or fork lugs on the end of each wire. Each wire shall have its own ring or fork lug and there shall be no more than two wires per terminal. The lugs must be insulated if they are in close contact with each other. If they do not impose any danger of shorting or cross feed then they may be insulated or non-insulated. If terminals are landed in a junction or terminal box which is in a high temperature location, then the insulation on the ring or fork lugs must be made of nylon, not plastic.

13. When using shielded cable, the ends shall be heat shrink tubed protected on both ends. The shield shall be grounded on one end only and that ground must meet NEC standards.

14. No test point or terminal block enclosures shall be located in crawl ways or in any area not easily accessible for maintenance.

15. When multiple pieces of equipment are connected from the same power source, "daisy chaining" or jumping the wire from one piece to the next at the equipment will not be allowed. Each piece of equipment shall be wired so that it may be removed without disruption of any other piece of equipment. Jumpers may be used on terminal strips as long as it is possible that if one piece of equipment is taken out of service any other equipment wired to that terminal strip is not affected.

16. The use of wire ducts is encouraged within an enclosure.

K. MECHANICAL:

1. All drain, air and hydraulic lines are to be painted galvanized pipe. In rare exceptions we will allow the use of plastic, reinforced rubber, flexible metal, etc. This is to be determined by the engineer and Project Manager, not by the contractor, plumber or mechanic. When PVC pipe is used it must be schedule 40 or 80 (as determined by the engineer or Project Manager). PVC fittings must be of the same schedule as the pipe. We will never use thin wall, 160 psi pipe. Water lines can be copper or brass pipe (not tubing), PVC or rigid, galvanized pipe (as determined by the engineer and Project Manager)..

2. Chlorine lines are to be extra heavy duty (schedule 80) black iron in applications from the chlorine cylinder(s) to the pressure reducing valve. All chlorine piping and fittings will meet the Chlorine Institute and Compressed Gas Industry standards.

3. Low pressure chlorine lines and highly chlorinated water lines shall be Schedule 80 PVC.

4. Chemical feed lines shall be of suitable material (usually schedule 80 PVC) to correspond with the application. Piping materials will be determined by the engineer and Project Manager, not by the contractor, plumber or mechanic.

5. Anytime a pipe is opened, pump pulled or an opening occurs where the integrity of the water system is in jeopardy the opening must be secured so that trash, dirt, debris, animals, insects, etc. cannot enter the pipe, or opening. Also, new material delivered to the site that has not been installed, must be protected so that trash, dirt, debris, animals, insects, etc. cannot enter the pipe or opening.

L. PAINTING:

1. All exposed interior and exterior pipes, conduits and equipment shall be painted to protect the metal. The number of coats, mill thickness, etc. shall be determined by the Engineer and user department.

2. Unless otherwise specified finished coating on the new or reconditioned work shall be painted to match the existing color coding using the best quality of the following generic industrial coating systems:

Exterior walls	Acrylic latex semi-gloss
Interior walls	Acrylic latex semi-gloss
Floors	Alkyd gloss
Concrete process units	As specified
Steel process units	As specified
Exposed steel, iron pipe, equipment, etc.	Alkyd gloss

The existing color coding is as follows: The use of a specific manufacturer's name, paint number and color name is used only for a reference of the exact shade of color in the color code. We are not implying that the Contractor must use Tnemec Co., Inc. paints.

Equipment/Buildings	Color	Paint Number	Manufacturer	Finish
Electrical (conduits, boxes, motors, generators, signal lines, etc.)	Light Gray ANSI #70	FO2H-32GR	Tnemec	Gloss
Generators	Caterpillar Yellow	High Temp	Caterpillar	Gloss

Finished water	Safety Blue	F02H-11SF	Tnemec	Gloss
Raw water	Cactus Flower	F02H-152GN	Tnemec	Gloss
Lime (slurries, CaO, CaOH, bins, etc.)	Daiquiri Ice	F02H-PA30	Tnemec	Gloss
Compressed Air (compressors, lines, etc.)	Spearmint Green	F02H-09SF	Tnemec	Gloss
Vacuum	Spearmint Green with white vinyl stripe every 18"	F02H-09SF	Tnemec	Gloss
Drain lines	Gloss Black	F02H-35GR	Tnemec	Gloss
Chlorine Gas	Lemon Yellow	F02H-02SF	Tnemec	Gloss
Chlorinated Water	Lemon Yellow with blue stripe every 18"	F02H-02SF	Tnemec	Gloss
Softened water	Delft Blue	F02H-39BL	Tnemec	Gloss
Lime Sludge lines	Weathered Bark	F02H-84BR	Tnemec	Gloss
Filter Backwash water	Desert Sands	F02H-04BR	Tnemec	Gloss
Polymer	Safety Orange	F02H-04SF	Tnemec	Gloss
Fluoride	Delft Blue with red vinyl stripe every 18"	F02H-39BL	Tnemec	Gloss
Ammonia	White with blue vinyl stripe every 18"	F02H-11WH	Tnemec	Gloss
Fuel lines, tanks, etc.	Candy Apple Red	F02h-06SF	Tnemec	Gloss
Concrete Floors	Gray	F029-33GR	Tnemec	Semi-Gloss
Handrails, machine guards, safety items	Lemon Yellow	F02H-02SF	Tnemec	Gloss
Interior Walls	Light Amber	F029-PA18	Tnemec	Semi-Gloss
Exterior Steel Tanks	Barbados	F02H-22YW	Tnemec	Gloss
Exterior Concrete	Barbados	F029-22YW	Tnemec	Gloss

Tanks and Buildings

Exterior Trim, Exterior Doors, etc.	Dark Bronze	F02H-86BR	Tnemec	Gloss
Interior Tanks, Basins (NSF certified)	Tank White	F02H-15BL	Tnemec	Gloss
Interior Filters (NSF certified)	Delft Blue	F02H-39BL	Tnemec	Gloss
Steel Fences	Malachite	PL19	Tnemec	Gloss
Ceiling Fans, Flag Poles	Antique Brass	F02H-AL22	Tnemec	Gloss

Under all circumstances, the Chief Operator will decide finished coat shading to match the existing color scheme of the plant.

3. No lead based paints, including primers, may be used. All paint systems shall have low V.O.C.s.

4. All coatings that come in contact with drinking water shall comply with Florida Administrative Codes and be approved by the Environmental Protection Agency, the National Sanitation Foundation (NSF), the Underwriters' Laboratories (U.L.) and the Florida Department of Environmental Protection. This approval must be made in writing and a copy of the approval shall be submitted with the shop drawings.

5. Voids between beams, walls, tanks, slabs, and other steel or iron surfaces, etc. which would prohibit coating for rust protection must be sealed using an approved sealant.

M. SOFTWARE VERSIONS:

1. The Division of Water Treatment and Distribution uses the following versions of software:

a. Man/Machine Interface with Programable Logic Controllers: Wonderware Factory Suite 2000 Intouch vs. 8.0 and Industrial Sequel Server vs. 8.0

b. Windows/Network Interface: Wonderware NetDDE

c. Allen Bradley PLC Series 5/15 Programming: RS Logix 5 vs. 3.21.00

d. Allen Bradley PLC Series SLC-500 Programming: RS Logix 500 vs. 2.57.00

e. Word Processing: Microsoft Office Word 2003

f. Spreadsheets: Microsoft Office Excel 2003

g. CADD: Autocadd vs. 2000

h. Local Area Network: Microsoft Windows NT vs. 4.0, Service Pack 4.0

i. Operating Shell: Microsoft Windows 2000 Professional

2. Any software purchases/programming must be discussed with supervision prior to purchasing, programming, etc. Upgrades of higher version software should not be taken for granted by Consultants, Contractors or Venders. However, if there is a later version of the above software, then the consultant, contractor, vender should inform us of the advantages/disadvantages so that we may make evaluations prior to purchasing.

3. Allen Bradley/Wonderware software development shall be developed by the "Programming Specialist", who is fully trained and well-versed in every aspect of the hardware and software that we have and/or what is to be provided. Software shall be developed in full review and cooperation of the plant staff. The programming specialist shall make all programming and start-up activities at the plant, and shall include plant staff personnel for actual experience in programming. We do not want the programming specialist to write the programming (develop tagnames, screens, reports, methodology, documentation, etc.) at his office and then down-load at our facilities. It is expected that PLC control schemes, calculations, timing sequences, and other changes shall be requested by plant supervision. We want our staff to be included in software start-up and programming of any PLC's. It is the intention of the plant staff to participate in the technical details of any SCADA system implementation, so that a) the final system closely matches our needs and b) the plant staff retains the practical knowledge and experience necessary to make further additions and refinements after the programming specialist is gone.

N. AS BUILT DRAWINGS, O&M MANUALS, REQUIRED PREVENTATIVE MAINTENANCE AND OTHER WRITTEN DOCUMENTATION:

1. The contractor must provide a start-up schedule ...

2. The Contractor must give a written notice of responsibilities of equipment to include operation of the equipment, preventative maintenance of the equipment and troubleshooting / repair of the equipment. This is especially important if equipment is placed on line prior to

the construction completion date.

O. TRAINING:

1. Prior to starting up any equipment supplied by a contractor, a training class on the operations of that equipment should be given to our operators. A written class agenda and schedule must be submitted to and approved by the Project Coordinator prior to the class.

2. Prior to acceptance of any equipment supplied to the City as part of a project, a training class on the proper preventative maintenance of that equipment should be given to our maintenance staff. A written class agenda and schedule must be submitted to and approved by the Project Coordinator prior to the class.

P. VALVE IDENTIFICATION:

1. All buried valves, three (3) inches or larger, shall have a 24" x 24" x 6" deep concrete pad formed around the valve operator access cover. This pad shall be placed so that the top of the pad is a minimum of two (2) inches above the finished grade unless the pad is an integral part of a driveway, sidewalk, larger pad, etc. If it is, the pad shall be placed at the finished grade of that surface.

2. An identification plate shall be affixed to the top of the pad in a manner such that it will be permanently attached.

3. Identification tags shall be made of brass plate stock and shall have the identification information engraved on the plate using block lettering with no less than 1/4" high characters.

4. The identification plate shall include the following information:

a. The purpose of the valve (e.g. Wash Water Return)

b. The size of the valve (e.g. 4 inch, 24 inch, etc.)

c. The type of valve (e.g. Plug Valve, Gate Valve, Butterfly Valve, Ball Valve, etc.). Abbreviations may be substituted such as Plug Valve = PV; Gate Valve = GV; Butterfly Valve = BFV and Ball Valve = BV

d. Number of turns

e. Direction of turn to close the valve (LH) or (RH)

f. Whether the valve is normally open or normally closed (NO) or (NC)

5. A typical valve identification plate may look like this:

Wash Water Return4 inch GV16 turns RHNO

Q. LANDSCAPING:

1. Trees, shrubs and flowers

a. The planting of all trees, shrubs and flowers shall be under the direction of the Chief Water Plant Operator.

b. The decision to include any landscaping in the project will be addressed in the initial stages of the design phase.

c. All types and quantities of landscaping will be the determination of the Chief Water Plant Operator.

2. Sprinkler System

a. A sprinkler system will be installed in the grounds areas to be landscaped if one does not exist.

b. The system should be installed after final grading and placement of the topsoil has been completed.

c. The system should tie into the common manifold on the system pumps discharge pipe.

d. If necessary to facilitate the installation of new zone valve(s) a new timer may have to be provided. (Specify make, model)

e. A project as built sheet showing the location of all sprinkler heads, valves

and tie in location to the existing distribution manifold to be included at the end of the project.

3. Final Grading and Placement of Topsoil

a. All areas which are to be graded shall be brought to grade at indicated elevations, slopes and contours. All cuts, fills and other areas which have been disturbed or damaged by construction operations shall be surfaced with topsoil to a depth of at least 4 inches. Topsoil shall be of a quality at least equal to the existing topsoil in adjacent areas, free from trash, stones and debris and well suited to support plant growth.

b. Use of graders or other power equipment will be permitted for final grading and dressing of slopes, provided the result is uniform and equal to hand work.

4. Sodding and / or Resodding of Grass

a. All established lawn areas cut by the line of trench or damaged during the work shall be resodded, after completion of construction, to the complete satisfaction of the property owner. All sod used shall be Argentine Bahia grass, shall be best quality and when placed shall be live fresh growing grass with at least 1-1/2 inches of soil adhering to the roots.

b. All sod shall be procured from areas where soil is fertile and contains a high percentage of loamy topsoil and from areas that have been grazed or mowed sufficiently to form a dense turf. And sodding shall be cut in strips or rectangular sections which may vary in length but shall be of equal width and of a size that will permit the sections to be lifted without breaking. Sod shall be cut and moved only when the soil moisture conditions are such that favorable results can be expected.

c. Sod shall be transplanted within 24 hours from the time it is harvested.

d. Sodding work shall be performed by personnel who are experienced and regularly engaged in the type of work required under these specifications and whose work is acceptable to the City.

e. Before placing sod, all shaping and dressing of the areas shall have been completed. After shaping and dressing, commercial fertilizer of a type acceptable to the owner shall be applied uniformly in the manner and amounts recommended by the manufacturer, and harrowed lightly. Sodding shall follow immediately.

f. The Contractor shall be responsible for all settlement of backfill and fills, which may occur within the guarantee period stipulated in the general conditions.

g. The Contractor shall provide all labor and equipment for watering sodded

areas. Water will be provided on the site by the City. Sodded areas representing one days planting shall be watered sufficiently to wet the bed at least 2 inches. Thereafter, in the absence of adequate rainfall, watering shall be preformed daily and as often as necessary to keep the soil moist at all times. Watering shall continue until the grass has thoroughly knitted after which the City will assume responsibility for watering.

R. HANDRAIL STANDARDS:

1. Aluminum rail members shall be nominal 11/4 inch diameter extruded aluminum, 6063-T5 alloy, with not less than 1/8 inch thick walls, finish shall be brush-satin, clear anodized, Class I and designed for mechanical assembly with all anchors and fasteners hidden. Post shall be circular and meet all the requirements for the rails. All fittings and fasteners shall be nonferrous metal or stainless steel.

2. Grind all exposed joints flush and smooth with adjacent finish surfaces. Where practical, make bends in pipe without the use of fittings. Fabricate railings and posts in the same plane with continuous 360- degree welds at all intersections. Space posts not to exceed 6 feet on center. Kickplates 4 inches high X 1/4 inch thick aluminum, finish shall be brush-satin, clear anodized, Class I, and shall be attached to the lower ends of the vertical handrail posts. Make provisions to drain water from rail systems by drilling weep holes in concealed locations at lowest possible elevations.

3. All railings shall meet OSHA requirements.

THESE CONSTRUCTION STANDARDS ARE INTENDED TO STANDARDIZE AND IMPROVE THE QUALITY OF WORK BEING DONE AT THE WATER TREATMENT AND DISTRIBUTION FACILITIES. THESE ARE "STANDARDS" AND SHOULD BE CONSIDERED AS SUCH. THEY ARE NOT "GOALS" OR "GENERAL GUIDELINES". THEY APPLY TO OUR OWN MECHANICS AND ELECTRICIANS AS WELL AS GENERAL CONTRACTORS AND SUBCONTRACTORS. IF THERE ARE ANY QUESTIONS REGARDING THESE CONSTRUCTION STANDARDS PLEASE SEE ONE OF THE FOLLOWING DIVISION OF WATER TREATMENT AND DISTRIBUTION PROJECT COORDINATORS:

Manager, Water Treatment and Distribution
Chief Water Plant Operator
Water Plant Operations Specialist
Plant Maintenance Supervisor
Plant Maintenance Coordinator

Compiled:	Jul 1989	Revised:	Jan 1993	Revised:	Oct 2001
Revised:	Oct 1989	Revised:	Jun 1997	Revised:	Dec 2001

Revised: Nov 1989 Revised: Jan 1999 Revised: Mar 2002
Revised: Apr 1990 Revised: May 1999 Revised: Aug 2002
Revised: Jun 1990 Revised: Sep 1999 Revised: Oct 2002
Revised: May 1991 Revised: Aug 2000 Revised: Dec 2003
Revised: Sep 1991 Revised: Oct 2000 Revised: Jan 2004
Revised: Dec 1991 Revised: Dec 2000 Revised: Jun 2007
Revised: Nov 1992 Revised: Jun 2001

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AGENDA ITEM NO. 6.I

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Kim Clayback, Public Works & Utilities

ITEM TYPE: Contract

AGENDA SECTION: CONSENT AGENDA

SUBJECT: Piggyback PB23-007KC with Gator Grading and Paving

SUGGESTED ACTION: Council approval for the piggyback contract for as-needed construction services with Gator Grading and Paving and authorization for the Mayor to sign on behalf of the City of Bradenton

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
Gator Grading and Paving, LLC agrees to enter into an agreement with the City of Bradenton, Florida to perform as needed small public works and utilities project construction services for the City of Bradenton. This agreement is in accordance with the specifications per the City of Largo contract 22-B-760 for Sanitary Sewer, Reclaimed Water and Stormwater Repair Services.

FINANCIAL IMPACT:
None at this time

ATTORNEY REVIEW/RECOMMENDATION:
No objections - 01.25.2023

SUGGESTED MOTION:
Motion to approve piggyback contract PB23-007KC.

ATTACHMENTS:
PB 23-007KC with Gator Grading and Paving

CITY OF BRADENTON
BRADENTON, FLORIDA

AGREEMENT PB 23-007KC BETWEEN THE CITY OF BRADENTON AND GATOR GRADING AND PAVING, LLC

Gator Grading and Paving, LLC agrees to enter into an agreement with the City of Bradenton, Florida to perform as needed repairs of sanitary sewer, reclaimed water, stormwater sewer and appurtenances services for the City of Bradenton. This agreement is in accordance with the specifications per the City of Largo Agreement between Owner and Contractor for Construction Contract (Unit Price) in response to ITB 22-B-760, ITB 22-B-760 dated August 25, 2022, and all addenda thereto, and Gator Grading and Paving, LLC's response to ITB 22-B-760 (collectively, the "Contract Documents") including the same pricing as set forth in the Contract Documents, for the period dated from the authorized signing of this document by Gene Brown, Mayor, through November 1, 2025, with the option of one additional one-year extension,, with the following modifications:

1. All references to the "City of Largo" shall be replaced with "City of Bradenton, Florida."

2. All references to the "Engineer" shall be replaced with "Director of Public Works and Utilities."

3. All Applications for Payment shall be submitted to kim.clayback@bradentonFl.gov and pwpurchasing@bradentonFL.gov .

4. All notices required to be sent to the City of Bradenton pursuant to the terms of the Contract Documents shall be sent to Jim McLellan, City of Bradenton Public Works and Utilities Director, 1411 9th Street West, Bradenton, Florida 34205.

5. Section 9.01, Contract Documents, of the Agreement between Owner and Contractor for Construction Contract (Unit Price) shall be revised to add a Section 9.01(8) as follows:

8. Agreement PB 23-007KC between the City of Bradenton and Gator Grading and Paving, LLC.

6. A new Article 10.07, Work Orders, shall be added to the Agreement between Owner and Contractor for Construction Contract (Unit Price) as follows:

Work Orders issued in accordance with this Agreement are limited to work which is not subject to mandatory bidding under Section 255.20, Fla. Stat., or other applicable law or ordinance.

7. A new Article 10.08, E-Verify, shall be added to the Agreement between Owner and Contractor for Construction Contract (Unit Price) as follows:

E-Verify. Section 448.09, Florida Statutes, makes it unlawful for any person to knowingly employ, hire, recruit, or refer, for private or public employment, an alien who is not duly authorized to work in the United States. Section 448.095, Florida Statutes, prohibits public employers, contractors, and subcontractors from entering into a contract unless each party to the contract registers and uses E-Verify. The Contractor hereby represents that it is in compliance with the requirements of Sections 448.09 and 448.095, Florida Statutes. The Contractor further represents that it will remain in compliance with the requirements of Sections 448.09 and 448.095, Florida Statutes, during the term of this contract. The Contractor hereby warrants that it has not had a contract terminated by a public employer for violating Section 448.095, Florida Statutes, within the year preceding the effective date of this contract. If the Contractor has a contract terminated by a public employer for any such violation during the term of this contract, it shall provide immediate notice thereof to the City.

8. A new Article 10.09, Public Records, shall be added to the Agreement between Owner and Contractor for Construction Contract (Unit Price) as follows:

To the extent applicable, Contractor shall comply with the requirements of Florida's Public Records laws, specifically including the following:

a. Contractor shall keep and maintain public records required by the City in order to perform the service;

b. Upon request from the City, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Florida Statutes, Chapter 119, or as otherwise provided by law;

c. City shall ensure public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the Contractor does not transfer the records to the City;

d. Contractor shall upon completion of the contract, transfer, at no cost, to the City all public records in possession of the Contractor or keep and maintain public records required by the City to perform the service. If the Contractor transfers all public records to the City upon completion of the contract, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor keeps and maintains public records upon completion of the contract, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City's custodian of public records, in a format that is compatible with the information technology systems of the City; and;

e. Contractor acknowledges that all information relating to the Contract are public records, as defined in Chapter 119, "Public Records" of the Florida Statutes. No information should be labeled confidential unless exempted under said laws.

IF CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

City Clerk

Phone: (941) 932-9400

Email: Cityclerk@Cityofbradenton.com

Mailing Address: 101 Old Main Street – Bradenton, FL 34205

9. Section 6.02, Insurance, General Conditions, shall be deleted in its entirety and replaced with the following:

Before performing any services, Contractor shall procure and maintain, during the life of the Contract, unless otherwise specified, the insurance listed below. The insurance policies shall be primary and written on forms acceptable to the City and placed with the insurance carriers approved and licensed by the State of Florida Office of Insurance Regulation and meet a minimum financial AM Best Company rating of no less than "A-Excellent: FSC VII."

The City, its officers, agents, and employees, shall be named as additional insureds on all policies required (excluding worker's compensation). No changes may be made to these specifications without specific prior written approval of the City. The City shall retain the right to review, at any time, coverage, form, and amount of insurance.

A) **Workers' Compensation/Employers Liability:**

Part One - There shall be no maximum limit (other than as limited by the applicable statute) for liability imposed by Florida Workers' Compensation Act or any other coverage required by the Contract which are customarily insured under Part One of the standard Workers' Compensation Policy.

Part Two - The minimum amount of coverage required by the Contract which are customarily insured under Part Two of the standard Workers' Compensation Policy shall be:

(Each Accident) $100,000
(Disease-Policy Limit) $500,000
(Disease-Each Employee) $100,000

B) **Commercial General Liability.**

The limits are to be applicable only to services performed under the Contract and shall be those that would be provided with the attachment of the Amendment of Limits of Insurance (Designated Project or Premises) endorsement (ISO Form CG 2503) a Commercial General Liability Policy with the following minimum limits.

General Aggregate:
Products/Completed Operations Aggregate $1,000,000
Personal and Advertising Injury $1,000,000
Each Occurrence $1,000,000
Fire Damage (Any One Fire) $Nil
Medical Expense (Any One Person) $Nil

ADDITIONAL INSURED: The City of Bradenton, a political subdivision of the State of Florida shall be specifically named as additional insured on the Commercial General Liability Policy.

C) **Business Auto Policy**

Each Occurrence Bodily Injury and
Property Damage Liability Combined $300,000

Annual Aggregate (if applicable) $1,000,000

ADDITIONAL INSURED: The City of Bradenton, a political subdivision of the State of Florida, shall be specifically named as additional insured on the Business Auto Policy.

D) **Certificates of Insurance and Copies of Policies**

Certificates of Insurance in triplicate evidencing the insurance coverage specified herein shall be filed with the Purchasing Division before services begin. The required certificates of insurance shall name the types of policy, policy number, date of expiration, amount of coverage, companies affording coverage, and also shall refer specifically to the Contract. All insurance policies required herein shall be issued by companies that are authorized to do business under the laws of the State of Florida and hold an A.M. Best rating of A- or better. Insurance, as specified herein, shall remain in force and effect for the duration of the Contract, including any warranty periods.

E) **Complete Policies**:

The entire and complete insurance policies required herein shall be provided to the City on request. If the initial insurance expires prior to the completion of services by the Contractor, renewal certificates of insurance and required copies of policies shall be furnished by the Contractor and delivered to the Purchasing Official thirty (30) days prior to the date of their expiration. Nothing herein shall in any manner create any liability of the City in connection with any claim against the Contractor for labor, services, or materials, or of subcontractors; and nothing herein shall limit the liability of the Contractor or Contractor's sureties to the City, or to any workers, suppliers, material men or employees in relation to this Contract.

F) By way of its execution of the Contract, Contractor:

a. Represents that Contractor maintains, and will maintain during the term of the Contract, insurance coverage from responsible companies duly authorized to do business in the State of Florida and deemed acceptable to the City; and

b. Agrees that insurance should not be cancelled without thirty (30) days' notice to the City and must be endorsed to provide same. Failure of the City to obtain and maintain proper amounts of insurance at all times as called for herein shall constitute a material breach of the Contract, which may result in immediate termination.

G) Certification Requirements – In order for the certificate of insurance to be accepted it must comply with the following:

a. The certificate holder shall be:
The City of Bradenton, A political subdivision of the State of Florida
101 Old Main Street
Bradenton, FL 34205-7865
Reference: PW As Needed Construction

b. Certificate shall be mailed to:
The City of Bradenton
1411 9th St W
Bradenton, FL 34205
Attn: Kim Clayback, PE

10. Section 18.07, Controlling Law, General Conditions, shall be revised to reflect that the venue for any state court action shall lie solely in the Twelfth Judicial Circuit in and for Manatee County, Florida.

This Agreement is authorized by Section 2-237(9) of the City of Bradenton Code of Ordinances, which provides that in lieu of issuing requests for bids of proposals, the city may utilize previous bidding procedures and bid lists for any other political subdivision of the State of Florida, the State of Florida itself, its agencies, counties, independent special districts, any municipality and any list of the United States Government and United States Federal Agencies. The utilization of such bid lists and procedures shall not require the city to contract with the lowest bidder but with the best bidder as per the provisions of its bidding requirements.

W. E. Hicks, Jr.
William E. Hicks
VP/COO of Gator Grading and Paving, LLC

Date

Gene Brown
Mayor

Date

Jim McLellan
Jim McLellan, P.E., Director
City of Bradenton Public Works and Utilities

01/25/2023
Date

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

NOTICE OF AWARD

Date of Issuance: **November 1, 2022**

Owner:	**City of Largo**	Owner's Contract No.:	**22-B-760**
Engineer:	N/A	Engineer's Project No.:	
Project:	**Sanitary Sewer, Reclaimed Water and Stormwater Repair Services**	Contract Name:	

Bidder: **Gator Grading & Paving LLC.**

Bidder's Address: **2704 105th Street East**
Palmetto, Florida 34221

TO BIDDER:

You are notified that Owner has accepted your Bid dated September 26, 2022 for the above Contract, and that you are the Successful Bidder and are awarded a **Contract for: Sanitary Sewer, Reclaimed Water and Stormwater Repair Services.** This contract shall provide for the repairs of sanitary sewer, reclaimed water, stormwater sewer and appurtenances at various locations throughout the City as circumstances dictate.

The Contract Price of the awarded Contract is: $ **1** (subject to unit prices)

Two unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

You must comply with the following conditions precedent within 7 days of the date of receipt of this Notice of Award:

1. Deliver to Owner **two** counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **City of Largo**

Brent Larson

Authorized Signature

By: **Brent Larson**

Title: **Construction manager**

Copy: Engineer

ADDENDUM No. 1
TO
ITB #22-B-760
SANITARY SEWER RECLAIMED WATER AND STORMWATER REPAIR SERVICES

TO: **Potential Bidders**

FROM: **Omar Jimenez, Contracts and Procurement Administrator**

DATE: **September 20, 2022**

PLEASE NOTE THE FOLLOWING INFORMATION REGARDING ITB #22-B-760:

DUE DATE FOR BID RESPONSES IS HEREBY CHANGED TO 3PM LOCAL TIME ON THURSDAY, OCTOBER 6, 2022

QUESTIONS & ANSWERS

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Question 1: There is a discrepancy between the Specifications included in the bid package and the City of Largo Standards available on the City's website concerning the sanitary manholes and piping specifically for use with wastewater.

Example #1:
Specification 02604, 3.05 A & B talks about sealing the exterior and interior of the manhole with a plaster coat (exterior) and waterproofing compound (interior). Within this section there is no mention of a liner.
Design Standards (Updated April 2021) WW-20. 30 & 40 call for the exterior of the manhole to be bitumastic coated and the interior per note 7 to have an HDPE, fiberglass or approved liner integrally installed as part of the precast operation.
Example #2:
Specification 15006, 2.01 A States that All pipe and fittings, with the exception of glass lined pipe and sleeves, shall be cement mortar lined. Within this section there is no mention of epoxy liners.
Design Standards (Updated April 2021) WW-10 note #5, states all D.I.P. gravity sewer pipes shall be Class 52, Epoxy Lined or as otherwise approved by the City Engineer?

Are bidders to follow the specifications or the Engineering Design and Construction Standards for bidding this project?

Answer 1: *In response to Example #1 above, Specification 02604 3.05 A & B leak proofing is referring to structures made of brick. Yes, the awarded Bidder will be required to follow all Engineering Design and Construction Standards for any job that is done in the City of Largo.*

In response to Example #2 above, the awarded Bidder will be required to construct everything to City of Largo Engineering Design and Construction Standards.

Question 2: Are Bidders required to provide pricing on all items within the provided bid form, or can some of the responses be "no bid"?

Answer 2: *Pricing on all items is not required.*

Question 3: How does underdrain replacement get paid for? Do large quantities get paid for under bid items 1 and 2 as well to cover the total footage of repair? Or is it just an instance of item 1 plus whatever footage of underdrain repair is completed?

Answer 3: *Underdrain is paid for by LF. Excavation and backfilling is included in this line item as it will be in the same trench as other pipe replacement.*

Question 4: For items 27 through 35, is there a minimum quantity for replacement & installation? The unit pricing on these items is highly dependent on quantity.

Answer 4: *There is no minimum quantity.*

Question 5: For item 40 (pipe collars), please specify diameter.

Answer 5: *This line item is for 48in. and below.*

Question 6: There is no field for Bidders to provide a bid amount total within the bid package.

Answer 6: *A Bid Total line has been added after the last bid item. Please see attached document provided as Attachment 1 to this Addendum.*

Question 7: Are Bidders required to provide a performance and payment bond for this project? If so, how are Bidders to be compensated for the bond?

Answer 7: *Task Orders issued for a contract amount less than $200,000.00 will not require a performance bond or payment bond. A performance bond and payment bond will be required on Task Orders issued for a contract amount of $200,00.00 or greater. If a performance bond and payment bond are required, the Contractor will be reimbursed by the City for the cost of the performance bond and payment bond.*

Question 8: In the Supplementary Conditions under Article SC 6.03K the bid document states the contractor is to provide $10,000,000 in Umbrella Liability coverage. How are Bidders to incorporate this cost into our bid when Bidders do not know how much work the City will award under this contract?

Answer 8: *A $2,000,000.00 Umbrella Liability coverage is required for this contract. This amount replaces the $10,000,000.00 amount referenced in the Supplementary Conditions under Article SC 6.03.K.*

Question 9: What is the Warranty period for this project? This information is not in the bid documents.

Answer 9: *One year Warranty period as described in the General Conditions Article 15 subsection 15.08.A Correction Period.*

Question 10: The bid documents state that the City will be holding 5% Retainage till the end of the project. Is this correct?

Answer 10: *Yes. In the Agreement, Article 6.02 Progress Payments; Retainage describes the progress payment retainage withholding process.*

Question 11: The bid documents state that we are to video record each work site and refers to Section 1010. I could not find a section 1010.

Answer 11: *A worksite preconstruction video is not required for this contract; Section 01010 Summary of Work is attached this Addendum and is provided as Attachment 2.*

Question 12: Article 14.02 Paragraph B states that the Owner will hire an independent test laboratory and pay for all testing. There are several places in the bid documents that state otherwise. Which is correct?

Answer 12: *Testing will be the responsibility of the Contractor as stated in Section 01025 Measurement and Payment subsection 1.02.B. The Owner will authorize from the testing allowance the cost of (1) series of initial tests only, on the area or item being evaluated per Section 01410 Testing Laboratory Services subsection 1.02.A.1. The Contractor will be allowed the reimbursement of the testing cost plus five (5) percent for administration costs.*

Question 13: Section 2720 states that the contractor is to CCTV inspect SR segments manhole to manhole after installation for acceptance. Is this correct. In the past the City has done the CCTV inspection. If we are required to do the CCTV inspection, how will we be paid for this work?

Answer 13: *All CCTV inspections will be performed by the City for this contract.*

Question 14: Section 2710 states that we are to provide TV inspection for all storm sewer work. Is this correct? And if so how are we to be paid for this work?

Answer 14: *All CCTV inspections will be performed by the City for this contract.*

Question 15: Section 2604 states that we will be required to perform a deflection test 30 days after pipe installation. Is this correct? Again, how are we to be compensated for this work.

Answer 15: *Deflection testing will not be required for this contract.*

Question 16: The contract documents state we are responsible for construction layout and As-builts. How are we to be compensated for this work?

Answer 16: *This work is considered incidental to the construction of the work and all costs shall be distributed and included in the unit prices stated by Bidder.*

ADDENDUM No. 2
TO
ITB #22-B-760
SANITARY SEWER RECLAIMED WATER AND STORMWATER REPAIR SERVICES

TO: **Potential Bidders**

FROM: **Omar Jimenez, Contracts and Procurement Administrator**

DATE: **October 3, 2022**

PLEASE NOTE THE FOLLOWING INFORMATION REGARDING ITB #22-B-760:

DUE DATE FOR BID RESPONSES IS HEREBY CHANGED TO 3PM LOCAL TIME ON THURSDAY, OCTOBER 13, 2022

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Please return the signed original of this Addendum #2 with your Bid package.

I have read and understand the Addendum to ITB #22-B-760

Signature_____

Firm_____

Typed Name and Title_____

IT IS BIDDER'S RESPONSIBILITY TO CHECK www.demandstar.com for ADDENDUMS BEFORE SUBMITTAL
~~~~~~

Question 17: Section 2720 states when you repair a lined sewer you are to use a coupling to connect the new pipe to the liner. The cost difference between a flexible coupling going from PVC to clay and one going from PVC to CIPP lined pipe is tremendous. For example, a 10" shielded coupling for PVC to Clay is around $150.00 a 10" shielded coupling for PVC to CIPP is $790.00. How are we to be compensated for this difference?

Answer 17: *The type of repairs will vary in characteristics. The repairs will be identified and evaluated on an as-needed basis per event. All repairs shall follow the specifications as described in Section 02720 Segmental Replacement (Pipe and Tap Connections).*

Question 18: Is the C900 Pipe for this project to be DR18?

Answer 18: *Yes, the C900 for this project shall be DR18.*

Question 19: There is no specification for installation or material for the Directional Boring items.

Answer 19: *Specification Section 02531 Horizontal Directional Drilling is attached to this Addendum and is provided as Attachment 3.*

Question 20: In the bid documents it states in some places that you are to only use HDPE or Precast grade rings to adjust manhole ring & covers and in other place you can use brick. Is both acceptable?

Answer 20: *Properly installed HDPE grade rings, precast grade rings, and masonry brick adjustments will be acceptable.*

Question 21: It stated in the bid documents that we are to install external manhole sleeves on all manholes and around all manhole grade adjustments. Is this correct?

Answer 21: *Yes, manhole sleeves are required per Section 02607 Manhole Height Adjustment.*

Question 22: What is the estimated annual budget?

Answer 22: *The annual budget is approximately $500,000.*

ATTACHMENT 1 PROVIDED AS SEPARATE EXCEL DOCUMENT ON DEMANDSTAR

SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The work covered by these specifications comprises, in general, the furnishing of all labor, equipment and materials. The work shall include the performing of all operations to construct road improvements, as well as, water, sewer, and drainage improvements for the City of Largo as described and specified further in the Technical Specifications, and as shown on the Contract Drawings.

B. Except as specifically noted, the Contractor shall provide and pay for:
   1. Labor, materials, tools, construction equipment, and machinery.
   2. Water and utilities required for construction.
   3. Other facilities and services necessary for proper execution and completion of the work.
   4. Testing lab services.

C. The Contractor shall comply with all codes, ordinances, rules, regulations, orders and other legal requirements of the City of Largo.

D. Roadway restoration/reconstruction for any individual street shall be completed within 30 calendar days subsequent to substantial completion of underground utility construction on a street by street basis. The submitted construction schedule shall indicate this construction sequence.

1.02 MINIMUM QUALIFICATIONS

The Contractor or subcontractors shall have a minimum of five years' experience in their particular trade and shall provide a minimum of three references relating specifically to the type of work that shall be performed for this project.

1.03 EROSION AND SEDIMENT CONTROL

The Contractor shall implement erosion and sediment control practices that will prevent the introduction of pollutants into the storm water system. Erosion and sediment controls shall include both stabilization practices and structural practices.

The Contractor shall take adequate precautions to prevent siltation and bank erosion in discharging well point systems or during other construction activities. This includes the placement of erosion control devices, such as inlet protection system, silt barriers or settling basins, when necessary to prevent silt from entering the drainage system. Whenever traffic will be leaving a construction site and moves directly onto a public road or other paved area, a temporary gravel construction entrance, per City of Largo Standards, shall be installed to reduce the amount of sediment transported onto public roads by motor vehicles or runoff. The entrance shall be maintained in a condition that will prevent tracking or flow of sediments onto public rights-of way. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately. The road or paved area must be swept daily for sediments and stones.

All erosion and sediment control devices shall be checked daily or immediately after a storm event and shall be cleaned out and/or repaired as required. All erosion and sediment control methods shall be in accordance with the construction plans. The City Engineer or the appointed City personnel has the right to enforce immediate cleanup and maintenance of any and all sediments on or off site.

1.04 HOUSEKEEPING BMP'S

A construction site management plan shall be developed by the Contractor to prevent pollutants from entering the storm water system. Pollutants include but are not limited to oils, grease, paints, gasoline, concrete truck washdown, solvents, litter, debris and sanitary waste.

The construction site management plan shall designate areas for equipment maintenance and repair; shall provide waste receptacles at convenient locations and shall provide regular collection of wastes; shall locate equipment washdown areas on site and shall provide appropriate control of washwaters; shall provide protected storage areas for chemicals, paints, solvents, fertilizers and other potentially toxic materials; and shall provide adequately maintained sanitary facilities

1.05 STORAGE OF MATERIALS

The Contractor shall furnish suitable storage facilities. All materials, supplies and equipment intended for use in the work shall be suitably stored by the Contractor to prevent damage from exposure, admixture with foreign substances, or vandalism or other cause. The Engineer will refuse to accept, or sample for testing, materials, supplies or equipment that have been improperly stored, as determined by the Engineer.

Materials found unfit for use shall not be incorporated in the work and shall immediately be removed from the construction or storage site. Delivered materials shall be stored in a manner acceptable to the Engineer before any payment for same will be made. Materials strung out along the line of construction will not be allowed unless the materials will be installed within one week from the time of unloading and stringing out.

1.06 PRESERVATION OF PROPERTY

The Contractor shall preserve from damage all property along the line of the work, or which is in the vicinity of or is in any way affected by the work, the removal or destruction of which is not called for by the plans. Wherever such property is damaged due to the activities of the Contractor, it shall be immediately restored to its original condition by the Contractor at no cost to the Owner.

In case of failure on the part of the Contractor to restore such property, or to make good such damage for injury, the Owner may, after 48 hours' notice to the Contractor, proceed to repair, rebuild or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any monies due, or which may become due, the Contractor under this contract.

1.07 CLEAN UP

The Contractor shall keep the construction site free of rubbish and other materials and restore to their original conditions those portions of the site not designated for the alteration by the Contract Documents. Clean up and restoration shall be accomplished on a continuing basis throughout the contract period and in such a manner as to maintain a minimum of nuisance and interference to the general public and residents in the vicinity of the work.

The Contractor shall also remove, when no longer needed, all temporary structures and equipment used in his operation. It is the intent of this specification that the construction areas and those other areas not designated for alteration by the Contract Documents shall be immediately restored to original condition as upon completion of the project.

1.08 PUBLIC SAFETY AND CONVENIENCE

The Contractor shall at all times so conduct his work as to ensure the least possible obstruction to traffic, or inconvenience to the general public and residents in the vicinity of the work. No road or street shall be

closed to the public, except with the permission of the Engineer and other jurisdictional governmental authority, if any. Fire hydrants on or adjacent to the work shall be kept accessible. Provisions shall be made by the Contractor to ensure public access to sidewalks, public telephones, and the proper functioning of all gutters, sewer inlets, drainage ditches, and irrigation ditches. No open excavation shall be left overnight except during road closing. All open excavation within the roadway shall be backfilled and a temporary asphalt patch applied prior to darkness each day. A cold asphalt patch is acceptable.

1.09 SAFETY AND OSHA COMPLIANCE

The Contractor shall comply in all respects with all Federal, State and Local safety and health regulations. Copies of the Federal regulations may be obtained from the U.S. Department of Labor, Occupation Safety and Health Administration (OSHA), Washington, DC 20210 or their regional offices.

The Contractor shall comply in all respects with the applicable Workman's Compensation Law.

1.10 CONTRACTOR'S USE OF PREMISES

A. Coordinate the use of premises under direction of Engineer.

B. Assume full responsibility for the protection and safekeeping of equipment and materials stored on the site.

C. Move any stored Products, under Contractor's control, which interfere with operations of the Owner or separate Contractor.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

- END OF SECTION -

SECTION 02531

HORIZONTAL DIRECTIONAL DRILLING

PART 1-GENERAL

1.01 SCOPE OF WORK

The work specified in this section consists of furnishing and installing underground utilities using the horizontal directional drilling (HDD) method of installation, also commonly referred to as directional boring or guided horizontal boring. This work shall include all services, equipment, materials, and labor for the complete and proper installation, testing, restoration of underground utilities and environmental protection and restoration.

1.02 SUBMITTALS

A. Prior to beginning work, the Contractor must submit to the Engineer a work plan detailing the procedure and schedule to be used to execute the project. The work plan should include a description of all equipment to be used, down-hole tools, a list of personnel and their qualifications and experience (including back-up personnel in the event that an individual is unavailable), list of subcontractors, a schedule of work activity, a safety plan (including MSDS of any potentially hazardous substances to be used), traffic control plan (if applicable), an environmental protection plan and contingency plans for possible problems. Work plan should be comprehensive, realistic and based on actual working conditions for this particular project. Plan should document the thoughtful planning required to successfully complete the project.

B. The Contractor shall submit a Bentonite Management Plan that includes the following as a minimum:

1. Rapid response procedures - directional drilling shall be performed by a contractor who has the expertise required to perform the related work. The contractor shall designate qualified personnel and equipment on the site during directional drilling operations responsible for monitoring drilling fluid pressure, and watching surface conditions for visual signs of frac-out. Contractor shall provide immediate response and initiate containment procedures in the event of an occurrence of a Bentonite spill. In the event of a Bentonite spill or frac-out all drilling activities shall be stopped. Drill stem shall be removed from the bore hole and the hole abandoned.

2. Containment procedures - sediment control systems such as: silt fence or earth berms on uplands, and floating silt barriers or other aquatic barriers in water, and other means necessary to prevent the spread of the Bentonite spill shall be installed immediately.

3. Timely cleanup capability - remediation of the lost Benton shall begin immediately. Cleanup shall include removal of the material from the site by an approved method, and disposal of the material by an approved method in an appropriate location as directed by a City of Largo representatives.

C. Contractor shall submit specifications on directional drilling equipment to be used to ensure that the equipment will be adequate to complete the project.

Equipment shall include but not be limited to: drilling rig, mud system, mud motors (if applicable), down-hole tools, guidance system and rig safety systems. Calibration records for guidance equipment shall be included. Specifications for any drilling fluid additives that Contractor intends to use or might use will be submitted.

D. Specifications on material to be used shall be submitted to Engineer and material shall include the pipe, fittings, drilling mud, drilling additives and any other item which is to be an installed component of the project or used during construction.

E. All submittals shall be in conformance with Section 01340.

1.03 QUALITY ASSURANCE

The requirements set forth in this specification include a wide range of procedural precautions necessary to ensure that the very basic, essential aspects of a proper directional bore installation are adequately controlled. Strict adherence shall be required under specifically covered conditions outlined in this specification. Adherence to the specifications contained herein, or the Engineer's approval of any aspect of any directional bore operation covered by this specification, shall in no way relieve the Contractor of their ultimate responsibility for the satisfactory completion of the work authorized under the Contract.

PART 2 - PRODUCTS

2.01 GENERAL

Directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore and pullback the pipe, a drilling fluid mixing, delivery system of sufficient capacity to successfully complete the crossing, a guidance system to accurately guide boring operations and trained and competent personnel to operate the system. All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.

2.02 HDPE PIPE & JOINTS

A. The pipe shall be high density polyethylene (HDPE) AWWA C906 SDR-11 with standard ductile iron pipe outside diameters. Where fittings are required, a stainless steel stiffener shall be inserted in the end of the pipe for support. Stiffeners shall be so manufactured by Smith-Blair, Inc. ROMAC, or approved equal. HDPE pipe shall be as manufactured by Plexco, ISCO, Charter Plastics, Flying W, J-M or approved equal. Pipe shall be color coded for the type of utility service.

B. The manufacturer of the HDPE pipe shall supply all D.I./HDPE mechanical joint adapters and accessories required to perform the work as shown on the Drawings. The D.I./HDPE mechanical joint adapter shall be connected to the HDPE pipe by a heat-fused joint on one end, and connected to a ductile iron pipe, valve, or fitting with a mechanical joint on the other end. The tee bolts and backup drive ring shall act as a joint restraint.

1. The D.I./HDPE mechanical joint adapter shall consist of:
   a. A molded or fabricated HDPE mechanical joint transition fitting
   b. A standard rubber gasket for a D.I. mechanical joint.
   c. A D.I. mechanical joint backup drive ring.
   d. Cor-Ten mechanical joint tee bolts.
   e. A stainless steel stiffener inserted in the MJ end of the HDPE transition fitting.

2. The HDPE transition fitting shall be molded or fabricated by the manufacturer of the HDPE pipe. All molded fittings shall be fully pressure rated to match the SDR pressure rating for which they are made. Fabricated fittings shall be rated for internal pressure service equivalent to the full pressure rating of the mating pipe.

3. Solvent epoxy cementing and mechanical joining with bolt on wrap around clamps shall not be used for connections.

4. Mechanical restraint devices that grip the outer wall of the pipe to provide restraint, such as the EBAA Iron Megalug, shall not be used to make mechanical joint connections.

2.03 DRILLING SYSTEM

A. The directional drilling machine shall consist of a hydraulically powered system to rotate, push and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head. The machine shall be anchored to the ground to withstand the pulling, pushing and rotating pressure required to complete the crossing. The hydraulic power system shall be self-contained with sufficient pressure and volume to power drilling operations. Hydraulic system shall be free of leaks. Rig shall have a system to monitor and record maximum pull-back pressure during pull-back operations. The rig shall be grounded during drilling and pull-back operations. There shall be a system to detect electrical current from the drill string and an audible alarm which automatically sounds when an electrical current is detected.

B. The drill head shall be steerable by changing it's rotation and shall provide the necessary cutting surfaces and drilling fluid jets.

C. Mud motors (if required) shall be of adequate power to turn the required drilling tools.

D. Shall be constructed of high quality 4130 seamless tubing, grade D or better, with threaded box and pins. Tool joints should be hardened to 32-36 RC.

2.04 GUIDANCE SYSTEM

A conventional electromagnetic sound walkover system, Magnetic Guidance System (MGS) probe or proven gyroscopic probe and interface shall be used to provide a continuous and accurate determination of the location of the drill head during the drilling operation. The guidance shall be capable of tracking at the maximum depth required and in any soil condition, including hard rock. It shall enable the driller to guide the drill head by providing immediate information on the tool face, azimuth (horizontal direction), and inclination (vertical direction). The guidance system shall be accurate to +/-2% of the vertical depth of the borehole at sensing position at depths up to one hundred feet and accurate within 1.5 meters horizontally.

The Guidance System shall be of a proven type and shall be setup and operated by personnel trained and experienced with this system. The Operator shall be aware of any Geo-magnetic anomalies and shall consider such influences in the operation of the guidance system if using a magnetic system.

2.05 DRILLING FLUID (MUD) SYSTEM

A. A self-contained, closed, drilling fluid mixing system shall be of sufficient size to mix and deliver drilling fluid composed of Bentonite clay, potable water and appropriate additives. Mixing system shall be able to molecularly shear individual Bentonite particles from the dry powder to avoid clumping and ensure thorough mixing. The drilling fluid reservoir tank shall be a minimum of 500 gallons. Mixing system shall continually agitate the drilling fluid during drilling operations.

B. Drilling fluid shall be composed of clean water and Bentonite clay. Water shall be from an authorized source with a pH of 8.5 - 10. Water of a lower pH or with excessive calcium shall be treated with the appropriate amount of sodium carbonate or equal. The water and Bentonite clay shall be mixed thoroughly and be free of any clumps or clods. No additional material may be used in drilling fluid without prior approval from the Engineer. Contractor is responsible for provisions to obtain clean water for the fluid.

The Bentonite mixture used shall have the minimum viscosities as measured by a March Funnel:

Rock, Clay - 60 sec.
Hard Clay - 40 sec.
Soft Clay - 45 sec.
Sandy Clay - 90 sec.

Stable Sand - 80 sec.
Loose Sand - 110 sec.
Wet Sand - 110 sec.

These viscosities may be varied to best fit the soil conditions encountered, as approved by the Engineer.

C. Additives to drilling fluid such as drill soap, polymers, etc. shall be “environmentally safe” and be approved for such usage. No diesel fuel will be used.

D. The mud pumping system shall have a minimum capacity of 50 GPM and be capable of delivering the drilling fluid at a constant minimum pressure of 1000 psi. The delivery system shall have filters in-line to prevent solids from being pumped into the drill pipe. Connections between the pump and drill pipe shall be leak-free. Used drilling fluid and drilling fluid spilled during drilling operations shall be contained and properly diposed of. A berm, minimum of 12" high, shall be maintained around drill rigs, drilling fluid mixing system, entry and exit pits and drilling fluid recycling system to prevent spills into the surrounding environment. Pumps and or vacuum truck(s) of sufficient size shall be in place to convey excess drilling fluid from containment areas to storage and facilities.

2.06 OTHER EQUIPMENT:

A. Pipe rollers shall be of sufficient size to fully support the weight of the pipe while being hydro-tested and during pull-back operations. Sufficient number of rollers shall used to prevent excess sagging of pipe. Rollers shall be used as necessary to assist in pull back operations and in layout/fusing of material.

B. Hydraulic or pneumatic pipe rammers may only be used if necessary and with the authorization of Engineer.

C. Other devices or utility placement systems for providing horizontal thrust other than those previously defined in the preceding sections shall not be used unless approved by the Engineer prior to commencement of the work. Consideration for approval will be made on an individual basis for each specified location. The proposed device or system will be evaluated prior to approval or rejection on its potential ability to complete the utility placement satisfactorily without undue stoppage and to maintain line and grade within the tolerances prescribed by the particular conditions of the project.

PART 3 - EXECUTION

3.01 GENERAL

A. The Engineer must be notified 48 hours in advance of starting work. The Directional Bore shall not begin until the Engineer is present at the job site and agrees that proper preparations for the operation have been made. The Engineer approval for beginning the installation shall in no way relieve the Contractor of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract.

B. The drawings show existing utilities that are believed to be near the directional drill alignment. There is no guarantee that these utilities are located as shown or that other utilities may not be present. The Contractor is to field locate existing utilities in advance of the work so as not to delay work and avoid conflict or disruption of utility services.

3.02 PERSONNEL REQUIREMENTS:

All personnel shall be fully trained in their respective duties as part of the directional drilling crew and in safety. Each person must have at least two years directional drilling experience. A competent and experienced supervisor representing the Contractor and Drilling Subcontractor shall be present at all times during the actual drilling operations. A responsible representative who is thoroughly familiar with the equipment and type work to be performed, must be in direct charge and control of the operation at all times. In all cases the supervisor must be continually present at the job site during the actual Directional Bore operation. The Contractor and Subcontractor shall have a sufficient number of competent workers on the job at all times to insure the Directional Bore is made in a timely and satisfactory manner.

Personnel who are unqualified, incompetent or otherwise not suitable for the performance of this project shall be removed from the job-site and replaced with a suitable person.

3.03 DRILLING PROCEDURE

A. Work site as indicated on drawings, within right-of-way, shall be graded or filled to provide a level working area. No alterations beyond what is required for operations are to be made. Contractor shall confine all activities to designated work areas.

B. Entire drill path shall be accurately surveyed with entry and exit stakes placed in the appropriate locations within the areas indicated on drawings. If contractor is using a magnetic guidance system, drill path will be surveyed for any surface geo-magnetic variations or anomalies.

C. Contractor shall place silt fence between all drilling operations and any drainage, wetland, waterway or other area designated for such protection by contract documents, state, federal and local regulations. Additional environmental protection necessary to contain any hydraulic or drilling fluid spills shall be put in place, including berms, liners, turbidity curtains and other measures. Contractor shall adhere to all applicable environmental regulations. Fuel or oil may not be stored in bulk containers within 200' of any water-body or wetland.

D. Contractor shall adhere to all applicable state, federal and local safety regulations and all operations shall be conducted in a safe manner. Safety meetings shall be conducted at least weekly with a written record of attendance and topic submitted to Engineer.

E. Pipe shall be welded/fused together in one length, if space permits. Steel pipe welds will be X-Rayed prior to being placed in bore hole. Pipe will be placed on pipe rollers before pulling into bore hole with rollers spaced close enough to prevent excessive sagging of pipe.

F. Pilot hole shall be drilled on bore path with no deviations greater than 5% of depth over a length of 100'. In the event that pilot does deviate from bore path more than 5% of depth in 100', contractor shall notify the Engineer and Engineer may require contractor to pull-back and re-drill from the location along bore path before the deviation.

G. In the event that a drilling fluid fracture, inadvertent returns or returns loss occurs during pilot hole drilling operations, Contractor shall cease operations and shall discuss corrective options and with the Engineer and/or maintaining agency, then work shall then proceed accordingly.

H. Upon successful completion of pilot hole, contractor shall ream bore hole to a minimum of 25% greater than outside diameter of pipe using the appropriate tools. Contractor shall not attempt to ream at one time more than the drilling equipment and mud system are designed to safely handle.

I. After successfully reaming bore hole to the required diameter, contractor shall pull the pipe through the bore hole. In front of the pipe shall be a swivel. Once pull-back operations have commenced, operations must continue without interruption until pipe is completely pulled into bore hole. During pull-back operations contractor will not apply more than the maximum safe pipe pull force at any time.

J. In the event that pipe becomes stuck, contractor shall notify the Engineer. Engineer, contractor, and/or the maintaining agency shall discuss options and then work will proceed accordingly.

K. The Excess pipe shall be removed and the bore hole associated with this excess pipe shall be filled with flowable fill or grout unless the area of the excess pipe is excavated and back-filled as part of the tie-in operations.

3.04 PIPE TESTING

Following successful pull-back of pipe, contractor shall hydro-test the pipe as required in Section 02662.

3.05 SITE RESTORATION

Following drilling operations, contractor will de-mobilize equipment and restore the work-site to original condition. Any noticeable surface defects due to the drilling operation shall be repaired by the Contractor.

3.06 RECORD KEEPING

Contractor shall maintain a daily project log of drilling operations and a guidance system log with a copy given to Engineer at completion of boring. As-built drawings shall be certified as to accuracy by the Contractor as required in Section 01720.

Prepared by:

CITY OF LARGO, FLORIDA
ENGINEERING SERVICES DEPARTMENT

SANITARY SEWER, RECLAIMED WATER AND STORMWATER REPAIR SERVICES

Engineering Project Number 2023-01
Contract Number: 22-B-760

August 25, 2022

The proposed work specified in this contract is subject to City Commission approval; therefore, any, all, or part of the work specified herein may be increased, decreased, or deleted in accordance with City Commission direction.

All work within Pinellas County or FDOT jurisdiction shall be performed in accordance with Pinellas County and/or FDOT standards and utility license terms, provisions, and conditions.

All other work under this contract shall be governed by these specifications and by all applicable City of Largo standards.

All communications pertaining to this contract shall carry the reference "City Bid No. **22-B-760"**.

Jerald Woloszynski, P.E.
Director of Engineering Services

BIDDING DOCUMENTS FOR

SANITARY SEWER, RECLAIMED WATER AND STORMWATER REPAIR SERVICES

Contract No: 22-B-760

BIDDING REQUIREMENTS
Advertisement (C-111)
Instructions to Bidders (C-200)
Bid Form (C-410)
Qualifications Statement (C-451)
Corporate Acknowledgment
Certificate as to Corporate Principal
Debarment, Suspension Vendor Responsibility Certification Form
Non-Collusive Affidavit
Drug-Free Workplace Certification
Trench Safety Act

CONTRACT DOCUMENTS
Agreement (C-520)*****
General Conditions of the Construction Contract (C-700)
Supplementary Conditions (C-800)*****
Contractor's Application for Payment (C-620)
Notice of Award (C-510)
Notice to Proceed (C-550)
Work Change Directive (C-940)
Change Order (C-941)
Field Order (C-942)
Certificate of Substantial Completion (C-625)
Notice of Acceptability of Work (C-626)

***** **It is Owner's expectation that exceptions will be resolved through Addenda prior to bid submittal in order to expedite contract execution.**

TECHNICAL SPECIFICATIONS – CITY OF LARGO

DIVISION 1 - GENERAL REQUIREMENTS

01025	Measurement and Payment
01045	Execution of the Work
01050	Field Engineering
01090	References
01200	Project Meetings
01310	Construction Progress Schedules
01370	Schedule of Values
01410	Testing Laboratory Services
01510	Temporary Utilities
01530	Protection of Work and Property
01550	Contractor Access and Parking
01560	Temporary Controls
01570	Traffic Control
01610	Product Requirements and Options
01650	Product Delivery Requirements
01660	Product Storage and Protection Requirements
01670	Checkout and Startup Procedures

01730 Operation and Maintenance Data
01740 Cleaning and Waste Management
01782 Project Record Documents
01783 Spare Parts and Extra Material
01821 Instruction of Owner's Personnel

DIVISION 2 - SITEWORK

02010 Subsurface Investigation
02050 Demolition
02064 Modifications to Existing Structures
02100 Clearing and Grubbing
02200 Earthwork
02540 Site Grading
02550 Finish Grading
02604 Utility Structures
02607 Manhole Height Adjustment

02710 Underdrain System
02720 Segment Replacement (Pipe and Tap Connections)
02731 Television Inspection
02740 Cured-in-Place Pipe
02750 Chemical Grouting
02762 Sewer Service Lateral CIPP Lining
02934 Sodding
02944 Seeding

DIVISION 3 - CONCRETE

03400 Precast Concrete

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

07900 Joint Fillers, Sealants, and Caulking

DIVISION 9 - FINISHES

09900 Painting

DIVISION 11 - EQUIPMENT

11000 Equipment - General
11100 Pumps – General
11115 Horizontal Centrifugal Self-Priming Pumps
11130 Submersible Solids-Handling Pumps
11170 Liquid Chemical Metering Pump Skid

DIVISION 15 - MECHANICAL CONSTRUCTION

15000 Basic Mechanical Requirements
15006 Ductile Iron Pipe and Fittings
15008 PVC Pipe
15030 Piping and Equipment Identification Systems
15095 Valves, General
15100 Valve Operators and Electric Valve Actuators

15101	Butterfly Valve
15104	Ball Valves
15105	Check Valves
15107	Fire Hydrants
15108	Gate Valves (Including Knife Gate Valves)
15109	Plug Valves
15114	Miscellaneous Valves
15140	Pipe Supports

DIVISION 16 - ELECTRICAL

16000	Basic Electrical Requirements
16111	Conduit
16123	Wire and Cable
16130	Boxes
16141	Wiring Devices
16170	Grounding and Bonding
16190	Supporting Devices
16195	Electrical Identification
16440	Disconnect Switches
16500	Lighting

DIVISION 17 - INSTRUMENTATION

17000	Instrumentation and Control, General
17500	Control Panel
17650	Pressure Gauges
17701	Electromagnetic Flow Meters
17749	Submersible Level (Pressure) Sensor
17760	Pressure Indicating Transmitters

CITY OF LARGO
LARGO, FL

SANITARY SEWER, RECLAIMED WATER AND STORM SEWER REPAIR SERVICES
CONTRACT NUMBER: 22-B-760

ADVERTISEMENT FOR BIDS

Sealed Bids for the **Sanitary Sewer, Reclaimed Water, and Storm Water Repair Services** will be received by **the City of Largo**, at the **Office of Performance and Budget**, until 3:00 PM local time on September 26, 2022, at which time the Bids received will be **publicly** opened and read. The Project consists of **Sanitary Sewer, Reclaimed Water, and Storm Water Repairs and appurtenances at various locations throughout the City as circumstances dictate**.

The City reserves the right to award separate contracts for the various repair methods. The decision on which method will be used in any given situation will be made at the sole discretion of the City. The repairs assigned to the Contractor may require prioritization by the City. The Owner may order the Contractor to complete the awarded work in accordance with a specific chronological sequence.

The term of this engagement will be from the date of award through September 30, 2023. The City reserves the right to extend the Contract for one additional one-year extension with mutual agreement between Contractor and Owner. The estimated quantities identified in the Schedule of Bid Prices are for comparison only. The locations to be repaired will be as directed by the City of Largo designated representative. The Work shall be assigned on a Task Order basis as need arises.

Bids will be received for multiple blanket Contracts. Bids shall be on a unit price basis as indicated in the Bid Form.

The Issuing Office for the Bidding Documents is: **Office of Performance and Budget, 201 Highland Avenue, Largo, FL 33770. Direct questions concerning this Bid to Omar Jimenez, Contracts and Procurement Administrator, to (727) 587-6740, ext. 5222 or ojimenez@largo.com.** Prospective Bidders may obtain copies of the Bidding Documents from the Issuing Office as described below. **Deadline for questions is September 9, 2022.**

Bidding Documents may be downloaded from Demandstar.com, free of charge.

Bidders may elect to submit their response to this ITB by electronic submission through the free on-line services of DemandStar. All documents and attachments must be uploaded by the date and time indicated. Bidders who are e-bidding for the first time are strongly encouraged to contact DemandStar at 866-273-1863 or obtain assistance by e-mailing questions to Support@demandstar.com. Solicitation responses uploaded to DemandStar after the solicitation response due date and time shall not be considered. It is the sole responsibility of the bidder to ensure that its solicitation response is uploaded and submitted before such date and time. The City of Largo is not responsible for delays caused by power outages or internet failures. No exceptions will be made.

No Pre-bid conference will be held at this time.

IT IS THE BIDDER'S RESPONSIBILITY TO CHECK DEMANDSTAR FOR FINAL DOCUMENTS PRIOR TO SUBMITTAL

EJCDC® C-111, Suggested Advertisement for Bids for Construction Contracts.
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Owner: **City of Largo**

By: **Omar Jimenez**

Title: **Contracts and Procurement Administrator**

Date: **August 25, 2022**

+ + END OF ADVERTISEMENT FOR BIDS + +

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INSTRUCTIONS TO BIDDERS

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ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the advertisement or invitation to bid.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit with its Bid a completed Qualifications Statement, included with these Bidding Requirements.

3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

The purpose of this solicitation is to award an annual purchasing agreement to one or more Bidders based on line item Bid Price as defined in Article 14 and Bidder's qualifications for Task Order Work. Paragraphs 4.01 through 4.05 will apply when Owner issues a Task Order Request for Quote to a Contractor (Successful Bidder).

4.01 *Site and Other Areas*

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

4.02 *Existing Site Conditions*

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Order Requests for Quote will identify:

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a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.

b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

c. reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.

d. Technical Data contained in such reports and drawings.

2. The reports and drawings referenced in the preceding subparagraph 1 are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Contractor is entitled to rely, as provided in the General Conditions, shall be identified and established in the Task order Request for Quote. Contractor shall be responsible for any interpretation or conclusion Contractor draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

3. The default definition of Technical Data set forth in Article 1 of the General Conditions will apply to this Contract.

B. Underground Facilities: Information and data shown with respect to existing Underground Facilities at or adjacent to the Site are set forth in the Task Order Request for Quote and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to Contractors with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Task Order Request for Quote due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to Contractors with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Task Order Request for Quote to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Contractors Following City Request for Work Under the Contract*

A. Contractor shall conduct any required Site visit during normal working hours and shall not disturb any ongoing operations at the Site.

B. Contractor is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Contractor access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Contractor deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.

D. Contractor shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to

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schedule, access, existing operations, security, liability insurance, and applicable safety programs.

E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 *Owner's Safety Program*

A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.05 *Other Work at the Site*

A. The Task Order Request for Quote will include identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by the Task Order. If Owner is party to a written contract for such other work, then on request, Owner will provide to Contractor access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 5 – BIDDER'S REPRESENTATIONS

5.01 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;

B. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;

C. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality; the Bidding Documents; and quantities and Specifications identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;

D. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;

E. become aware of the general nature of the work to be performed by Owner and others that relates to the Work as indicated in the Bidding Documents;

F. promptly give Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Owner is acceptable to Bidder;

G. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and

H. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without

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exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 – PRE-BID CONFERENCE

6.01 There will be no pre-bid conference for this advertisement.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Owner in writing. Interpretations or clarifications considered necessary by Owner in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

ARTICLE 8 – BID SECURITY

8.01 No bid security is required for this advertisement.

ARTICLE 9 – CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be substantially competed, and completed and ready for final payment, are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Owner until after the Effective Date of the Contract.

11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly

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in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.

12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work: any phase of Work not performed by Bidder.

If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract a Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

ARTICLE 13 – PREPARATION OF BID

13.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form shall be completed in ink or typed and the Bid Form signed digitally or in ink. Erasures or alterations shall be initialed digitally or in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.

B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."

13.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.

13.03 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The partnership's address for receiving notices shall be shown.

13.04 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the firm's address for receiving notices shall be shown.

13.05 A Bid by an individual shall show the Bidder's name and address for receiving notices.

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13.06 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture's address for receiving notices shall be shown.

13.07 All names shall be printed in ink or typed below the signatures.

13.08 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

13.09 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.

13.10 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

14.01 *Unit Price*

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.

B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity" (which Owner or its representative has set forth in the Bid Form) for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.

C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

14.02 *Allowances*

A. For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 15 – SUBMITTAL OF BID

15.01 Bidder may submit its completed Bid Form in Microsoft Excel file format or PDF file format. The Bid Form is to be completed and submitted together with the other documents required to be submitted under the terms of Article 7 of the Bid Form.

15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be accompanied by other required documents. Mailed bids shall not be accepted.

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15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted in accordance with the designated manner, will not be accepted. Mailed bids will be returned to the Bidder or destroyed unopened.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.

16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.

19.02 If Owner awards the contract for the Work, such award shall be to all qualified Bidders.

19.03 Evaluation of Bids

A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers

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proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 20 – BONDS AND INSURANCE

20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required insurance documentation.

ARTICLE 21 – SIGNING OF AGREEMENT

21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and insurance documentation required to be delivered by the Contract Documents) to Owner. Within ten days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

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BID FORM

SANITARY SEWER, RECLAIMED WATER, AND STORMWATER REPAIR SERVICES

Contract NO: 22-B-760

August 25, 2022

EJCDC® C-410, Bid Form for Construction Contracts.
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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

City of Largo
Office Performance and Budget
201 Highland Avenue NE
Largo, Fl 33770
Attn: Omar Jimenez, Contracts and Procurement Administrator

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the time indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders. This Bid will remain subject to acceptance for 60 days after the Bid Opening, or for such a longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.	Addendum, Date

B. Bidder has satisfied itself as to the general and local conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality; the Bidding Documents.

E. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid, and in accordance with the other terms and conditions of the Bidding Documents.

F. Bidder is aware of the general nature of work to be performed by Owner that relates to the Work as indicated in the Bidding Documents.

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G. Bidder has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and confirms that the written resolution thereof by Owner is acceptable to Bidder.

H. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

I. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the e execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

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Bidder will complete the Work for the following prices:

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
1	Initial Excavation (25 Lineal Feet)				
1a	0'-5' Depth	20	EA		
1b	>5'-10' Depth	20	EA		
1c	>10'-15' Depth	10	EA		
1d	>15'-20' Depth	10	EA		
1e	>20' Depth	5	EA		
2	Additional Excavation (10 Lineal Feet)				
2a	0'-5' Depth	30	EA		
2b	>5'-10' Depth	30	EA		
2c	>10'-15' Depth	10	EA		
2d	>15'-20' Depth	10	EA		
2e	>20' Depth	5	EA		
3	Well Point Dewatering (Initial 15 Points)				
3a	0'-5' Depth	20	EA		
3b	>5'-10' Depth	20	EA		
3c	>10'-15' Depth	20	EA		
3d	>15'-20' Depth	10	EA		
3e	>20' Depth	5	EA		
4	Well Point Dewatering (Each Additional Point)				
4a	0'-5' Depth	30	EA		
4b	>5'-10' Depth	30	EA		
4c	>10'-15' Depth	30	EA		
4d	>15'-20' Depth	20	EA		
4e	>20' Depth	5	EA		
5	PVC Sewer Pipe Repair (Initial 8 L.F., SDR-26)				
5a	4"-6" Diameter	25	EA		
5b	8" Diameter	25	EA		
5c	10" Diameter	25	EA		
5d	12" Diameter	25	EA		

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
6	PVC Sewer Pipe Repair (Additional, SDR-26)				
6a	4"-6" Diameter	100	LF		
6b	8" Diameter	250	LF		
6c	10" Diameter	250	LF		
6d	12" Diameter	250	LF		
7	PVC Sewer Pipe Repair (Initial 8 L.F., C-900)				
7a	4"-6" Diameter	20	EA		
7b	8" Diameter	30	EA		
7c	10" Diameter	20	EA		
7d	12" Diameter	20	EA		
8	PVC Sewer Pipe Repair (Additional, C-900)				
8a	4"-6" Diameter	150	LF		
8b	8" Diameter	250	LF		
8c	10" Diameter	250	LF		
8d	12" Diameter	250	LF		
9	PVC Pressure Pipe Repair (Initial 8 L.F., C-900)				
9a	4" Diameter	5	EA		
9b	6" Diameter	5	EA		
9c	8" Diameter	5	EA		
9d	10" Diameter	2	EA		
9e	12" Diameter	2	EA		
9f	16" Diameter	2	EA		
9g	18" Diameter	2	EA		
10	PVC Pressure Pipe Repair (Additional, C-900)				
10a	4" Diameter	100	LF		
10b	6" Diameter	100	LF		
10c	8" Diameter	100	LF		
10d	10" Diameter	100	LF		
10e	12" Diameter	100	LF		
10f	16" Diameter	40	LF		

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
10g	18" Diameter	20	LF		
11	Ductile Iron Pipe Class 52 (Initial 8 L.F.)				
11a	4″ Dia.	5	EA		
11b	6″ Dia.	5	EA		
11c	8″ Dia.	5	EA		
11d	10″ Dia.	5	EA		
11e	12″ Dia.	5	EA		
11f	14″ Dia.	5	EA		
11g	16″ Dia.	5	EA		
11h	18″ Dia.	5	EA		
11i	24″ Dia.	5	EA		
12	Ductile Iron Pipe Class 52 (Additional L.F.)				
12a	4″ Dia.	50	LF		
12b	6″ Dia.	50	LF		
12c	8″ Dia.	50	LF		
12d	10″ Dia.	50	LF		
12e	12″ Dia.	50	LF		
12f	14″ Dia.	30	LF		
12g	16″ Dia.	30	LF		
12h	18″ Dia.	20	LF		
12i	24″ Dia.	20	LF		
13	Sanitary Sewer Manhole Installation (4' Diameter)				
13a	0'-5' Depth	2	EA		
13b	>5'-10' Depth	2	EA		
13c	>10'-15' Depth	2	EA		
13d	>15'-20' Depth	2	EA		
13e	>20' Depth	2	EA		
14	Sanitary Sewer Manhole Installation (5' Diameter)				
14a	0'-5' Depth	2	EA		
14b	>5'-10' Depth	2	EA		

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
14c	>10'-15' Depth	2	EA		
14d	>15'-20' Depth	2	EA		
14e	>20' Depth	2	EA		
15	Manhole Removal/Disposal				
15a	0'-5' Depth	12	EA		
15b	>5'-10' Depth	12	EA		
15c	>10'-15' Depth	12	EA		
15d	>15'-20' Depth	10	EA		
15e	>20' Depth	7	EA		
16	Storm Sewer Manhole Installation (4' Diameter)				
16a	0'-5' Depth	2	EA		
16b	>5'-10' Depth	2	EA		
16c	>10'-15' Depth	2	EA		
16d	>15'-20' Depth	2	EA		
16e	>20' Depth	1	EA		
17	Storm Sewer Manhole Installation (5' Diameter)				
17a	0'-5' Depth	2	EA		
17b	>5'-10' Depth	2	EA		
17c	>10'-15' Depth	2	EA		
17d	>15'-20' Depth	2	EA		
17e	>20' Depth	1	EA		
18	Fiberglass Manhole Liner				
18a	4' Diameter	30	VF		
18b	5' Diameter	30	VF		
18c	6' Diameter	20	VF		
18d	8' Diameter	10	VF		
19	Directional Bore - HDPE				
19a	4" Diameter	500	LF		
9b	6" Diameter	500	LF		
19c	8" Diameter	500	LF		

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
19d	10" Diameter	500	LF		
20	Manhole Coring				
20a	4″ Dia.	2	EA		
20b	6″ Dia.	2	EA		
20c	8″ Dia.	5	EA		
20d	10″ Dia.	5	EA		
20e	12″ Dia.	2	EA		
20f	16″ Dia.	2	EA		
21	Manhole Ring and Cover Replacement, Asphalt or Concrete	20	EA		
22	Manhole Ring and Cover Replacement, Grass	20	EA		
23	Sanitary Sewer MH Inside Drop, 1'-5' Deep	5	EA		
24	Sanitary Sewer MH Inside Drop, >5' – 10' Deep	5	EA		
25	Sanitary Sewer MH Inside Drop, >10' Deep	5	EA		
26	Clean Out Installation (with 2' x 2' Pad)	15	EA		
27	Flowable Fill	200	CY		
28	Pavement Base Restoration				
28a	8″ Depth (Roadway)	1,250	SY		
28b	16″ Depth (Base Restoration/Repair)	1,000	SY		
29	Asphalt Surface Restoration (1.5" Depth)	1,250	SY		
30	Brick Roadway Restoration	750	SY		
31	Concrete Sidewalk Remove and Replace (3000 PSI, 4" Thick)	2,500	SY		
32	Concrete Sidewalk Remove and Replace (3000 PSI, 6" Thick)	2,500	SY		
33	Concrete Driveway Restoration (3000 PSI, 6" Thick)	2,000	SY		
34	Concrete Curb Restoration (All Types)	750	LF		
35	Sodding Restoration (All Types)	7,500	SY		
36	Connect Gravity Sewer To New/Existing Manhole (Including Bench Repair and/or Fiberglass Patching)	15	EA		
37	Connect Force Main To New/Existing Manhole (Including Bench Repair and/or Fiberglass Patching)	2	EA		
38	Remove/Replace with RCP (Initial 8 L.F.)				
38a	12″ Dia.	5	EA		
38b	>12 – 18″ Dia.	10	EA		

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
38c	>18″ - 24″ Dia.	5	EA		
38d	>24″ - 36″ Dia.	5	EA		
38e	>36″ - 48″ Dia.	5	EA		
38f	>48″ - 54″ Dia.	5	EA		
38g	>54″ - 60″ Dia.	5	EA		
39	Remove/Replace with RCP (Additional L.F.)				
39a	12″ Dia.	30	LF		
39b	>12 – 18″ Dia.	30	LF		
39c	>18″ - 24″ Dia.	30	LF		
39d	>24″ - 36″ Dia.	30	LF		
39e	>36″ - 48″ Dia.	30	LF		
39f	>48″ - 54″ Dia.	30	LF		
39g	>54″ - 60″ Dia.	30	LF		
40	Concrete Pipe Collar (FDOT Index 280)	5	EA		
41	Bypass Pumping Around Set Up, Sanitary Sewer				
41a	Bypass Pumping Around Set Up, ≤ 12″ Dia.	30	EA		
41b	Bypass Pumping Around Set Up, >12 – 18″ Dia.	10	EA		
41c	Bypass Pumping Around Set Up, >18″ - 24″ Dia.	5	EA		
41d	Bypass Pumping Around Set Up, >24″ - 36″ Dia.	2	EA		
41e	Bypass Pumping Around Set Up, >36″ - 48″ Dia.	2	EA		
41f	Bypass Pumping Around Set Up, >48″ - 54″ Dia.	2	EA		
42	Bypass Pump Around Pumping Operation				
42a	Bypass Pump Around Pumping Operation, ≤ 12″ Dia.	100	Day		
42b	Bypass Pump Around Pumping Operation, >12 – 18″ Dia.	20	Day		
42c	Bypass Pump Around Pumping Operation, >18″ - 24″ Dia.	10	Day		
42d	Bypass Pump Around Pumping Operation, >24″ - 36″ Dia.	5	Day		
42e	Bypass Pump Around Pumping Operation, >36″ - 48″ Dia.	5	Day		
42f	Bypass Pump Around Pumping Operation, >48″ - 54″ Dia.	5	Day		
43	Underdrain Replacement	2,000	LF		
44	Emergency Work Order Mobilization	3	EA		

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
45	Gate Valve (Reclaim Water)				
45a	2" Diameter	5	EA		
45b	4" Diameter	5	EA		
45c	6" Diameter	5	EA		
45d	8" Diameter	2	EA		
45e	12" Diameter	2	EA		
46	Butterfly Valve (Reclaim Water)				
46a	16" Diameter	2	EA		
46b	24" Diameter	2	EA		
47	Maintenance of Traffic				
47a	FDOT Rights-of Way	15	Day		
47b	City/County Arterial/Collector	30	Day		
47c	City/County Minor/Residential	50	Day		
47d	Variable Message Board	20	Day		

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 – TIME OF COMPLETION

6.01 The City and Contractor shall determine the number of days to substantial and final completion for each Task Order. Bidder agrees that the Work for each Task Order shall be substantially complete within the amount of time set forth in each respective Task Order for substantial completion, after the Contract Times commence to run as provided in the respective Task Order. The Work shall be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within the amount of time set forth in each respective Task Order for final completion, after the Contract Times commence to run as provided in the respective Task Order.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;

B. Required Bidder Qualification Statement with supporting data;

C. Corporate acknowledgement;

D. Certificate as to corporate official;

E. Debarment, suspension vendor responsibility certification form;

F. Non-Collusive Affidavit;

G. Drug-free workplace certification; and

H. Trench safety act.

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

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ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

_____

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

_____

_____

_____

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

_____

Bidder's License No.: _____
(where applicable)

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QUALIFICATIONS STATEMENT

THE INFORMATION SUPPLIED IN THIS DOCUMENT IS CONFIDENTIAL TO THE EXTENT PERMITTED BY LAWS AND REGULATIONS

1. SUBMITTED BY:

Official Name of Firm: _____

Address: _____

_____

_____

2. SUBMITTED TO: _____

3. SUBMITTED FOR: _____

Owner: **City of Largo**

Project Name: **Sanitary Sewer, Reclaimed Water and Stormwater Repair Services**

_____

_____

_____

TYPE OF WORK: _____

_____

_____

4. CONTRACTOR'S CONTACT INFORMATION

Contact Person: _____

Title: _____

Phone: _____

Email: _____

5. AFFILIATED COMPANIES:

Name: _____

Address: _____

6. **TYPE OF ORGANIZATION:**

☐ SOLE PROPRIETORSHIP

Name of Owner: _____

Doing Business As: _____

Date of Organization: _____

☐ PARTNERSHIP

Date of Organization: _____

Type of Partnership: _____

Name of General Partner(s): _____

_____

_____

☐ CORPORATION

State of Organization: _____

Date of Organization: _____

Executive Officers:

- President: _____

- Vice President(s): _____

_____

_____

- Treasurer: _____

- Secretary: _____

☐ LIMITED LIABILITY COMPANY

State of Organization: _____

Date of Organization: _____

Members: _____

_____

☐ JOINT VENTURE

Sate of Organization: _____

Date of Organization: _____

Form of Organization: _____

Joint Venture Managing Partner

- Name: _____

- Address: _____

_____

_____

Joint Venture Managing Partner

- Name: _____

- Address: _____

_____

Joint Venture Managing Partner

- Name: _____

- Address: _____

_____

7. LICENSING

Jurisdiction: _____

Type of License: _____

License Number: _____

Jurisdiction: _____

Type of License: _____

License Number: _____

8. CERTIFICATIONS CERTIFIED BY:

Disadvantage Business Enterprise: _____

Minority Business Enterprise: _____

Woman Owned Enterprise: _____

Small Business Enterprise: _____

Other (_____): _____

9. BONDING INFORMATION

Bonding Company: _____

Address: _____

_____

Bonding Agent: _____

Address: _____

_____

_____

Contact Name: _____

Phone: _____

Aggregate Bonding Capacity: _____

Available Bonding Capacity as of date of this submittal: _____

10. FINANCIAL INFORMATION

Financial Institution: _____

Address: _____

_____

Account Manager: _____

Phone: _____

INCLUDE AS AN ATTACHMENT AN AUDITED BALANCE SHEET FOR EACH OF THE LAST 3 YEARS

11. CONSTRUCTION EXPERIENCE:

Current Experience:

List on **Schedule A** all uncompleted projects currently under contract (If Joint Venture list each participant's projects separately).

Previous Experience:

List on **Schedule B** all projects completed within the last 5 Years (If Joint Venture list each participant's projects separately).

Has firm listed in Section 1 ever failed to complete a construction contract awarded to it?

☐YES ☐ NO

If YES, attach as an Attachment details including Project Owner's contact information.

Has any Corporate Officer, Partner, Joint Venture participant or Proprietor ever failed to complete a construction contract awarded to them in their name or when acting as a principal of another entity?

☐ YES ☐ NO

If YES, attach as an Attachment details including Project Owner's contact information.

Are there any judgments, claims, disputes or litigation pending or outstanding involving the firm listed in Section 1 or any of its officers (or any of its partners if a partnership or any of the individual entities if a joint venture)?

☐YES ☐ NO

If YES, attach as an Attachment details including Project Owner's contact information.

12. SAFETY PROGRAM:

Name of Contractor's Safety Officer:_____

Include the following as attachments:

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) OSHA No. 500- Log & Summary of Occupational Injuries & Illnesses for the past 5 years.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all OSHA Citations & Notifications of Penalty (monetary or other) received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all safety citations or violations under any state all received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide the following for the firm listed in Section V (and for each proposed Subcontractor furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) the following (attach additional sheets as necessary):

Workers' compensation Experience Modification Rate (EMR) for the last 5 years:

YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____

Total Recordable Frequency Rate (TRFR) for the last 5 years:

YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____

Total number of man-hours worked for the last 5 Years:

YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____

Provide Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) Days Away From Work, Days of Restricted Work Activity or Job Transfer (DART) incidence rate for the particular industry or type of Work to be performed by Contractor and each of Contractor's proposed Subcontractors and Suppliers) for the last 5 years:

YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____

13. EQUIPMENT:

MAJOR EQUIPMENT:

List on **Schedule C** all pieces of major equipment available for use on Owner's Project.

I HEREBY CERTIFY THAT THE INFORMATION SUBMITTED HEREWITH, INCLUDING ANY ATTACHMENTS, IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME OF ORGANIZATION: _____

BY: _____

TITLE: _____

DATED: _____

NOTARY ATTEST:

SUBSCRIBED AND SWORN TO BEFORE ME

THIS _____ DAY OF _____, 20___

NOTARY PUBLIC - STATE OF _____

MY COMMISSION EXPIRES: _____

REQUIRED ATTACHMENTS

1. Schedule A (Current Experience).
2. Schedule B (Previous Experience).
3. Schedule C (Major Equipment).
4. Audited balance sheet for each of the last 3 years for firm named in Section 1.
5. Evidence of authority for individuals listed in Section 7 to bind organization to an agreement.
6. Resumes of officers and key individuals (including Safety Officer) of firm named in Section 1.
7. Required safety program submittals listed in Section 13.
8. Additional items as pertinent.

SCHEDULE A

CURRENT EXPERIENCE

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

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SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

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SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

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SCHEDULE C - LIST OF MAJOR EQUIPMENT AVAILABLE

ITEM	PURCHASE DATE	CONDITION	ACQUIRED VALUE

EJCDC® C-451, Qualifications Statement.
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CORPORATE ACKNOWLEDGMENT

STATE OF_____

COUNTY OF_____

The foregoing instrument was acknowledged before me this _____ day of

_____, _____

by _____(name of officer or agent, title of officer or agent),

of_____(name of corporation

acknowledging), a_____(state or place of

incorporation) corporation, on behalf of the corporation. He/She is (personally known to me) (or has produced identification) _____(type of identification) (as identification) and (did/did not) take an oath.

_____
Signature of Person Taking
Acknowledgment

_____
Name of Acknowledger Typed,
Printed or Stamped

CERTIFICATE AS TO CORPORATE PRINCIPAL

STATE OF FLORIDA)
) SS
COUNTY OF)
_____)

I HEREBY CERTIFY that a meeting of the Board of Directors of _____, a corporation under the laws of the State of _____ held on _____, 20____ the following resolution was duly passed and adopted:

"RESOLVED", that_____,
as_____ President of the corporation, be he/she is hereby authorized to execute the Agreement dated _____, 20____, between the City of Largo, Florida and this Corporation, and that his/her execution thereof, attested by the Secretary of the Corporation and with corporate seal affixed, shall be the official act and deed of this Corporation".

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the Corporation this _____ day of _____, 20____.

_____
Signature of Secretary

_____
(Print or Type)

(Seal)

Subscribed and sworn to before me
this _____ day of _____, 20_____

_____
Notary Public

My Commission Expires: _____

DEBARMENT, SUSPENSION

VENDOR RESPONSIBILITY CERTIFICATION

The Vendor certifies that neither the Vendor nor any person associated with the Vendor in the capacity of owner, partner, director, officer, principal, investigator, project director, manager, auditor, or position involving the administration of public funds:

(a) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from government transactions by any federal, state or local governmental entity;

(b) is presently on the Scrutinized Companies that Boycott Israel List or that is engaged in a boycott of Israel;

(c) has within a three-year period preceding this certification been convicted of or had a civil judgment rendered against it for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state, or local government transaction or public contract; violation of federal or state antitrust statutes; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(d) is presently indicted for or otherwise criminally or civilly charged by a federal, state, or local governmental entity with commission of any of the offenses enumerated in paragraph (b) of this certification; or

(e) has within a three-year period preceding this certification had one or more federal, state, or local government public transactions terminated for cause or default.

The Bidder certifies that it shall not knowingly enter into any transaction with any subcontractor, material supplier, or vendor about which any of the foregoing paragraphs (a) through (d) are true.

_____

Vendor Name

By: _____

Signature

_____

NON-COLLUSIVE AFFIDAVIT

STATE OF FLORIDA)
)SS
COUNTY OF)
_____)

_____ , being first duly sworn, deposes and says that:

1) He is _____ of _____ , the Bidder that has submitted the attached Bid;

2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

3) Such Bid is genuine and is not a collusive or sham Bid;

4) Neither the said Bidder nor any of its officers, partners, owners, agents, representative, employees or parties in interest, including this affidavit, have in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted; or to refrain from bidding in connection with such Contract; or have in any manner, directly or indirectly, sought by agreement or collusion, or communications, or conference with any Bidder, firm, or person to fix the price or prices in the attached Bid or any other Bidder, or to fix any overhead, profit, or cost element of the Bid Price or the Bid Price of any other Bidder, or to secure through any collusion conspiracy, connivance, or unlawful agreement any advantage against the City of Largo, or any person interested in the proposed Contract; and

5) The price of items quoted in the attached Bid are fair and proper and are not tainted by collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any other of its agents, representatives, owners, employees or parties in interest, including this affidavit.

(Signed)

(Title)

Subscribed and sworn to before me

this ___ day of _____ , 20

Notary Public

My Commission Expires:

DRUG FREE WORKPLACE CERTIFICATION

IDENTICAL TIE BIDS: Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quantity, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program (Florida Statutes Section 287.087). In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, and available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

_____
Signature of Bidder

_____
(Print or type)

TRENCH SAFETY ACT

Florida Statutes Section 553.60 et seq.

"Trench Safety Act" Compliance

Bidder acknowledges that the Florida Trench Safety Act, Section 553.60 et. seq., which became effective October 1, 1990, shall be in effect during the period of construction of the project. The Bidder by signing and submitting the bid is, in writing, assuring that it will perform any trench excavation in accordance with the applicable trench safety standards. The Bidder further identifies the following separate item of cost of compliance with the applicable trench safety standards as well as the method of compliance.

Method of Compliance	Cost

Bidder acknowledges that this cost is included in the applicable items of the Proposal and in the Grand Total Bid Price. Failure to complete the above may result in the bid being declared non-responsive.

The Bidder is, and the Owner and Engineer are not, responsible to review or assess City's safety precautions, programs or costs, or the means, methods, techniques or technique adequacy, reasonableness of cost, sequences or procedures of any safety precaution, program or cost, including but not limited to, compliance with any and all requirements of Florida Statute Section 553.60 et. seq. cited as the "Trench Safety Act". Bidder is, and the City and Engineer are not, responsible to determine if any safety or safety related standards apply to the project, including, but not limited to, the "Trench Safety Act".

_____

Signature of Bidder

_____

(Print or type)

EXHIBIT A – CONTRACTOR'S BID
(to be inserted)

EXHIBIT B – INSURANCE CERTIFICATES
(to be inserted)

AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (UNIT PRICE)

THIS AGREEMENT is by and between **City of Largo** ("Owner") and

("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: **the repairs of sanitary sewer, reclaimed water, stormwater sewer and appurtenances at various locations throughout the City as circumstances dictate.**

The Work shall be assigned on Task Order basis.

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **Sanitary Sewer, Reclaimed Water and Stormwater Repair Services Contract No. 22-B-760.**

ARTICLE 3 – ENGINEER

3.01 The part of the Project that pertains to the Work has been designed and evaluated by **City of Largo.**

3.02 Reference to ENGINEER in the Contract Documents shall be the OWNER, City of Largo Engineering Services Department. The Owner will assume all duties and responsibilities and will have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Days*

A. The Work for each Task Order will be substantially completed within the amount of time set forth in each respective Task Order for substantial completion, after the Contract Times commence to run as provided in the respective Task Order. The Work will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within the amount of time set forth in each respective Task order for final completion, after the Contract Times commence to run as provided in the respective Task Order.

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4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner $500 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.

2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner $500 for each day that expires after such time until the Work is completed and ready for final payment.

3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item):

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Bidder will complete the Work for the following prices:

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
1	Initial Excavation (25 Lineal Feet)				
1a	0'-5' Depth	20	EA		
1b	>5'-10' Depth	20	EA		
1c	>10'-15' Depth	10	EA		
1d	>15'-20' Depth	10	EA		
1e	>20' Depth	5	EA		
2	Additional Excavation (10 Lineal Feet)				
2a	0'-5' Depth	30	EA		
2b	>5'-10' Depth	30	EA		
2c	>10'-15' Depth	10	EA		
2d	>15'-20' Depth	10	EA		
2e	>20' Depth	5	EA		
3	Well Point Dewatering (Initial 15 Points)				
3a	0'-5' Depth	20	EA		
3b	>5'-10' Depth	20	EA		
3c	>10'-15' Depth	20	EA		
3d	>15'-20' Depth	10	EA		
3e	>20' Depth	5	EA		
4	Well Point Dewatering (Each Additional Point)				
4a	0'-5' Depth	30	EA		
4b	>5'-10' Depth	30	EA		
4c	>10'-15' Depth	30	EA		
4d	>15'-20' Depth	20	EA		
4e	>20' Depth	5	EA		
5	PVC Sewer Pipe Repair (Initial 8 L.F., SDR-26)				
5a	4"-6" Diameter	25	EA		
5b	8" Diameter	25	EA		
5c	10" Diameter	25	EA		
5d	12" Diameter	25	EA		

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
6	PVC Sewer Pipe Repair (Additional, SDR-26)				
6a	4"-6" Diameter	100	LF		
6b	8" Diameter	250	LF		
6c	10" Diameter	250	LF		
6d	12" Diameter	250	LF		
7	PVC Sewer Pipe Repair (Initial 8 L.F., C-900)				
7a	4"-6" Diameter	20	EA		
7b	8" Diameter	30	EA		
7c	10" Diameter	20	EA		
7d	12" Diameter	20	EA		
8	PVC Sewer Pipe Repair (Additional, C-900)				
8a	4"-6" Diameter	150	LF		
8b	8" Diameter	250	LF		
8c	10" Diameter	250	LF		
8d	12" Diameter	250	LF		
9	PVC Pressure Pipe Repair (Initial 8 L.F., C-900)				
9a	4" Diameter	5	EA		
9b	6" Diameter	5	EA		
9c	8" Diameter	5	EA		
9d	10" Diameter	2	EA		
9e	12" Diameter	2	EA		
9f	16" Diameter	2	EA		
9g	18" Diameter	2	EA		
10	PVC Pressure Pipe Repair (Additional, C-900)				
10a	4" Diameter	100	LF		
10b	6" Diameter	100	LF		
10c	8" Diameter	100	LF		
10d	10" Diameter	100	LF		
10e	12" Diameter	100	LF		
10f	16" Diameter	40	LF		

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
10g	18" Diameter	20	LF		
11	Ductile Iron Pipe Class 52 (Initial 8 L.F.)				
11a	4″ Dia.	5	EA		
11b	6″ Dia.	5	EA		
11c	8″ Dia.	5	EA		
11d	10″ Dia.	5	EA		
11e	12″ Dia.	5	EA		
11f	14″ Dia.	5	EA		
11g	16″ Dia.	5	EA		
11h	18″ Dia.	5	EA		
11i	24″ Dia.	5	EA		
12	Ductile Iron Pipe Class 52 (Additional L.F.)				
12a	4″ Dia.	50	LF		
12b	6″ Dia.	50	LF		
12c	8″ Dia.	50	LF		
12d	10″ Dia.	50	LF		
12e	12″ Dia.	50	LF		
12f	14″ Dia.	30	LF		
12g	16″ Dia.	30	LF		
12h	18″ Dia.	20	LF		
12i	24″ Dia.	20	LF		
13	Sanitary Sewer Manhole Installation (4' Diameter)				
13a	0'-5' Depth	2	EA		
13b	>5'-10' Depth	2	EA		
13c	>10'-15' Depth	2	EA		
13d	>15'-20' Depth	2	EA		
13e	>20' Depth	2	EA		
14	Sanitary Sewer Manhole Installation (5' Diameter)				
14a	0'-5' Depth	2	EA		
14b	>5'-10' Depth	2	EA		

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
14c	>10'-15' Depth	2	EA		
14d	>15'-20' Depth	2	EA		
14e	>20' Depth	2	EA		
15	Manhole Removal/Disposal				
15a	0'-5' Depth	12	EA		
15b	>5'-10' Depth	12	EA		
15c	>10'-15' Depth	12	EA		
15d	>15'-20' Depth	10	EA		
15e	>20' Depth	7	EA		
16	Storm Sewer Manhole Installation (4' Diameter)				
16a	0'-5' Depth	2	EA		
16b	>5'-10' Depth	2	EA		
16c	>10'-15' Depth	2	EA		
16d	>15'-20' Depth	2	EA		
16e	>20' Depth	1	EA		
17	Storm Sewer Manhole Installation (5' Diameter)				
17a	0'-5' Depth	2	EA		
17b	>5'-10' Depth	2	EA		
17c	>10'-15' Depth	2	EA		
17d	>15'-20' Depth	2	EA		
17e	>20' Depth	1	EA		
18	Fiberglass Manhole Liner				
18a	4' Diameter	30	VF		
18b	5' Diameter	30	VF		
18c	6' Diameter	20	VF		
18d	8' Diameter	10	VF		
19	Directional Bore - HDPE				
19a	4" Diameter	500	LF		
9b	6" Diameter	500	LF		
19c	8" Diameter	500	LF		

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
19d	10" Diameter	500	LF		
20	Manhole Coring				
20a	4″ Dia.	2	EA		
20b	6″ Dia.	2	EA		
20c	8″ Dia.	5	EA		
20d	10″ Dia.	5	EA		
20e	12″ Dia.	2	EA		
20f	16″ Dia.	2	EA		
21	Manhole Ring and Cover Replacement, Asphalt or Concrete	20	EA		
22	Manhole Ring and Cover Replacement, Grass	20	EA		
23	Sanitary Sewer MH Inside Drop, 1'-5' Deep	5	EA		
24	Sanitary Sewer MH Inside Drop, >5' – 10' Deep	5	EA		
25	Sanitary Sewer MH Inside Drop, >10' Deep	5	EA		
26	Clean Out Installation (with 2' x 2' Pad)	15	EA		
27	Flowable Fill	200	CY		
28	Pavement Base Restoration				
28a	8″ Depth (Roadway)	1,250	SY		
28b	16″ Depth (Base Restoration/Repair)	1,000	SY		
29	Asphalt Surface Restoration (1.5" Depth)	1,250	SY		
30	Brick Roadway Restoration	750	SY		
31	Concrete Sidewalk Remove and Replace (3000 PSI, 4" Thick)	2,500	SY		
32	Concrete Sidewalk Remove and Replace (3000 PSI, 6" Thick)	2,500	SY		
33	Concrete Driveway Restoration (3000 PSI, 6" Thick)	2,000	SY		
34	Concrete Curb Restoration (All Types)	750	LF		
35	Sodding Restoration (All Types)	7,500	SY		
36	Connect Gravity Sewer To New/Existing Manhole (Including Bench Repair and/or Fiberglass Patching)	15	EA		
37	Connect Force Main To New/Existing Manhole (Including Bench Repair and/or Fiberglass Patching)	2	EA		
38	Remove/Replace with RCP (Initial 8 L.F.)				
38a	12″ Dia.	5	EA		
38b	>12 – 18″ Dia.	10	EA		

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
38c	>18″ - 24″ Dia.	5	EA		
38d	>24″ - 36″ Dia.	5	EA		
38e	>36″ - 48″ Dia.	5	EA		
38f	>48″ - 54″ Dia.	5	EA		
38g	>54″ - 60″ Dia.	5	EA		
39	Remove/Replace with RCP (Additional L.F.)				
39a	12″ Dia.	30	LF		
39b	>12 – 18″ Dia.	30	LF		
39c	>18″ - 24″ Dia.	30	LF		
39d	>24″ - 36″ Dia.	30	LF		
39e	>36″ - 48″ Dia.	30	LF		
39f	>48″ - 54″ Dia.	30	LF		
39g	>54″ - 60″ Dia.	30	LF		
40	Concrete Pipe Collar (FDOT Index 280)	5	EA		
41	Bypass Pumping Around Set Up, Sanitary Sewer				
41a	Bypass Pumping Around Set Up, ≤ 12″ Dia.	30	EA		
41b	Bypass Pumping Around Set Up, >12 – 18″ Dia.	10	EA		
41c	Bypass Pumping Around Set Up, >18″ - 24″ Dia.	5	EA		
41d	Bypass Pumping Around Set Up, >24″ - 36″ Dia.	2	EA		
41e	Bypass Pumping Around Set Up, >36″ - 48″ Dia.	2	EA		
41f	Bypass Pumping Around Set Up, >48″ - 54″ Dia.	2	EA		
42	Bypass Pump Around Pumping Operation				
42a	Bypass Pump Around Pumping Operation, ≤ 12″ Dia.	100	Day		
42b	Bypass Pump Around Pumping Operation, >12 – 18″ Dia.	20	Day		
42c	Bypass Pump Around Pumping Operation, >18″ - 24″ Dia.	10	Day		
42d	Bypass Pump Around Pumping Operation, >24″ - 36″ Dia.	5	Day		
42e	Bypass Pump Around Pumping Operation, >36″ - 48″ Dia.	5	Day		
42f	Bypass Pump Around Pumping Operation, >48″ - 54″ Dia.	5	Day		
43	Underdrain Replacement	2,000	LF		
44	Emergency Work Order Mobilization	3	EA		

SCHEDULE OF BID PRICES

Bid Number	Bid Item	Quantity	Unit	Unit Cost	Total Cost
45	Gate Valve (Reclaim Water)				
45a	2" Diameter	5	EA		
45b	4" Diameter	5	EA		
45c	6" Diameter	5	EA		
45d	8" Diameter	2	EA		
45e	12" Diameter	2	EA		
46	Butterfly Valve (Reclaim Water)				
46a	16" Diameter	2	EA		
46b	24" Diameter	2	EA		
47	Maintenance of Traffic				
47a	FDOT Rights-of Way	15	Day		
47b	City/County Arterial/Collector	30	Day		
47c	City/County Minor/Residential	50	Day		
47d	Variable Message Board	20	Day		

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Owner.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment shall be submitted to Brent Larson, City of Largo Construction Manager, by the last calendar day of the month. Applications for Payment will be processed by Owner as provided in the General Conditions. All payments shall be applied for and paid in accordance with the Florida Prompt Payment Act, as set forth in chapter 218, Florida Statutes.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Task Order Price on the basis of Contractor's Applications for Payment in accordance with section 218.735, Florida Statutes (2018), during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract

a. **95** percent of Work completed (with the balance being retainage) for the duration of the Project.

b. Upon Substantial Completion Contractor may request release of retainage, which will not be unreasonably withheld by the Owner.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Task Order Price as recommended by OSR as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest at the rate of one percent per month.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.

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B. For each Task Order, Contractor shall visit the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. For each Task Order, Contractor shall carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. For each Task Order, Contractor shall consider the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

F. Based on the information and observations referred to in the preceding paragraph, Contractor shall satisfy itself that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

G. For each Task Order, Contractor shall be aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Owner is acceptable to Contractor.

I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement.

2. General Conditions.

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3. Supplementary Conditions.

4. Specifications as listed in the table of contents of the Project Manual.

5. Addenda.

6. Exhibits to this Agreement (enumerated as follows):

   a. Contractor's Bid.

   b. Insurance Certificates.

7. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:

   a. Task Order.

   b. Work Change Directives.

   c. Change Orders.

   d. Field Orders.

B. There are no Contract Documents other than those listed above in this Article 9.

C. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions. In interpreting this Agreement and resolving any ambiguities or conflicts amongst the Contract Documents, this Agreement takes precedence over the other Contract Documents and any inconsistency between remaining Contract Documents will be resolved in the following order:

1. Specifications

2. Addenda

3. Supplementary Conditions

4. General Conditions

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

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10.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

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IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:	CONTRACTOR:
City of Largo	
By:	By:
Title:	Title:
	(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest:	Attest:
Title:	Title:
Risk Manager	
Reviewed and Approved:	
Address for giving notices:	Address for giving notices:
Henry P. Schubert, City Manager	
201 Highland Avenue NE	
Largo, FL 33770	
With required copy to:	License No.: *(where applicable)*
Alan S. Zimmet, Esq.	
Bryant Miller Olive, P.A.	
One Tampa City Center, Suite 2700	
Tampa, FL 33602	

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GENERAL CONDITIONS
OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking

other relief with respect to the terms of the Contract.

10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5101 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Engineer*—The individual or entity named as such in the Agreement.

21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.

23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property. Liens are prohibited on Owner's real property.

25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.

26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.

32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer and Owner at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.

33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.

35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.

38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.

42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.

45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

46. *Unit Price Work*—Work to be paid for on the basis of unit prices.

47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

A. The words and terms discussed in the following paragraphs are not defined but, when used in

the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*:

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*:

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*:

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).

E. *Furnish, Install, Perform, Provide*:

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Contractor's Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.

C. *Evidence of Owner's Insurance*: [Deleted.]

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party; provided, however, that the Owner's representative will not have the authority to approve a Change Proposal, execute a Change Order without City Commission approval, or otherwise agree to a change in the Contract Price or the Contract Times.

2.05 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor

interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.

B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

A. Standards Specifications, Codes, Laws and Regulations

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*:

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*:

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to

Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. ~~In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.~~

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times ~~and Contract Price~~. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Paragraph 11.05 governs changes in the Contract Times. **A CHANGE IN THE CONTRACT TIMES SHALL CONSTITUTE CONTRACTOR'S SOLE REMEDY OR EXCUSE WITH RESPECT TO DELAY**. Contractor shall not be entitled to an increase in the Contract Price or payment of any kind from Owner for direct, indirect, consequential, impact or other costs, expenses or damages, including but not limited to costs of acceleration or inefficiency, arising because of delay, disruption, interference, or hindrance from any cause whatsoever, including any delays or hindrances caused by Owner, Engineer, or anyone for whom Owner is responsible.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
2. abnormal weather conditions;
3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
4. acts of war or terrorism.

D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.

E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 10 ~~30~~ days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

~~B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of~~

~~record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.~~

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*:

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and

3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or

2. is of such a nature as to require a change in the Drawings or Specifications; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof (but in no event later than 10 days) and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so. Contractor's written notice must indicate, in conspicuous bold type on the face of the notice, **NOTICE OF DIFFERING CONDITIONS**. The notice must describe the nature of the differing conditions, including all relevant facts. Contractor shall be deemed to have waived any Claim arising from or relating to differing conditions if Contractor fails to provide notice in compliance with this Paragraph 5.04.A. Any changes in the Work or the Contract will be processed in accordance with Article 11. Any Claim arising from or relating to differing conditions must comply with Article 12.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the

condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

   b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

   c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

   a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or

   b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

   c. Contractor failed to give the written notice as required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by

others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
    a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
    b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
    c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
    d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Contractor's notice to Owner must comply with the deadlines and format requirements set forth in Paragraph 5.04.A.

C. *Engineer's Review*: Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
    b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
    c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being

essential to Contractor's ability to complete the Work within the Contract Times; and

d. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

2. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to

timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.

H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, or a combined Public Construction Bond in the amount of the Contract

Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.

B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, including section 255.05, Florida Statutes (2018), and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.

D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.

E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

A. ~~Owner and~~ Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by ~~Owner or~~ Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

~~D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall~~

~~also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.~~

E. Failure of Owner ~~or Contractor~~ to demand such certificates or other evidence of Contractor's ~~the other party's~~ full compliance with these insurance requirements, or failure of Owner ~~or Contractor~~ to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of Contractor's ~~the other party's~~ obligation to obtain and maintain such insurance.

F. If Contractor ~~either party~~ does not purchase or maintain all of the insurance required of Contractor ~~such party~~ by the Contract, Contractor ~~such party~~ shall notify Owner ~~the other party~~ in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.

H. Without prejudice to any other right or remedy, if Contractor ~~a party~~ has failed to obtain required insurance, Owner ~~the other party~~ may elect to obtain equivalent insurance to protect Owner's ~~such other party's~~ interests at the expense of Contractor ~~the party who was required to provide such coverage~~, and the Contract Price shall be adjusted accordingly.

I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.

J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

A. *Workers' Compensation*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.

2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).

3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).

B. *Commercial General Liability—Claims Covered*: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:

1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.

2. claims for damages insured by reasonably available personal injury liability coverage.

3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

C. *Commercial General Liability—Form and Content*: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage:

a. Such insurance shall be maintained for three years after final payment.

b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the

Contract) evidence of continuation of such insurance at final payment and three years thereafter.

2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraphs 5.02, 5.05, and 7.18.

3. Broad form property damage coverage.

4. Severability of interest.

5. Underground, explosion, and collapse coverage.

6. Personal injury coverage.

7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.

8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.

D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.

E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.

F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.

H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:

1. include at least the specific coverages provided in this Article.

2. be written for not less than the limits of liability provided in this Article and in the

Supplementary Conditions, or required by Laws or Regulations, whichever is greater.

3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.

4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.

5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.

J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 ~~*Owner's Liability Insurance*~~ [Deleted.]

6.05 *Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."

2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract;

and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).

6. extend to cover damage or loss to insured property while in transit.

7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

~~8. allow for the waiver of the insurer's subrogation rights, as set forth below.~~

9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.

10. not include a co-insurance clause.

11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.

12. include performance/hot testing and start-up.

13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.

B. *Notice of Cancellation or Change*: All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.

C. *Deductibles*: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

E. *Additional Insurance*: If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.

F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 ~~*Waiver of Rights*~~ [Deleted.]

6.07 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with

the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 *"Or Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the

Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:

    a. in the exercise of reasonable judgment Engineer determines that:

        1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

        2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

        3) it has a proven record of performance and availability of responsive service; and

        4) it is not objectionable to Owner.

    b. Contractor certifies that, if approved and incorporated into the Work:

        1) there will be no increase in cost to the Owner or increase in Contract Times; and

        2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider~~ed~~ the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.

    1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of

proposed substitute items of material or equipment from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

    a. shall certify that the proposed substitute item will:

        1) perform adequately the functions and achieve the results called for by the general design,

        2) be similar in substance to that specified, and

        3) be suited to the same use as that specified.

    b. will state:

        1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,

        2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

        3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

    c. will identify:

        1) all variations of the proposed substitute item from that specified, and

        2) available engineering, sales, maintenance, repair, and replacement services.

    d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.

B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.

J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.

K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from

communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.

L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.

N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights. Notwithstanding anything stated herein to the contrary, this Paragraph 7.07.B is not intended to and shall not be construed to waive any immunity from or limitation of liability that Owner is entitled to under the doctrine of sovereign immunity or section 768.28, Florida Statutes.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in

obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.09 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and

Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements*:

1. Before submitting a Shop Drawing or Sample, Contractor shall have:

a. reviewed and coordinated the Shop Drawing or Sample with other Shop

Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings*:

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples*:

a. Contractor shall submit the number of Samples required in the Specifications.

b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Other Submittals*: Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review*:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed

Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures*:

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;
2. recommendation by Engineer or payment by Owner of any progress or final payment;
3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. use or occupancy of the Work or any part thereof by Owner;
5. any review and approval of a Shop Drawing or Sample submittal;
6. the issuance of a notice of acceptability by Engineer;
7. any inspection, test, or approval by Owner, Owner's representatives, or others; or
8. any correction of defective Work by Owner.

D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by law, Contractor shall indemnify, defend, and hold harmless the City, its elected officials, officers, and employees, from any and all liabilities, damages, losses and costs, including but not limited to reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of Contractor, its employees, agents, officers, subcontractors and other persons employed or utilized by Contractor in the performance of this Agreement. It is further the specific intent and agreement of the parties that all the contract documents of any project for which Contractor provided services be hereby amended to include the foregoing indemnification. Contractor expressly agrees that it will not claim, and waives any claim, that this article violates section 725.06, Florida Statutes, or is unenforceable pursuant to section 725.06, Florida Statutes. This indemnification obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this section. This indemnification provision shall include claims made by an employee of Contractor or any subcontractor against the City and Contractor waives any entitlement to immunity under section 440.11, Florida Statutes. Nothing contained herein shall be construed as a waiver of any immunity or limitation of liability the City may be entitled to under the doctrine of sovereign immunity or section 768.28, Florida Statutes. This indemnification provision shall survive the termination of this Agreement however terminated. Contractor's obligation to indemnify, defend, and hold harmless shall not be limited by the amount of any insurance required to be obtained or maintained under the Contract Documents. Notwithstanding the foregoing, the Contractor's obligations to indemnify, defend and hold harmless shall be limited to one million dollars ($1,000,000) or the Contract Price, whichever is greater, in accordance with section 725.06, Florida Statutes. ~~Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of~~

~~them to perform any of the Work or anyone for whose acts any of them may be liable.~~

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.

B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall

give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. an itemization of the specific matters to be covered by such authority and responsibility; and

3. the extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner for whom the Owner is responsible causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying,

disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.

C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify, defend, and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 ~~*Insurance*~~ [Deleted.]

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for,

Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.

B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.

C. Engineer's authority as to Change Orders is set forth in Article 11.

D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

1. *Change Orders*:

a. If an amendment or supplement to the Contract Documents includes a change

in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.

b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

2. *Work Change Directives*: A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 10 ~~15~~ percent;

b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.04.C.2.a and 11.04.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 10 ~~15~~ percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.

B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures*: Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Times (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If Contractor proceeds with additional work prior to approval of a Change Proposal and execution of a Change Order, or without providing the notice required strictly in accordance with the terms of this Paragraph 11.06, Contractor shall not receive any compensation for such work.

2. *Engineer's Action*: Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

3. *Binding Decision*: Engineer's decision will be final and binding upon ~~Owner and~~ Contractor, unless ~~Owner or~~ Contractor appeals the decision by filing a Claim under Article 12. Owner's City Commission is the ultimate binding authority on any changes to the Contract Price.

B. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the

Drawings, Specifications, or otherwise), or other engineering or technical matters; and

4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

B. Owner's City Commission possesses sole authority to approve a change to the Contract Price. Regardless of whether it is signed by Owner or Owner's representative, no Change Order affecting the Contract Price is legally binding on Owner unless it has been approved by City Commission. ~~If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.~~

11.08 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 10 ~~30~~ days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 10 ~~30~~ days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled. Any Claim by Contractor must indicate **CLAIM** in conspicuous bold type on the first page and must indicate whether Contractor is seeking a change in the Contract Price, the Contract Times, or both. Contractor's Claim must describe the nature of the Claim, including all relevant facts. Contractor shall provide to Owner any documentation supporting Contractor's Claim within 30 days of providing the Claim. Further, Contractor is not entitled to any additional compensation, or to a change in the Contract Price or in the Contract Times, unless and until approved by Owner's City Commission at a duly noticed public meeting. If Contractor proceeds with any work without said approval or without complying strictly with the procedures set forth in this Paragraph 12.01, Contractor does so at its own risk. Strict compliance with this Paragraph 12.01 and City Commission approval are absolute conditions precedent to any changes in the Contract Price or Contract Times and to any other additional compensation.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*:

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation,

health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

    c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

    d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

    e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

    f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or

for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 *Allowances*

A. It is understood that Contractor ~~has included in the Contract Price all allowances so named in the Contract Documents and~~ shall cause the Work ~~so~~ covered by any allowances so named in the Contract Documents to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have

been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

~~D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.~~

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.

E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal <u>in accordance with Paragraph 11.06</u>, or Owner may file a Claim, seeking an adjustment in the Contract Price if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
3. by manufacturers of equipment furnished under the Contract Documents;
4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such

acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work ~~(such costs to be approved by Engineer as to reasonableness)~~, and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed <u>promptly</u> ~~expeditiously~~. In connection with such corrective or remedial action, Owner may exclude

Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer (or to Engineer's designee identified in writing by Engineer) for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner. Each application for payment shall be accompanied by a release and affidavit in a form approved by Owner showing that all materials, labor, equipment, and other bills associated with that portion of the Work have been paid in full. Owner shall not be required to make any payment until all such information requested by Owner has been provided.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*:

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in

writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

    a. the Work has progressed to the point indicated;

    b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

    c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

    a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

    b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

    a. to supervise, direct, or control the Work, or

    b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

    c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

    d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or

    e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

    a. the Work is defective, requiring correction or replacement;

    b. the Contract Price has been reduced by Change Orders;

    c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

    d. Owner has been required to remove or remediate a Hazardous Environmental

Condition for which Contractor is responsible; or

e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*:

1. Payment becomes due as provided in section 218.735, Florida Statutes (2018). ~~Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.~~

E. *Reductions in Payment by Owner*:

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. the Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. the Contract Price has been reduced by Change Orders;

i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;

j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. ~~Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;~~

l. there are other items entitling Owner to a set off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor prompt ~~immediate~~ written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be

binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and

Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.

2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*:

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. As a condition precedent to final payment, ~~T~~the final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents;

b. consent of the surety, if any, to final payment;

c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

d. a list of all disputes that Contractor believes are unsettled; and

e. complete and legally effective releases or waivers (satisfactory to Owner) of all claims ~~Lien rights~~ arising out of the Work beyond those listed per Paragraph 15.06.A.2.d.~~, and of Liens filed in connection with the Work.~~

3. In lieu of the releases or waivers ~~of Liens~~ specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and

receipts include all labor, services, material, and equipment for which a Claim ~~Lien~~ could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any claim by a Subcontractor or Supplier, ~~Lien,~~ or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance*:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due*: Payment becomes due as provided in section 218.735, Florida Statutes (2018), for ~~Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation,~~ the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) ~~will become due~~ and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled claims ~~Liens~~, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from any latent defects in the Work, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and

Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such other adjacent areas;
2. correct such defective Work;
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, ~~(1)~~ the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, ~~or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due,~~ then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do

not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

~~B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.~~

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this Article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and

2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this Article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or

2. agree with the other party to submit the dispute to another dispute resolution process; or

3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents,

consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

A. This Contract shall be governed by, construed and interpreted in accordance with the laws of the State of Florida. Contractor and Owner consent to jurisdiction over them and agree that venue for any state court action shall lie solely in the Sixth Judicial Circuit in and for Pinellas County, Florida, and venue for any federal court action shall lie solely in the U.S. District Court for the Middle District of Florida, Tampa Division. ~~This Contract is to be governed by the law of the state in which the Project is located.~~

18.08 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

18.09 *Counterparts*

A. This Contract may be executed in one or more counterparts, any one of which need not contain the signatures of more than one party, but all such counterparts taken together will constitute one and the same instrument.

18.10 *No Third-Party Beneficiaries*

A. This Contract is entered into solely for the benefit of Owner and Contractor and shall not be construed as a benefit to any third parties, including but not limited to the general public, nor shall it be construed as enforceable by third parties.

18.11 *Severability*

A. If any one or more of the provisions of the Contract Documents shall be held to be invalid, illegal, or unenforceable in any respect by a court of competent jurisdiction, the validity, legality and enforceability of the remaining provisions of the Contract Documents shall not in any way be affected or impaired and the Contract Documents shall be treated as though that portion had never been a part thereof.

18.12 *Copyright*

A. This document is a MODIFIED version of EJCDC® C-700 (Rev. 1), Copyright © 2013 by the National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers, or is based in part on excerpts from copyrighted EJCDC documents. Those portions of the text that originated in copyrighted EJCDC documents remain subject to the copyright.

Supplementary Conditions

These Supplementary Conditions amend or supplement the City of Largo General Conditions of the Construction Contract. All provisions that are not so amended or supplemented remain in full force and effect. In case of conflict, the Supplementary Conditions take precedence over the General Conditions.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC-1.01 Defined Terms

SC-1.01.A.1 Add to the list of definitions in Paragraph 1.01.A by inserting the following as numbered items in their proper alphabetical positions:

Construction Documents—The construction plans and specifications developed for Owner.

Construction Phase Services—The portion of the Work following Owner's acceptance and approval of the Construction Documents.

Master Project Schedule—The schedule prepared and maintained by Contractor that includes all activities of the Construction Phase Services as well as the Design Professional's activities under the Design Agreement.

Owner's Site Representative—The authorized representative of Owner assigned to assist Owner at the Site and assist Owner in observing the progress and quality of the Work.

Project Management Information System ("PMIS")—The Contractor's overall process for effectively managing the Project, which shall be documented and delivered in accordance with the Supplementary Conditions.

Project Management Plan—The Contractor's overall plan for effectively managing the Project, which shall be documented and delivered in accordance with the Supplementary Conditions.

SC-1.01.A.2 Delete from the list of definitions in Paragraph 1.01.A the term *Resident Project Representative*:

SC-1.02 Terminology

SC-1.02.E Add the following new paragraphs immediately after Paragraph 1.02.E:

1. Any work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for in the Contract Documents.
2. Drawings are intended to show general arrangements, design and extent of Work and are not intended to serve as shop drawings. Specifications are separated into divisions for convenience of reference only and shall not be interpreted as establishing divisions for the Work, trades, subcontracts, or extent of any part of the Work. In the event of a discrepancy between or among the drawings, specifications or other Contract Document provisions, Contractor shall be required to comply with the provision which is the more restrictive or stringent requirement upon Contractor, as determined by Design Professional.

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.03 Before Starting Construction

SC-2.03.A Add the following new paragraphs immediately after Paragraph 2.03.A.3:

4. a preliminary Project Management Plan; and

5. a preliminary description of the Project Management Information System.

SC-2.04 Preconstruction Conference; Designation of Authorized Representatives

SC-2.04.B Add the following new language to the end of Paragraph 2.04.B:

Contractor's authorized representative shall be a competent resident Project manager, whom Contractor shall not later replace, except under extraordinary circumstances, without advance written notice to, and approval by, Owner and Engineer, which will not be unreasonably withheld. The Contractor's resident Project manager must have the full authority to act on behalf of the Contractor. All communications given to the Contractor's resident Project manager shall be as binding as if given to the Contractor.

SC-2.04.C Add the following new paragraphs immediately after Paragraph 2.04.B:

C. At this conference Owner and Contractor will review Contractor's preliminary Project Management Plan, which Contractor shall prepare in accordance with the following requirements:

1. The Project Management Plan will guide the Contractor's performance of Work. The Project Management Plan will provide a plan for the control, direction, coordination and evaluation of the Work performed throughout the Project; the Project organization including identification of key personnel, responsibilities of the Contractor, Owner and Design Professional; Work flow diagrams; and strategy for bidding and subcontracting the Work. Owner shall have the right to review the Project Management Plan and to approve its content and format. Within ten (10) days both parties have executed this Agreement, Contractor will prepare the Project Management Plan to include Construction Phase Services and submit it to Owner for review and approval. The Project Management Plan may otherwise be updated as necessary throughout the Construction Phase, but Contractor may not make material changes without Owner's prior written concurrence. Any conflicts between the Project Management Plan and the Contract Documents shall be governed by the latter.

2. The Project Management Plan shall describe in detail the procedures for executing the Work and the organizations participating. The Project Management Plan shall include, as a minimum, the following sections:

a. Project Definition: The known characteristics of the Project and sub-projects shall be described in general terms which will provide the participants a basic understanding of the Project and sub-projects.

b. Project Goals: The schedule, budget, physical, technical and other objectives for the Project shall be defined.

c. Project Strategy: A narrative description of the Project delivery methods which shall be utilized to accomplish the Project goals.

d. Project Work Plan: A matrix display of the Work to be performed by Contractor, as well as the services and items to be furnished by the Design Professional and the Owner during each phase of the Project.

e. Project Organization: A summary organization chart showing the interrelationships between Owner, Contractor and Design Professional, and other supporting organizations and permitting review agencies. Detailed charts, one each for Contractor and Design Professional, showing organizational elements participating in the Project, shall be included.

f. Responsibility Performance Chart: A detailed matrix showing the specific responsibilities and interrelationships of Owner, Design Professional, and Contractor. The chart shall indicate major responsibility, and minor responsibility, for each specific task required to deliver the Project. Contractor shall develop a similar chart for the personnel within its own organization who are assigned to the Project, as well as for the Design Professional's and Owner's personnel assigned to the Project from data supplied by them.

g. Flow Diagrams: A display of the flow of information and the decision process for the review and approval of shop drawings and submittals, progress, and change orders.

h. Communication Procedures: A narrative description or depiction of how to manage, control, and coordinate necessary communications among Contractor, Design Professional, and Owner throughout the Project, e.g., correspondence, minutes, reports, inspections, team meetings, technical reviews, design reviews, etc.

3. The Project Management Plan for Construction Phase Services must be completed by Contractor and approved by Owner as a condition precedent to payment of any compensation for Construction Phase Services under the Agreement.

D. At this conference Owner and Contractor will review Contractor’s preliminary Project Management Information System ("PMIS"), which system shall be in place for the Construction Phase services to be provided by Contractor, and which Contractor shall prepare in accordance with the following requirements:

1. General:

a. Contractor shall implement and shall utilize throughout the life of this Project all subsystems of the PMIS.

b. The reports, documents, and data to be provided shall represent an accurate assessment of the current status of the Project and of the Work remaining to be accomplished and it shall provide a sound basis for identifying variances and problems and for making management decisions.

c. If requested by Owner, Contractor shall conduct a comprehensive workshop for participants designated by Owner and additional seminars

as required to provide instruction with respect to the PMIS. This workshop and the seminars shall facilitate each participant's use and understanding of the PMIS.

d. The PMIS shall be described in terms of the following major subsystems:

1) Narrative Reporting;

2) Schedule Control;

3) Cost Control and Estimating;

4) Project Accounting;

5) Accounting and Payment; and

6) Action Reports.

e. The above reports shall be submitted at least on a monthly basis and shall accompany each monthly Application for Payment.

2. Narrative Reporting Subsystem

a. Contractor shall prepare written reports as described hereunder. All reports shall be in 8 1/2" x 11" format.

b. The Narrative Reporting Subsystem shall include the following reports:

1) A Monthly Executive Summary which provides an overview of current issues and pending decisions, future developments and expected achievements, and any problems or delays, including code violations found by any permitting authority.

2) A Monthly Cost Narrative describing the current construction cost estimate status of the Project.

3) A Monthly Scheduling Narrative summarizing the current status of the overall Master Project Schedule. This report shall include an analysis of the various Project subschedules, a description of the critical path, and other analyses as necessary to compare planned performance with actual performance.

4) A Monthly Accounting Narrative describing the current cost and payment status for the entire Project. This report shall relate current encumbrances and expenditures to the budget allocations.

5) Monthly Construction Progress Report during the Construction Phase summarizing the Work of the various subcontractors. This report shall include information from the weekly job site meetings as applicable such as general conditions, long lead supplies, current deliveries, safety and labor relations, programs, permits, construction problems and recommendations, and plans for the succeeding month.

6) A Daily Construction Diary during the Construction Phase describing events and conditions on the site.

c. The reports outlined above shall be bound with applicable computer reports and submitted monthly during the Design Phase and the Construction Phase and shall be current through the end of the

preceding month. Copies shall be delivered to Owner and Design Professional. A bound copy of the complete diary shall be submitted to Owner at the conclusion of the Project.

3. Schedule Control Subsystem

   a. Master Project Schedule: Prior to the submittal of its first application for payment, the Contractor shall submit to Owner and Design Professional for their review and approval a Master Project Schedule covering the planning and design approvals, construction, and Owner occupancy of the Project. This schedule shall conform to the format outlined below. This schedule shall serve as the framework for the subsequent development of all detailed schedules and shall be updated monthly by Contractor throughout the Project. Within fifteen (15) calendar days of Contractor's submittal, Owner and Design Professional shall review the schedule and provide the Contractor a written list of corrections needed to approve the schedule. Contractor must make all corrections and resolve all comments within sixty (60) calendar days of the Construction Phase Commencement Date. If the schedule is not approved within sixty (60) calendar days of the Construction Phase Commencement Date, Owner and Design Professional will withhold all Contract payments until the schedule is approved. The approval of the schedule by Owner and Design Professional in no way attests to the validity of the assumptions, logic constraints, dependency relationships, resource allocations, manpower and equipment, and any other aspect of the proposed schedule. Contractor is and shall remain solely responsible for the planning and execution of work in order to meet Project milestones or Contract completion dates.

   b. Construction Schedule: Within ten (10) calendar days after both parties have executed this Agreement, the Contractor shall prepare and submit to the Owner and Design Professional, for their review and approval, a Construction Schedule in quadruplicate. This schedule shall conform to the format outlined below. Within ten (10) calendar days of Contractor's submittal, Owner and Design Professional shall review the schedule and provide Contractor a written list of corrections needed to approve the schedule. Contractor must make all corrections and resolve all comments within ten (10) calendar days of receipt of corrections and comments from Owner and Design Professional. If the schedule is not approved within ten (10) calendar days of the Construction Phase Commencement Date, Owner and Design Professional will withhold all Contract payments until the schedule is approved. The Construction Schedule shall be integrated into the Master Project Schedule. Failure of Contractor to develop and submit a Construction Schedule as aforesaid shall be sufficient grounds for Owner to find Contractor in substantial default hereunder and that sufficient cause exists to terminate the Agreement or to withhold any payment.

      1) Following development and submittal of the Construction Schedule, Contractor shall, at the end of each calendar month occurring thereafter during the period of time required to finally complete the Project, or at such earlier intervals as circumstances may require,

update and/or revise the Construction Schedule which shall be submitted to Owner in duplicate. No additional compensation will be due Contractor for making such updates. Failure of Contractor to update, revise, and submit the Construction Schedule as aforesaid shall be sufficient grounds for the Owner to find Contractor in substantial default hereunder and that sufficient cause exists to terminate the Agreement or to withhold payment to Contractor until a schedule or schedule update acceptable to Owner is submitted.

c. Contractor shall prepare and incorporate into the schedule database, at the required intervals, the following schedules:

   1) Pre-Bid Schedules (Subnetworks): Contractor shall prepare a construction schedule for Work encompassed in each bid package. The schedule shall be sufficiently detailed as to be suitable for inclusion in the bid package as a framework for subcontract completion by the successful bidder. It shall show the interrelationships between the Work of the successful bidder and that of other subcontractors, and shall establish milestones keyed to the Project Schedule.

   2) Subcontractor Construction Schedules (Subnetworks): Upon the award of each subcontract, Contractor shall jointly with the subcontractor, develop a schedule which is more detailed than the pre-bid schedule included in the bid packages, taking into account the Work schedule of the other subcontractors. The construction schedule shall include as many activities as necessary to make the schedule an effective tool for construction planning and for monitoring the performance of the subcontractor. The construction schedule also shall show pertinent activities for material purchase orders, manpower supply, shop drawing schedules and material delivery schedules.

d. Schedule Format: The Master Project Schedule and the Construction Schedule shall be planned and recorded with a Critical Path Method (CPM) schedule in the form of an activity-on-node diagram. All activity-on-node diagrams shall include the Activity Identification, Activity Description, and the type of relationship between activities, including any lead or lag time.

   1) No activity shall have a duration greater than fourteen (14) work days or less than one (1) work day. If requested by Owner or Design Professional, Contractor shall furnish any information needed to justify the reasonableness of activity durations. Such information shall include, but not be limited to, estimated activity manpower, anticipated quantities, and production rates.

   2) Procurement shall be identified with at least two (2) activities: fabrication and delivery. Insure that all work activities that require a submittal are preceded by submittal and approval activities.

   3) Only contractual constraints shall be shown in the schedule logic. No other restraints are allowed unless approved by the Owner or

Design Professional. The disallowance of constraints includes the use of activity mandatory start and finish dates.

4) Activities shall be identified by codes to reflect the responsible party for the accomplishment of each activity (only one party per activity), the Phase/Stage of the Project for each activity, and the Area/Location of each activity

5) The construction time for the entire Project, or any milestone, shall not exceed the specified Contract time. Logic or activity durations shall be revised in the event that any milestone or Contract completion date is exceeded in the schedule.

6) "Float" is defined as the amount of time between when an activity "can start" (the early start) and when an activity "must start" (the late start). It is understood by the Owner and the Contractor that float is a shared commodity, not for the exclusive use or financial benefit of either party. Either party has the full use of the float until it is depleted.

7) The CPM schedules must be compatible with Primavera software (Oracle) or an as-equal system approved by Owner.

8) Initial Schedule Submittal Requirements:

   i) Predecessor/Successor Sort
   Total Float/Early Start Sort
   Responsibility/Early Start Sort
   Area/Early Start Sort

   ii) Logic Diagram: Produce diagram with not more than 100 activities per ANSI D (24-inch x 36-inch) size sheet. Insure each sheet includes title, match data or diagram correlation, and key to identify all components used in the diagram.

   iii) Narrative discussing general approach to completion of the work.

   iv) CD in Primavera format.

9) Schedule Update Requirements: The Contractor shall update the schedules monthly to show actual, current progress. The submission date of the updates shall be determined by Owner, as outlined above. The schedule updates shall be submitted within seven (7) calendar days of the data dates. Owner may require submission of the updated schedule on CD prior to submission of the full update package. Should Contractor fail to provide an update, Owner may withhold payment of the current monthly progress estimate until the monthly scheduled update is submitted. The updates shall include:

   i) Dates of activities' actual starts and completions.

   ii) Percent of work remaining for activities started but not completed as of the update date.

iii) Narrative report including a listing of monthly progress, the activities that define the critical path and any changes to the path of critical activities from the previous update, sources of delay, any potential problems, requested logic changes, and work planned for the next month.

iv) Predecessor/Successor Sort

v) Total Float/Early Start Sort

vi) Responsibility/Early Start Sort

vii) Area/Early Start Sort

viii) CD in Primavera format

ix) Fragnet of logic diagram for all requested logic changes.

x) Updated logic diagram as required by Owner. At a minimum, Owner shall require a final logic diagram at the end of the Project showing the planned and actual starts and completions.

xi) A bar chart comparison of the updated schedule to the initial schedule. This diagram shall show actual and planned performance dates for all completed activities.

xii) All update information shall be an accurate representation of the actual Project progress.

e. Recovery Schedule: If the initial schedule or current updates fail to reflect the Project's actual plan or method of operation, or a contractual milestone date is more than thirty (30) days behind, Owner may require that a recovery schedule for completion of the remaining Contract work be submitted. The Recovery Schedule must be submitted within seven (7) calendar days of Owner's request. The Recovery Schedule shall describe in detail Contractor's plan to complete the remaining Contract work by the Contract milestone date. The Recovery Schedule submitted shall meet the same requirements as the Initial Schedule. The narrative submitted with the Recovery Schedule should describe in detail all changes that have been made to meet the Contract milestone date.

f. Change Orders: When a Change Order is proposed, Contractor must identify all logic changes as a result of the Change Order. Contractor shall include, as part of each Change Order proposal, a sketch showing all schedule logic revisions, duration changes, and the relationships to other activities in the approved Initial Schedule. This sketch shall be known as the fragnet for the change. Upon acceptance of the fragnet, Contractor will revise the Initial Schedule or current update. The logic changes required by the Change Order will be considered incidental to Contractor's work. No separate payment will be made.

g. Schedule Revisions to Utility Work: Contractor shall provide owners of Underground Facilities ten (10) days notice when revisions in the schedule of work affect operations of an Underground Facility unless previous arrangements have been made with the company involved.

4. Cost Control Subsystem: The operation of this subsystem shall provide sufficient timely cost data and detail to permit Contractor to control and adjust the Project requirements, needs, materials, equipment and systems by building and site elements so that the Work will be completed at a cost which, together with all other Project costs, will not exceed the GMP. Requirements of this subsystem include submissions at the following points of the Project:

    a. Design Phase Estimates; and

    b. At establishment of the GMP.

5. Project Accounting Subsystem: This subsystem shall enable Contractor to plan effectively and Owner to monitor and control the funds available for the Project, cash flow, costs, Change Orders, payments, and other major financial factors by comparison of budget, estimate, total commitment, amounts invoiced, and amounts payable, and also enable Owner to stay informed as to the overall Project status. All reports to be generated as part of this subsystem shall be consistent with the Project Funding Schedule. This subsystem will be produced and updated monthly and includes the following reports:

    a. A Costs Status Report representing the budget, estimate, and base commitment (awarded subcontracts and purchase orders) for any given subcontract or budget line item. It shall show approved Change Orders for each subcontract which when added to the base commitment will become the total commitment. Pending Change Orders also will be shown to produce the total estimated probable cost to complete the Work.

    b. A Payment Status Report showing the value in place (both current and cumulative), the amount invoiced (both current and cumulative), and the balance remaining. A summary of this report shall accompany each pay request.

    c. A Detailed Status Report showing the complete activity history of each item in the Project accounting structure. It shall include the budget, estimate, and base commitment figures for each subcontract. It shall give the Change Order history, including Change Order numbers, description, proposed and approved dollar amounts. It also shall show all pending or rejected Change Orders.

    d. A Cash Flow Diagram showing the projected accumulation of cash payments against the Project. Cash flow projections shall be generated for anticipated monthly payments as well as cumulative payments.

    e. A Job Ledger shall be maintained as necessary to supplement the operation of the Project accounting subsystem. The job ledger will be used to provide construction cost accountability for general conditions work, on-site reimbursable expenses, and costs requiring accounting needs.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

SC-4.02 Starting the Work

SC-4.02.B Add the following new paragraphs immediately after Paragraph 4.02.A:

B. Contractor shall have the sole responsibility of satisfying itself concerning the nature and location of the Work and the general and local conditions, and particularly, but without limitation, with respect to the following: those affecting transportation, access, legal disposal, handling and storage of materials; availability and quality of labor; water and electric power; availability and condition of roads; work area; living facilities; climatic conditions and seasons; physical conditions at the Site and the Project area as a whole; topography and ground surface conditions; nature and quantity of the surface materials to be encountered; subsurface conditions; equipment and facilities needed preliminary to and during performance of the Work; and all other costs associated with such performance. The failure of Contractor to acquaint itself with any applicable conditions shall not relieve Contractor from any of its responsibilities to perform under the Contract Documents, nor shall it be considered the basis for any claim for additional time or compensation.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.03 Subsurface and Physical Conditions

SC-5.05.F Add the following new paragraph immediately after Paragraph 5.05.E:

F. If during the performance of the Work, Contractor or any subcontractor, sub-subcontractor, agent, employee or anyone else for whom Contractor is legally liable, causes a disruption of utility service to other facilities or customers within and immediately surrounding the Project area, Contractor shall take all actions necessary and required to immediately restore such utility service. If Contractor fails to take such immediate actions Owner shall have the right to take whatever actions it deems necessary and required to immediately restore the disrupted utilities, and all costs incurred by Owner as a result thereof shall be reimbursed to Owner by Contractor within five (5) business days of written demand for same from Owner.

SC-5.06 Hazardous Environmental Conditions

SC 5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.

B. Not Used.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.03 Contractor's Insurance

SC 6.03.K Add the following new paragraphs immediately after Paragraph 6.03.J:

K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:	Ch. 440, Fla. Stat.
Federal, if applicable (e.g., Longshoreman's):	N/A
Jones Act coverage, if applicable:	
Bodily injury by accident, each accident	$ N/A
Bodily injury by disease, aggregate	$ N/A
Employer's Liability:	
Bodily injury, each accident	$ 100,000
Bodily injury by disease, each employee	$ 100,000
Bodily injury/disease aggregate	$ 500,000

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	$ 2,000,000
Products - Completed Operations Aggregate	$ 2,000,000
Personal and Advertising Injury	$ 1,000,000
Each Occurrence (Bodily Injury and Property Damage)	$ 1,000,000

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:	
Each person	$ 1,000,000
Each accident	$ 1,000,000
Property Damage:	
Combined Single Limit of	$ 1,000,000

4. Excess or Umbrella Liability:

Per Occurrence	$	10,000,000
General Aggregate	$	10,000,000

5. Contractor's Pollution Liability:

Each Occurrence	$	N/A
General Aggregate	$	N/A

☒ If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

6. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following: None.

7. Contractor's Professional Liability:

Each Claim	$	2,000,000
Annual Aggregate	$	2,000,000

L. Promptly after written Notice of Award is issued by Owner, the insurance coverages and limits required must be evidenced by properly executed Certificates of Insurance on the form which is attached hereto and made a part hereof as Exhibit A. The certificates must be personally, manually signed by the Authorized Representatives of the insurance company/companies shown on the certificates with proof that he/she is an authorized representative thereof. In addition, certified, true and exact copies of all insurance policies required shall be provided to Owner, on a timely basis, if requested by Owner. These certificates and policies shall contain provisions that thirty (30) days written notice by registered or certified mail shall be given the Owner of any cancellation, intent not to renew, or reduction in the policies' coverages, except in the application of the Aggregate Limits Provisions. Contractor also shall notify Owner, in a like manner, within twenty-four (24) hours after receipt, of any notices of expiration, cancellation, non-renewal or material change in coverages or limits received by Contractor from its insurer, and nothing contained herein shall relieve Contractor of this requirement to provide notice. In the event of a reduction in the aggregate limit of any policy, the Contractor shall immediately take steps to have the aggregate limit reinstated to the full extent permitted under such policy.

M. All insurance policies required by this Agreement shall include the following provisions and conditions by endorsement to the policies:

1. The term "City of Largo, Florida" shall include City of Largo, Florida, a Florida municipal corporation, and all Authorities, Boards, Bureaus, Commissions, Divisions, Departments and offices thereof and individual members, employees, elected officials, volunteers, representatives, agents and attorneys, thereof in their official capacity, and/or while acting on behalf of the City of Largo, Florida.

2. All insurance policies, other than the Professional Liability policy and the Workers Compensation policy, provided by Contractor to meet the requirements of this Agreement shall name City of Largo, Florida, as that name is defined in subparagraph 1. above, as an additional insured as to the operations of the Contractor under the Contract Documents and shall contain a severability of interests provision.

3. Companies issuing the insurance policy or policies shall have no recourse against Owner for payment of premiums or assessments for any deductibles which all are at the sole responsibility and risk of Contractor.

4. All insurance coverages of the Contractor shall be primary to any insurance or self-insurance program carried by the Owner applicable to this Project, and the "Other Insurance" provisions of any policies obtained by Contractor shall not apply to any insurance or self-insurance program carried by Owner applicable to this Project.

N. The acceptance by Owner of any Certificate of Insurance for this Project evidencing the insurance coverages and limits required in the Agreement does not constitute approval or agreement by Owner that the insurance requirements have been met or that the insurance policies shown on the Certificates of Insurance are in compliance with the requirements of the Agreement.

O. No work shall commence at the Site unless and until the required Certificates of Insurance are received and the written Notice to Proceed is issued to Contractor by Owner.

P. Before starting and until acceptance of the work by Owner, Contractor shall procure and maintain insurance of the types and to the limits specified in Article 6 of the General Conditions and related Supplementary Conditions. Contractor shall require each of its Subcontractors to procure and maintain, until the completion of that Subcontractor's work, insurance of the same types and the limits, unless such insurance requirement for the Subcontractor is expressly waived in writing by the Owner. Subcontractors performing Work on the Project costing an amount equal to or exceeding $400,000 shall be obligated to maintain a minimum of $1,000,000 in umbrella liability coverage/excess liability coverage. This provision shall not affect any other types or amounts of insurance required to be obtained and/or maintained by the Contractor or any subcontractor performing the Work.

Q. If any insurance provided pursuant to this Agreement expires prior to the completion of the Work, renewal Certificates of Insurance and, if requested by Owner, certified, true copies of the renewal policies, shall be furnished to Owner prior to the date of expiration.

R. Should at any time Contractor not maintain the insurance coverages required in this Agreement, Owner may cancel the Agreement or at its sole discretion shall be authorized to purchase such coverages and charge Contractor for such coverages purchased. If Contractor fails to reimburse Owner for such costs within thirty (30) days after demand, Owner has the right to offset these costs from any amount due Contractor under this Agreement. Owner shall be under no obligation to purchase such insurance, nor shall it be responsible for the coverages purchased or the insurance company/companies used. The decision of Owner to purchase such insurance coverages shall in no way be construed to be a waiver of its rights under this Agreement.

S. Contractor shall immediately submit to Owner and Design Professional a copy of all accident reports arising out of any injuries to its employees or those of any firm or individual to whom it may have subcontracted a portion of the Work, or any personal injuries or property damages arising or alleged to have arisen on account of any work by Contractor under the Contract Documents.

T. The Owner shall be exempt from, and in no way liable for, any sums of money that may represent a deductible in any insurance policy except deductibles as agreed to by Owner in obtaining Builder's Risk Property Insurance. The payment of any deductible, with the exception of the aforementioned deductible to obtain Builder's Risk Property Insurance for the Project, shall be the sole responsibility of Contractor and/or Subcontractor providing such insurance.

SC-6.05 Property Insurance

SC-6.05.A. Delete Paragraph 6.05.A of the General Conditions and substitute the following new language in its place:

Contractor shall provide and maintain installation floater insurance for property under the care, custody, or control of Contractor. The installation floater insurance shall be a broad form or "all risk" policy providing coverage for all materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work. Coverage under the Contractor's installation floater will include:

1. any loss to property while in transit,
2. any loss at the Site, and
3. any loss while in storage, both on-site and off-site.

Coverage cannot be contingent on an external cause or risk, or limited to property for which the Contractor is legally liable. The Contractor will be solely responsible for any deductible carried under this coverage and claims on materials, supplies, machinery, fixture, and equipment that will be incorporated into the Work while in transit or in storage. This policy will include a waiver of subrogation applicable to Owner, Contractor, Engineer, all Subcontractors, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.02 Labor; Working Hours

SC-7.02.B. Delete Paragraph 7.02.B of the General Conditions and substitute the following new language in its place:

Except as otherwise required for the safety or protection of persons or the Work or property at the Site adjacent thereto, all Work at the Site shall be performed during regular working hours, 8:00 a.m. through 5:00 p.m. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday (New Year's Day, ML King Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and following day, Christmas Eve, or Christmas Day.) In its sole and absolute discretion, Owner may in writing authorize Contractor to perform work outside regular working hours, in which case Contractor must use equipment engine silencers approved by Owner.

SC-7.02.C. Add the following new paragraph immediately after Paragraph 7.02.B:

C. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

1. For purposes of administering the foregoing requirement, additional overtime costs are defined as $500 per day for Owner's inspectors plus actual cost of any third-party Owner's representative or other providers of services.

SC-7.05 Substitutes

SC-7.05G Add the following new paragraphs immediately after Paragraph 7.05.F:

G. If a specific means, method, technique, sequence or procedure of construction is indicated in or required by Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to Design Professional, if Contractor submits sufficient information to allow Design Professional to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedures for submission to and review by Design Professional shall be the same as those provided herein for substitute materials or equipment, except as provided immediately below.

SC-7.06 Concerning Subcontractors, Suppliers, and Others

SC-7.06A Add the following new paragraphs immediately after Paragraph 7.06.A:

1. Subcontract bidders must submit a completed experience questionnaire and financial statement on the form as provided by Contractor or such other qualification process as may be agreed to by Owner, prior to award of the subcontract. Such information shall be reviewed by Contractor and Owner prior to award of the subcontract. As a minimum requirement, the Subcontractor's financial condition must demonstrate that adequate fixed and liquid assets and equipment are available to properly perform the subcontract.

2. Subcontractor or subcontractor's supervisory personnel must have successfully completed no less than two (2) projects of similar size and complexity within the last five (5) years.

3. Subcontractor must agree to perform no less than 15% of the subcontracted Work utilizing its own employees.

4. Contractor shall not subcontract with the civil engineering firm of record to perform any survey work that is required under the terms of the Contract.

5. Contractor shall not subcontract with any person or affiliate prohibited from working on a public project pursuant to sections 287.133 (convicted vendor), 287.134 (discriminatory vendor), or 287.135 (scrutinized company) of the Florida Statutes.

SC-7.06K Add the following new paragraphs immediately after Paragraph 7.06.K:

1. Contractor shall negotiate all Change Orders, field orders and request for proposals, with all affected Subcontractors and shall review the costs of those proposals and advise Owner and Design Professional of their validity and reasonableness, acting in Owner's best interest, prior to requesting approval of each Change Order from Owner. Before any Work is begun on any Change Order, a written authorization from Owner must be issued. However, when there is an eminent threat to health and safety, and Owner's concurrence is impractical, Contractor shall act immediately to remove the threats to health and safety and shall subsequently fully inform Owner of all such action taken.

2. Contractor shall carefully review all shop drawings and then forward the same to Design Professional for review and actions. Design Professional will transmit them back to the Contractor who will then issue the shop drawings to the affected Subcontractor for fabrication or revision. Contractor shall maintain a suspense control system to promote expeditious handling. Contractor shall request Design Professional to make interpretations of the drawings or specifications requested of him by the subcontractors and shall maintain a suspense control system to promote timely response. Contractor shall advise Design Professional in writing which shop drawings or requests for clarification have the greatest urgency; the purpose being to enable Design Professional to prioritize requests coming from the Contractor. The Contractor shall advise Owner and Design Professional in writing when timely response is not occurring on any of the above.

SC-7.06M Add the following new paragraphs immediately after Paragraph 7.06.M:

1. Subcontracts between the Contractor and Subcontractors shall

   a. require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume towards Contractor all the obligations and responsibilities which Contractor, by the Contract Documents, assumes towards Owner and Design Professional, and

   b. provide for the assignment of those subcontracts from Contractor to Owner at the election of Owner upon termination of Contractor.

2. Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract, copies of the Contract Documents to which Subcontractor will be bound and identify to the Subcontractor any terms and conditions of the proposed subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such documents available to its Subcontractors.

3. On all subcontracts where the bid exceeds $100,000, Subcontractor must provide a 100% performance bond and a 100% labor and material payment bond from a surety company authorized to do business in the State of Florida by the Department of Financial Services. Owner shall be identified as an Obligee on all Performance Bonds. If Contractor wishes to award subcontracts to Subcontractors unable to supply this bonding, it may request special authorization from Owner to do so.

4. All subcontracts shall provide:

    a. Subcontractor's exclusive remedy for delays in the performance of the contract caused by events beyond its control, including delays claimed to be caused by Owner or Design Professional or attributable to Owner or Design Professional and including claims based on breach of contract or negligence, shall be an extension of its contract time (see General Condition 4.05). The subcontract shall require the Subcontractor expressly to agree that the foregoing constitutes its sole and exclusive remedies for delays and changes in the work and thus eliminate any other remedies for claim for increase in the contract price, damages, losses or additional compensation.

    b. In the event of a change in the Work approved by Owner in accordance with General Condition Article 11, Subcontractor's claim for adjustments is limited exclusively to its actual costs for such changes plus no more than 10% for overhead and profit and bond costs. Subcontractor is not entitled to any additional payments for any changes not approved by Owner in accordance with General Condition Article 11.

    c. Each subcontract shall require that any claims by Subcontractor for delay or additional cost must be submitted to Contractor within the time and in the manner in which Contractor must submit such claims to Owner under General Condition Article 11, and that failure to comply with the conditions for giving notice and submitting claims shall result in the waiver of such claims.

    d. Subcontractor must agree to provide field (onsite) supervision through a named superintendent for each trade (i.e. general concrete forming and placement, masonry, mechanical, etc.) included in the subcontract. In addition, Subcontractor shall assign and name a qualified employee for scheduling direction for its work. The supervisory employees of Subcontractor (including field superintendent, foreman and schedulers at all levels) must have been employed in a supervisory (leadership) capacity of substantially equivalent level on a similar project for at least two (2) years within the last five (5) years. Subcontractor shall include a resume of experience for each employee identified by Subcontractor to supervise and schedule the subcontracted work.

SC-7.12 Safety and Protection

SC-7.12 A.4 – Add the following new paragraph immediately after Paragraph 7.12 A.3

4. Contractor shall provide safe access/egress for business owners and operators, their customers, and any other person visiting a business affected by sidewalk reconstruction.

SC-7.18 Indemnification

SC-7.18D Add the following new paragraphs immediately after Paragraph 7.18.C:

D. The obligations contained in Paragraph 7.18 shall survive termination of this Agreement and shall not be limited by the amount of any insurance required to be obtained or maintained under this Agreement. Notwithstanding the foregoing, this

indemnification shall be limited to one million dollars ($1,000,000) or the Contract amount, whichever is greater, in accordance with section 725.06, Florida Statutes.

E. Subject to the limitations set forth in this Section, Contractor shall assume control of the defense of any claim asserted by a third party against Owner and, in connection with such defense, shall appoint lead counsel, in each case at Contractor's expense. Owner shall have the right, at its option, to participate in the defense of any third party claim, without relieving Contractor of any of its obligations hereunder. If Contractor assumes control of the defense of any third party claim in accordance with this paragraph, Contractor shall obtain the prior written consent of Owner before entering into any settlement of such claim. Notwithstanding anything to the contrary in Paragraph 7.18, Contractor shall not assume or maintain control of the defense of any third party claim, but shall pay the fees of counsel retained by Owner and all expenses, including experts' fees, if (i) an adverse determination with respect to the third party claim would, in good faith judgment of Owner, be detrimental in any material respect to Owner's reputation; (ii) the third party claim seeks an injunction or equitable relief against Owner; or (iii) Contractor has failed or is failing to prosecute or defend vigorously the third party claim. Each party shall cooperate, and cause its agents to cooperate, in the defense or prosecution of any third party claim and shall furnish or cause to be furnished such records and information, and attend such conferences, discovery proceedings, hearings, trials, or appeals, as may be reasonably requested in connection therewith.

SC-7.20 Review and Commentary Services

SC-7.20 Add the following new paragraph immediately after Paragraph 7.19:

7.20 Review and Commentary Services

A. Contractor shall arrange for all job site facilities as required by Owner and necessary to enable Contractor and Design Professional to perform their respective duties and to accommodate any representatives of Owner which Owner may choose to have present on the job, the description of which shall be finalized prior to the establishment of the GMP. Tangible personal property, otherwise referred to as job site facilities, include, but are not limited to such things as trailers, toilets, typewriters, computers and any other equipment necessary to carry on the Project.

1. The method of acquiring any such job site facilities, which are planned to become the property of Owner at the conclusion of the Project, shall be evaluated based on cost over the life of the Project. Owning versus leasing shall be considered by Contractor obtaining at least three (3) proposals for leasing and at least three (3) proposals for purchasing and then analyzing which is least expensive over the usage life of the item. Contractor shall present its evaluation with recommendation to Owner for approval.

2. When Contractor wishes to supply job site facilities from its own equipment pool, Contractor shall first evaluate buy versus lease as discussed in the paragraph above. If leasing is found to be the least expensive approach, then Contractor may lease such job-site facilities from its own equipment pool at a price not greater than the lowest of the three (3) lease proposals obtained.

3. For all such job site facilities purchased, which may become the property of Owner at the conclusion of the Project, Contractor shall maintain ownership responsibilities of such facilities until the Project conclusion. Reimbursement for cost of such equipment will be made at the conclusion of the Project at the documented purchase price. At that time, Contractor shall provide Owner with a complete inventory for each unit of equipment. The inventory shall describe the equipment and identify the purchase price, serial number, model number and condition. Where said equipment has a title, said title shall be properly transferred to Owner or to its designee.

4. Contractor is responsible for proper care and maintenance of all equipment while in Contractor's control. At the time of transfer to Owner, Owner may refuse acceptance of the equipment if Owner determines, in its sole discretion, that the equipment has not been properly cared for by Contractor or that such acquisition would not otherwise be in the best interest of Owner.

B. DISCLAIMER OF WARRANTY: THE OWNER DISCLAIMS ANY WARRANTY THAT THE CONSTRUCTION DOCUMENTS FOR THE PROJECT ARE ACCURATE, PRACTICAL, CONSISTENT OR CONSTRUCTABLE.

SC-7.21 Project Management Services

SC-7.21 Add the following new paragraph immediately after Paragraph 7.20:

7.21 Project Management Services

A. Contractor shall maintain sufficient off-site support staff, and competent full time staff at the Project site authorized to act on behalf of the Contractor to coordinate, inspect and provide general direction of the Work and progress of the subcontractors. Contractor shall provide no less than those personnel during the respective phases of construction that are set forth in Exhibit B to the Agreement. The Contractor shall not change any of those persons identified in Exhibit B unless mutually agreed to in writing by the Owner and Contractor. In such case, Owner shall have the right to approve the qualifications of the replacement personnel.

B. Contractor shall establish and maintain lines of authority for its personnel, and shall provide this information to Owner and all other affected parties, such as the code inspectors of any permitting authority, the subcontractors, and Design Professional to provide general direction of the Work and progress of the various phases and subcontractors. Owner and Design Professional may attend meetings between Contractor and Subcontractors; however, such attendance is optional and shall not diminish either the authority or responsibility of the Contractor to administer the subcontracts.

C. Contractor shall provide Owner, its representatives, and Design Professional with copies of the Project Management Plan (total number of copies not to exceed 10) developed and updated as required herein, employing the Construction Phase milestones, beginning and finishing dates, the various parties' respective responsibilities for performance and the relationships of their Work with respect to Subcontractors and suppliers. Contractor also shall continue to provide current scheduling information and provide direction and coordination regarding milestones, beginning and finishing dates, responsibilities for performance and the relationships of Contractor's Work to the Work of Subcontractors and suppliers to

enable them to perform their respective tasks so that the construction progresses in a smooth and efficient manner in conformance with the overall Master Project Schedule. The schedule shall include all phases of the construction Work, material supplies, long lead procurement, approval of shop drawings, change orders in progress, schedules for change orders, and performance testing requirements. Contractor shall advise Owner, its representatives, and Design Professional of their required participation in any meeting or inspection giving each at least one week notice unless such notice is made impossible by conditions beyond Contractor's fault and control. Contractor shall hold jobsite meetings at least once each month with the construction team and at least once each week with the subcontractors, Design Professional's field representative, and Owner's representative, or more frequently as required by Work progress, to review progress, discuss problems and their solutions and coordinate future Work with all Subcontractors.

D. Contractor shall develop and maintain a program, acceptable to Owner and Design Professional, to assure quality control of the Work. Contractor shall be responsible for and supervise the Work of all Subcontractors, providing instructions to each when their portion of the Work does not conform to the requirements of the Construction Documents, and Contractor shall continue to exert its influence and control over each Subcontractor to ensure that corrections are made in a timely manner so as to not affect the efficient progress of the Work. Should a disagreement occur between Contractor and Design Professional over the acceptability of the Work, Owner, in its sole discretion, shall have the right to determine the acceptability.

E. Contractor shall secure all necessary permits from any permitting authorities. Contractor, with assistance from Design Professional, will obtain all necessary site, SWFWMD and utility permits. All costs incurred by Contractor with respect to performing its obligations under this paragraph shall be paid for by Owner. Owner shall fully cooperate with the Contractor where necessary.

F. The Contractor shall provide or maintain the following at the job site:

1. Maintain a log of daily activities, including manpower records, weather, delays, major decisions, etc.
2. Maintain a roster of companies on the Project with names and telephone numbers of key personnel.
3. Establish and enforce job rules governing parking, clean-up, use of facilities and Worker discipline.
4. Provide labor relations management for a harmonious, productive project.
5. Provide and administer a safety program for the Project to meet OSHA and other governmental requirements. Monitor Subcontractor compliance with that safety program.
6. Provide and administer a quality control program as developed pursuant to the Contract terms.
7. Provide miscellaneous office supplies that support the construction efforts which are consumed by Contractor's own forces.
8. Provide for travel to and from Contractor's home office to the Project site and City of Largo as the Project requires.

G. Contractor shall provide personnel and equipment, or shall arrange for separate Subcontractors, to provide each of the following as a direct cost item:

1. Services of independent testing laboratories and provide the necessary testing of materials to ensure conformance with the Contract Documents.

2. Printing and distributing of all required bidding documents and shop drawings, including the sets required by any permitting authority's inspectors.

H. Contractor shall provide job site administration functions during construction to assure proper documentation, including but not limited to the following:

1. *Job Meetings*

a. Conduct a pre-construction conference with each Subcontractor after award of the subcontract and prior to the start of its portion of the Work.

b. Conduct weekly progress and coordination meetings to provide for a timely completed Project.

c. Conduct monthly Project status meetings with Design Professional and Owner.

d. Use the job site meetings as a tool for the pre-planning of Work and enforcing schedules, and for establishing procedures, responsibilities, and identification of authority for all parties to clearly understand.

e. Identify party or parties responsible for following up on any problems, delay items or questions raised at meetings. Note the action to be taken by such party or parties. Revisit each pending item at each subsequent meeting until resolution is achieved. Attempt to obtain from all present any problems or delaying event known to them for appropriate attention and resolution.

2. Provide staff to review and approve shop drawings and to implement procedures for submittal and transmittal to Design Professional of such drawings for action, and closely monitor their submittal and approval process.

3. Provide staff to closely monitor material and equipment deliveries, perform critically important checking and follow-up procedures on supplier commitments for all Subcontractors and maintain a material and equipment expediting log.

4. Develop and implement a procedure for the review, processing and payment of applications by Subcontractors for progress and final payments.

5. Refer all questions for interpretation of the Contract Documents to Design Professional in writing.

6. Record the progress of the Project. Submit written progress reports to Owner and Design Professional, including information on Subcontractors' Work, and the percentage of completion. Keep a daily log available to Owner, Design Professional, and any permitting authority inspectors.

7. Prepare periodic punch lists for Subcontractors' work including unsatisfactory or incomplete items and schedules for their completion.

8. Ascertain when the Work or designated portions thereof are ready for Design Professional's substantial completion inspections. From the punch lists of incomplete or unsatisfactory items prepared by Contractor and reviewed and supplemented by Design Professional, prepare a schedule for their completion indicating completion dates for Owner's review. Design Professional will issue a Certificate of Substantial Completion when the Work on the list has been accomplished and Substantial Completion has been achieved as otherwise required hereunder.

9. Monitor Subcontractors' performance on the completion of the Project and provide notice to Owner and Design Professional that the Work is ready for final inspection. Secure and transmit to Owner, through Design Professional, all required guarantees, warranties, affidavits, releases, bonds and waivers, manuals, record drawings, and maintenance books.

10. With Owner's personnel, direct the check-out of utilities, operations, systems and equipment for readiness and assist in their initial start-up and testing by the Subcontractors.

11. Monitor the progress of Contractor's own forces and its Subcontractors on marked up field prints, which at Project completion Contractor shall develop into the final record drawings.

I. Contractor shall maintain at the Project site, originals or copies of, on a current basis, files and administrative records such as, but not limited to the following, which shall be available at all times to Owner and Design Professional for reference or review:

1. Subcontracts and Purchase Orders
2. Shop Drawing Submittal/Approval Logs
3. Equipment Purchase/Delivery Logs
4. Contract Drawings and Specifications with Addenda
5. Warranties and Guarantees
6. Cost Accounting Records
7. Labor Costs
8. Material Costs
9. Equipment Costs
10. Cost Proposal Request
11. Payment Request Records
12. Meeting Minutes
13. Cost-Estimates
14. Bulletin Quotations
15. Lab Test Reports
16. Insurance Certificates and Bonds
17. Contract Changes
18. Permits
19. Material Purchase Delivery Logs
20. Technical Standards
21. Design Handbooks
22. "As-Built" Marked Prints
23. Operating & Maintenance Instruction
24. Daily Progress Reports
25. Monthly Progress Reports

26. Correspondence Files
27. Transmittal Records
28. Inspection Reports
29. Bid/Award Information
30. Bid Analysis and Negotiations
31. Punch Lists
32. PMIS Schedule and Updates
33. Suspense (Tickler) Files of Outstanding Requirements
34. Project Management Plan

J. Contractor shall keep all records and supporting documentation which concern or relate to the Work hereunder for a minimum of fifteen (15) years from the date of termination of this Agreement or the date the Project is completed, or such longer period of time as may be required by law, whichever is longer. Owner, or any duly authorized agents or representatives of Owner, shall have the right to audit, inspect and copy all such records and documentation as often as they deem necessary during the period of this Agreement and during the fifteen (15) year period noted above; provided, however, such activity shall be conducted only during normal business hours.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

SC-9.13 Owner's Site Representative

SC-9.13 Add the following new paragraph immediately after Paragraph 9.12 of the General Conditions:

SC-9.13 Owner will furnish an Owner's Site Representative ("OSR") to represent Owner at the Site and assist Owner in observing the progress and quality of the Work. OSR is not Engineer's consultant, agent, or employee. OSR will be Brent Larson. The authority and responsibilities of OSR follow:

A. General: OSR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. OSR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor.

B. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability. OSR will participate in such review, but the exchange of information will be between Contractor and Engineer.

C. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.

D. Liaison:

1. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.

2. Serve as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.

3. Provide from Owner additional details or information, when required for proper execution of the Work.

E. Interpretation of Contract Documents: Consult with Engineer when clarifications and interpretations of the Contract Documents are needed. OSR will participate in such consultations, and the exchange of information, including clarifications and interpretations as issued by Engineer, will be through OSR.

F. Shop Drawings and Samples:

1. Participate in review of Samples and Contractor-approved Shop Drawings. Exchange of Samples, Shop Drawings, and related information shall be between Contractor and Engineer.

2. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which OSR believes that the submittal has not been approved by Engineer.

G. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report OSR's recommendations, if any, to Engineer. Exchange of Contractor's suggestions and Engineer's decisions shall be through OSR.

H. Review of Work and Rejection of Defective Work:

1. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.

2. Report to Engineer whenever OSR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that OSR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

I. Inspections, Tests, and System Start-ups:

1. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.

2. Observe and record appropriate details relative to the test procedures and systems start-ups.

J. Records:

1. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.

2. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.

3. Maintain records for use in preparing Project documentation.

K. Reports:

1. Furnish to Owner periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.

2. Immediately notify Owner and Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

L. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations for payment, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

M. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents.

N. Completion:

1. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.

2. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.

3. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

O. OSR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of Owner's authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of Engineer, Contractor, Subcontractors, or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.

5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Contractor.

6. Nothing contained herein shall relieve the Contractor of the responsibility for the means, methods, techniques, sequences, or procedures of Contractor's work or the safety of the Work and the site.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC-14.03 - Defective Work

Delete paragraph 14.03 B in its entirety and insert the following in its place:

OSR's Authority: OSR has the authority to determine whether work is defective, and to reject defective work.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC-15.01 Progress Payments

SC-15.01.B Applications for Payments

Add the following new subparagraphs following Paragraph 15.01.B.3:

4. Before submitting its first monthly Application for Payment, Contractor shall submit to Owner and Design Professional, for their review and approval, a revised Schedule of Values; all in FDOT format, listing the major elements of the Work and the dollar value for each element. After its approval by Owner, this revised Schedule of Values shall be used as the basis for Contractor's monthly Applications for Payment thereafter. This revised schedule shall be updated and submitted each month to OSR along with a completed and notarized copy of the Application for Payment form.

    a. The Contractor shall submit with each application for payment, payrolls, petty cash accounts, receipts, invoices, subcontractor invoices.

5. If payment is requested on the basis of materials and equipment not incorporated into the Project, but delivered and suitably stored at the site, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that Owner has received the materials and equipment free and clear of all liens, charges, security interests and encumbrances, together with evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect Owner's interest therein, all of which shall be subject to Owner's satisfaction.

6. Contractor shall submit four (4) notarized original copies of its monthly Application for Payment to Design Professional on or before the 25th day of each month for Work performed during the previous month. Invoices received after the 25th day of each month shall be considered for payment as part of the next month's application. Within ten (10) calendar days after receipt of each Application for Payment, OSR shall submit to Owner a Certificate for Payment in the amount recommended by Design Professional as being due and owing Contractor. Owner shall pay Contractor that portion of OSR's Certificate

for Payment which Owner approves as being due and owing Contractor in accordance with the Florida Prompt Payment Act.

7. Owner shall retain five percent (5%) of the gross amount of each monthly payment request for the entirety of the Project. The sum remaining at the end of the Project shall not be fully released to Contractor until final payment is due and payable under Paragraph 15.06 of the General Conditions, as may be amended by the Supplementary Conditions. Any payment of retainage shall be made in accordance with the Florida Prompt Payment Act.

8. Monthly payments to Contractor shall in no way imply approval or acceptance of Contractor's work.

SC-15.03 Substantial Completion

SC 15.03.B Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, shall be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

SC-15.05 Final Inspection

SC 15.05.A Add the following new language to the end of Paragraph 15.05.A:

Owner reserves the right to inspect the Work and make an independent determination as to the Work's acceptability, even though Design Professional may have issued its recommendations. Unless and until Owner is completely satisfied, neither the final payment nor the retainage shall become due and payable. The final payment shall be the amounts withheld as retainage from the amount approved in each application for payment. Owner shall make final payment to Contractor within twenty-five (25) calendar days after the Work is fully and finally accepted by the Owner in accordance with the Florida Prompt Payment Act. Contractor’s acceptance of final payment shall constitute a full waiver of any and all claims by Contractor against Owner arising out of or otherwise relating to the Work, except those identified in writing by Contractor as unsettled in the final application for payment. Upon the Owner’s payment in full for all work performed under the Contract Documents, Contractor transfers to the City all ownership and property interests, including but not limited to any intellectual property rights, copyrights, and/or patents, in the Work.

SC-15.05 Final Payment

SC 15.05.D Add the following new language to the end of Paragraph 15.05.D:

Owner shall make final payment to Contractor within thirty (30) calendar days after the Work is finally accepted by Owner, provided that Contractor first, and as an absolute condition precedent to the accrual of Contractor's right to final payment, shall have furnished Owner with properly executed and notarized copies of the final Releases and Affidavits attached as Exhibit C and Exhibit D, as well as a

duly executed copy of the Surety's consent to final payment form attached to the Agreement as Exhibit E.

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Contractor's Application for Payment No.

	Application Period:	Application Date:
To (Owner): **City of Largo**	From (Contractor):	Via (OSR):
Project: Sanitary Sewer, Reclaimed Water and Storm Sewer Repair Services	Contract:	
Owner's Contract No.: **22-B-760**	Contractor's Project No.:	Engineer's Project No.: **N/A**

Application For Payment

Change Order Summary

Approved Change Orders

Number	Additions	Deductions
TOTALS	$0.00	$0.00
NET CHANGE BY CHANGE ORDERS	**$0.00**	

1. ORIGINAL CONTRACT PRICE	**$**	
2. Net change by Change Orders	**$**	**$0.00**
3. Current Contract Price (Line 1 ± 2)	**$**	**$0.00**
4. TOTAL COMPLETED AND STORED TO DATE (Column F total on Progress Estimates)	**$**	**$0.00**
5. RETAINAGE:		
a. 10% X $0.00 **Work Completed**	**$**	**$0.00**
b. 0% X $0.00 **Stored Material**	**$**	**$0.00**
c. Total Retainage (Line 5.a + Line 5.b)	**$**	**$0.00**
6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c)	**$**	**$0.00**
7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)	**$**	
8. AMOUNT DUE THIS APPLICATION	**$**	**$0.00**
9. BALANCE TO FINISH, PLUS RETAINAGE (Column G total on Progress Estimates + Line 5.c above)	**$**	**$0.00**

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:
(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;
(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and
(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor Signature

By:	Date:

Payment of: $ _____
(Line 8 or other - attach explanation of the other amount)

is recommended by: _____ _____
(OSR) (Date)

Payment of: $ _____
(Line 8 or other - attach explanation of the other amount)

is approved by: _____ _____
(Owner) (Date)

Approved by: _____ _____
Funding or Financing Entity (if applicable) (Date)

EJCDC® C-620 Contractor's Application for Payment
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EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

NOTICE OF AWARD

Date of Issuance: **_____, 2022**

Owner:	**City of Largo**	Owner's Contract No.:	**22-B-760**
Engineer:	N/A	Engineer's Project No.:	
Project:	**Sanitary Sewer, Reclaimed Water and Stormwater Repair Services**	Contract Name:	

Bidder:

Bidder's Address:

TO BIDDER:

You are notified that Owner has accepted your Bid dated September 26, 2022 for the above Contract, and that you are the Successful Bidder and are awarded a **Contract for: Sanitary Sewer, Reclaimed Water and Stormwater Repair Services.** This contract shall provide for the repairs of sanitary sewer, reclaimed water, stormwater sewer and appurtenances at various locations throughout the City as circumstances dictate.

The Contract Price of the awarded Contract is: $ **1** (subject to unit prices)

Two unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

You must comply with the following conditions precedent within 7 days of the date of receipt of this Notice of Award:

1. Deliver to Owner **two** counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **City of Largo**

Authorized Signature

By: **Brent Larson**

Title: **Construction manager**

Copy: Engineer

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

NOTICE TO PROCEED

Owner:	**City of Largo**	Owner's Contract No.:	**22-B-760**
Contractor:		Contractor's Project No.:	
Engineer:	**N/A**	Engineer's Project No.:	**N/A**
Project:	**Sanitary Sewer, Reclaimed Water and Stormwater Repair Services**	Contract Name:	
		Effective Date of Contract:	

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [_____, 20__]. *[see Paragraph 4.01 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, the number of days to achieve Substantial Completion is _____. and the number of days to achieve readiness for final payment is _____.

Before starting any Work at the Site, Contractor must comply with the following:

[Note any access limitations, security procedures, or other restrictions]

Owner**:** **City of Largo**

Authorized Signature

By: **Brent Larson**

Title: **Construction manager**

Date Issued:

Copy: Engineer

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Work Change Directive No.

Date of Issuance:		Effective Date:	
Owner:	**City of Largo**	Owner's Contract No.:	**22-B-760**
Contractor:		Contractor's Project No.:	
Engineer:	**N/A**	Engineer's Project No.:	**N/A**
Project:	**Sanitary Sewer, Reclaimed Water and Stormwater Repair Services**	Contract Name:	

Contractor is directed to proceed promptly with the following change(s):

Description:

Attachments: *[List documents supporting change]*

Purpose for Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to changes on Contract Price and Contract Time, is issued due to: *[check one or both of the following]*

☐ Non-agreement on pricing of proposed change.

☐ Necessity to proceed for schedule or other Project reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price $ [increase] [decrease].

Contract Time days [increase] [decrease].

Basis of estimated change in Contract Price:

☐ Lump Sum ☐ Unit Price

☐ Cost of the Work ☐ Other

RECOMMENDED:	AUTHORIZED BY:	RECEIVED:
By:	By:	By:
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title:	Title:	Title:
Date:	Date:	Date:

Approved by Funding Agency (if applicable)

By: Date:

Title:

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Change Order No. _____

Date of Issuance:		Effective Date:	
Owner:	**City of Largo**	Owner's Contract No.:	**22-B-760**
Contractor:		Contractor's Project No.:	
Engineer:	**N/A**	Engineer's Project No.:	**N/A**
Project:	**Sanitary Sewer Reclaimed Water and Stormwater Repair Services**	Contract Name:	

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments: *[List documents supporting change]*

CHANGE IN CONTRACT PRICE	**CHANGE IN CONTRACT TIMES** *[note changes in Milestones if applicable]*
Original Contract Price: $_____	Original Contract Times: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: $_____	[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: Substantial Completion: _____ Ready for Final Payment: _____ days
Contract Price prior to this Change Order: $_____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: $_____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: $_____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____	By: _____	By: _____
Brent Larson	**Jerald Woloszynski, PE**	Contractor (Authorized Signature)
Title: **Construction Manager**	Title **City Engineer**	Title _____
Date: _____	Date _____	Date _____

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Field Order No. _____

Date of Issuance:		Effective Date:	
Owner:	**City of Largo**	Owner's Contract No.	**22-B-760**
Contractor:		Contractor's Project No.:	
Engineer:	**N/A**	Engineer's Project No.:	**N/A**
Project:	**Sanitary Sewer, Reclaimed Water and Stormwater Repair Services**	Contract Name:	

Contractor is hereby directed to promptly execute this Field Order, issued in accordance with General Conditions Paragraph 11.01, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference: _____ Specification(s) _____ Drawing(s) / Detail(s)

Description:

Attachments:

ISSUED:	RECEIVED:
By: **Brent Larson**	By: Contractor (Authorized Signature)
Title: **Construction Manager**	Title:
Date:	Date:

Copy to: Owner

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	**City of Largo**	Owner's Contract No.:	**22-B-760**
Contractor:		Contractor's Project No.:	
Engineer:	**N/A**	Engineer's Project No.:	**N/A**
Project:	**Sanitary Sewer, Reclaimed Water and Stormwater Repair Services**	Contract Name:	

This [preliminary] [final] Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities: ☐ None ☐ As follows

Amendments to Contractor's responsibilities: ☐ None ☐ As follows:

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

EXECUTED BY OSR:	RECEIVED:	RECEIVED:
By:	By:	By:
Brent Larson	**Jerald Woloszynski, PE**	Contractor (Authorized Signature)
Title: **Construction Manager**	Title: **City Engineer**	Title:
Date:	Date:	Date:

NOTICE OF ACCEPTABILITY OF WORK

PROJECT: Sanitary Sewer, Reclaimed Water and Stormwater Repair Services

OWNER: CITY OF LARGO

CONTRACTOR:

OWNER'S CONSTRUCTION CONTRACT IDENTIFICATION: 22-B-760

EFFECTIVE DATE OF THE CONSTRUCTION CONTRACT:

ENGINEER: N/A

NOTICE DATE:

To: _____
Owner

And To: _____
Contractor

From: _____
Engineer

The Engineer hereby gives notice to the above Owner and Contractor that Engineer has recommended final payment of Contractor, and that the Work furnished and performed by Contractor under the above Construction Contract is acceptable, expressly subject to the provisions of the related Contract Documents, the Agreement between Owner and Engineer for Professional Services dated _____, and the following terms and conditions of this Notice:

CONDITIONS OF NOTICE OF ACCEPTABILITY OF WORK

The Notice of Acceptability of Work ("Notice") is expressly made subject to the following terms and conditions to which all those who receive said Notice and rely thereon agree:

1. This Notice is given with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.

2. This Notice reflects and is an expression of the Engineer's professional opinion.

3. This Notice is given as to the best of Engineer's knowledge, information, and belief as of the Notice Date.

4. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor's work) under Engineer's Agreement with Owner, and applies only to facts that are within Engineer's knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Agreement.

5. This Notice is not a guarantee or warranty of Contractor's performance under the Construction Contract, an acceptance of Work that is not in accordance with the related Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Construction Contract Documents, or to otherwise comply with the Construction Contract Documents or the terms of any special guarantees specified therein.

6. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract, and is subject to Owner's reservations of rights with respect to completion and final payment.

7.

By: _____

Title: _____

Dated: _____

SPECIFICATION PACKAGE

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 EXPLANATION AND DEFINITIONS

The following explanation of the Measurement and Payment for the bid form items is made for information and guidance. The omission of reference to any item in this description shall not, however, alter the intent of the bid form or relieve the Contractor of the necessity of furnishing such as part of the Contract.

1.02 PAYMENT

A. Payment shall be made for the items listed on the Bid Form on the basis of the work actually performed and completed. Such work shall include, but is not limited to, the furnishing of all necessary labor, materials, equipment, transportation, clean up, and all other appurtenances to complete the construction and installation of the work, to the configuration and extent as shown on the drawings, and described in the specifications.

B. It is intended that all mobilization, maintenance of traffic, sediment and erosion control, testing, insurance, bond, license and other miscellaneous administrative costs, and all other costs to the Contractor not specifically identified in the following item description be distributed among and included in the unit prices stated. No additional payment shall be made for transportation, communications, office maintenance, project signs, maintenance of traffic, barriers, and other incidental work or services, and no further payment shall be made for remobilization unless all of the work is suspended by the Engineer for a period in excess of three months and through no fault to the Contractor.

C. All required manufacturer testing and certification should be included in the unit prices shown in the Proposal and Contract. Density testing required for compacted backfilling, and concrete strength and materials testing required at the time of construction shall be included in the Testing Lab Allowance in the Proposal.

PART 2 - MATERIALS

Not Used

PART 3 - EXECUTION

3.01 INITIAL EXCAVATION - Bid Item No. 1

This item provides for all labor, equipment, material, mobilization, traffic control, and excavation that exposes up to twenty-five (25) feet of existing pipe, as measured in the horizontal plan view. This pay item also includes non-well point dewatering, crushed stone if required by the City for stabilization, hand cleaning of pipe and observation of its condition, protection of existing utilities, barricades and

traffic control, backfilling, and all other work pertinent to exposing the pipe and backfilling.

The quantity to be measured for payment under this pay item will be one initial excavations per jobsite made in conjunction with pipe repairs as directed at the various depth ranges listed in the Proposal. The depth for Initial Excavation shall be the average of the pipe cut (grade elevation minus the pipe invert elevation) measured at each end of the trench which measures twenty-five (25) feet in length or less.

3.02 ADDITIONAL EXCAVATION - Bid Item No. 2

This item provides for excavation exposing up to ten (10) feet of additional existing pipe, as measured in the horizontal plan view in excess of length specified in Pay Item No. 1 per jobsite. This pay item is applicable only in conjunction with, and includes the same work as listed in, Contract Pay Item No. 1, except for mobilization, which is not applicable.

The quantity to be measured for payment under this pay item will be the actual number of such additional excavations made in conjunction with pipe repair as directed at the various depth ranges listed in the proposal. The depth for Additional Excavation shall be the average of the cut (grade elevation minus the pipe invert elevation) measured at each end of the portion of trench which measures ten (10) feet in length or less.

3.03 WELL POINT DEWATERING (INITIAL 15 POINTS)- Bid Item No. 3

This item provides for all labor, materials, and equipment for the mobilization, set-up, and operation of dewatering pumping equipment, including placement of up to Fifteen (15) well points. When directed by the Engineer, the well point dewatering system will stabilize the trench bottom and remain in operation until backfilling operations are complete.

The quantity to be measured for payment under this pay item will be the actual number of such system setups placed in the work, as directed by the Engineer, for various depths listed in the Proposal. The depths will be the same depth paid for under Pay Item No 1, plus length of well point suction head length for the same system.

3.04 WELL POINT DEWATERING (EACH ADDITIONAL POINT)- Bid Item No. 4

This item provides for all labor, materials, and equipment for the set-up and operation of additional well points over and above the well points paid for under Pay Item 4. The work includes connection of the well points to the dewatering pumping equipment.

The quantity to be measured for payment under this pay item will be the actual number of well points placed in the work, as directed by the Engineer, for various depths listed in the proposal, less those well points paid for under Pay Item 3, per system. The depth will be the same depth paid for under Pay Item No. 3.

3.05 PVC SEWER PIPE REPAIR (INITIAL 8 L.F., SDR-26)- Bid Item No. 5

This item provides for all labor, equipment, and materials for the replacement of up to eight (8) lineal feet of PVC sewer pipe (SDR-26), including house laterals, per jobsite. The work includes, but is not

limited to, flexible couplings, new PVC sewer replacement pipe, cutting existing pipe, pipe bedding, disposal of existing pipe, and backfilling and compaction to proper grade for surface restoration. Excavation for this item will be paid for under Pay Item 1 and Pay Item 2.

The quantity to be measured for payment under this pay item will be one initial repair made in the work, per jobsite.

3.06 PVC SEWER PIPE REPAIR (ADDITIONAL, SDR-26)- Bid Item No. 6

This item provides for all labor, equipment, and materials for the replacement of PVC sewer pipe over and above the quantity specified in Pay Item No. 5, per jobsite. The work includes the same work included in Pay Item No. 5. Excavation for this item will be paid for under Pay Item 1 and Pay Item 2.

The quantity to be measured for payment under this pay item will be the actual length in linear feet of replacement pipe placed in the work less the quantity paid for under Pay Item No. 5, per jobsite.

3.07 PVC SEWER PIPE REPAIR (INITIAL 8 L.F., C-900)- Bid Item No. 7

This item provides for all labor, equipment, and materials for the replacement of up to eight (8) lineal feet of PVC sewer pipe (C-900), including house laterals, per jobsite. The work includes, but is not limited to, flexible couplings, new PVC sewer replacement pipe, cutting existing pipe, pipe bedding, disposal of existing pipe, and backfilling and compaction to proper grade for surface restoration. Excavation for this item will be paid for under Pay Item 1 and Pay Item 2.

The quantity to be measured for payment under this pay item will be one initial repair made in the work, per jobsite.

3.08 PVC SEWER PIPE REPAIR (ADDITIONAL, C-900)- Bid Item No. 8

This item provides for all labor, equipment, and materials for the replacement of PVC sewer pipe over and above the quantity specified in Pay Item No. 7, per jobsite. The work includes the same work included in Pay Item No. 7. Excavation for this item will be paid for under Pay Item 1 and Pay Item 2.

The quantity to be measured for payment under this pay item will be the actual length in linear feet of replacement pipe placed in the work less the quantity paid for under Pay Item No. 7, per jobsite.

3.09 PVC PRESSURE PIPE REPAIR (INITIAL 8 L.F., C-900)- Bid Item No. 9

This item provides for all labor, equipment, and materials for the replacement of up to eight (8) lineal feet of PVC pressure pipe per jobsite. The work includes, but is not limited to, repair of sleeved or iron solid sleeved, new PVC pressure replacement pipe (C-900), cutting existing pipe, pipe bedding, disposal of existing pipe, and backfilling and compaction to proper grade for surface restoration. Excavation for this item will be paid for under Pay Item 1 and Pay Item 2.

The quantity to be measured for payment under this pay item will be one initial repair made in the work, per jobsite.

3.10 **PVC PRESSURE PIPE REPAIR (ADDITIONAL L.F., C-900)-** Bid Item No. 10

This item provides for all labor, equipment, and materials for the replacement of PVC pressure pipe over and above the quantity specified in Pay Item No. 9, per jobsite. The work includes the same work included in Pay Item No. 9. Excavation for this item will be paid for under Pay Item 1 and Pay Item 2.

The quantity to be measured for payment under this pay item will be the actual length in linear feet of replacement pipe placed in the work, less the quantity paid for under Pay Item 9, per jobsite.

3.11 DUCTILE IRON PRESSURE PIPE REPAIR (INITIAL 8 L.F.)- Bid Item No. 11

This item provides for all labor, equipment, and materials for the replacement of up to eight (8) lineal feet of ductile iron pressure pipe per jobsite. The work includes, but is not limited to, repair of sleeved or iron solid sleeved, new ductile iron pressure replacement pipe, cutting existing pipe, pipe bedding, disposal of existing pipe, and backfilling and compaction to proper grade for surface restoration. Excavation for this item will be paid for under Pay Item 1 and Pay Item 2.

The quantity to be measured for payment under this pay item will be one initial repair made in the work, per jobsite.

3.12 DUCTILE IRON PRESSURE PIPE REPAIR (ADDITIONAL L.F.) – Bid Item No. 12

This item provides for all labor, equipment, and materials for the replacement of ductile iron pressure pipe over and above the quantity specified in Pay Item No. 11, per jobsite. The work includes the same work included in Pay Item No. 11. Excavation for this item will be paid for under Pay Item 1 and Pay Item 2.

The quantity to be measured for payment under this pay item will be the actual length in linear feet of replacement pipe placed in the work, less the quantity paid for under Pay Item 11, per jobsite.

3.13 SANITARY SEWER MANHOLE INSTALLATION (4' DIAMETER) - Bid Item No. 13

This item provides for the mobilization, setup, all labor, equipment, and materials for the installation of 4' diameter manholes.

The quantity to be measured for payment under this pay item will be the actual number of manholes installed and the vertical footage of each manhole. Payment shall be made based on the depth of each manhole, in accordance with the respective pay item. Removal and disposal of existing manholes will be paid under bid item number 15. Connection of sewer lines (gravity or force main), shall be paid under bid item number 36 and/or 37.

3.14 SANITARY SEWER MANHOLE INSTALLATION (5' DIAMETER) - Bid Item No. 14

This item provides for the mobilization, setup, all labor, equipment, and materials for the installation of 5' diameter manholes.

The quantity to be measured for payment under this pay item will be the actual number of manholes installed and the vertical footage of each manhole. Payment shall be made based on the depth of each manhole, in accordance with the respective pay item. Removal and disposal of existing manholes will

be paid under bid item number 15. Connection of sewer lines (gravity or force main), shall be paid under bid item number 36 and/or 37.

3.15 MANHOLE REMOVAL AND DISPOSAL – Bid Item No. 15

This item provides for the mobilization, setup, all labor, equipment and materials for the removal and disposal of sanitary sewer manholes.

The quantity to be measured for payment under this pay item will be the actual number of manholes removed and disposed of and the vertical footage of each manhole. Payment shall be made based on the depth of each manhole, in accordance with the respective pay item.

3.16 STORMWATER MANHOLE INSTALLATION (4' DIAMETER) - Bid Item No. 16

This item provides for the mobilization, setup, all labor, equipment and materials for the installation of 4' diameter manholes.

The quantity to be measured for payment under this pay item will be the actual number of manholes installed and the vertical footage of each manhole. Payment shall be made based on the depth of each manhole, in accordance with the respective pay item. Removal and disposal of existing manholes will be paid under bid item number 15. Connection of gravity sewer lines, shall be paid under bid item number 36.

3.17 STORMWATER MANHOLE INSTALLATION (5' DIAMETER) - Bid Item No. 17

This item provides for the mobilization, setup, all labor, equipment and materials for the installation of 5' diameter manholes.

The quantity to be measured for payment under this pay item will be the actual number of manholes installed and the vertical footage of each manhole. Payment shall be made based on the depth of each manhole, in accordance with the respective pay item. Removal and disposal of existing manholes will be paid under bid item number 15. Connection of gravity sewer lines, shall be paid under bid item number 36.

3.18 FIBERGLASS MANHOLE LINER - Bid Item No. 18

This item provides for the mobilization, setup, all labor, equipment, and materials for the installation of fiberglass manhole liners.

The quantity to be measured for payment under this pay item will be the actual length in vertical feet of fiberglass manhole liner installed. Payment shall be made based on the diameter of each manhole, in accordance with the respective pay item.

3.19 DIRECTIONAL BORE - HDPE - Bid Item No. 19

This item provides for the mobilization, setup, by-pass pumping, all labor, equipment, materials, and traffic control for the installation of HDPE pipe by directional boring.

The quantity to be measured for payment under this pay item will be the actual length in linear feet of

pipe installed and accepted.

3.20 MANHOLE CORING – Bid Item No. 20

This item provides for the mobilization, setup, all labor, equipment, and materials for the coring of sanitary sewer manholes.

The quantity to be measured for payment under this pay item will be the actual number of cores performed. Payment shall be made based on the core diameter, in accordance with the respective pay item.

3.21 MANHOLE RING & COVER REPLACEMENT, ASPHALT OR CONCRETE – Bid item No. 21

This item provides for the mobilization, setup, all labor, equipment and materials for the removal and disposal of existing manhole ring and covers and the installation of new manhole ring and covers, including asphalt or concrete restoration. Asphalt Surface Restoration Pay Item 29, or Concrete Sidewalk or Driveway Restoration Pay Items 31, 32 & 33 will not be used for this item unless approved by the City.

The quantity to be measured for payment under this pay item will be the actual number of manhole ring and covers installed and accepted.

3.22 MANHOLE RING & COVER REPLACEMENT, GRASS – Bid item No. 22

This item provides for the mobilization, setup, all labor, equipment, materials, and traffic control for the removal and disposal of existing manhole ring and covers and the installation of new manhole ring and covers, including asphalt or concrete restoration. Sodding restoration (Pay Item 34) will not be used for this item unless approved by the City.

The quantity to be measured for payment under this pay item will be the actual number of manhole ring and covers installed and accepted.

3.23 SANITARY SEWER MANHOLE INSIDE DROP, 1′ to 5′ DEEP – Bid Item No.23

This item provides for the mobilization, setup, all labor, equipment, and materials for the installation of sanitary sewer manhole inside drops in manholes up to 5 feet in depth

The quantity to be measured for payment under this pay item will be the actual number of inside drops installed and accepted.

3.24 SANITARY SEWER MANHOLE INSIDE DROP, >5' to 10' DEEP – Bid Item No.24

This item provides for the mobilization, setup, all labor, equipment, and materials for the installation of sanitary sewer manhole inside drops in manholes between 5 feet and 10 feet in depth.

The quantity to be measured for payment under this pay item will be the actual number of inside drops installed and accepted.

3.25 SANITARY SEWER MANHOLE INSIDE DROP, >10' DEEP – Bid Item No.25

This item provides for the mobilization, setup, all labor, equipment, and materials for the installation of sanitary sewer manhole inside drops in manholes greater than 10 feet in depth

The quantity to be measured for payment under this pay item will be the actual number of inside drops installed and accepted.

3.26 CLEAN OUT INSTALLATION (With 2' x 2' Concrete Pad) – Bid Item No. 26

This item provides for the mobilization, setup, all labor, equipment, and materials for the installation of sanitary sewer clean outs with 2' x 2' concrete pads.

The quantity to be measured for payment under this pay item will be the actual number of sanitary sewer clean outs with 2' x 2' concrete pads installed and accepted.

3.27 FLOWABLE FILL – Bid Item No. 27

This item provides for the mobilization, setup, all labor, equipment, and materials for the installation of flowable fill as described in the Technical Specifications.

The quantity to be measured for payment under this pay item will be the actual number of cubic yards of flowable fill installed and accepted.

3.28 PAVEMENT BASE RESTORATION (8" or 16" DEPTH) - Bid Item No. 28

This item provides for the mobilization, setup, all labor, equipment and materials for the furnishing and placement of crushed concrete pavement base, in eight (8) or sixteen (16) inch thick layers as described in the Technical Specifications. The intent of this bid item is for the restoration/replacement of roadway base, in preparation for asphalt paving.

The quantity of pavement base restoration to be measured for payment under this pay item will be the actual area, in square yards installed and accepted.

3.29 ASPHALT SURFACE RESTORATION (1.5" THICK) - Bid Item No. 29

This item provides for the mobilization, setup, all labor, equipment and materials for the furnishing and placement of one and a half (1.5) inch thick (compacted thickness) of asphaltic concrete of a type as directed by the Engineer and as described in the Technical Specifications.

The quantity of pavement surface restoration to be measured for payment under this pay item will be the actual area in square yards of such pavement restoration installed and accepted.

3.30 BRICK ROADWAY/DRIVEWAY RESTORATION - Bid Item No. 30

This item provides for the mobilization, setup, all labor, equipment, and materials for the restoration of brick roadway surfaces and driveway as described in the Technical Specifications. The Contractor's unit price should include the cost of removing and cleaning existing bricks, all necessary base restoration, and (re)placement of bricks. Bid item 28, Pavement Base Restoration, will not be utilized for this bid item

The quantity of pavement base restoration to be measured for payment under this pay item will be the

actual area, in square yards installed and accepted.

3.31 CONCRETE SIDEWALK RESTORATION (3000 PSI, 4" THICK) – Bid Item No. 31

This item provides for the mobilization, setup, all labor, equipment, and material necessary for concrete sidewalk restoration as described in the Technical Specifications.

The quantity of concrete sidewalk restoration to be measured for payment under this pay item will be the actual area in square yards restored.

3.32 CONCRETE SIDEWALK RESTORATION (3000 PSI, 6" THICK) – Bid Item No. 32

This item provides for the mobilization, setup, all labor, equipment, and material necessary for concrete sidewalk restoration as described in the Technical Specifications.

The quantity of concrete sidewalk restoration to be measured for payment under this pay item will be the actual area in square yards restored.

3.33 CONCRETE DRIVEWAY RESTORATION (3000 PSI, 6" THICK) - Bid Item No. 33

This item provides for the mobilization, setup, all labor, equipment, and material necessary for concrete driveway restoration as described in the Technical Specifications.

The quantity of concrete driveway restoration to be measured for payment under this pay item will be the actual area in square yards restored.

3.34 CONCRETE CURB RESTORATION (ALL TYPES) - Bid Item No. 34

This item provides for the mobilization, setup, all labor, equipment, and material necessary for construction of concrete curb that may be damaged or removed to make a repair. The curb will be replaced to match the existing curb.

The quantity of concrete curb restoration to be measured for payment under this pay item will be the actual length, in lineal feet, of existing curb removed and replaced in the work, as directed by the Engineer.

3.35 SODDING RESTORATION (ALL TYPES) - Bid Item No. 35

This item provides for the mobilization, setup, all labor, equipment, and material necessary for grass restoration by sodding, as described in the Technical Specifications.

The quantity of grass restoration by sodding to be measured for payment under this pay item will be the actual area, in square yards, installed and accepted.

3.36 CONNECT GRAVITY SEWER TO NEW/EXISTING MANHOLE (INCLUDING BENCH REPAIR AND/OR FIBERGLASS) - Bid Item No. 36

This item provides for the mobilization, setup, all labor, equipment, and material necessary for

connection of gravity sewer lines to new or existing manhole structures.

The quantity to be measured for payment under this pay item will be each actual connection, regardless of pipe size or depth, made to new or existing manholes.

3.37 CONNECT FORCE MAIN TO NEW/EXISTING MANHOLE (INCLUDING BENCH REPAIR AND/OR FIBERGLASS) - Bid Item No. 37

This item provides for the mobilization, setup, all labor, equipment, and material necessary for connection of new force mains to existing manhole structures.

The quantity to be measured for payment under this pay item will be each actual connection, regardless of pipe size or depth, made to existing manholes.

3.38 REMOVE/REPLACE WITH RCP (INITIAL 8 L.F.) - Bid Item No. 38

This item provides for all labor, equipment and material necessary for the removal and replacement of up to eight (8) lineal feet of storm drain pipe with reinforced concrete pipe (RCP) of similar diameter. This work includes, but is not limited to, connection material, new reinforced concrete replacement pipe, cutting existing pipe, pipe bedding, disposal of existing pipe, and backfilling and compaction to proper grade for surface restoration. Excavation for this item will be paid for under Pay Item 1 and Pay Item 2.

The quantity to be measured for payment under this pay item will be one initial repair/replacement made in the work, per jobsite.

3.39 REMOVE/REPLACE WITH RCP (ADDITIONAL LF)- Bid Item No. 39

This item provides for all labor, equipment, and materials for the replacement of reinforced concrete pipe (RCP) pipe over and above the quantity specified in Pay Item No. 38, per jobsite. The work includes the same work included in Pay Item No. 38. Excavation for this item will be paid for under Pay Item 1 and Pay Item 2.

The quantity to be measured for payment under this pay item will be the actual length in linear feet of replacement pipe placed in the work less the quantity paid for under Pay Item No. 35, per jobsite.

3.40 CONCRETE PIPE COLLAR (FDOT INDEX NO. 280) - Bid Item No. 40

This item provides for all the labor, equipment, and material to provide a concrete pipe collar repair as described in the FDOT Standard Plans for Road Construction Design Standard Index No. 280.

The quantity to be measured for payment under this pay item will be each actual concrete pipe collar installed.

3.41 BYPASS PUMPING AROUND SET-UP, SANITARY SEWER – Bid Item No. 41

This item provides for all labor, materials, and equipment for the mobilization and set-up, of by-pass pumping equipment for the diversion of sanitary sewer flows.

The quantity to be measured for payment under this pay item will be one bypass pumping systems set-up per jobsite.

3.42 BYPASS PUMP AROUND PUMPING OPERATION – Bid Item No. 42

This item provides for all labor, materials, and equipment for the continuous operation of by-pass pumping equipment for the diversion of sanitary sewer flows.

The quantity to be measured for payment under this pay item will be the actual number of days that the bypass pumping system is in operation.

3.43 UNDERDRAIN – Bid Item No. 43

This item provides for all labor, equipment, and material necessary for the removal and replacement of underdrain pipe, including, disposal of existing pipe, excavation, backfilling and compaction to proper grade for surface restoration. Furnishing and installing cleanouts as required will be incidental to this work.

The quantity to be measured for payment under this pay item will be the actual number of lineal feet of underdrain pipe removed and replaced, as measured from the end of pipe to end of pipe, and rounded to the nearest one foot.

3.44 EMERGENCY WORK ORDER MOBILIZATION – Bid Item No. 44

This item provides for compensation for all necessary labor, materials, and equipment when the Contractor is required to mobilize to an emergency repair site within a 24 hour of receipt of an emergency work order.

The quantity to be measured for payment under this pay item will be the actual number of emergency work order mobilizations per event.

3.45 GATE VALVE (RECLAIM WATER) – Bid Item No. 45

This item provides for all labor, equipment, and materials for placement of gate valves in the reclaim water system as seen in the Technical Specifications. This work includes but is not limited to installation of valve, valve restraints, iron solid sleeve, valve riser, new ductile iron or C900 PVC pressure pipe, cutting existing pipe, pipe bedding, disposal of existing pipe, back filling and compaction to proper grade for surface restoration. Excavation for this item will be paid for under Pay Item 1 and Pay Item 2.

The quantity to be measured for payment under this pay item will be actual number of valves installed.

3.46 BUTTERFLY VALVE (RECLAIM WATER) – Bid Item No. 46

This item provides for all labor, equipment, and materials for placement of gate valves in the reclaim water system as seen in the Technical Specifications. This work includes but is not limited to installation of valve, valve restraints, iron solid sleeve, valve riser, new ductile iron or C900 PVC pressure pipe, cutting existing pipe, pipe bedding, disposal of existing pipe, back filling and compaction to proper grade for surface restoration. Excavation for this item will be paid for under Pay Item 1 and Pay Item 2.

The quantity to be measured for payment under this pay item will be actual number of valves installed.

3.47 Maintenance of Traffic – Bid Item No. 47

This item provides for all labor, equipment, and materials necessary to operate the traffic control plan to expedite vehicular traffic flow around the construction area as described in the Technical Specifications.

The quantity to be measured for payment under this pay item will be the actual number of days that the traffic control plan is in operation.

END OF SECTION

SECTION 01045

EXECUTION OF WORK

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Contractor shall provide labor, materials, tools, equipment, and incidentals shown, specified, and required for execution of the Work as specified in this Section, including the following:

    a. Construction Electronic Documentation

    b. Demolition

    c. Cutting and Coring

    d. Patching

    e. Installation

2. Requirements for demolition, removal and disposal of existing buildings, structures, pavement, curbs, and sidewalks and electrical, plumbing, heating and ventilation equipment and materials as indicated in the Contract Documents for demolition.

3. General requirements for installation of equipment and material. Additional installation requirements are included in the individual Specification Sections.

4. General requirements for connections to existing facilities.

    a. To extent possible, materials, equipment, systems, piping, and appurtenances that will be placed into service upon completion of connection to existing facilities shall be checked, successfully tested, and in a condition for operation prior to making connections to existing facilities, if valves, gates, or similar watertight and gastight isolation devices are not provided at the connection point.

5. Requirements for cutting and coring, and rough and finish patching of holes and openings in existing construction. Provide cutting, coring, fitting, and patching, including attendant excavation and fill, required to complete the Work, and to:

    a. Remove and replace defective Work;

    b. Remove samples of installed Work as specified or required for testing;

c. Remove construction required to perform required alterations or additions to existing work;

d. Connect to completed Work not performed in proper sequence;

e. Remove or relocate existing utilities and pipes that obstruct the Work in locations where connections must be made;

f. Make connections or alterations to existing or new facilities.

1.02 REFERENCES

A. Definitions:

1. “Manufacturer’s installation instructions” includes manufacturer’s written instructions; drawings; illustrative, wiring and schematic diagrams; diagrams identifying external connections; and other such information pertaining to installation of equipment and materials. Installation instructions are printed instructions, including those attached to the equipment and materials, all inclusive.

2. “Salvage” items are equipment and materials scheduled for selective removal by the Contractor to furnish to the Owner. Contractor shall be responsible for removal, handling, and depositing of equipment and material to location designated by Owner.

B. Reference Standards:

1. 29 CFR 1910, OSHA.

2. ANSI A10.2, Safety Code for Building Construction

1.03 ADMINSTRATIVE REQUIREMENTS

A. Coordination:

1. Review installation procedures under other Sections and coordinate Work that must be performed with or before the Work specified in this Section.

2. Notify other contractors in advance of Work for connections to existing facilities to prevent delay of the Work.

3. Contractor shall remove and dispose of equipment and materials indicated for demolition on the Contract Documents, unless indicated as salvage items for the Owner. Contractor shall obtain ownership of removed equipment and materials following Engineer and Owner approval. Disposal of equipment and materials shall be in accordance with the Contract Documents.

B. Sequencing:

1. Contractor shall remove and demolish equipment and materials in sequence specified in the Contract Documents and following approval by Engineer and Owner.

2. Contractor shall replace equipment and materials removed without proper authorization from Engineer, which are necessary for the operation of the existing facilities. Re-installation of equipment and materials shall be to the satisfaction of the Engineer at no cost to the Owner.

C. Title to Equipment and Materials:

1. Equipment and materials indicated for demolition and removal in the Contract Documents, and not designated as Owner's salvaged items, shall become the Contractor's property following removal from the Site. Contractor shall be responsible for legally disposing of the equipment and material.

2. Contractor shall have no right or title to any of the equipment, materials or other items to be removed until the elements have been removed from the Site.

3. Contractor shall not sell or assign, or attempt to sell or assign any interest in the equipment, materials or other items until removal from Site.

4. Contractor shall have no claim against the Owner because of the absence of equipment, fixtures and materials.

D. Salvage Equipment and Materials:

1. Contract Documents indicate equipment and materials that shall be retained by Owner. Owner has the right to request any demolished equipment and materials be retained at their discretion.

2. Contractor shall move salvaged equipment and materials to storage areas located at the Site as instructed by Owner.

3. Architectural equipment and materials may be salvaged for incorporation into the Work when approved by Engineer.

E. Use of Explosives: Contractor shall not use explosives or blasting equipment and material in the Work in accordance with the Contract Documents.

1.04 SUBMITTALS

A. Action/Informational Submittals:

1. Construction electronic documentation as specified in this Section.

2. Demolition Plan: Submit detailed description of methods, equipment, and sequence for demolition Work.

3. Cutting and Patching Request:

    a. Submit written request to Engineer, well in advance of executing cutting or alteration that affects one or more of the following:

        1) Design function or intent of Project.

        2) Work of Owner or other contractors.

        3) Structural value or integrity of an element of the Project.

        4) Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.

        5) Efficiency, operational life, maintenance, or safety of operational elements.

        6) Visual qualities of sight-exposed elements.

    b. Request shall include:

        1) Identification of Project and contract name and number.

        2) Description of affected Work of Contractor and work of others (if any).

        3) Necessity for cutting.

        4) Effect on work of Owner, other contractors (if any), and on structural or weatherproof integrity of Project.

        5) Description of proposed Work, describing: scope of cutting and patching; trades who will be executing the Work; products proposed to be used; extent of refinishing; schedule of operations; alternatives to cutting and patching, if any.

        6) Designation of entity responsible for cost of cutting and patching, when applicable.

        7) Written permission of other contractors (if any) whose work will be impacted.

4. Recommendation Regarding Cutting and Patching:

    a. Should conditions of work, or schedule, indicate a change of materials or methods, submit written recommendation to Engineer including:

        1) Conditions indicating change.

        2) Recommendations for alternative materials or methods.

3) Items required with substitution request, in accordance with the substitution request requirements of the Contract Documents.

5. Product Data: Submit manufacturer's product data for the protective compound to be applied to core-drilled surfaces and cut concrete surfaces.

6. Informational Submittal: Submit written indication designating the day and time that the construction associated with cutting and patching will be uncovered, to provide for observation. Do not begin cutting or patching operations until submittal is accepted by Engineer.

7. Comply with submittal requirements of individual Specification Sections for patching materials.

1.05 SITE CONDITIONS

A. Owner does not assume responsibility for the actual condition of structures and equipment to be demolished and removed.

B. Existing Site conditions shall be maintained to the greatest extent possible by the Owner to the time of Notice to Proceed.

C. Contractor shall perform investigations, explorations, and probes as necessary at the Site prior to initiating demolition Work to ascertain any required protective measures before proceeding with demolition and removal. Contractor shall give particular attention to shoring and bracing requirements to prevent damage to the Work and existing structures.

D. Contractor shall verify measurements, dimensions and other conditions of each existing structure, system, equipment and material indicated in the Contract Documents for new Work prior to ordering equipment and materials.

PART 2 – PRODUCTS

2.01 MATERIALS

A. General:

1. Provide materials and products in accordance with the individual Specification Sections and the Contract Documents.

2. Provide materials and products that visually match existing adjacent surfaces to fullest extent possible for exposed surfaces.

3. If not indicated in the Contract Documents, provide materials and products that are identical to existing materials and products affected by the Work.

4. If identical materials and products are unavailable, provide materials and products that shall equal or exceed performance requirements of existing materials and products.

B. Compound Applied to Core-Drilled Surfaces and Cut Concrete Surfaces:

1. Product and Manufacturer: Provide one of the following:

a. Sikagard 62, by Sika Corporation.

b. Or equal.

PART 3 – EXECUTION

3.01 CONSTRUCTION ELECTRONIC DOCUMENTATION

A. Pre-Construction Documentation

1. Contractor shall provide photographic and video documentation of the Site where Work is being performed. Engineer and Owner reserve the right to be present during documentation.

2. Contractor shall provide both photographic and video documentation at grade-level and aerial of the Site prior to commence Work.

3. Contractor shall submit pre-construction documentation to Engineer and Owner for review. Contractor, Engineer, and Owner shall visit Site to field verify electronic documentation prior to commencing the Work. Site visit verification shall establish existing conditions prior to commencing Work.

B. Construction Progress Documentation

1. Contractor shall document Work progress at locations and construction as directed by Engineer, at a minimum.

2. Contractor shall provide electronic documentation prior to and following any shutdown, switchover, demolition, de-commissioning, cutting, patching, repair, etc. Engineer and Owner reserve the right to be present during documentation.

3. Contractor shall document following exposure of buried utilities, piping, valve, appurtenance and other underground elements.

4. Engineer reserves the right to provide construction progress documentation to confirm Contractor electronic documentation.

5. Contractor shall provide photos with each Application for Payment.

6. Photographs shall be taken at locations that adequately illustrate the condition of construction and the state of progress.

C. Post-Construction Documentation

1. Contractor shall take photographic and video documentation of the Site where Work has been completed and prior to Substantial Completion or partial utilization by Owner. Engineer and Owner reserve the right to be present during documentation.

2. Contractor shall provide both photographic and video documentation at grade-level and aerial of the Site following completion of the Work.

D. Submittal Requirements:

1. Documentation shall be time stamped for verification, including date and time.

2. Documentation shall be organized in a logic manner, such as by structure, building, physical site location, etc. for easy of comparison.

3. Photographic documentation shall be high resolution electronic versions.

4. Documentation shall be submitted to Engineer for review and approval prior to commence Work and at completion of the Work.

3.02 DEMOLITION

A. General:

1. Demolition Work shall comply with the applicable provisions and recommendation of ANSI A10.2, Safety Code for Building Construction, all governing codes, and as specified in this Section.

2. Contractor shall furnish competent and experienced personnel for the various type of demolition and removal Work. Demolition and removal Work shall be performed with regard to the safety of Owner employees, individuals at the Site, and the public.

3. Contractor shall remove temporary work, such as enclosures, signs, guards, etc. when such temporary Work is no longer required or when directed at the completion of the Work.

4. Contractor shall perform patching, restoration and Work in accordance with individual Specification Sections and details shown on Contract drawings.

5. Contractor shall be responsible for damage caused by demolition Work to existing structures, equipment and materials indicated for reuse or to remain at no additional cost to Owner.

6. Contractor shall maintain a clean working environment during the demolition Work in accordance with Section 01740 – Cleaning and Waste Management.

B. Protection during Demolition:

1. Contractor shall provide, erect, and maintain catch platforms, lights, barriers, weather protection, warning signs and other items as required for proper protection of the public, occupants of the building, personnel engaged in demolition Work, and adjacent construction.

2. Contractor shall provide and maintain weather protection at exterior openings so as to fully protect the interior premises against damage from the elements until such openings are closed by the Work.

3. Contractor shall provide and maintain temporary protection of the existing structure designated to remain where demolition, removal and Work is being done, connections made, materials handled or equipment moved. Temporary protection shall be provided in accordance with Section 01530 – Protection of Work and Property.

4. Contractor shall take necessary precautions to prevent dust from rising by wetting demolished masonry, concrete, plaster and similar debris. Unaltered portions of the existing buildings affected by the operations in the Contract Documents shall be protected by dust proof partitions and other adequate means. Dust control shall be provided in accordance with Section 01560 – Temporary Controls.

5. Contractor shall provide adequate fire protection in accordance with Section 01510 – Temporary Utilities and authorities having jurisdiction.

6. Contractor shall perform the demolition Work with minimum traffic interference. Contractor shall not close or obstruct walkways, passageways, or stairways. Contractor shall not store or place materials in passageways, stairs or other means of egress.

7. Contractor shall minimize disturbances to exterior walls and roofs to small sections that are readily repaired and patched to maintain watertight conditions in existing structures and buildings.

C. Performance of Demolition:

1. Equipment, piping, valves and appurtenances:

a. Contractor shall drain equipment, piping, valves, and appurtenances prior to demolition Work. Contractor shall be responsible for collection, transport, and disposal of drained contents at no additional cost to the Owner.

b. Contractor shall provide line stops, plugs, blind flanges, etc. for equipment, piping, valves and appurtenance required to remain in service during the

Project. Contractor shall provide temporary or permanent supports in accordance with the Contract Documents.

c. Supports, pedestals and anchors shall be removed with the equipment and piping unless otherwise noted in the Contract Documents.

d. Concrete bases, anchor bolts and other supports shall be removed to approximately 1 inch below the surrounding finished area and the recesses shall be patched to match the adjacent areas.

e. Wall and roof openings shall be closed, and damaged surfaces shall be patched to match the adjacent areas, in accordance with the Contract Documents and as directed by the Engineer.

f. Wall sleeves, wall pipes, and wall castings shall be plugged or blanked off in accordance with the Contract Documents and as directed by the Engineer.

g. Openings in concrete shall be closed in accordance with the Contract Documents and as directed by the Engineer.

2. Electrical components and equipment:

a. Contractor shall de-energize panelboards, lighting fixtures, switches, circuit breakers, electrical conduits, motors, limit switches, pressure switches, instrumentation such as flow, level and/or other meters, wiring, and similar electrical equipment prior to removal.

b. Contractor shall relocate or isolate electrical equipment and materials that serve equipment, piping, valves and appurtenance that are to remain in service during the Project.

3. Reused and relocated equipment:

a. Contractor shall receive approval from Engineer prior to removal and relocation of equipment and material. Equipment and materials removed by Contractor prior to Engineer’s approval that is required for Owner’s operation of the facility shall be reinstalled at no cost to the Owner.

b. Prior to removal and relocation Work, equipment and materials indicated for reuse and relocation shall be operated by Owner with Contractor and Engineer present to witness existing functionality and operation.

c. Contractor shall provide personnel responsible for reinstallation of equipment and material for the removal Work.

d. Contractor shall be responsible and provide storage and protection of equipment and materials in accordance with Section 01660 – Product

Storage and Protection Requirements until relocation and reinstallation Work is performed.

e. Contractor shall provide replacement equipment and material that is damaged during the removal Work at no cost to the Owner. Contractor shall be responsible to provide same type, model, electrical components, etc. equipment and material as approved by Engineer and Owner.

4. Structural removal:

a. Contractor shall provide and install temporary shoring, struts, and bracing required for the demolition Work for structural materials.

b. Contractor shall cut and remove structural material at the interface of demolition Work and the existing structural element. Cutting and removal shall occur in small sections, including masonry units, to prevent instability of structural elements.

c. Contractor shall patch, repair, and refinish adjacent surfaces that remain following demolition Work.

1) Adjacent surfaces shall be repaired and refinished to the condition prior to the demolition Work and in accordance with the Contract Documents.

2) Adjacent surfaces shall be cleaned of dirt, grease, loose paint, etc., prior to refinishing.

d. Contractor shall limit cutting of existing roof areas designated to remain to the limits required for the proper installation of the Work.

1) Cut and remove insulation, joists, flashing, membranes, shingles, and metals, etc. in accordance with the Contract Documents and as directed by the Engineer for installation of the Work.

2) Provide temporary weather tight protection as required until new roofing and flashings are installed.

5. Architectural repairs and removal Work, not specifically shown on the Drawings, may include, but not limited to, the following:

a. Brickwork: Re-pointing; removing and replacing broken, cracked, disintegrating and missing materials.

b. Windows: Removing cracked or disintegrating sealant material; replacing missing or broken glass; re-caulking and sealing frames; glazing sealants.

c. Re-finishing: Removing rust, sealing or peeling paint from surfaces by scraping, sanding or wire brushing; priming and repainting surfaces.

d. Roofing: Patching and repairing membrane or built-up roofing; metal flashing repair; correcting roof pitch to eliminate ponding; cleaning and/or replacing roof drains.

e. Masonry: Cutting and installing new expansion and control joints.

f. Parapets: Removing and construction of new walls and copings; clean and patching of copings; replacing copings where broken.

g. Concrete surfaces: Patching, cleaning, sealing and resurfacing floors, walls, lintels, sills and trim. Replace lintels where broken. Patching or replacing broken, spalled, cracked and disintegrating concrete encased steel columns and piers.

h. Openings: Cutting and modifying as required for new Work. Provide new lintels, doors and frames.

i. Doors: Patching and refinishing doors and frames.

j. Ceilings: Patching, refinishing and replacing.

k. Guards, handrails and appurtenances: Cleaning and repainting steel materials. Replacing steel material with new aluminum material.

l. Demolished Exterior Openings: Remove window sash, frame, sill, stool and trim at exterior doors indicated for enclosure and sealing. Provide brick and/or masonry block for closure and sealing.

D. Maintenance during Demolition:

1. Contractor shall maintain the buildings, structures and public properties free from accumulations of waste, debris and rubbish, generated by the demolition Work.

2. Contractor shall provide cleaning and waste management of demolition equipment and materials in accordance with Section 01740 – Cleaning and Waste Management.

3.03 CUTTING AND CORING

A. General:

1. Contractor shall notify Engineer in writing and receiving Engineer’s approval prior to cutting load bearing walls (concrete or masonry) and structural concrete floors.

2. Perform cutting and coring to limit extent of patching required.

3. Structural Elements: Do not cut or core structural elements in manner that would change structural element's load-carrying capacity as load deflection ratio.

4. Operating Elements: Do not cut or core operating elements in manner that would reduce capacity to perform as intended. Do not cut or core operating elements or related components in manner that would increase maintenance requirements or decrease operational life or safety.

5. Replace, patch, and repair materials and surfaces cut or damaged during cutting and coring Work, Contractor shall use methods that do not void required or existing warranties.

6. Provide temporary or permanent bypass provisions prior to cutting existing pipe, conduit, ductwork, or other utilities serving facilities scheduled to be removed or relocated in accordance with the Contract Documents.

7. Inspection: Examine and prepare surfaces prior to commencing Work. Contractor shall report unsatisfactory or questionable conditions to Engineer in writing. Contractor shall not proceed with the Work until unsatisfactory conditions are corrected.

8. Preparation:

    a. Provide temporary support required to maintain structural integrity, to protect adjacent Work from damage, and to support the element(s) to be cut or cored.

    b. Protection of Existing Construction During Cutting and Coring:

        1) Protect existing structures, equipment, and materials during cutting and coring to prevent damage.

        2) Provide protection from adverse weather conditions that will be exposed during cutting and coring Work.

        3) Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

9. Restoration:

    a. Clean equipment, materials, piping systems, valves, conduit and appurtenances that were damaged due to the Work prior to applying paint or other finishing materials.

    b. Restore damaged pipe coverings, including insulation, to original condition.

B. Cutting:

    1. General:

a. Cut existing structures and appurtenances that provide surfaces for installation or repair of the Work. Cut existing construction using methods to minimize damage and disturbance to retained and adjoining construction elements.

b. Cutting equipment used shall be hand or small power tools suitable for sawing or grinding. Avoid using hammering or chopping equipment for cutting Work.

c. Cut holes and slots as small as possible and to size required for incorporation of the Work and in accordance with the Contract Documents.

d. Cut or drill from exposed or finished side to concealed side to avoid marring finished surfaces.

e. Provide adequate bracing of area to be cut prior to cutting.

f. Provide equipment and material to remove cut spoils.

g. Provide temporary protection for cut openings where and when Work is not being performed.

2. Concrete and Masonry:

a. Cut through concrete and masonry using concrete wall saw with diamond saw blades.

b. Provide control for slurry generated during sawing on both sides of element being cut.

c. After cutting concrete and before installing new Work on or through the opening, coat exposed concrete and steel with protective coating material specified in this Section. Apply protective coating in accordance with manufacturer's instructions.

C. Coring:

1. Core-drill holes through concrete and masonry walls, slabs, or arches, in accordance with the Contract Documents, unless written authorization is furnished by Engineer.

2. Protection: Protect existing structures, equipment, materials, utilities, and adjacent areas from water and other damage by core-drilling Work.

3. Coring:

a. Perform coring with non-impact rotary tool using diamond core-drills.

b. Size holes for pipe, conduit, sleeves, equipment or mechanical seals, as required, to be installed through the penetration and in accordance with the Contract Documents.

c. After core-drilling and before installing equipment and material through the penetration, coat exposed concrete and steel with protective coating material specified in this Section. Apply protective coating in accordance with manufacturer's instructions.

4. Cleaning: Vacuum or otherwise remove slurry and tailings from the work area following core-drilling.

3.04 PATCHING

A. General:

1. Construction shall be patched by filling, repairing, refinishing, closing-up, and similar methods at completion of the Work.

2. Provide equipment and materials in accordance with the Contract Documents for patching Work. Comply with manufacturer's installation instructions.

3. Provide airtight connections to pipes, sleeves, ducts, conduit, and other penetrations through surfaces when patching the Work. Provide durable patching seams that minimize visual appearance.

4. Patched areas shall be tested to demonstrate integrity of installation as directed by the Engineer. Contractor shall provide testing equipment, material and services for patch testing.

B. Restoration:

1. Restore exposed finishes of patched areas to minimize evidence of patching and refinishing.

2. Contractor shall extend refinishing and restoration into adjoining areas to blend patched areas with existing adjacent areas.

a. Refinish to nearest intersection for continuous surfaces.

b. Refinish the entire assembly and system for equipment and materials.

c. Repair and rehang existing ceilings to provide an even-plane surface of uniform appearance.

d. Apply plaster and finishes to match adjacent interior walls and partition areas for openings sealed with brick and/or masonry block.

3.05 INSTALLATION

A. Install equipment and materials in accordance with the Contract Documents, approved Shop Drawings, and manufacturer's installation instructions. When manufacturer's installation instructions conflict with the Contract Documents, obtain interpretation or clarification from Engineer before proceeding.

B. Preparation of surfaces shall be performed prior to installation of equipment and material.

1. New floor finishes: Repair and patch with concrete, asphalt latex type emulsion and underlayment as required for existing surfaces or new flooring surface.

2. Ceramic tile flooring or bases installed over concrete floors: Grind away cove, if present, for installation of new Work.

C. Concrete surfaces shall achieve compression strength in accordance with the Contract Documents prior to installation of equipment and materials.

1. Anchor bolts and templates shall be provided by Contractor and as specified in the individual Specification Sections.

2. Concrete foundations shall be treated with sealer to prevent oil from seeping into concrete as specified in the individual Specification Sections.

D. Maintain the work area in a broom-clean condition while installing materials and equipment.

E. Contractor shall be responsible for equipment for hoisting, lifting, moving, rigging, etc. for installation of equipment and materials.

1. Contractor shall be responsible for design of temporary installation system used for the installation Work, unless otherwise indicated in the Contract Documents.

2. Contractor shall be responsible for damage to existing structure, equipment, and material caused prior, during, and following installation of the Work with the Contractor furnished temporary installation system at no cost to Owner. Repairs shall be in accordance with the Contract Documents, shall return to condition prior to installation Work, and as directed by the Engineer.

3. Owner's hoists, monorails, bridge cranes, rigging, etc. shall not be used by the Contractor unless written authorization is provided by Owner.

F. Alteration or repair of new equipment and materials shall not be permitted without written authorization from Engineer.

G. Field welding or burning of new equipment and materials shall not be permitted unless indicated in the Contract Documents or without written authorization from Engineer.

H. Contractors shall install temporary shoring and bracing where necessary during installation of the Work where required:

1. System shall be provided in accordance with the Contract Documents and code requirements.

2. Temporary system shall consist of adjustable sound timbers or rolled shapes easily removable following installation of the Work.

3. Contractor shall be responsible for damage to existing structures and new Work during installation, utilization, and removal of the temporary system at new additional cost to the Owner.

I. Manufacturer's Installation Services: Provide competent, qualified manufacturer's representatives of equipment and material for services specified in the individual Specification Sections, including, but not limited to:

1. Supervising installation

2. Checking the completed installation

3. Adjusting and testing of equipment and materials

4. Instructing Owner's operations and maintenance

[END OF SECTION]

SECTION 01050

FIELD ENGINEERING

PART 1 – GENERAL

1.01 SUMMARY

A. Contractor shall provide field engineering and professional services of the types indicated for the Project, including:

1. Furnishing civil, structural, and other professional engineering services specified or required to execute Contractor's construction methods.

2. Developing and making all detail surveys and measurements required for construction.

3. Keeping a transit, theodolite, or total station (theodolite with electronic distance measurement device); leveling instrument; and related implements such as survey rods and other measurement devices, at the Site at all times, and having a skilled instrument person available when necessary for laying out the Work.

4. Being solely responsible for all locations, dimensions and levels. No data other than Change Order or Field Order shall justify departure from dimensions and levels required by the Contract Documents.

5. Rectifying all Work improperly installed because of not maintaining, not protecting, or removing without authorization established reference points, stakes, marks, and monuments.

6. Providing such facilities and assistance necessary for Engineer to check lines and grade points placed by Contractor.

B. Related Sections:

1. Section 01782 – Project Record Documents.

1.02 ADMINSTRATIVE REQUIREMENTS

A. Departures from Contract Drawings:

1. Contract Drawings show the extent and arrangement of the Work.

2. Contractor shall notify Engineer of departures from the Drawings that the Contractor deems required for incorporation of the Work at the Site.

3. Contractor shall provide field engineering services for equipment and materials that require modifications to existing structures, auxiliary equipment, piping,

electrical controls that are not indicated for modifications in the Contract Documents.

1.03 SERVICES AND RESPONSIBILITIES

A. Contractor's Field Engineer:

1. Contractor shall employ and retain field engineer at the Site capable of performing field engineering tasks required, including:

a. Provide reports to Engineer on the Work.

b. Check formwork, reinforcing, inserts, structural steel, bolts, sleeves, piping and other equipment and materials for conformance with Contract Documents.

c. Maintain field office files and drawings, record documents, and coordination with Subcontractors.

d. Prepare layout and coordination drawings for construction operations.

e. Check and coordinate Work for conflicts, interferences, and discrepancies with notification to Engineer.

f. Cooperate with Engineer and Owner in observing the Work and field inspections.

g. Review and coordinate the Work with Shop Drawings and other submittals.

B. Contractor's Surveyor:

1. Contractor shall employ or retain the services of a licensed surveyor registered in the State of Florida with experience and capability of performing surveying and layout tasks required in the Contract Documents and as required for the Work. Surveyor's tasks include, but are not necessarily limited to, the following:

a. Providing required surveying equipment, including transit or theodolite, level, stakes, and surveying accessories.

b. Establishing required lines for constructing all facilities, structures, pipelines, and site improvements.

c. Preparing and maintaining professional-quality, accurate, well organized, legible notes of all measurements and calculations made while surveying and laying out the Work.

d. Complying with requirements of the Contract Documents relative to surveying and related work.

1.04 SUBMITTALS

A. Action/Informational Submittals:

1. Surveying:

a. Plan for conducting survey Work, submitted ten days prior to beginning of survey Work.

b. Field books after completing survey Work.

c. Certified survey in accordance with this Section.

2. Certificates: Signed Contractor or Contractor's surveyor certifying elevations and locations of Work are in conformance with Contract Documents, with explanations of deviations.

3. Qualification Statements: Contractor's surveyor.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 SURVEYING

A. Contractor shall establish baselines for location of equipment, materials and structures of the Work with bench marks and batter boards adjacent to Work.

B. Contractor shall provide detailed surveys necessary for the Work including, but not limited to, slope stakes, batter boards, working points, lines and elevations.

C. Specific surveying:

1. Contractor shall have weirs surveyed by professional, licensed surveyor.

2. Contractor shall adjust weirs within a tolerance of +/- 0.05-inches of elevations shown on the Contract Documents.

3. Surveyed points for weirs shall be no greater than 10-feet spacing, and no less than two points per section of weir plate.

3.02 CLOSEOUT ACTIVITES

A. Contractor shall provide Project record documents for field engineering and surveying in accordance with Section 01782 – Project Record Documents.

B. Contractor shall provide certified weir elevation survey report in accordance with the requirements specified in this Section.

3.03 PROTECTION

A. Contractor shall preserve and protect benchmarks, reference points and stakes. Contractor shall re-establish damaged, destroyed, or lost bench marks, reference points and stakes. Contractor shall remove and re-install equipment and material installed based on Contractor established bench marks, reference points and stakes that have been damaged, destroyed, or lost at no additional cost to Owner.

B. Contractor shall preserve and protect existing and new control points, property markers and monuments during construction of the Work. Contractor shall establish and replace damaged or lost control points, property markers and monuments due to Contractor's construction activities at no cost to the Owner. Contractor shall provide computations and calculations to establish location of replacement Work.

[END OF SECTION]

SECTION 01090

REFERENCES

PART 1 – GENERAL

1.01 SUMMARY

A. Definitions and terminology applicable to all the Contract Documents are included in the General Conditions.

1.02 REFERENCES

A. Abbreviations and Acronyms: Common abbreviations that may be found in the Contract Documents are listed below:

alternating current	a-c
ampere	A
Architectural Barriers Act	ABA
Americans with Disabilities Act	ADA
Americans with Disabilities Act Accessibility Guidelines	ADAAG
ante meridian	a.m.
average	avg
biochemical oxygen demand	BOD
brake horsepower	bhp
British thermal unit	Btu
Centigrade (or Celsius)	C
chlorinated polyvinyl chloride	CPVC
Code of Federal Regulations	CFR
cubic inch	cu in
cubic foot	cu ft
cubic yard	cdu yd, or CY
cubic feet per minute	cfm
cubic feet per second	cfs
degree Centigrade (or Celsius)	degrees C or ^{o}C

degrees Fahrenheit	degrees F or ºF
dry film thickness	dft
diameter	dia
direct current	d-c
dollars	$
each	ea
efficiency	eff
Fahrenheit	F
feet	ft
feet per hour	fph
feet per minute	fpm
feet per second	fps
figure	Fig
flange	flg
foot-pound	ft-lb
gallon	gal
gallons per hour	gph
gallons per minute	gpm
gallons per second	gps
gram	g
grams per liter	g/L
Hertz	Hz
horsepower	hp or HP
hour	hr
human-machine interface	HMI
inch	in.
inches water gage	in. w.g.
inch-pound	in.-lb
inside diameter	ID

iron pipe size	IPS
thousand pounds	kips
thousand pounds per square inch	ksi
kilovolt-ampere	kva
kilowatt	kw
linear foot	lin ft or LF
liter	L
maximum	max
mercury	Hg
milligram	mg
milligrams per liter	mg/l or mg/L
milliliter	ml
millimeter	mm
million gallons per day	mgd or MGD
million gallons	MG
minimum	min
national pipe threads	NPT
net positive suction head	NPSH
net positive suction head available	NPSHA
net positive suction head required	NPSHR
nominal pipe size	NPS
number	no.
operator interface terminal	OIT
ounce	oz
ounce-force	ozf
outside diameter	OD
parts per hundred	pph
parts per million	ppm
parts per billion	ppb

polyvinyl chloride	PVC
post meridian	p.m.
pound	lb
pounds per square inch	psi
pounds per square inch absolute	psia
pounds per square inch gauge	psig
pounds per square foot	psf
process control system	PCS
programmable logic controller	PLC
revolutions per minute	rpm
second	sec
specific gravity	sp gr or SG
square	sq
square foot	sq ft or sf
square inch	sq in.
square yard	sq yd or SY
standard	std
standard cubic feet per minute	scfm
total dynamic head	TDH

B. Definitions: Terminology used in the Specifications includes:

1. “Indicated” refers to graphic representations, notes, or schedules on the Drawings, or to other paragraphs or schedules in the Specifications and similar locations in the Contract Documents.

2. “Shown”, “noted”, “scheduled”, and “specified” are used to help the user locate the reference without limitation on the location.

3. “Installer”, “applicator”, or “erector” is Contractor or another entity engaged by Contractor, either as an employee or subcontractor, to perform a particular construction activity, including installation, erection, application or similar Work. Installers shall be experienced in the Work that installer is engaged to perform.

4. “Experienced”, when used with the term “installer” means having successfully completed a minimum of five previous projects similar in size and scope to this

Project; being familiar with the special requirements indicated; being familiar with Laws and Regulations; and having complied with requirements of authorities having jurisdiction, and complying with requirements of the Supplier of the material or equipment being installed.

5. Trades: Use of a term such as “carpentry” does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as “carpenter”, unless otherwise indicated in the Contract Documents or required by Laws or Regulations. Such terminology also does not imply that specified requirements apply exclusively to trade personnel of the corresponding generic name.

6. “Assigned specialists” and similar terms: Certain Sections of the Specifications require that specific construction activities be performed by specialists recognized as experts in those operations. Engage said specialists for those activities, and their engagement is a requirement over which Contractor has no option. These requirements do not conflict with enforcement of building codes and other Laws and Regulations. Also, such requirements are not intended to interfere with local trade union jurisdictional settlements and similar conventions. Such assignments shall not relieve Contractor of responsibility for complying with the requirements of the Contract Documents.

C. Reference Standards:

1. Refer to General Conditions relative to reference standards and resolving discrepancies between reference standards and the Contract Documents. Provisions of reference standards are in effect in accordance with the Specifications.

2. Copies of Standards: Each entity engaged in the Work shall be familiar with reference standards applicable to its construction activity. Copies of applicable reference standards are not bound with the Contract Documents. Where reference standards are needed for a construction activity, obtain copies of standards from the publication source.

3. Abbreviations and Names: Where reference standards, specifications, codes, manuals, Laws or Regulations, or other published data of international, national, regional or local organizations are referred to in the Contract Documents, the organization issuing the standard may be referred to by their acronym or abbreviation only.

4. Following acronyms or abbreviations that may appear in the Contract Documents shall have the meanings indicated below. Listing is alphabetical by acronym.

AA	Aluminum Association
AABC	Associated Air Balance Council

AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACIFS	American Cast Iron Flange Standards
ACS	American Chemical Society
ADC	Air Diffusion Council
ADSC	International Association of Foundation Drilling.
AEIC	Association of Edison Illuminating Companies
AF&PA	American Forest and Paper Association
ABMA	American Bearing Manufacturers Association (formerly Anti- Friction Bearing Manufacturers Association (AFBMA))
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AHDGA	American Hot Dip Galvanizers Association
AI	Asphalt Institute
AIA	American Institute of Architects
AIChE	American Institute of Chemical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALSC	American Lumber Standards Committee
AMA	Acoustical Materials Association
AMCA	Air Movement and Control Association
AMP	National Association of Architectural Metal Manufacturers, Architectural Metal Products Division
ANSI	American National Standards Institute
APA	The Engineered Wood Association
API	American Petroleum Institute
APHA	American Public Health Association
AREA	American Railway Engineering Association
ARI	Air Conditioning and Refrigeration Institute

ASA	American Standards Association
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASNT	American Society for Non-Destructive Testing
ASPA	American Sod Producers Association
ASQ	American Society for Quality
ASSE	American Society of Safety Engineers
ASTM	American Society for Testing and Materials
AWCI	Association of the Wall and Ceiling Industry
AWI	Architectural Woodwork Institute
AWPA	American Wood Protection Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BAAQMD	Bay Area Air Quality Management District
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association
BOCA	Building Officials and Code Administrators
CBMA	Certified Ballast Manufacturers Association
CDA	Copper Development Association
CEMA	Conveyor Equipment Manufacturers Association
CGA	Compressed Gas Association
CISCA	Ceilings and Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CMAA	Crane Manufacturers Association of America
CPSC	Consumer Product Safety Commission

CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
DIN	Deutsches Institut fur Normung eV (German Institute for Standardization)
DIPRA	Ductile Iron Pipe Research Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ETL	Intertek Testing Services, Inc. (formerly ETL Testing Laboratories, Inc.)
FBC	Florida Building Code
FCC	Federal Communications Commission
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FM	Factory Mutual (FM Global)
FRPI	Fiberglass Reinforced Plastics Institute
FS	Federal Specification
GA	Gypsum Association
GANA	Glass Association of North America
HEW	United States Department of Health, Education and Welfare
HI	Hydraulic Institute
HMI	Hoist Manufacturers Institute
HUD	United States Department of Housing and Urban Development
IBC	International Building Code
ICC	International Code Council
ICEA	Insulated Cable Engineers Association
IEEE	Institute of Electrical and Electronics Engineers
IESNA	Illuminating Engineering Society of North America
IFI	Industrial Fasteners Institute

IFCEA	Insulated Power Cable Engineers Association
IRI	Industrial Risk Insurers
ISA	Instrumentation, Systems, and Automation Society (formerly Instrument Society of America)
ISO	Insurance Services Office
IOS	International Organization for Standardization
LPI	Lightning Protection Institute
MIA	Marble Institute of America
ML/SFA	Metal Lath/Steel Framing Association
MS/MIL	Military Specifications
MSS	Manufacturers' Standardization Society
MMA	Monorail Manufacturers Association
NAAMM	National Association of Architectural Metal Manufacturers
NACE	National Association of Corrosion Engineers
NAPF	National Association of Pipe Fabricators, Inc.
NARUC	National Association of Regulatory Utilities Commissioners
NBHA	National Builders Hardware Association
NBS	United States Department of Commerce, National Bureau of Standards
NCMA	National Concrete Masonry Association
NEC	National Electric Code
NELMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NESC	National Electrical Safety Code
NETA	International Electrical Testing Association
NFPA	National Fire Protection Association
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NHPMA	Northern Hardwood and Pine Manufacturers Association
NIST	United States Department of Commerce, National Institute of Standards and Technology

NLGA	National Lumber Grades Authority
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	National Sanitation Foundation
NSSGA	National Stone, Sand, and Gravel Association
NTMA	National Terrazzo and Mosaic Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Precast/Prestressed Concrete Institute
PEI	Porcelain Enamel Institute
PFI	Pipe Fabrication Institute
PPI	Plastics Pipe Institute
PGMC	Primary Glass Manufacturers Council
PS	Product Standards Section, United States Department of Commerce
RCSC	Research Council on Structural Connections (part of AISC)
RMA	Rubber Manufacturers Association
SAE	Society of Automotive Engineers
SBCCI	Southern Building Code Congress International, Inc.
SCAQMD	Southern California Air Quality Management District
SCPRF	Structural Clay Products Research Foundation
SCTE	Society of Cable Telecommunications Engineers
SDI	Steel Deck Institute
SDI	Steel Door Institute
SIGMA	Sealed Insulating Glass Manufacturing Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractor’s National Association
SPI	Society of the Plastics Industry
SPIB	Southern Pine Inspection Bureau
SSPC	Society for Protective Coatings

SWFWMD	Southwest Florida Water Management District
SWI	Steel Window Institute
TCNA	Tile Council of North America
TEMA	Tubular Exchanger Manufacturers Association
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.
USAB	United States Access Board
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
USGBC	United States Green Building Council
USGS	United States Geological Survey
USPHS	United States Public Health Service
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association
WCMA	Wood Component Manufacturers Association
MDMA	Window and Door Manufacturers Association
WWEMA	Water and Wastewater Equipment Manufacturers Association
WWPA	Western Wood Products Association

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

[END OF SECTION]

SECTION 01200

PROJECT MEETINGS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Pre-Construction Meeting:

a. Purpose of conference is to designate responsible personnel, establish working relationships, discuss preliminary schedules submitted by Contractor, and review administrative and procedural requirements for the Project. Matters requiring coordination will be discussed and procedures for handling such matters will be established.

b. Date, Time and Location: Conference will be held after execution of the Contract and before Work starts at the Site. Owner will establish the date, time, and location of conference and notify the interested and involved parties. Pre-construction meeting shall be held within the 20-day period after the effective date of the agreement and no later than 10 days prior to on-site activities.

2. Progress Meetings:

a. Progress meetings will be held throughout the Project. Contractor shall attend each progress meeting prepared to discuss in detail all items on the agenda.

b. Engineer will preside at progress meetings and will prepare and distribute minutes of progress meetings to all meeting participants and others as requested.

c. Date, Time, and Location:

1) Regular periodic meetings on a day and time agreeable to Owner, Engineer, and Contractor.

2) Contractor’s Field Office at the Site or other location mutually agreed upon by Owner, Contractor, and Engineer.

d. Additional meetings may be conducted as progress of Work requires at a mutually agreed date, time and location.

1.02 ADMINSTRATIVE REQUIREMENTS

A. Pre-Construction Meeting:

1. Contractor shall provide pre-construction meeting submittals with sufficient number of copies for each attendee:

2. Required Attendees:

a. Contractor

1) Project manager.

2) Site superintendent.

3) Safety representative.

4) Major Subcontractors.

b. Owner.

c. Engineer.

d. Resident Project Representative (RPR).

e. Representatives of governmental or other regulatory agencies.

3. Contractor shall prepare and submit a health and safety plan, as specified in this Section prior to the pre-construction meeting.

4. Agenda, minimum:

a. Procedural requirements:

1) Designation of responsible personnel

2) Use of Site and Owner's requirements, including general regards for community relations

3) Delivery of materials and equipment to the Site

4) Safety and first aid procedures

5) Confined space entry plan

6) Security procedures

7) Housekeeping procedures

b. Administrative requirements:

1) Distribution of Contract Documents.

2) Shop Drawing submittal procedures.

3) Maintaining record documents at the Site.

4) Contract modification procedures

5) Processing of Payment Application

c. Site mobilization requirements:

1) Working hours, overtime, and holidays.

2) Field offices, trailers, and staging areas.

3) Temporary facilities and utilities, including usage and coordination.

4) Temporary controls, such as sediment and erosion control, noise, dust, storm water, and other measures.

5) Access to Site, access roads, and parking for construction vehicles.

6) Protection of traffic and existing property, including site barriers and temporary fencing.

7) Security

8) Storage of materials and equipment.

9) Reference points and benchmarks, surveys and layouts.

10) Site maintenance during the project, including cleaning and removal of trash and debris.

11) Site restoration.

d. Schedules

1) Preliminary construction schedule

2) Critical work sequencing

3) Preliminary Shop Drawing submittal schedule

4) Preliminary Schedule of Values

B. Progress Meetings:

1. Progress meetings frequency shall be conducted as specified in this Section, unless modified and agreed upon by Owner, Contractor, and Engineer. Additional meetings may be conducted as progress of Work requires.

2. Contractor shall provide submittals specified in this Section prior to each progress meeting.

3. Attendance:

    a. Contractor, including project manager, site superintendent, safety representative, and representatives of Subcontractors and Suppliers as required.

    b. Engineer, including project manager (or designated representative), Resident Project Representative (if any), others as required by Engineer.

    c. Owner.

    d. Subcontractors, only with Engineer's approval or request, as required in the agenda.

4. Agenda, minimum:

    a. Review, comment, and amendment (if required) of minutes of previous progress meeting.

    b. Review of progress since the previous progress meeting.

    c. Planned progress through next 30 – 60 days.

    d. Review of Progress Schedule

        1) Contract Times, including Milestones (if any)

        2) Critical path.

        3) Schedules for fabrication and delivery of materials and equipment.

        4) Corrective measures, if required.

    e. Submittals:

        1) Review of status of critical submittals.

        2) Review revisions to schedule of submittals.

    f. Contract Modifications:

        1) Requests for interpretation

2) Clarification notices

3) Field Orders

4) Proposal requests

5) Change Proposals

6) Change Orders.

7) Claims.

g. Applications for progress payments.

h. Problems, conflicts, and observations.

i. Quality standards, testing, and inspections.

j. Coordination between parties.

k. Site management issues, including access, security, maintenance and protection of traffic, maintenance, cleaning, and other Site issues.

l. Safety.

m. Permits.

n. Record documents status.

o. Punch list status, as applicable.

p. Other business.

1.03 SUBMITTALS

A. Pre-Construction Meeting Submittals:

1. Prior to the conference, submit the following preliminary schedules in accordance with the General Conditions:

1) Progress schedule

2) Schedule of submittals

3) Schedule of values

2. Contractor's safety and first aid procedures.

3. Confined space entry plan (where applicable).

4. List of emergency contact information

B. Progress Meeting Submittals:

1. List of Work accomplished since the previous progress meeting.

2. Up-to-date Progress Schedule.

3. Up-to-date Schedule of Submittals.

4. Detailed “look-ahead” schedule of Work planned through the next progress meeting, with specific starting and ending dates for each activity, including shutdowns, deliveries of important materials and equipment, Milestones (if any), and important activities affecting the Owner, Project, and Site.

5. When applicable, list of upcoming, planned time off (with dates) for personnel with significant roles on the Project, and the designated contact person in their absence.

1.04 EMERGENCY CONTACT INFORMATION

A. Contractor shall provide list of emergency contact information for 24-hour use throughout the Project. Emergency contact information shall be updated and kept current throughout the Project. If personnel or contact information change, provide updated emergency contact information list at the next progress meeting.

B. Contractor’s list of emergency contact information shall include:

1. Contractor’s project manager’s office, field office, cellular, and home telephone numbers.

2. Contractor’s Site superintendent’s office, field office, cellular, and home telephone numbers.

3. Contractor’s foreman’s field office, cellular (if available), and home telephone numbers.

4. Major Subcontractors’ and Suppliers’ office, cellular, and home telephone numbers of project manager and foreman (when applicable).

C. Additional Emergency Contact Information:

1. Owner’s Project Manager: office, cellular, and home telephone numbers.

2. Owner’s central 24-hour emergency telephone number.

3. Engineer’s office, cellular, and home telephone numbers.

4. Resident Project Representative's office, field office, cellular, and home telephone numbers.

5. Emergency telephone numbers, including: "Emergency: Dial 911", and seven-digit telephone numbers for the hospital, ambulance, police, and fire department nearest to the Site. Provide names of each of these institutions.

6. Other involved entities as applicable.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

[END OF SECTION]

SECTION 01310

CONSTRUCTION PROGRESS SCHEDULE

PART 1 – GENERAL

1.01 SUMMARY

A. Contractor shall prepare and submit Progress Schedules and related documents in accordance with the General Conditions, as may be modified by the Supplementary Conditions, and this Section, unless otherwise accepted by Engineer.

1. Maintain and update Progress Schedules and related documents.

2. Progress Schedule shall be a Critical Path Method (CPM) Progress Schedule.

B. Engineer's acceptance of the Progress Schedule or related documents, and comments or opinions concerning activities in the Progress Schedule and related documents shall not control independent judgment of Contractor concerning means, methods, techniques, sequences and procedures of construction, unless the associated means, method, technique, sequence, or procedure is directed by the Contract Documents. Contractor is solely responsible for complying with the Contract Times.

1.02 REFERENCES

A. Definitions:

1. Activity: An element of the construction work that has the following specific characteristics: consumes time, consumes resources, has a definable start and finish, is assignable, and is measurable.

2. Constraint: An imposed date on the Progress Schedule or an imposed tie between Activities. The Contract Times are Constraints.

3. CPM Progress Schedule: Computerized Progress Schedule in Critical Path Method (CPM) format which accounts for the entire Work, defines the interrelationships between elements of the Work, reflects the uncompleted Work, and indicates the sequence with which the Work has been completed, indicates the sequence in which uncompleted Work will be completed, and indicates the duration of each Activity.

4. Critical Path: The continuous chain of Activities with the longest duration for completion within the Contract Times.

5. Early Start: The earliest possible date an Activity can start according to the assigned relationships among Activities.

6. Early Finish: The earliest date an Activity can finish according to the assigned relationships among the Activities.

7. Late Finish: The latest date an Activity can finish without extending the Contract Times.

8. Late Start: The latest date an Activity can start without extending the Contract Times.

9. Float: The time difference between the calculated duration of the Activity chain and the Critical Path.

10. Total Float: The total number of days that an Activity (or chain of Activities) can be delayed without affecting the Contract Times.

11. Network Diagram: A time-scaled logic diagram depicting the durations and relationships of the Activities.

12. Work Areas, Area, or System: A logical breakdown of the Project elements or a group of Activities which, when collectively assembled, are readily identifiable on the Project (for example, yard piping, a structure or building, a treatment process, or other logical grouping).

1.03 ADMINSTRATIVE REQUIREMENTS

A. Initial Progress Schedule:

1. Type and Organization of Progress Schedules:

a. Prepare one Progress Schedule covering the entire Project using scheduling software that is acceptable to Engineer.

b. Sheet Size: 11” by 17”, unless otherwise accepted by Engineer.

c. Time Scale: Indicate first date of each work week.

d. Activity Designations: Indicate title and related Specification Section number.

e. Organization:

1) Indicate on the separate Schedule of Submittals dates for submitting and reviewing Shop Drawings, Samples, and other submittals.

2) Group deliveries of materials and equipment into a separate sub-schedule that is part of the Progress Schedule.

3) Group construction into Work Area sub-schedules (that are part of the Progress Schedule) by Activity.

4) Clearly indicate the Critical Path on the Progress Schedule.

5) Organize each Work Area sub-schedule by Specification Section number.

2. Preliminary Progress Schedule:

a. Contractor shall submit to Engineer the preliminary Progress Schedule with associated Network Diagrams within 10 days after the Contract Times commence running on the effective date of the Agreement, or as otherwise required by the Contract Documents.

b. Engineer will review schedules and return review copy within 10 days after receipt.

c. If required, resubmit within seven days after return of review copy.

d. Submit three copies of preliminary Progress Schedule and associated reports and schedule-related documents to accompany the preliminary Progress Schedule, in accordance with the Submittals Article of this Section.

3. Initial Acceptance of Progress Schedule:

a. At least 10 days before submission of the first Application for Payment, Contractor shall schedule a conference at the Site for review of the preliminary Progress Schedule.

1) Attendees shall include Contractor, Engineer, Owner, and others as required.

2) Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the Progress Schedule and associated Network Diagram.

3) Owner reserves the right to not make progress payment to Contractor until acceptable Progress Schedule, Network Diagram, and other reports and schedule-related documents required are submitted to Engineer.

b. Submit three copies each of acceptable Progress Schedule with Network Diagram, reports, and other schedule-related documents required to accompany the initial acceptable Progress Schedule, in accordance with the Submittals Article of this Section.

c. Initially-accepted Progress Schedule shall be identified as the baseline Progress Schedule.

B. Progress Schedule Updates:

1. Update the Progress Schedule each month. If during progress of the Work events develop that necessitate changes in the initially accepted Progress Schedule (i.e., baseline Progress Schedule), identify updated Progress Schedules sequentially as Progress Schedule Revision 1, 2, 3, and continuing in sequence as required.

2. The update to the Progress Schedule shall be based on retained logic. Progress override logic is not allowed.

3. Required scheduling software, and schedule organization, format, and content for updated Progress Schedules are identical to that required in this Section for initial Progress Schedules.

4. Submit to Engineer three hard copies of the updated Progress Schedule, Network Diagram, narrative report, and other schedule-related reports and documents required.

5. Submit updated Network Diagrams when revisions are proposed to the logic. Indicate in the narrative report delays that have occurred since the previous updated Progress Schedule. Engineer will not recommend payment by Owner of progress payments until updated Progress Schedule is received, reviewed, and accepted by Engineer. Payment for out-of-sequence Work is not allowed.

C. Distribution:

1. Distribute copies of the reviewed schedules to:

a. Job site file.

b. Subcontractors.

c. Other concerned parties.

1.04 NETWORK DIAGRAMS (PERT CHARTS)

A. General:

1. Contractor shall prepare and submit Network Diagrams, as generated using the scheduling software on paper of the size indicated for Progress Schedules in this Section.

2. Group Network Diagrams by Area and show the order and interdependence of Activities and sequence and quantities in which the Work will be accomplished.

3. Do not use match lines on Network Diagrams. Depict interrelationships to or from Activities outside the Area shown using an Activity symbol with Activity number and description.

4. In preparing Network Diagrams, comply with the basic concept of precedence diagramming method (PDM) network scheduling to show how start of a given

Activity depends on completion of preceding Activities, and how the Activity's completion may affect the start of subsequent Activities.

5. Level of schedule detail shall define the day-to-day Activities of the Work.

B. Content:

1. Clearly indicate the Critical Path and distinguish the Critical Path from other paths on the network.

2. Organize Network Diagrams by grouping into major Work Areas, including one for procurement of materials and equipment, and by specific Activity within each Area.

3. Logic diagrams shall include the following:

a. Activity number.

b. Activity description.

c. Activity duration (in work days).

d. Critical Path denoted.

e. Float for each Activity.

f. Activity or System designation.

g. Coded Area designation.

h. Responsibility code (e.g., each prime contractor and their respective Subcontractors, trade, operation, Suppliers, or other entity responsible for accomplishing an Activity).

i. Shift number (if more than one shift per day is to be employed).

C. Revisions:

1. When conditions develop that require revisions to logic or durations of the Network Diagram associated with the initially accepted Progress Schedule (i.e., baseline Progress Schedule), identify updates to the Network Diagram in the same manner required in this Section for Progress Schedule updates.

2. Revision of the logic or durations from the baseline Progress Schedule initially accepted by Engineer shall be submitted to Engineer for acceptance.

3. Incorporate into the Progress Schedule revisions to logic or duration accepted by Engineer and include in monthly narrative report both a description of revisions and listing of Activities affected by revisions.

4. Changes resulting from Change Orders and other additions or deletions, shall be fully incorporated into the Progress Schedule and Network Diagram on the first update after the associated Change Order is approved by Owner, including adjustments to the Contract Price.

1.05 TIME IMPACT ANALYSIS

A. General:

1. Prepare and submit a time impact analysis when one or more of the following occurs:

a. Change Order proposal is prepared

b. When delays are experienced.

2. Time impact analysis shall illustrate the influence of each Change Order or delay.

3. Each time impact analysis shall include a sketch (fragnet) demonstrating how Contractor proposes to incorporate the changes in the Project or, as applicable, delays into the Progress Schedule. Fragnet shall include all logic, and additions required as result of said Change Order or delay.

4. Fragnet shall show all CPM logic revisions for the Work associated with the Change Order or delay and its relationship to other Activities in the Network Diagram.

5. Timing of Time Impact Analysis:

a. Submit each time impact analysis within 7 days after the following, as applicable:

1) Start of the delay.

2) After the submittal of Change Order proposal to Engineer

B. Evaluation by Engineer and Acceptance:

1. Engineer’s evaluation of each time impact analysis comprised of complete information will be completed in timely manner after Engineer’s receipt. Changes in the Contract Times will be made only by Change Order.

2. When mutual agreement is reached between the parties, on effect of the change or delay in the Project, incorporate into the next Progress Schedule update the associated fragnets illustrating the influence of changes and delays.

1.06 RECOVERY SCHEDULES

A. General:

1. When updated Progress Schedule indicates that the ability to comply with the Contract Times falls 30 or more days behind schedule, and there is no excusable delay, Change Order, or Work Change Directive to support an extension of the Contract Times, Contractor shall prepare and submit a recovery Progress Schedule demonstrating Contractor's plan to accelerate the Project to achieve compliance with the Contract Times (i.e., "recovery" schedule) for Engineer's acceptance.

2. Submit recovery schedule within 14 days after submittal of updated Progress Schedule where need for recovery schedule is indicated.

B. Implementation of Recovery Schedule:

1. At no additional cost to Owner, Contractor shall do one or more of the following:

a. Furnish additional labor and construction equipment

b. Employ additional work shifts

c. Expedite procurement of materials and equipment to be incorporated into the Work

d. Other measures necessary to complete the Work within the Contract Times.

2. Upon acceptance of recovery schedule by Engineer, incorporate recovery schedule into the next Progress Schedule update.

C. Lack of Action: Contractor's refusal, failure or neglect to submit a recovery schedule, shall constitute reasonable evidence that Contractor is not prosecuting the Work or separable part thereof with the diligence that will ensure completion within the Contract Times. Such lack of action shall constitute sufficient basis for Owner to exercise remedies available to Owner under the Contract Documents

1.07 USE OF FLOAT

A. Total Float and Contract Float belong to the Project and may be used by Owner, Engineer, or Contractor to accommodate modifications, regardless of origination, in the Work or to mitigate the effect of events that may delay performance or completion of the Work.

B. Changes or delays that influence scheduled Work Activities with Float and that do not extend the critical path will not be justification for an extension in Contract Times.

1.08 SUBMITTALS

A. Action/Informational Submittals:

1. Initial Progress Schedules:

a. Preliminary Progress Schedule with associated Network Diagrams.

b. Acceptable Progress Schedule with associated Network Diagrams.

2. Progress Schedule Updates:

a. Progress Schedule updates shall comply with requirements of this Section, and shall include updated Progress Schedule, updated Network Diagram when relationships among Activities are changed.

b. Submit updated Progress Schedule at each progress meeting. If a Progress Schedule remains unchanged from one progress meeting to the next, submit a written statement to that effect.

3. Time Impact Analyses: Submit in accordance with this Section.

4. Recovery Schedule: Submit in accordance with this Section.

5. Qualifications: Progress Schedule preparer, and other personnel that will assist Progress Schedule preparer in preparing and maintaining the Progress Schedule.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

[END OF SECTION]

SECTION 01370

SCHEDULE OF VALUES

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. General requirements for preliminary and final Schedule of Values.

2. Schedule of Values and the Progress Schedule updates specified in Section 01310 – Construction Progress Schedules, shall be basis for preparing each Application for Payment. Schedule of Values may be used as a basis for negotiating price of changes, if any, in the Work.

1.02 ADMINSTRATIVE REQUIREMENTS

A. General Requirements:

1. Schedule of Values shall include breakdown of costs for materials and equipment, installation, and other costs used in preparing the Bid by Contractor and each Subcontractor. List purchase and delivery costs for materials and equipment for which Contractor may apply for payment as stored materials.

2. Include separate amounts for each Specification Section in the Contract Documents by structure, building, and work area.

3. Identify each line item with number corresponding to the associated Specification Section number. List sub-items of major products or systems, as appropriate or when requested by Engineer.

4. Include in Schedule of Values unit price payment items with their associated quantity. Provide in the Schedule of Values detailed breakdown of unit prices when required by Engineer.

5. Include in Schedule of Values itemized list of Work for each major part of the Contract, for each payment item.

6. Sum of individual values shown on the Schedule of Values shall equal the total of associated payment item. Sum of payment item totals in the Schedule of Values shall equal the Contract Price.

B. Specific Requirements:

1. Include in each line item a directly proportional amount of Contractor's overhead and profit. Do not include overhead and profit as separate item(s).

2. Include separate line item for each allowance, and for each unit price item

3. Include line item for bonds and insurance in amount not exceeding two percent of the Contract Price. This may be applied for in the first Application for Payment.

4. Include items for the General Conditions, permits (when applicable), construction Progress Schedule, and other items required by Engineer. Include such items in Applications for Payment on schedule accepted by Engineer

5. Line items for Site maintenance such as dust control, snow removal, compliance with storm water pollution prevention plans and permits, spill prevention control and countermeasures plans, and for construction photographic documentation; temporary utilities and temporary facilities, field offices, temporary controls, field engineering, and similar Work shall be included in the Schedule of Values and proportioned in Applications for Payment throughout duration of the Work.

6. Include separate line items under each appropriate payment item for mobilization and demobilization. Document for Engineer the activities included in mobilization and demobilization line items.

    a. Mobilization will be limited to two percent of the Contract Price, and will be paid in two payments, each of 50 percent of total amount for mobilization.

    b. Demobilization shall be at least one percent of the Contract Price and shall be included with the Application for Payment following Substantial Completion, or other schedule accepted by Engineer.

7. Costs for submittals, operations and maintenance manuals, field testing, and training of operations and maintenance personnel shall be as follows, unless otherwise accepted by Engineer:

    a. Up to three percent of total cost of each item (including overhead and profit), including materials and equipment, and installation, may be apportioned to testing and included in the Application for Payment following Engineer’s acceptance of the associated written Site testing report(s).

8. Sub-schedule of Unit Material Values:

    a. Submit a sub-schedule of unit costs and quantities for products specified under a unit cost allowance and for products on which progress payments will be requested for stored products.

    b. The form of submittal shall parallel that of the Schedule of Values, with each item identified using the same corresponding line item in the Schedule of Values.

    c. The unit quantity for bulk materials shall include an allowance for normal waste.

d. The unit values for the materials shall be broken down into:

1) Cost of the material, delivered and unloaded at the site, with taxes paid.

2) Installation costs, including Contractor's overhead and profit.

e. The installed unit value multiplied by the quantity listed shall equal the cost of that item in the Schedule of Values.

C. Preliminary Schedule of Values: Submit preliminary Schedule of Values to Engineer for initial review. Contractor shall incorporate Engineer’s comments into the Schedule of Values and resubmit to Engineer. Engineer may require corrections and re-submittals until Schedule of Values is acceptable.

D. Time Frame for Submittals:

1. Submit preliminary Schedule of Values within ten days of date that the Contract Times commence running in accordance with the Notice to Proceed, or as otherwise required by the Contract Documents.

2. Submittal of the Schedule of Values shall be in accordance with the General Conditions. Engineer will not accept Applications for Payment without an acceptable Schedule of Values.

3. When required by Engineer, promptly submit updated Schedule of Values to include cost breakdowns for changes in the Contract Price.

1.03 SUBMITTALS

A. Submit the following:

1. Electronic pdf copy of preliminary Schedule of Values.

2. Electronic pdf copy of final Schedule of Values.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

[END OF SECTION]

SECTION 01410

TESTING LABORATORY SERVICES

PART 1 – GENERAL

1.01 SUMMARY

A. This specification addresses requirements for testing services specifically required to be provided by the Contractor. This section does not apply to any testing required to be provided by the Owner or Owner's representative.

B. This section does not apply to any Special Inspections. Special Inspections cannot be provided by the Contractor in accordance with the governing Building Code.

C. Contractor shall employ and pay for independent testing entity to perform specified services covered by this specification. Entity selected shall be subject to approval by Engineer.

D. Inspection, sampling, and testing shall be as specified in the individual Specification Sections.

E. Related Sections, but not limited to, the following:

1. Section 02200 – Earthwork.

2. Section 02640 – Utility Structures.

3. Division 03 specifications.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Owner's Responsibilities:

1. The Owner will authorize from the testing allowance the cost of one (1) series of initial tests only, on the area or item being evaluated. The Contractor shall pay for costs of additional testing as required due to improper performance of Work.

B. Contractor's Responsibilities:

1. Provide to laboratory representative samples of materials to be tested, in required quantities.

2. Provide labor and facilities:

a. To provide access to the Work to be tested, and where required, to Suppliers' operations.

b. To obtain and handle samples at the Site, in accordance with testing facility's procedures.

c. To facilitate inspections and tests.

d. For testing entity's exclusive use for storage and curing of test samples.

e. Forms for preparing concrete test beams and cylinders.

3. Notify testing entity and Engineer sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.

4. When tests cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence.

5. Arrange with testing entity and pay for additional services, sampling, and testing required for Contractor's convenience.

6. Provide to testing entity the preliminary design mix proposed for concrete, and other material mixes that require testing by the testing laboratory.

C. Testing Entity's Responsibilities:

1. Cooperate with Contractor and Engineer and provide qualified personnel promptly when notified.

2. Perform specified inspections, sampling, and testing of materials and methods of construction; comply with applicable standards; ascertain compliance with requirements of the Contract Documents.

3. Promptly notify Engineer and Contractor of irregularities or deficiencies in the Work observed during performance of services.

4. Submit specified quantity of report copies of inspections and tests to Contractor and Engineer.

5. Perform additional tests and services as required to ensure compliance with the Contract Documents.

D. Limitations of Authority of Testing Laboratory

1. Laboratory is not authorized to release, revoke, alter, or enlarge on requirements of Contract Documents, approve or accept any portion of the Work, or perform any duties of the Contractor.

E. Report Requirements:

1. Electronic Submittal of testing reports.

2. Include the following information:

    a. Date issued.

    b. Project title, number, and name of the Site.

    c. Testing laboratory name and address.

    d. Name and signature of inspector or person obtaining samples.

    e. Date of inspection or sampling.

    f. Record of temperature and weather.

    g. Date of test.

    h. Identification of material or product tested and associated Specification Section.

    i. Location in the Project.

    j. Type of inspection or test.

    k. Results of tests and observations regarding compliance with the Contract Documents.

1.03 SUBMITTALS

A. Submit copies of material and product test reports where required by the Contract Documents and as requested by Engineer.

B. Quality Assurance Submittals:

1. Qualifications statement indicating experience and facilities for tests required under the Contract Documents.

2. Copy of report of inspection of facilities during most recent NIST inspection tour. Include memorandum of remedies of deficiencies reported during inspection.

3. Copy of certificate of calibration for each instrument or measuring device proposed for use, by accredited calibration agency.

1.04 QUALIFICATIONS

A. Comply with applicable requirements of ASTM E329, Specification for Agencies Engaged in Construction Inspection and/or Testing.

B. Laboratory shall be authorized to operate in the same State or Commonwealth as the Site. Where applicable, laboratory shall be certified by the authority having jurisdiction for the types of testing required.

C. Testing equipment used by laboratory will be calibrated at maximum twelve month intervals by devices of accuracy traceable to either NIST's Standard Reference Materials (SRM), ISO 17025, General Requirements for the Competence of Testing and Calibration Laboratories, or certified by State, Commonwealth, or local bureau of weights and measures, or values of natural physical constants generally accepted in the engineering and scientific community.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

[END OF SECTION]

SECTION 01510

TEMPORARY UTILITIES

PART 1 – GENERAL

1.01 SUMMARY

A. Contractor shall provide temporary utilities required for the Project and to complete the Work.

1. Make arrangements with utility service companies for temporary services and obtain required permits and approvals for temporary utilities.

2. Pay utility service costs, including connection fees, required for the Work as needed.

3. Continuously maintain adequate utilities for all purposes during the Project, until removal of temporary utilities and temporary facilities. At minimum, provide and maintain temporary utilities through Substantial Completion and removal of temporary field offices and sheds.

4. Maintain, including cleaning, temporary utilities and continuously provide consumables as required.

5. Temporary utilities and temporary facilities shall be adequate for personnel using the Site and requirements of Project.

6. Provide temporary utilities and temporary facilities in compliance with Laws and Regulations and, when applicable, requirements of utility owners.

B. Provide the following temporary utilities:

1. Electricity and lighting.

2. Telephone and communications.

3. Heating.

4. Sanitary facilities.

5. Water service.

6. First-aid facilities.

7. Fire protection.

1.02 ADMINSTRATIVE REQUIREMENTS

A. Use of Owner's System:

1. Existing Utility Systems: Do not use systems in existing buildings or structures for temporary utilities without Owner's written permission and mutually acceptable basis agreed upon by the parties for proportionate sharing of costs between Owner and Contractor.

2. Use of Permanent Utility Systems Provided Under the Project:

a. Permanent lighting, water, heating, ventilating, and fire protection systems and first-aid facilities may be used to provide temporary utilities and temporary facilities if the following are met:

1) Obtain Owner's written permission to use permanent systems.

2) Permanent systems provided under this project that are to be used for temporary utilities or as temporary facilities shall have achieved Substantial Completion, including complete functionality of all controls, prior to their use by Contractor as temporary utilities/facilities.

3) Contractor shall pay all costs while using permanent system, including operation, maintenance, replacement of consumables, and provide replacement parts.

b. Do not use the following permanent facilities:

1) Telephone and communication facilities.

2) Sanitary facilities.

1.03 SYSTEM DESCRIPTION

A. Electricity and lighting:

1. Contractor shall provide electrical and lighting service for construction field offices, sheds, storage containers, etc. and as required for the Work.

2. General 120/240 V service requirements:

a. Contractor shall provide 120/240 V, single phase, 3-wire temporary system for small power requirements and general lighting.

b. Contractor shall provide main disconnect, overcurrent protection, meter outlet, branch circuit breakers, and wiring for temporary service to the Contractor's field office service connections. Contractor shall provide equipment and appurtenances in accordance with electricity service provider and applicable standards and codes

c. Contractor shall register the 120/240 V electrical service meter in the Contractor's name and shall be responsible for electrical charges at no additional cost to the Owner.

d. Contractor shall provide electrical service other than 120/240 V, single phase, 3-wire service as required for the Work at the Contractor's own expense.

3. General lighting requirements:

a. Contractor shall provide a minimum of 10 foot candles for enclosed and partially enclosed structures for performing the Work.

b. Contractor shall provide a night lighting circuit for security. Light intensity shall be a minimum of 2 foot candles.

c. In Engineer's field office, Contractor shall provide a minimum of 50 foot-candles at desk top height.

4. Contractor shall energize the electrical system 15-minutes prior to and following regular work day hours at the Site. Required from Monday through Friday, all inclusive.

5. Contractor shall energize the night lighting system at end of typical working day and de-energize at start of typical working day. System shall be continuously energized on Saturdays, Sundays, and holidays.

6. Contractor shall provide an independent grounding cable connected directly to the structure, building, and equipment for erection and fabrication by electrical welders. Grounding by adjacent conduit, piping, etc. shall be prohibited at the Site.

7. Contractor shall coordinate usage of temporary electrical system with Subcontractors, Suppliers, and Owner including the following:

a. Usage is suitable for 120V, single phase, 60 Hz operation with a maximum operating input of 1,500 volt-amperes.

b. One unit connected to a single outlet.

c. Restrict usage in case of overloading circuits to correct loading.

B. Cellular mobile phones: Contractor shall provide cell phone for its operations at the Site and for summoning emergency medical assistance.

C. Heating:

1. Contractor shall provide temporary heating, ventilation coverings and enclosures necessary to protect the Work and materials against wetness and temperature damage, to dry out the Work, and to facilitate the Work in structures.

2. Equipment, fuel, materials, personnel and methods used shall be adequate to maintain critical installation temperatures and ventilation of Work at all times in areas where necessary to perform the Work.

3. Enclosed structures shall have a minimum temperature of 50°F, unless otherwise specified, where Work is performed.

4. Contractor shall provide sufficient heat to maintain a minimum temperature of 65°F before and during application of interior finishing, painting, coating, etc.

5. Contractor shall replace any Work damaged by dampness or insufficient/abnormal heating at no cost to the Owner.

D. Sanitary facilities:

1. Contractor shall provide suitably-enclosed chemical or self-contained toilets for Contractor's employees and visitors to the Site. Location of temporary toilets shall be acceptable to Owner and screened from public observation.

2. Facilities shall be maintained and provided in accordance with State or Commonwealth Labor Regulations and local ordinances. Contents shall be removed and disposed in accordance with local and state or commonwealth regulations as required.

3. Contractor shall be prohibited from committing nuisances within, on, or in the vicinity of the Site.

E. Water service:

1. Contractor shall provide temporary water service for the Work including for construction purposes, sanitary facilities, fire protection, field office, and cleaning purposes.

2. Where new water services are being installed as part of the project, the water service will be made available to after installation and acceptance, and with City's written approval. All City water shall be metered using a Pinellas-County approved flow meter and connected to a backflow preventor, where one does not exist.

F. First-aid facilities:

1. Contractor shall provide temporary first-aid stations at or immediately adjacent to the Site's major work areas. Contractor shall provide temporary first-aid stations inside its temporary field office. Locations of first-aid stations shall be determined by Contractor's safety representative.

2. Contractor shall provide list of emergency telephone numbers at each hardwired telephone at the Site. List shall be in accordance with the list of emergency contact information required in Section 01200 – Project Meetings.

G. Fire protection:

1. Contractor shall comply with NFPA 241, Safeguarding Building Construction, Alteration, and Demolition Operations, and requirements of fire marshals and authorities having jurisdiction at the Site.

2. Contractor shall provide temporary fire exits, fire extinguishers, hoses and safety devices as required by authorities having jurisdiction.

3. Contractor shall notify Engineer, Owner, and fire marshals in the event of fire at the Site including, but not limited to, fuel tanks and similar hazardous utilities and devices. Contractor shall cooperate with Owner of fuel tank and utilities to prevent occurrence of fire or explosion.

4. Contractor shall perform safety precautions and comply with fire marshal's instructions in the event of fire.

PART 2 – PRODUCTS

2.01 EQUIPMENT

A. Materials and equipment for temporary systems may be new or used but shall be adequate for purposes intended and shall not create unsafe conditions and shall comply with Laws and Regulations.

B. Provide required materials, equipment, and facilities, including piping, wiring, and controls.

C. Electrical system requirements: System shall consist of wiring, switches, insulated supports, poles, fixtures, sockets, receptacles, lamps, guards, cutouts and fuses as required for completion of the Work.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install temporary facilities in neat, orderly, manner, and make structurally, mechanically, and electrically sound throughout.

B. Location of Temporary Utilities and Temporary Facilities:

1. Locate temporary systems for proper function and service.

2. Temporary systems shall not interfere with or provide hazards or nuisances to: the Work under this and other contracts, movement of personnel, traffic areas, materials handling, hoisting systems, storage areas, finishes, and work of utility companies.

3. Do not install temporary utilities on the ground, with the exception of temporary extension cords, hoses, and similar systems in place for short durations.

C. Modify and extend temporary systems as required by progress of the Work.

3.02 MAINTENANCE

A. Maintain temporary systems to provide safe, continuous service as required.

B. Properly supervise operation of temporary systems:

1. Enforce compliance with Laws and Regulations.

2. Enforce safe practices.

3. Prevent abuse of services.

4. Prevent nuisances and hazards caused by temporary systems and their use.

5. Prevent damage to finishes.

6. Ensure that temporary systems and equipment do not interrupt continuous progress of construction.

C. At end of each work day, check temporary systems and verify that sufficient consumables are available to maintain operation until work is resumed at the Site. Provide additional consumables if the supply on hand is insufficient.

D. Contractor shall replace broken and burned out lamps, blown fuses, and damaged wiring and appurtenances as required to maintain adequate and safe operating conditions.

E. Contractor shall permit subcontractors and others at a mutually agreed arrangement to use temporary electrical system that meet the following requirements:

1. Equipment are suitable for 120 V, single phase, 60 Hz operation.

2. Operating input does not exceed 1,500 volt-amperes.

3. Single piece of equipment connected to one outlet.

4. Contractor shall restrict use of equipment as required to prevent overloading circuits.

3.03 CLOSEOUT ACTIVITES

A. Completely remove temporary utilities, facilities, equipment, and materials when no longer required. Repair damage caused by temporary systems and their removal and restore the Site to condition required by the Contract Documents; if restoration of damaged areas is not specified, restore to preconstruction condition.

B. Contractor is responsible for and shall return to original condition those portions of permanent electric system used in completing the Work.

C. Where temporary utilities are disconnected from existing utility, provide suitable, watertight or gastight (as applicable) cap or blind flange, as applicable, on service line, in accordance with requirements of utility owner.

D. When permanent utilities and systems that were used for temporary utilities, upon Substantial Completion replace all consumables such as filters and light bulbs and parts used during the Work.

END OF SECTION

SECTION 01530

PROTECTION OF WORK AND PROPERTY

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Contractor shall be responsible for the preservation and protection of property adjacent to the work site against damage or injury as a result of his operations under this Contract. Any damage or injury occurring on account of any act, omission or neglect on the part of the Contractor shall be restored in a proper and satisfactory manner or replaced by and at the expense of the Contractor to an equal or superior condition than previously existed.

B. Contractor shall comply promptly with such safety regulations as may be prescribed by the Owner or the local authorities having jurisdiction and shall, when so directed, properly correct any unsafe conditions created by, or unsafe practices on the part of, his employees. In the event of the Contractor's failure to comply, the Owner may take the necessary measures to correct the conditions or practices complained of, and all costs thereof will be deducted from any monies due the Contractor. Failure of the Engineer to direct the correction of unsafe conditions or practices shall not relieve the Contractor of his responsibility hereunder.

C. In the event of any claims for damage or alleged damage to property as a result of work under this Contract, the Contractor shall be responsible for all costs in connection with the settlement of or defense against such claims. Prior to commencement of work in the vicinity of property adjacent to the work site, the Contractor, at his own expense, shall take such surveys as may be necessary to establish the existing condition of the property. Before final payment can be made, the Contractor shall furnish satisfactory evidence that all claims for damage have been legally settled or sufficient funds to cover such claims have been placed in escrow, or that an adequate bond to cover such claims has been obtained.

1.02 PROTECTION OF WORK AND MATERIAL

A. During the progress of the work and up to the date of final payment, the Contractor shall be solely responsible for the care and protection of all work and materials covered by the Contract.

B. All work and materials shall be protected against damage, injury, or loss from any cause whatsoever, and the Contractor shall make good any such damage or loss at his own expense. Protection measures shall be subject to the approval of the Engineer.

1.03 BARRICADES, WARNING SIGNS AND LIGHTS

A. The Contractor shall provide, erect and maintain as necessary, strong and suitable barricades, danger signs and warning lights along all roads accessible to the public, as required by the authority having jurisdiction, to provide safety to the public. All barricades and obstructions along public roads shall be illuminated at night and all lights for this purpose shall be kept burning from sunset to sunrise.

B. Each Contractor shall provide and maintain such other warning signs and barricades in areas of and around their respective work as may be required for the safety of all those employed in the work, the Owner's operating personnel, or those visiting the site.

C. The wording off all project signage shall be subject to Owner approval. No other signage other than Owner-approved project signage shall be permitted.

1.04 EXISTING UTILITIES AND STRUCTURES

A. The term existing utilities shall be deemed to refer to both publicly owned and privately owned utilities such as electric power and lighting, telephone, water, gas, storm drains, process lines, sanitary sewers and all appurtenant structures.

B. Where existing utilities and structures are indicated on the Drawings, it shall be understood that all of the existing utilities and structures affecting the work may not be shown and that the locations of those shown are approximate only. It shall be the responsibility of the Contractor to ascertain the actual extent and exact location of existing utilities and structures. In every instance, the Contractor shall notify the proper authority having jurisdiction and obtain all necessary directions and approvals before performing any work in the vicinity of existing utilities.

C. Prior to beginning any excavation work, the Contractor shall, through field investigations, determine any conflicts or interferences between existing utilities and new utilities to be constructed under this project. This determination shall be based on the actual locations, elevations, slopes, etc., of existing utilities as determined in the field investigations, and locations, elevation, slope, etc. of new utilities as shown on the Drawings. If an interference exists, the Contractor shall bring it to the attention of the Engineer as soon as possible. If the Engineer agrees that an interference exists, he shall modify the design as required. Additional costs to the Contractor for this change shall be processed through a Change Order as detailed elsewhere in these Contract Documents. In the event the Contractor fails to bring a potential conflict or interference to the attention of the Engineer prior to beginning excavation work, any actual conflict or interference which does arise during the Project shall be corrected by the Contractor, as directed by the Engineer, at no additional expense to the Owner.

D. The work shall be carried out in a manner to prevent disruption of existing services and to avoid damage to the existing utilities. Temporary connections shall be provided, as required, to avoid interruption of existing services. Any damage resulting from the work of this Contract shall be promptly repaired by the Contractor at his own expense in a manner approved by the Engineer and further subject to the requirements of any

authority having jurisdiction. Where it is required by the authority having jurisdiction that they perform their own repairs or have them done by others, the Contractor shall be responsible for all costs thereof.

E. Where excavations by the Contractor require any utility lines or appurtenant structures to be temporarily supported and otherwise protected during the construction work, such support and protection shall be provided by the Contractor. All such work shall be performed in a manner satisfactory to the Engineer and the respective authority having jurisdiction over such work. In the event the Contractor fails to provide proper support or protection to any existing utility, the Engineer may, at his discretion, have the respective authority to provide such support or protection as may be necessary to protect the safety of such utility, and the costs of such measures shall be paid by the Contractor.

PART 2 – PRODUCTS

2.01 MATERIALS, GENERAL

A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.02 FENCING

A. Minimum fence height shall be six feet.

B. Open Mesh Fence:

1. No. 11 gauge, two inch mesh, 72 inches high galvanized chain link fabric, with extension arms and three strands of galvanized barbed wire.

2. Galvanized steel posts; 1 ½-inch line posts and two-inch corner posts.

2.03 BARRIERS

A. Materials are Contractor's option, as appropriate to serve required purpose.

PART 3 – EXECUTION

3.01 GENERAL

A. Install facilities of a neat and reasonably uniform appearance, structurally adequate for the required purposes.

B. Maintain barriers during entire construction period.

C. Relocate barriers as required by the progress of construction.

3.02 FENCES

A. Provide and maintain fences necessary to assure security of the Site during construction to keep unauthorized people and animals from accessing the Site when construction is not in progress.

B. Gates shall have locks; and keys shall be furnished to the Owner.

C. Provide additional security measures as deemed necessary and approved by the Engineer.

3.03 TREE AND PLANT PROTECTION

A. Preserve and protect existing trees and plants at site which are designated to remain, and those adjacent to site.

B. Consult with the Owner and remove roots and branches which will interfere with construction.

C. Employ qualified and certified tree trimmer to remove branches and treat cuts.

D. Provide temporary barriers to a height of six feet, around each, or around each group, of trees and plants.

E. Protect root zones of trees and plants:

1. Do not allow vehicular traffic or parking.

2. Do not store materials or products.

3. Prevent puddling or continuous running water.

F. Carefully supervise excavating, grading and filling, and other construction operations in the vicinity of the trees and plant to prevent damage.

G. Replace, or suitably repair, trees and plants designated to remain which are damaged or destroyed due to construction operations.

3.04 REMOVAL

A. Completely remove barricades and temporary measures after construction has progressed to the point that they are no longer needed and with Engineer approval.

B. Repair damage caused by construction. Fill and grade areas of the site to the required elevations and clean up the area.

[END OF SECTION]

SECTION 01550

CONTRACTOR ACCESS AND PARKING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Contractor shall provide and maintain temporary laydown and employee parking areas and appurtenances required during the Project for use by Contractor, other contractors employed on the Project, Owner's, and emergency vehicles.

2. Laydown areas shall be as shown on the Drawings or as mutually agreed between Owner and Contractor during the pre-construction meeting.

3. Laydown and employee parking areas shall be designed and maintained by Contractor and shall be fully passable to vehicles in all weather conditions.

1.02 ADMINSTRATIVE REQUIREMENTS

A. Access roads:

1. Contractor shall construct and maintain such temporary access roads as required to perform the Work.

2. Contractor shall construct access roads, where possible, in locations over the areas of future road systems.

3. Access roads shall be located within the property lines of the Owner unless the Contractor independently secures easements for use and convenience.

   a. Contractor shall submit written documentation to the Engineer for Contractor secured easements across privately held property.

   b. Easement agreements shall specify terms and conditions of use and provisions for Site restoration.

   c. Written release from property owner certifying that terms of the easement agreement have been complied with by the Contractor shall be furnished to the Engineer prior to final payment.

4. Provide access for emergency vehicles.

5. Maintain driveways a minimum of 15 feet wide, between and around combustible materials in storage and mobilization areas.

6. Maintain traffic areas free as possible of excavated materials, construction equipment, products, and debris.

7. Keep fire hydrants and water control valves free from obstruction and accessible for use.

8. Provide traffic control devices as required by governing authorities along established public thoroughfares which will be used as haul routes to site access.

B. Use of existing access roads:

1. Contractor will be allowed to use Owner's existing roads as shown on the Drawings.

2. Prevent interference with traffic on existing roads and parking areas. At all times, keep access roads and entrances serving the Site clear and available to Owner, Owner's employees, emergency vehicles, and other contractors. Do not use access roads or Site entrances for parking or storage of materials or equipment.

3. Contractor shall indemnify and hold harmless Owner and Engineer from expenses caused by Contractor's operations over existing roads and parking areas.

4. Schedule deliveries to minimize use of driveways and Site entrances.

5. Contractor shall suitably maintain existing access road at Contractor's expense for the duration of the Contract time.

C. Contractor parking areas:

1. Contractor employee vehicles shall park in area(s) designated by Owner or as shown on the Drawings.

2. Contractor shall construct and maintain parking area at the Site.

D. State and local regulations:

1. Contractor shall obtain and pay all cost associated with bonds required by authorized entity (i.e., Florida Department of Transportation) for the use of State maintained roads.

2. Contractors shall obey traffic laws and comply with requirements, rules, and regulations of the authorized entity (i.e., Florida Department of Transportation), including local authorities having jurisdiction, to maintain warning signs, lights, barriers, etc. for the protection of traffic on public roadways.

E. Site security:

1. Refer to Section 01530 – Protection of Work and Property.

F. Dust control:

1. Contractor shall take measures to control dust from Contractor's operations and prevent spillage of excavated materials onto access roads.

2. Provide dust control measures in accordance with Section 01560 – Temporary Controls.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

[END OF SECTION]

SECTION 01560

TEMPORARY CONTROLS

PART 1 – GENERAL

1.01 SUMMARY

A. Contractor shall provide and maintain methods, equipment, and temporary construction as required to control environmental conditions at the Site and adjacent areas.

B. Maintain controls until no longer required.

C. Temporary controls include, but are not limited to, the following:

1. Dust control.

2. Noise controls.

3. Pest and rodent control.

4. Pollution control.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 DUST CONTROL

A. Contractor shall take measures to control dust from Contractor's operations and prevent spillage of excavated materials on public roads.

B. Contractor shall remove spillage of excavated materials, debris and dust from public roads by methods approved by Engineer.

C. Contractor shall provide temporary dust-proof partitions where required to protect unaltered portions of existing structures and facilities and as directed by Engineer or Owner. Temporary partitions shall be provided where demolition Work is required, to protect equipment and material, and shall consist of the following:

1. Wood studs with plywood on both sides and extend from floor to ceiling.

2. Closure plate at floor and ceiling.

3. One door (minimum) with hardware.

D. Contractor shall refer to applicable sections of local and state/commonwealth regulations on dust control for additional guidance.

1. Contractor shall apply water at locations, quantities, and frequencies required by Engineer to control dust for nuisance prevention to Owner, Engineer, and properties in the vicinity of the Site.

2. Dust control and cleaning measures shall be provided at no additional cost to the Owner.

3.02 NOISE CONTROL

A. Contractor's vehicles and equipment shall minimize noise emissions to greatest degree practicable. Provide mufflers, silencers, and sound barriers when necessary.

B. Noise levels shall comply with Laws and Regulations, including OSHA requirements and local ordinances.

C. Noise emissions shall not interfere with the work of Owner or others.

3.03 PEST AND RODENT CONTROL

A. Provide rodent and pest control as required to prevent infestation of the Site and storage areas.

B. Employ methods and use materials that do not adversely affect conditions at the Site or on adjoining properties.

C. In accordance with laws and regulations, promptly and properly dispose of pests and rodents trapped or otherwise controlled.

3.04 POLLUTION CONTROL

A. General:

1. Provide means, methods, and facilities required to prevent contamination of soil, water, and atmosphere caused by discharge of noxious substances from construction operations.

2. Equipment used during construction shall comply with Laws and Regulations.

B. Spills and Contamination:

1. Provide equipment and personnel to perform emergency measures required to contain spills and to remove contaminated soils and liquids.

2. Excavate contaminated material and properly dispose of off-site, and replace with suitable compacted fill and topsoil.

C. Protection of Surface Waters: Implement special measures to prevent harmful substances from entering surface waters. Prevent disposal of wastes, effluents, chemicals, and other such substances in or adjacent to surface waters and open drainage routes, in sanitary sewers, or in storm sewers.

D. Atmospheric Pollutants:

1. Provide systems for controlling atmospheric pollutants related to the Work.

2. Prevent toxic concentrations of chemicals and vapors.

3. Prevent harmful dispersal of pollutants into atmosphere.

E. Solid Waste:

1. Provide systems for controlling and managing solid waste related to the Work.

2. Prevent solid waste from becoming airborne, and from discharging to surface waters and drainage routes.

3. Properly handle and dispose of solid waste.

[END OF SECTION]

SECTION 01570

TRAFFIC CONTROL

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Provide, operate and maintain equipment, services and personnel, with traffic control and protective devices, as required to expedite vehicular traffic flow around the construction area.

B. Remove temporary equipment and facilities when no longer required, restore grounds to original, or to specified conditions.

1.02 REFERENCES

A. Traffic regulation shall be in accordance with FDOT Roadway and Traffic Design Standards, Manual on Uniform Traffic Control Devices (MUTCD), and FDOT Standard Specifications, latest Editions.

1.03 TRAFFIC CONTROL PLAN

A. The Contractor shall prepare and submit a Maintenance of Traffic (MOT) plan, where required by the Contract Documents.

1.04 TRAFFIC SIGNALS AND SIGNS

A. Provide and operate traffic control and directional signals required to direct and maintain an orderly flow of traffic in all areas under Contractor's control, or affected by Contractor's operations.

B. Construction requiring traffic signal modification shall be reported to the Owner at least 72 hours prior to the commencement of such activities. All excavation work within 30 feet of any traffic signal shall be reported to the Owner at least 72 hours prior to its commencement.

C. All existing traffic signs shall remain visible throughout construction activities unless superseded by required construction signage.

1.05 FLAGMEN

A. Provide qualified and suitably equipped flagmen when construction operations encroach on traffic lanes, as required for regulation of traffic.

1.06 FLARES AND LIGHTS

A. Provide lights as required by FDOT MUTCD to clearly delineate traffic lanes and guide traffic, for use by flagmen in directing traffic, and to provide illumination of critical traffic and parking areas.

1.07 CONSTRUCTION PARKING CONTROL

A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Owner's operations, or construction operations.

B. Monitor parking of construction personnel's private vehicles.

C. Maintain free vehicular access to and through parking areas and driveways.

D. Prohibit parking on or adjacent to access roads, or in non-designated areas.

1.08 CONSTRUCTION VEHICLES

A. All slow moving construction vehicles shall have a slow moving sign visible from the rear of the vehicle.

B. All vehicles used for construction activities shall have audible back up warning devices.

1.09 ROAD CLOSURES

A. No road shall be closed prior to receiving approval from the Owner.

B. At least seven days prior to a proposed road closure, the Contractor shall submit to the Owner a complete MOT plan. This plan shall include the following minimum information:

1. Sketch of Site and all area roads, streets, and driveways.

2. Proposed detour route.

3. All necessary traffic control devices to be used.

4. Contractor’s emergency contact person name and phone number to be available 24 hours a day.

5. Estimated times/dates of road closure.

C. Only the Owner shall have the authority to approve an emergency City road closure.

PART 2 – PRODUCTS

2.01 MATERIALS

A. All traffic control devices shall meet or exceed FDOT standards.

B. All traffic signs shall have high intensity face material.

PART 3 – EXECUTION

3.01 MAINTENANCE AND INSPECTION

A. Upon notification by the Owner either verbally or in writing, the Contractor shall correct any noted deficiencies within one hour.

B. Inspection of all traffic control items shall be performed by Contractor at least twice per day. One of these inspections shall be at the end of the workday or at night.

[END OF SECTION]

SECTION 01610

PRODUCT REQUIREMENTS AND OPTIONS

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. Common requirements for products.

2. Contractor's options for selecting products.

3. Requirements for consideration of "or equal" products.

4. Warranty requirements of products.

1.02 REFERENCES

A. Definitions:

1. "Products" includes materials, equipment, machinery, components, fixtures, systems, and other goods incorporated in the Work. Products do not include machinery and equipment used for preparing, fabricating, conveying, erecting, or installing the Work. Products include Owner-furnished goods incorporated in the Work where use of such goods is specifically required in the Contract Documents.

2. "Special Warranties" includes additions or modifications to standard warranty requirements specified in the Contract Documents.

1.03 SUBMITTALS

A. Warranty Log Book:

1. Submit warranty log book prepared specifically for this Project. Submittal shall include a summary listing of all equipment and material warranties furnished in the Contract, date received, and start/end date of warranty period. Individual warranty documentation shall be provided in the submittal.

2. Submit prior to submittal of final Application for Payment.

B. Patent Documentation: Submit licensing arrangement and agreement documentation.

1.04 REQUIREMENT

A. Common Products:

1. Provide products that have not been previously incorporated into another project or facility unless otherwise indicated in the Contract Documents.

2. Provide products of the same generic kind from a single source.

3. Provide products complete with accessories, trim, finish, fasteners, and other items shown, indicated, or required for a complete installation for the indicated use and performance.

4. Standard Products: When available, and unless custom or nonstandard options are specified or indicated, provide standard products of types that have been produced and used successfully in similar situations on other projects.

5. Visual Matching: Where required in the Contract Documents, provide products that match referenced existing construction, approved mock-ups, or approved Sample, as determined by Engineer.

6. Where the Contract Documents include the phrase “as selected” for product color, finish pattern, option, or similar phrase, provide products selected by Engineer as follows:

    a. Standard Range: Where the Contract Documents include the phrase “standard range of colors, patterns, textures” or similar phrase, provide color, pattern, density, or texture selected by Engineer from manufacturer’s product line that does not include premium items.

    b. Full Range: Where the Contract Documents include the phrase “full range of colors, patterns, textures” or similar phrase, Engineer will select color, pattern, density, or texture from manufacturer’s entire product line, including standard and premium items.

B. Product Compatibility:

1. Similar products by the same Supplier shall be compatible with each other, unless otherwise indicated in the Contract Documents.

2. Provide products compatible with products previously selected or installed on the Project.

C. Product Options:

1. For products specified only by reference standard or description, without reference to Supplier, provide products meeting that standard, by a Supplier or from a source that complies with the Contract Documents.

2. For products specified by naming one or more products or Suppliers, provide the named products that comply with the Contract Documents, unless an “or equal” or substitute product is approved by Engineer.

3. For products specified by naming one or more products or Suppliers and the term, “or equal”, when Contractor proposes a product or Supplier as an “or equal”, submit to Engineer a request for approval of an “or equal” product or Supplier.

4. For products specified by naming only one product or manufacturer and followed by words indicating that no substitution is allowed, there is no option and no substitution will be allowed.

D. Concerning Patents:

1. Owner shall be provided a guarantee by Contractor and equipment Supplier that equipment and material furnished in accordance with the Contract Documents is not the subject of patent litigation.

2. Patent litigation or controversy shall include, but not limited to, the following:

a. Actual furnished equipment and material that is subject or could be subject to patent litigation or is known to infringe on a patent.

b. Furnished equipment and material that may result in a process that use of equipment and material in a manner that infringes upon or violates a patent.

3. When patent infringement may occur, Contractor and Supplier shall submit license arrangements among parties, including Contractor, Supplier, and patent owner (controller of patent) at a minimum, which shall permit use of equipment and material as specified in the Contract Documents.

4. Supplier shall indemnify and hold harmless Owner and Engineer against all claims, costs, losses, and damages arising out of or relating to any infringement or patent rights or copyrights incident to the use of equipment and material specified in the Contract Documents and as required in General Conditions and as modified in the Supplemental Conditions.

E. “Or Equal” Products:

1. For proposed products not named in the Contract Documents and considered as an “or equal” as defined in the General Conditions, Contractor shall request in writing Engineer’s approval of the “or equal”. Request for approval of an “or equal” product shall accompany the Shop Drawing or product data submittal for the proposed product and shall include:

a. Contractor’s request that the proposed product be considered as an “or equal” in accordance with the General Conditions, accompanied by Contractor’s certifications required in the General Conditions.

b. Documentation adequate to demonstrate that proposed product does not require revisions to the Contract Documents, that proposed product is consistent with the Contract Documents, and that proposed product will

produce results and performance required in the Contract Documents, and that proposed product is compatible with other portions of the Work.

c. Detailed comparison of significant qualities of proposed product with the products and manufacturers named in the Contract Documents. Significant qualities include attributes such as performance, weight, size, durability, visual effect, performance and specific features and requirements shown or indicated.

d. Evidence that proposed product manufacturer will furnish warranty equal to or better than specified, if any.

e. List of similar installations for completed projects with project names and physical addresses of installation along with the names, telephone numbers, email addresses and physical address of design professionals and owners associated with the referenced installation, if requested.

f. Samples, if requested.

g. Other information requested by Engineer.

1.05 WARRANTY

A. Warranties specified for products shall be in addition to, and run concurrent with, Contractor's general warranty and guarantee and requirements for the required correction period. Disclaimers and limitations in specific product warranties do not limit Contractor's general warranty and guarantee.

1. Product manufacturer's warranty is preprinted written warranty published by product manufacturer and specifically endorsed by product manufacturer to Owner.

2. Equipment and material shall be guaranteed to be free from defects in workmanship, design, and/or materials for a period of one (1) year unless otherwise specified in the individual Specification Section for a Special Warranty.

3. Warranty period shall start on the date of the particular equipment and material is substantially complete, which includes requirements specified in Section 01670 – Checkout and Startup Procedures for start-up certification and specified elsewhere in the Contract Documents.

4. Warranty requirements may be added to or modified in the individual Specification Sections. Special warranty is written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by product manufacturer's warranty or to provide increased rights to Owner.

5. Special Warranty information, if any, will be located in the Specification Section for that product.

B. Requirements for Special Warranties: Provide written Special Warranty document that contains appropriate terms and identification, ready for execution by product manufacturer and Owner. Submit draft warranty with submittals required for product.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed by product manufacturer and other parties as appropriate.

2. Specified Form: When specified forms are included in the Contract Documents, prepare written document, properly executed by product manufacturer and Owner, using appropriate form.

3. Refer to Specifications for content and requirements for submitting Special Warranties.

C. Submit product manufacturer's warranties and special warranties as submittals in accordance with Schedule of Submittals accepted by Engineer.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

[END OF SECTION]

SECTION 01650

PRODUCT DELIVERY REQUIREMENTS

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. General requirements for preparing for shipping, delivering, and handling materials and equipment.

2. Contractor shall make all arrangements for transporting, delivering, and handling of materials and equipment required for prosecution and completion of the Work.

1.02 SUBMITTALS

A. Refer to individual Specification Sections for submittal requirements relative to delivery and handling materials and equipment.

1.03 SHIPMENT REQUIREMENTS

A. When practical, factory-assemble materials and equipment. Match mark or tag separate parts and assemblies to facilitate field assembly. Cover machined and unpainted parts that may be damaged by the elements with strippable, protective coating.

B. Package materials and equipment to facilitate handling, and protect materials and equipment from damage during shipping, handling, and storage. Mark or tag outside of each package or crate to indicate the associated purchase order number, bill of lading number, contents by name, Owner's contract name and number, Contractor name, equipment number, and approximate weight. Include complete packing lists and bills of materials with each shipment.

C. Protect materials and equipment from exposure to the elements and keep thoroughly dry and dust-free at all times. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Lubricate bearings and other items requiring lubrication in accordance with manufacturer's instructions.

D. Advance Notice of Shipments:

1. Keep Engineer informed of delivery of all materials and equipment to be incorporated in the Work.

E. Do not ship materials and equipment until:

1. Related Shop Drawings, Samples, and other submittals have been approved or accepted (as applicable) by Engineer, including, but not necessarily limited to, Submittals associated with the materials and equipment being delivered.

2. Manufacturer's instructions for handling, storing, and installing the associated materials and equipment have been submitted to and accepted by Engineer in accordance with the Specifications.

3. Results of source quality control testing (factory testing), when required by the Contract Documents for the associated materials or equipment, have been reviewed and accepted by Engineer.

4. Facilities required for handling materials and equipment in accordance with manufacturer's instructions are in place and available.

5. Required storage facilities have been provided.

1.04 DELIVERY REQUIREMENTS

A. Scheduling and Timing of Deliveries:

1. Arrange deliveries of materials and equipment in accordance with the accepted Progress Schedule and in ample time to facilitate inspection prior to installation.

    a. Equipment and material shall not be delivered to the Site prior to 90 days in advance of scheduled installation.

    b. Partial payment requests will not be processed for materials delivered prior to 90 days before installation or for materials that are improperly stored.

2. Schedule deliveries to minimize space required for and duration of storage of materials and equipment at the Site or delivery location, as applicable.

3. Coordinate deliveries to avoid conflicting with the Work and conditions at Site, and to accommodate the following:

    a. Work of other contractors and Owner.

    b. Owner's operations and maintenance.

    c. Storage space limitations.

    d. Availability of equipment and personnel for handling materials and equipment.

    e. Owner's use of premises.

4. Deliver materials and equipment to the Site during regular working hours.

5. Deliver materials and equipment to avoid delaying the Work and the Project, including work of other contractors, as applicable. Deliver anchor system materials, including anchor bolts to be embedded in concrete or masonry, in ample time to avoid delaying the Work.

B. Deliveries:

1. Shipments shall be delivered with Contractor's name, Subcontractor's name (if applicable), Site name, Project name, and contract designation clearly marked.

2. Site may be listed as the "ship to" or "delivery" address; but Owner shall not be listed as recipient of shipment unless otherwise directed in writing by Engineer.

3. Provide Contractor's telephone number to shipper; do not provide Owner's telephone number.

4. Arrange for deliveries while Contractor's personnel are at the Site. Contractor shall receive and coordinate shipments upon delivery. Shipments delivered to the Site when Contractor is not present will be refused by Owner, and Contractor shall be responsible for the associated delays and additional costs, if incurred.

C. Containers and Marking:

1. Have materials and equipment delivered in manufacturer's original, unopened, labeled containers.

2. Clearly mark partial deliveries of component parts of materials and equipment to identify materials and equipment, to allow easy accumulation of parts, and to facilitate assembly.

D. Inspection of Deliveries:

1. Immediately upon delivery, Contractor shall inspect shipment to verify that:

a. Materials and equipment comply with the Contract Documents and approved or accepted (as applicable) submittals.

b. Quantities are correct.

c. Materials and equipment are undamaged.

d. Containers and packages are intact and labels are legible.

e. Materials and equipment are properly protected.

2. Promptly remove damaged materials and equipment from the Site and expedite delivery of new, undamaged materials and equipment, and remedy incomplete or lost materials and equipment to furnish materials and equipment in accordance with the Contract Documents, to avoid delaying progress of the Work.

3. Advise Engineer in writing when damaged, incomplete, or defective materials and equipment are delivered, and advise Engineer of the associated impact on the Progress Schedule.

1.05 HANDLING REQUIREMENTS

A. Provide equipment and personnel necessary to handle materials and equipment, including those furnished by Owner, by methods that prevent soiling or damaging materials and equipment and packaging.

B. Provide additional protection during handling as necessary to prevent scraping, marring, and otherwise damaging materials and equipment and surrounding surfaces.

C. Handle materials and equipment by methods that prevent bending and overstressing.

D. Lift heavy components only at designated lifting points.

E. Handle materials and equipment in safe manner and as recommended by the manufacturer to prevent damage. Do not drop, roll, or skid materials and equipment off delivery vehicles or at other times during handling. Hand-carry or use suitable handling equipment.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

[END OF SECTION]

SECTION 01660

PRODUCT STORAGE AND PROTECTION REQUIREMENTS

PART 1 – GENERAL

1.01 SUMMARY

A. General requirements of storing and protecting equipment and materials.

1.02 STORAGE

A. Store and protect materials and equipment in accordance with manufacturer's recommendations and the Contract Documents.

B. Contractor shall make all arrangements and provisions necessary for, and pay all costs for, storing materials and equipment. Construction equipment, and materials and equipment to be incorporated into the Work shall be placed to avoid injuring the Work and existing facilities and property, and so that free access is maintained at all times to all parts of the Work and to public utility installations in vicinity of the Work. Store materials and equipment neatly and compactly in locations that cause minimum inconvenience to Owner, other contractors, public travel, and owners, tenants, and occupants of adjoining property. Arrange storage in manner to allow easy access for inspection.

C. Areas available at the Site for storing materials and equipment are shown or indicated in the Contract Documents, or as approved by Engineer.

D. Store materials and equipment to become Owner's property to facilitate their inspection and ensure preservation of quality and fitness of the Work, including proper protection against damage by freezing, moisture, and high ambient temperatures. Store in indoor, climate-controlled storage areas all materials and equipment subject to damage by moisture, humidity, heat, cold, and other elements, unless otherwise acceptable to Owner.

E. Contractor shall be fully responsible for loss or damage (including theft) to stored materials and equipment.

F. Do not open manufacturer's containers until time of installation, unless recommended by the manufacturer, directed by Engineer, or otherwise specified in the Contract Documents.

G. Do not store materials or equipment in structures being constructed unless approved by Engineer in writing.

H. Do not use lawns or other private property for storage without written permission of the owner or other person in possession or control of such premises.

I. Contractor shall not store unnecessary equipment and materials at the Site.

J. Contractor shall prevent structures from being loaded with a weight that endanger its security and/or safety of persons.

K. Stored equipment and materials shall not be placed within 10 feet of fire hydrants.

L. Gutters, drainage channels and inlets shall be kept unobstructed at all times.

1.03 PROTECTION

A. Contractor shall provide temporary storage containers/facilities, if required, to protect equipment and materials at the Site.

B. Equipment to be incorporated into the Work shall be boxed, crated, or otherwise completely enclosed and protected during shipping, handling, and storage, in accordance with Section 01650 – Product Delivery Requirements.

C. Store all materials and equipment off the ground (or floor) on raised supports such as skids or pallets.

D. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Painted equipment surfaces that are damaged or marred shall be repainted in their entirety in accordance with equipment manufacturer and paint manufacturer requirements, to the satisfaction of Engineer.

1.04 SPECIFIC STORAGE REQUIREMENTS

A. Uncovered:

1. The following types of materials may be stored outdoors without cover on supports so there is no contact with the ground:

    a. Piping, except polyvinyl chloride (PVC) or chlorinated PVC (CPVC) pipe.

B. Covered:

1. The following materials and equipment may be stored outdoors on supports and completely covered with covering impervious to water:

    a. Grout and mortar materials.

    b. Rough lumber.

    c. PVC and CPVC pipe.

2. Tie down covers with rope, and slope covering to prevent accumulation of water.

C. Fully Protected:

1. All materials and equipment not named as uncovered or covered in this Section, shall be stored on supports in buildings or trailers that have concrete or wooden flooring, roof, and fully closed walls on all sides. Covering with plastic sheeting or similar material in space without floor, roof, and walls is not acceptable. Comply with the following:

    a. Provide heated storage for materials and equipment that could be damaged by low temperatures or freezing.

    b. Provide air-conditioned storage for materials and equipment that could be damaged by high temperatures.

    c. Protect mechanical and electrical equipment from being contaminated by dust, dirt, and moisture.

    d. Maintain humidity at levels recommended by manufacturers of electrical and electronic equipment.

    e. Energize space heaters fore electrical equipment and material.

D. Maintenance of Storage: On scheduled basis, periodically inspect stored materials and equipment to ensure that:

    1. Condition and status of storage facilities is adequate to provide required storage conditions.

    2. Required environmental conditions are maintained on continuing basis.

    3. Materials and equipment exposed to elements are not adversely affected.

1.05 RECORDS

A. Keep up-to-date account of materials and equipment in storage to facilitate preparation of Applications for Payment, if the Contract Documents provide for payment for materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

[END OF SECTION]

SECTION 01670

CHECKOUT AND STARTUP PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Checkout of products and equipment.

2. Startup procedures of products and equipment.

B. Contractor shall initially start up and place equipment installed under the Contract into successful operation, in accordance with the equipment manufacturer's written instructions and as instructed by Supplier at the Site.

C. Provide all material, labor, tools, and equipment required to complete equipment checkout and start-up.

D. Provide chemicals, lubricants, and other required operating fluids.

E. General activities include:

1. Cleaning, as required under other provisions of the Contract Documents.

2. Removing temporary protective coatings.

3. Checking and correcting (if necessary) leveling plates, grout, bearing plates, anchorage devices, fasteners, and alignment of piping, conduits, and ducts that may place stress on the connected equipment.

4. All adjustments required.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Definitions:

1. Displacement, as used herein, shall mean total peak-to-peak movement of vibrating equipment, in mils; velocity or speed of the vibration cycle, measured in distance per time, velocity and acceleration of the vibration cycle. Displacement, velocity and acceleration shall be measured by instruments/equipment equal to IRD Mechanalysis, Bentley, Nevada.

B. Coordination:

1. Coordinate checkout and start-up with other contractors performing Work at the Site.

2. Do not start up system or subsystem for continuous operation until all components of that system or subsystem, including instrumentation and controls, have been tested to the extent practicable and proven to be operable as intended by the Contract Documents.

3. Responsibility for proper operation is by Contractor.

4. Supplier shall be present during checkout, start-up, and initial operation, except as otherwise specified.

5. Do not start up system, unit process, or equipment without submitting acceptable preliminary operations and maintenance manuals by Contractor, in accordance with Section 01730 – Operations and Maintenance Data.

C. Contractor's Requirements Prior to Owner's Responsibility:

1. Owner will assume responsibility for the equipment upon Substantial Completion.

2. Prior to turning over to Owner responsibility for operating and maintaining system or equipment shall be in accordance with this Section and the following requirements:

a. Submit acceptable final operations and maintenance manuals in accordance with Section 01730 – Operations and Maintenance Data.

b. Provide training of operations and maintenance personnel in accordance with Section 01821 – Instruction of Owner's Personnel.

c. Complete system field quality control testing in accordance with the Contract Documents including, but not limited to, the following:

1) Start-up certification shall be performed and completed by the equipment Supplier for the equipment and material prior to be placed into intended use by Owner as specified in the Contract Documents.

2) Equipment and material shall be operated for a minimum 14-day operational period to verify performance, unless otherwise required by the Contract Documents or approved by the Owner in writing. In addition to specific requirements specified in the individual specification sections, process data that is recorded in the PLC shall be submitted to the Engineer in tabular format showing hourly process performance data. A log of all alarms shall also be submitted, along with notes describing corrective measures applied in response to alarm condition.

3) If equipment and material does not perform satisfactorily during the operational period, then the warranty period start shall be delayed until satisfactorily performance is verified.

a) Contractor shall repair or replace equipment and material that does not perform satisfactorily at no cost to Owner.

b) Contractor shall furnish all equipment and material, labor, and incidentals necessary to provide equipment and material to the performance level required by the Contract Documents.

d. Obtain from Engineer final certificate of Substantial Completion for either entire Work or the portion being turned over to Owner.

1.03 SUBMITTALS

A. Startup Schedule: Detailed summary of schedule, duration, manpower requirement, and Contractor's means and methods for startup.

B. Vibration testing results.

C. Closeout Submittals: Manufacturer's certification of installation in accordance with this Section.

D. Startup testing and operational demonstration performance data.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 PRELIMINARY REQUIREMENTS

A. Prior to the start-up of the facilities, Contractor shall have prepared and tested all equipment, subsystems and systems in accordance with the requirements of the individual Specification Section to check its ability for sustained operation, including inspections and adjustments by Manufacturer's representative.

B. Contractor shall develop and submit schedule in accordance with this Section.

C. After the facilities are sufficiently complete to permit start-up, Contractor shall furnish competent personnel to start-up the facilities. Contractor will be responsible for startup of all facilities constructed under this Contract. During the initial start-up period the Contractor shall check and provide for mechanical operation in accordance with the Contract Documents.

3.02 FIELD QUALITY CONTROL

A. Manufacturers' Field Services:

1. When specified, furnish services of factory trained representatives of material and equipment manufacturers as specified, including supervising installation, adjusting, checkout, start-up, and testing of materials and equipment.

2. Certification:

a. When services by manufacturer are required at the Site, within 14 days after first test operation of equipment, submit to Engineer a letter from manufacturer, on manufacturer's letterhead, stating that materials and equipment are installed in accordance with manufacturer's requirements and installation instructions, and in accordance with the Contract Documents.

b. Include in the final operations and maintenance manual for the associated equipment a copy of the letter or completed form, as applicable.

3. Manufacturer shall bring any discrepancies to the immediate attention of the Contractor for correction. Contractor shall promptly correct any discrepancies noted by the Manufacturer. Manufacturer shall coordinate correction of discrepancies with the Contractor. Discrepancies and their correction shall be noted in inspection records and in all required reports. Any corrections that result in changes to the work as shown on the Contract Documents shall be approved by the Engineer prior to their execution.

3.03 VIBRATION TESTING

A. Stationary rotating equipment, products and materials shall have vibration testing performed at the Site with a rated horsepower exceeding 1 horsepower.

B. Vibration testing shall be performed by an experienced factory-trained and authorized third-party analysis expert shall be provided for and paid for by the Contractor. Each unit or pump system shall be tested separately without duplicate equipment running. All field testing shall be done in the presence of the Engineer. The Engineer shall be furnished with seven (7) certified copies of vibration test data for each test performed.

C. General testing requirements:

1. Variable speed drives – Tests shall be conducted at the full range of speeds between maximum and minimum.

2. Two-speed drives – Tests shall be conducted at both speeds.

3. Constant-speed drives – Tests shall be conducted under various loading conditions as determined by the Engineer.

4. Frequency of vibration, in frequency (i.e. Hz, cycles per second) and cycles per minute (cpm), shall be determined when vibration exceeds specified levels or as otherwise necessary. Vibration shall be measured on the bearing housing and the motor, unless other additional locations are deemed necessary by the Engineer and/or specified, the vibration analyst and/or published industry standards.

5. Vibration shall be checked in the radial and axial directions. Vibration shall be limited to the latest version of the relevant Hydraulic Institute (HI) Standards.

    a. Unless otherwise specified elsewhere, axial vibration shall not exceed 0.1 in/sec; and radial vibration shall not exceed 0.2 in/sec. For pumps radial vibration shall not exceed that permitted by the Hydraulic Institute Standards except that, at vibration frequencies in excess of 8,000 cpm, the velocity shall not exceed 0.2 in/sec.

6. Noise or vibration in any rotating equipment which the Engineer judges to be excessive or damaging, shall be cause for rejection.

D. Test results:

1. Contractor shall correct deficiencies within thirty days when vibration field test results exceed source quality control tests results, Manufacturer's recommendations, or the limits specified in the Contract Documents.

2. After corrections have been completed, the vibration testing shall be re-run at the Contractor's expense and the results re-submitted to the Engineer for review.

3.04 SYSTEM START-UP

A. Equipment and materials shall be provided in conformance with the manufacturer's installation instructions and in accordance with the Contract Documents.

B. Provide start-up services as specified in the individual Specification Sections.

C. Contractor shall furnish consumables required for startup including, but not limited to, electricity, water, chemicals, and lubrication. Contractor shall provide a plan for disposal of water used for testing unless otherwise specified in the Contract Documents.

D. General system requirements:

1. Start-up of the plant by Contractor shall include all mechanical systems, including but not limited to, pumps, compressors, and like equipment, and the ventilating, air conditioning (or heating), plumbing, and electrical systems. Start-up of either the heating or air conditioning systems is dependent upon the time of year that the plant start up is initiated. Contractor will be required to return at the beginning of the next heating or air conditioning season (whichever is applicable) to start the appropriate system.

2. Cleaning as required under provisions of the Contract Documents.

3. Remove temporary protective coatings.

4. Flushing and replacing greases and lubricants as required by Manufacturer

5. Lubrication.

6. Verify the following:

    a. Shaft and coupling alignments and reset where needed.

    b. Set motor, pump and other equipment rotation, safety interlocks, and belt tensions.

    c. Leveling plates, grout, bearing plates, anchor bolts, fasteners, and alignment of piping, conduits and ducts that may apply stress on equipment.

7. Valves:

    a. Tighten packing glands to ensure no leakage but allow valve stems to operate without galling.

    b. Replace packing in valves to retain maximum adjustment after system is determined to be complete.

    c. Replace packing on valves that continue to leak.

    d. Remove and repair bonnets that leak.

    e. After cleaning, coat packing gland threads and valve stems with surface preparation of “Molycote” or “Fel-Pro”.

8. Verify that control valve seats are free of foreign matter and are properly positioned for intended service.

9. Tighten flanges and other pipe joints after system has been placed in operation.

10. Replace gaskets that show signs of leakage after tightening.

11. Inspect all joints for leakage:

    a. Promptly remake each joint that appears to be faulty; do not wait for rust other corrosion to form.

    b. Clean threads on both parts and apply compound and remake joints.

12. After system has been placed in operation, clean valve seats and headers in fluid system to ensure freedom from foreign matter.

13. Remove rust, scale, and foreign matter from equipment and renew defaced surfaces.

14. Repair damaged insulation.

[END OF SECTION]

SECTION 01730

OPERATION AND MAINTENANCE DATA

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes: Requirements for operation and maintenance data, manuals, and documentation.

1. Submit operation and maintenance data, in accordance with this Section and in accordance with requirements elsewhere in the Contract Documents, as instructional and reference manuals by operations and maintenance personnel at the Site.

2. Required operation and maintenance data groupings are listed in this Section. At minimum, submit operation and maintenance data for:

a. All equipment and systems.

b. Valves, gates, actuators, and related accessories.

c. Instrumentation and control devices.

d. Electrical gear.

3. For each operation and maintenance manual, submit the following:

a. Preliminary Submittal: Electronic copy of entire operation and maintenance manual, except for test data and service reports by Supplier.

b. Final Submittal: Printed and bound copy of complete operations and maintenance manual and electronic copy, including test data and service reports by Supplier.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Quantity Required and Timing of Submittals:

1. Preliminary Submittal:

a. Printed Copies: None, except as may be required by Contractor.

b. Electronic Copies: One copy.

c. Submit to Engineer, whichever occurs first:

1) 60 days prior to starting training of operations and maintenance personnel.

2) 30 days prior to field quality control testing at the Site.

d. Furnish preliminary operation and maintenance data submittal in acceptable form and content, as determined by Engineer, before associated materials and equipment will be eligible for payment.

2. Preliminary Submittal shall be reviewed by Engineer. One electronic copy shall be returned to Contractor with required revisions noted.

3. Final Submittal: Provide 14 days prior to checkout and startup procedures specified in Section 01670 – Checkout and Startup Procedures, unless Submittal is specified as required prior to an interim Milestone.

a. Printed Copies: Two copies.

b. Electronic Copies: One copy.

B. Format of Printed Copies:

1. Binding and Cover:

a. Bind each operation and maintenance manual in durable, permanent, stiff-cover binder(s), comprising one or more volumes per copy as required. Binders shall be minimum one-inch wide and maximum of three-inch wide. Binders for each copy of each volume shall be identical.

b. Provide the following information on cover of each volume:

1) Title: “OPERATING AND MAINTENANCE INSTRUCTIONS”.

2) Name or type of material or equipment covered in the manual.

3) Volume number, if more than one volume is required, listed as “Volume __ of __”, with appropriate volume-designating numbers filled in.

4) Name of Project and, if applicable, Contract name and number.

5) Name of building or structure, as applicable.

c. Provide the following information on spine of each volume:

1) Title: “OPERATING AND MAINTENANCE INSTRUCTIONS”.

2) Name or type of material or equipment covered in the manual.

3) Volume number, if more than one volume is required, listed as “Volume __ of __”, with appropriate volume-designating numbers filled in.

4) Project name and building or structure name.

2. Drawings:

a. Bind into the manual drawings, diagrams, and illustrations up to and including 11 inches by 17 inches in size, with reinforcing.

b. Documents larger than 11 inches by 17 inches shall be folded and inserted into clear plastic pockets bound into the manual. Mark pockets with printed text indicating content and drawing numbers. Include no more than three drawing sheets per pocket.

3. Copy Quality and Document Clarity:

a. Contents shall be original-quality copies. Documents in the manual shall be either original manufacturer-printed documents or first-generation photocopies indistinguishable from originals. If original is in color, copies shall be in color.

b. Clearly mark in ink to indicate all components of materials and equipment on catalog pages for ease of identification. In standard or pre-printed documents, indicate options furnished or cross out inapplicable content.

4. Organization:

a. Provide table of contents in each volume for each chapter or section.

b. Use dividers and indexed tabs between major categories of information, such as operating instructions, preventive maintenance instructions, and other major subdivisions of data in each manual.

C. Format of Electronic Copies:

1. Each electronic copy shall include all information included in the corresponding printed copy.

2. Submit electronic copy via transferable method and format acceptable to Engineer.

3. File Format:

a. Acceptable formats include Adobe PDF, Microsoft Word, Autodesk DWF, AutoCAD DWG, and Microstation DGN.

b. Files shall be electronically searchable.

c. Submit separate file for each separate document in the printed copy.

d. Within each file, provide bookmarks for the following:

1) Each chapter and subsection listed in the corresponding printed copy document's table of contents.

2) Each figure.

3) Each table.

4) Each appendix.

4. Submit drawings and figures in one of the following formats: ".bmp", ".tif", ".jpg", ".gif", ".dwf", ".dwg", ".dgn".

D. General Content Requirements:

1. Prepare each operations and maintenance manual specifically for the Project. Include in each manual all pertinent instructions, as-built drawings as applicable, bills of materials, technical bulletins, installation and handling requirements, maintenance and repair instructions, and other information required for complete, accurate, and comprehensive data for safe and proper operation, maintenance, and repair of materials and equipment furnished for the Project. Include in manuals specific information required in the Specification Section for the material or equipment, data required by Laws and Regulations, and data required by authorities having jurisdiction.

2. Submit complete, detailed written operating instructions for each material or equipment item including: function; operating characteristics; limiting conditions; operating instructions for start-up, normal and emergency conditions; regulation and control; operational troubleshooting; and shutdown. Also include, as applicable, written descriptions of alarms generated by equipment and proper responses to such alarm conditions.

3. Submit written explanations of all safety considerations relating to operation and maintenance procedures.

4. Submit complete, detailed, written preventive maintenance instructions including all information and instructions to keep materials, equipment, and systems properly lubricated, adjusted, and maintained so that materials, equipment, and systems function economically throughout their expected service life. Instructions shall include:

a. Written explanations with illustrations for each preventive maintenance task such as inspection, adjustment, lubrication,

calibration, and cleaning. Include pre-startup checklists for each equipment item and maintenance requirements for long-term shutdowns.

b. Recommended schedule for each preventive maintenance task.

c. Lubrication charts indicating recommended types of lubricants, frequency of application or change, and where each lubricant is to be used or applied.

d. Table of alternative lubricants.

e. Troubleshooting instructions.

f. List of required maintenance tools and equipment.

5. Submit complete bills of material or parts lists for materials and equipment furnished. Lists or bills of material may be furnished on a per-drawing or per-equipment assembly basis. Bills of material shall indicate:

a. Manufacturer's name, address, telephone number, fax number, and Internet website address.

b. Manufacturer's local service representative's or local parts supplier's name, address, telephone number, fax number, Internet website address, and e-mail addresses, when applicable.

c. Manufacturer's shop order and serial number(s) for materials, equipment or assembly furnished.

d. For each part or piece include the following information:

1) Parts cross-reference number. Cross-reference number shall be used to identify the part on assembly drawings, Shop Drawings, or other type of graphic illustration where the part is clearly shown or indicated.

2) Part name or description.

3) Manufacturer's part number.

4) Quantity of each part used in each assembly.

5) Current unit price of the part at the time the operations and maintenance manual is submitted. Price list shall be dated.

6. Submit complete instructions for ordering replaceable parts, including reference numbers (such as shop order number or serial number).

7. Submit manufacturer's recommended inventory levels for spare parts, extra stock materials, and consumable supplies for the initial two years of operation. Consumable supplies are items consumed or worn by operation of materials or equipment, and items used in maintaining the operation of material or equipment, including items such as lubricants, seals, reagents, and testing chemicals used for calibrating or operating the equipment. Include estimated delivery times, shelf life limitations, and special storage requirements.

8. Submit manufacturer's installation and operation bulletins, diagrams, schematics, and equipment cutaways. Where materials pertain to multiple models or types, mark the literature to indicate specific material or equipment supplied. Marking may be in the form of checking, arrows, or underlining to indicate pertinent information, or by crossing out or other means of obliterating information that does not apply to the materials and equipment furnished.

9. Submit original-quality copies of each approved and accepted Shop Drawing, product data, and other submittal, updated to indicate as-installed condition. Reduced drawings are acceptable only if reduction is to not less than one-half original size and all lines, dimensions, lettering, and text are completely legible on the reduction.

10. Submit complete electrical schematics and wiring diagrams, including complete point-to-point wiring and wiring numbers or colors between all terminal points.

11. Submit copy of warranty bond and service contract as applicable.

12. When copyrighted material is used in operations and maintenance manuals, obtain copyright holder's written permission to use such material in the operation and maintenance manual.

1.03 SUBMITTALS

A. Action/Informational Submittals: Submit preliminary schedule (listing) of operations and maintenance data for Engineer's review. Preliminary operations and maintenance data shall be grouped as major equipment and material systems and divided into sub-systems as required for clarity, subject to Engineer's approval.

B. Closeout Submittals:

1. Operation and maintenance data: Submit the operations and maintenance data indicated in the Contract Documents, grouped into submittals as approved by Engineer.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

[END OF SECTION]

SECTION 01740

CLEANING AND WASTE MANAGEMENT

PART 1 – GENERAL

1.01 SUMMARY

A. Administrative and procedural requirements for progress and closeout cleaning at the Site.

1. Contractor shall execute cleaning during the Project, at completion of the Work, and as required by the General Conditions and this Section.

2. Maintain in a clean manner the Site, the Work, and areas adjacent to or affected by the Work.

B. Administrative and procedural requirements for disposing of non-hazardous excavation and construction waste.

1. Contractor shall comply with the requirements and procedures for construction waste management and disposal.

2. Extent of required construction waste management and disposal includes within the Project limits, as shown or indicated.

1.02 RELATED SECTIONS

A. Section 01045 – Execution of the Work.

1.03 REFERENCES

A. Definitions:

1. “Construction waste” is building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

2. “Demolition waste” is building and site improvement materials resulting from demolition or selective demolition operations.

3. “Disposal” is removal to an off-Site location of demolition and construction waste and subsequent sale, recycling, reuse, or disposal in a landfill or incinerator conforming to Laws and Regulations and acceptable to authorities having jurisdiction.

B. Reference Standards: NFPA 241, Safeguarding Construction, Alteration, and Demolition Operations

1.04 ADMINSTRATIVE REQUIREMENTS

A. Failure of Contractor to Maintain Clean Site:

1. Owner will provide written notification to Contractor for failure to maintain a clean Site.

2. Written notification shall provide five (5) days for Contractor to remedy Site cleaning and waste management to the Engineer's and Owner's satisfaction.

3. Following the five (5) day remedy period, Owner shall without prejudice to any other rights provide services to clean Site to the satisfaction of Owner and Engineer. Contractor shall be responsible for reimbursement of Owner's costs and expenses for the cleaning work.

1.05 SUBMITTALS

A. Closeout Submittals:

1. Landfill and Incinerator Disposal Records: Provide copy of receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Submit manifests, weight tickets, receipts, and invoices.

1.06 DELIVERY, STORAGE AND HANDLING

A. Replace loaded containers with empty containers as demand requires.

B. Deposit recyclable materials in containers free from debris.

C. Transport and deposit waste in containers to minimize dust. Close container covers immediately after materials are deposited.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 PROGRESS CLEANING

A. General: Clean the Site, work areas, and other areas occupied by Contractor at least weekly. Dispose of materials in accordance with the General Conditions and the following:

1. Comply with NFPA 241 for removing combustible waste materials and debris.

2. Do not hold non-combustible materials at the Site more than three days if the temperature is expected to rise above 80 degrees F. When temperature is less

than 80 degrees F, dispose of non-combustible materials within seven days of their generation.

3. Provide suitable containers for storage of waste materials and debris.

4. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately.

B. Work Areas:

1. Clean areas where the Work is in progress to level of cleanliness necessary for proper execution of the Work.

2. Remove liquid spills promptly and immediately report spills to Owner, Engineer, and authorities having jurisdiction.

3. Where dust would impair proper execution of the Work, broom-clean or vacuum entire work area, as appropriate.

4. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

C. Installed Work: Keep installed Work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of material or equipment installed, using only cleaning agents and methods specifically recommended by material or equipment manufacturer. If manufacturer does not recommend specific cleaning agents or methods, use cleaning agents and methods that are not hazardous to health and property and that will not damage exposed surfaces.

D. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration until Substantial Completion.

E. Cutting and Patching:

1. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

2. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

F. During handling and installation of materials and equipment, clean and protect construction in progress and adjoining materials and equipment already in place. Apply protective covering where required for protection from damage or deterioration, until Substantial Completion.

G. Clean completed construction as frequently as necessary throughout the construction period.

3.02 EXCAVATION WORK NEAR PUBLIC OR PRIVATE PROPERTY

A. Contractor shall provide cleaning and either temporary or permanent restoration where Work is located in or near streets, right of ways, easements, or private property.

B. Contractor shall backfill, compact, grade, and restore excavation or disturbed area to functional condition to permit pedestrian or vehicular traffic and original use of the area as the Work progresses.

C. Temporary storage of excavation spoils, including earth, stones, boulders, and debris, shall be removed from the Site or area of disturbance.

3.03 CLOSEOUT CLEANING

A. Complete the following prior to requesting inspection for Substantial Completion:

1. Clean and remove from the Site rubbish, waste material, debris, and other foreign substances.

2. Sweep paved areas broom-clean. Remove petrochemical spills, stains, and other foreign deposits.

3. Hose-clean sidewalks and loading areas.

4. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

5. Repair pavement, roads, sod, and other areas affected by construction operations and restore to specified condition; if condition is not specified, restore to pre-construction condition.

6. Clean exposed exterior and interior hard-surfaced finishes to dirt-free condition, free of spatter, grease, stains, fingerprints, films, and similar foreign substances.

7. Leave the Site clean, and in neat, orderly condition, satisfactory to Owner and Engineer.

3.04 WASTE DISPOSAL

A. General: Except for items or materials to be recycled, or otherwise reused, remove waste materials from the Site and properly dispose of waste in facility such as permitted landfill or incinerator or other method acceptable to authorities having jurisdiction.

1. Except as otherwise specified, remove from the Site all waste and debris from the Work as it accumulates. Upon completion of the Work, remove materials, equipment, waste, and debris and leave the Site clean, neat, and orderly. Comply with the Contract Documents regarding cleaning and removal of trash, debris, and waste.

2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

3. Properly dispose of waste materials, surplus materials, debris, and rubbish off the Site.

4. Do not discharge volatile or hazardous substances, such as mineral spirits, oil, or paint thinner, into storm sewers or sanitary sewers.

5. Do not discharge wastes into surface waters or drainage routes.

B. Burying: Do not bury rubbish and waste materials at the Site.

C. Burning: Do not burn waste materials at the Site.

D. Disposal: Transport waste materials to proper location at site other than Owner's property for disposal in accordance with Laws and Regulations. Contractor shall be solely responsible for complying with Laws and Regulations regarding storing, transporting, and disposing of waste.

[END OF SECTION]

SECTION 01782

PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Requirements for recording changes to record documents.

2. Requirements for electronic files furnished by Engineer.

B. Contractor shall maintain and submit to Engineer with record documents in accordance with the Contract Documents.

1.02 ADMINSTRATIVE REQUIREMENTS

A. Maintenance of Record Documents:

1. The following record documents shall be maintained in the Contractor's field office:

a. Drawings, Specifications, and Addenda.

b. Shop Drawings, Samples, and other Contractor submittals, including records of test results, approved or accepted as applicable, by Engineer.

c. Change Orders, Field Orders, photographic documentation, survey data, and all other documents pertinent to the Work.

2. Update record documents on a monthly basis, minimum.

3. Provide files and racks for proper storage and easy access to record documents.

4. Make record documents available for inspection upon request of Engineer or Owner.

5. Do not use record documents for purpose other than serving as Project record. Do not remove record documents from Contractor's field office without Engineer's approval.

B. Submittal of Record Documents:

1. Submit to Engineer the following record documents: Drawings.

2. Prior to readiness for final payment, submit to Engineer one copy of final record documents. Submit complete record documents; do not make partial submittals.

3. Submit record documents with transmittal letter on contractor letterhead complying with letter of transmittal requirements in of the Contract Documents

4. Record documents submittal shall include certification, with original signature of official authorized to execute legal agreements on behalf of Contractor.

C. Electronic Files Furnished by Engineer:

1. CADD files will be furnished by Engineer upon the following conditions:

a. Contractor shall submit to Engineer a letter on Contractor letterhead requesting CADD files and providing specific definition(s) or description(s) of how files will be used, and specific description of benefits to Owner (including credit proposal, if applicable) if the request is granted.

b. Contractor shall execute Engineer's standard agreement for release of electronic files and shall abide by all provisions of the agreement for release of electronic files.

c. Layering system incorporated in CADD files shall be maintained as transmitted by Engineer. CADD files transmitted by Engineer containing cross-referenced files shall not be bound by Contractor. Drawing cross-references and paths shall be maintained. If Contractor alters layers or cross-reference files, Contractor shall restore all layers and cross-references prior to submitting record documents to Engineer.

d. Contractor shall submit record drawings to Engineer in same CADD format that files were furnished to Contractor.

1.03 SUBMITTALS

A. Closeout Submittals: Provide record documentation as specified in this Section.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 GENERAL REQUIREMENTS

A. At the start of the Project, label each record document to be submitted as, "PROJECT RECORD" using legible, printed letters. Letters on record copy of the Drawings shall be two inches high.

B. Keep record documents current. Make entries on record documents within two working days of receipt of information required to record the change.

C. Do not permanently conceal the Work until required information has been recorded.

D. Accuracy of record documents shall be such that future searches for items shown on the record documents may rely reasonably on information obtained from Engineer-accepted record documents.

E. Marking of Entries:

1. Use erasable, colored pencils (not ink or indelible pencil) for marking changes, revisions, additions, and deletions to record documents.

2. Clearly describe the change by graphic line and make notations as required. Use straight-edge to mark straight lines. Writing shall be legible and sufficiently dark to allow scanning of record documents into legible electronic files.

3. Date all entries on record documents.

4. Call attention to changes by drawing a “cloud” around the change(s) indicated.

5. Mark initial revisions in red. In the event of overlapping changes, use different colors for subsequent changes.

3.02 RECORDING CHANGES TO DRAWINGS

A. Record changes on copy of the Drawings. Submittal of Contractor-originated or -produced drawings as a substitute for recording changes on the Drawings is unacceptable.

B. Record changes on plans, sections, schematics, and details as required for clarity, making reference dimensions and elevations (to Project datum) for complete record documentation.

C. Record actual construction including:

1. Depths of various elements of foundation relative to Project datum.

2. Field changes of dimensions, arrangements, and details.

3. Changes made in accordance with Change Orders and Field Orders.

4. Changes in details on the Drawings. Submit additional details prepared by Contractor when required to document changes.

3.03 RECORDING CHANGES FOR SCHEMATIC LAYOUTS

A. In some cases, on the Drawings, arrangements of conduits, circuits, piping, ducts, and similar items are shown schematically and are not intended to portray physical layout. For such cases, the final physical arrangement shall be determined by Contractor subject to acceptance by Engineer.

B. Record on record documents all revisions to schematics on Drawings, including: piping schematics, ducting schematics, process and instrumentation diagrams, control and circuitry diagrams, electrical one-line diagrams, motor control center layouts, and other schematics when included in the Contract. Record actual locations of equipment, lighting fixtures, in-place grounding system, and other pertinent data.

C. When dimensioned plans and dimensioned sections on the Drawings show the Work schematically, indicate on the record documents, by dimensions accurate to within one inch in the field, centerline location of items of Work such as conduit, piping, ducts, and similar items

1. Clearly identify the Work item by accurate notations such as “cast iron drain”, “rigid electrical conduit”, “copper waterline”, and similar descriptions.

2. Show by symbol or note the vertical location of Work item; for example, “embedded in slab”, “under slab”, “in ceiling plenum”, “exposed”, and similar designations. For piping not embedded, also provide elevation dimension relative to Project datum.

3. Descriptions shall be sufficiently detailed to be related to Specifications.

D. Engineer may furnish written waiver of requirements relative to schematic layouts shown on plans and sections when, in Engineer’s judgment, dimensioned layouts of Work shown schematically will serve no useful purpose. Do not rely on waiver(s) being issued.

3.04 REQUIREMENTS FOR SUPPLEMENTAL DRAWINGS

A. In some cases, drawings produced during construction by Engineer or Contractor supplement the Drawings and shall be included with record documents submitted by Contractor. Supplemental record drawings shall include drawings provided with Change Orders and Field Orders and that cannot be incorporated into the Drawings due to space limitations.

B. Supplemental drawings provided with record drawings shall be integrated with the Drawings and include necessary cross-references between drawings. Supplemental record drawings shall be on sheets the same size as the Drawings.

C. When supplemental drawings developed by Contractor using computer-aided drafting/design (CADD) software are to be included in record drawings, submit electronic files for such drawings as part of record drawing submittal.

3.05 RECORDING CHANGES TO SPECIFICATIONS AND ADDENDA

A. Mark each Section to record:

1. Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment actually provided.

2. Changes made by Addendum, Change Orders, and Field Orders.

[END OF SECTION]

SECTION 01783

SPARE PARTS AND EXTRA MATERIAL

PART 1 – GENERAL

1.01 SUMMARY

A. Contractor shall furnish spare parts data and extra materials for materials and equipment in accordance with the Contract Documents.

B. Spare Parts and Extra Materials:

1. Provide spare parts, extra stock materials, maintenance supplies, and special tools required for maintenance (“spare parts and extra materials”) for one year of operation (unless otherwise specified in the individual Specification Section).

    a. Provide Supplier recommended lubricating oil and grease in accordance with this Section and the Contract Documents.

2. Provide list of Supplier recommended spare parts and extra material.

    a. Include list of four standard lubricants, minimum, that shall be interchangeable for each type of lubricant required in the Contract Documents.

    b. Include unit prices in current United States dollars.

    c. Source(s) of supply for each.

C. Packaging and Labeling:

1. Furnish spare parts and extra materials in manufacturer’s unopened cartons, boxes, crates, or other original, protective covering suitable for preventing corrosion and deterioration for maximum length of storage normally anticipated by manufacturer.

2. Packaging of spare parts and extra materials shall be clearly marked and identified with name of manufacturer, applicable equipment, part number, part description, and part location in the equipment.

3. Protect and package spare parts and extra materials for maximum shelf life normally anticipated by manufacturer.

D. Finishes: Spare parts and extra material shall have painting, protective coating, and finishes identical to original installed equipment and material. Where painting, protective coating, or finishes are not specified, suitable provisions shall be furnished to protect from corrosion.

E. Special Tools: Contractor shall provide special tools necessary to operate, disassemble, service, repair, and adjust equipment and material in accordance with the manufacturer's operation and maintenance manual. Special tool requirements shall be the same as spare parts and extra material specified in this Section.

F. Storage Prior to Delivery to Owner: Prior to furnishing spare parts and extra materials to Owner, store spare parts and extra materials in accordance with the Contract Documents and manufacturers' recommendations.

G. Delivery Time and Eligibility for Payment:

1. Deliver to Owner spare parts and extra materials prior to date of Substantial Completion for equipment or system associated with the spare parts and extra materials. Do not deliver spare parts and extra materials before commencing start-up for associated equipment or system.

2. Spare parts and extra materials are not eligible for payment until delivered to Owner and Contractor's receipt of Owner's countersignature on letter of transmittal.

H. Procedure for Delivery to Owner:

1. Deliver spare parts and extra materials to Owner's permanent storage rooms at the Site or area(s) at the Site designated by Owner.

2. When spare parts and extra materials are delivered, Engineer and Owner will mutually inventory the spare parts and extra materials delivered to verify compliance with the Contract Documents regarding quantity and part numbers.

3. Additional procedures for delivering spare parts and extra materials to Owner, if required, will be developed by Engineer and complied with by Contractor.

I. Transfer Documentation:

1. Furnish on Contractor letterhead a letter of transmittal for spare parts and extra materials furnished under each Specification Section. Letter of transmittal shall accompany spare parts and extra materials. Do not furnish letter of transmittal separate from associated spare parts and extra materials.

2. Furnish three original, identical, signed letters of transmittal for each Specification Section. Upon delivery of specified quantities and types of spare parts and extra materials to Owner, designated person from Owner will countersign each original letter of transmittal indicating Owner's receipt of spare parts and extra materials.

a. Owner will retain one fully signed original.

b. Contractor shall submit one fully signed original to Engineer.

c. Contractor shall retain one fully signed original for Contractor's file.

3. Letter of transmittal shall include the following:

a. Information required by Contract Documents for submittal of letters of transmittal.

b. Transmittal shall list spare parts and extra materials furnished under each Specification Section. List each individual part or product and quantity furnished.

c. Provide space for countersignature by Owner as follows: space for signature, space for printed name, and date.

J. Contractor shall be fully responsible for loss or damage to spare parts and extra materials until spare parts and extra materials are received by Owner.

1.02 SUBMITTALS

A. Action/Informational Submittals: Individual Specification Sections that require spare parts, extra material, or tools, Contractor shall submit inventory checklist for each individual Specification Section that includes the following information:

1. Specification Section number and title.

2. Name of spare parts, extra material, or tools.

3. Manufacturer, part number and description.

4. Quantity specified and furnished.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

[END OF SECTION]

SECTION 01821

INSTRUCTION OF OWNER'S PERSONNEL

PART 1 – GENERAL

1.01 SUMMARY

A. Contractor shall furnish services of operation and maintenance training specialists to instruct Owner's personnel in recommended operation and maintenance procedures for materials and equipment furnished, in accordance with the Contract Documents.

B. Contractor shall provide a combination of classroom and field training at the Site, unless otherwise required elsewhere in the Contract Documents.

C. Owner reserves the right to record training sessions on video for Owner's later use in instructing Owner's personnel.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Definitions:

1. Training -Manufacturer's verbal, visual, and written presentation of materials to Owner's staff to ensure that any Owner personnel undergoing training understand the Manufacturer's recommended procedures to properly operate and maintain the equipment and systems for the expected service life.

B. Qualifications:

1. Contractor's instructors shall be factory-trained by manufacturer of material or equipment.

2. Contractor's instructors shall be proficient and experienced in conducting training of type required.

3. Qualifications of instructors are subject to acceptance by Engineer. If Engineer does not accept qualifications of proposed instructor, furnish services of replacement instructor with acceptable qualifications.

C. Scheduling:

1. General:

a. Contractor shall coordinate training services with start-up and initial operation of materials and equipment on days and times, and in manner, acceptable to Owner, in accordance with the Contract Documents.

b. Training may be required outside of normal business hours to accommodate schedules of operations and maintenance personnel. Furnish training services at the required days and times at no additional cost to Owner.

c. Prerequisites to Training: Training of Owner's personnel shall commence after acceptable preliminary operation and maintenance data has been submitted and work required in Section 01670 – Checkout and Startup Procedures is complete.

2. Training Schedule Submittal:

a. Training Schedule Required: Contractor shall prepare and submit proposed training schedule for review and acceptance by Engineer and Owner. Proposed training schedule shall show all training required in the Contract Documents, and shall demonstrate compliance with specified training requirements relative to number of hours of training, number of training sessions, and scheduling.

b. Timing of Training Schedule Submittal: Submit initial training schedule at least thirty days before scheduled start of first training session. Submit final training schedule, incorporating revisions in accordance with Engineer's comments, no later than seven days prior to starting the first training session.

c. Owner reserved the right to modify personnel availability for training in accordance with process or emergency needs at the Site.

1.03 TRAINING REQUIREMENTS

A. General Lesson Plan Requirements:

1. Contractor's lesson plan shall describe specific instruction topics, system components for which training will be furnished, and training procedures. Handouts, if any, to be used in training shall be included with the lesson plan. Describe in lesson plan "hands-on" demonstrations planned for training sessions.

2. Submit acceptable lesson plan 7 days prior to starting associated training.

3. Lesson plan shall include estimated duration of each training segment.

B. Specific Lesson Plans Requirements:

1. Equipment overview shall cover the following:

a. Equipment's operating (process) function, performance objectives, and fundamental operating principles.

b. Equipment's mechanical, electrical, and electronic components and features. Group related components into subsystems and describe function of subsystem and subsystem's interaction with other subsystems.

c. Support equipment and appurtenances.

d. Safety and potential hazards.

e. Safety and control interlocks.

2. Operations personnel training shall cover the following:

a. Equipment overview: As described in this Section.

b. Operation:

1) Principles, operating, start-up, and shutdown procedures.

2) Abnormal or emergency start-up, operating, and shutdown procedures.

3) Alarm conditions and responses.

4) Monitoring and recordkeeping.

5) Housekeeping.

c. Troubleshooting: Required corrective maintenance or an operating parameter adjustment.

3. Maintenance personnel training:

a. Equipment overview: As described in this Section.

b. Equipment preventive maintenance:

1) Inspection procedures:

a) Operation.

b) Trouble symptoms and anticipate breakdowns.

c) Predictive maintenance.

2) Preventative maintenance intervals.

3) Lubricant and replacement parts.

4) Cleaning practices and intervals.

5) Special tools required.

6) Removal, installation, and disassembly and assembly procedures.

7) “Hands-on” demonstrations of preventive maintenance procedures.

8) Measuring instruments and procedures.

9) Torqueing, mounting, calibrating, and aligning procedures and settings requirements.

10) Check and test equipment following corrective maintenance.

4. Equipment Troubleshooting:

a. Systematic troubleshooting procedures.

b. Checklists.

c. Testing and diagnostic procedures.

d. Corrective maintenance procedures with “hands on” demonstrations.

C. Training Aids:

1. Contractor’s instructor shall incorporate training aids as appropriate to assist in the instruction. Provide handouts of text, tables, graphs, and illustrations as required. Other appropriate training aids include:

a. Audio-visual aids.

b. Equipment cutaways and samples.

c. Tools, including special tools.

2. Podium presentation aids: Presentation shall cover equipment, products and materials provided. Provide electronic version of presentation material to Engineer.

a. Electronic version of presentation aids shall be Microsoft PowerPoint or equivalent format.

b. Presentation shall include the following sections:

1) Complete system overview including, but not limited to, related and associated equipment specific to the system.

2) Specific equipment requirements and how equipment functions within the overall system.

3) Site specific system and equipment requirements.

c. Hardcopy handouts of the electronic presentation aids shall be provided prior to each training section for review during podium presentation.

3. Handouts:

a. Contractor's instructor shall distribute and use descriptive handouts during training.

b. Handouts should be coordinated with the instruction

c. Provide at least ten copies of handouts for each training session

4. Audio-visual Equipment: Training provider shall provide audio-visual equipment required for training sessions.

1.04 SUBMITTALS

A. Action/Informational Submittals:

1. Training Schedule: Detailed schedule of training sessions, demonstrating compliance with number of training sessions, hours required in the Contract Documents, and complying with the Contract Times. Submit training schedule submittals in accordance with timeframes specified in this Section.

2. Lesson Plan: Acceptable lesson plan for training on each material or equipment item, in accordance with the Contract Documents. Lesson plan shall comply with requirements of this Section. Include with lesson plan copy of handouts that will be used during training sessions. Provide lesson plan submittals in accordance with timeframes specified in this Section.

3. Podium presentation material, electronic version.

B. Closeout Submittals:

1. Trainee sign-in sheet for each training session. Submit to Owner's training coordinator.

C. Quality Assurance Submittals:

1. Qualifications: Credentials of Contractor's proposed operations and maintenance instructor(s). Credentials shall demonstrate compliance with requirements of this Section and shall include brief resume' and specific details of instructor's operating, maintenance, and training experience relative to the specific material and equipment for which instructor will provide training.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 "HANDS-ON" DEMONSTRATIONS

A. Contractor's instructor shall provide "hands-on" demonstration of operations and maintenance of equipment and materials for each training session.

B. Contractor shall furnish tools and appurtenances required for demonstrations.

3.02 SCHEDULE

A. Contractor shall furnish the hours of training and number of sessions indicated in the individual specifications, at a minimum. Travel time and expenses are the responsibility of the manufacturer and are excluded from required training time indicated in the Contract Documents.

B. Training shall be scheduled during day shift, normal working hours unless otherwise approved by Owner or Engineer.

C. Training shall be provided for a minimum of two identical sessions, unless otherwise specified, with each session scheduled for different weeks.

[END OF SECTION]

SECTION 02010

SUBSURFACE INVESTIGATION

PART 1 – GENERAL

1.01 RESPONSIBILITY

A. If subsurface explorations have been performed, copies of the results will be made available for informational purposes only. These test boring logs and geotechnical reports are not part of the Contract Documents.

B. Subsurface information was obtained primarily for use in preparing foundation design. The Contractor may draw his own conclusions therefrom. No responsibility is assumed by the Owner for subsoil quality or condition. No claim for extra compensation or extension of time will be allowed on account of subsurface conditions inconsistent with the data shown.

C. Such information and data are not intended as a representation or warranty of continuity of conditions between soil borings or test pits, nor of groundwater levels at dates and times other than date and time when measured, nor that purpose of obtaining the information and data were appropriate for use by Contractor. Owner will not be responsible for interpretations or conclusions drawn therefrom by Contractor.

D. Soil borings and other exploratory operations may be made by Contractor, at no additional cost to Owner. Coordinate Contractor-performed test borings and other exploratory operations with Owner and utility owners as appropriate. Perform such explorations without disrupting or otherwise adversely affecting operations of Owner or utility owners. Comply with Laws and Regulations relative to required notifications.

PART 2 – PRODUCTS

2.01 SOIL BORINGS

A. Copies of the following, where available, will be made available for informational purposes only:

1. Geotechnical engineering report(s).

2. Soil boring log(s).

PART 3 – EXECUTION (NOT USED)

[END OF SECTION]

SECTION 02050

DEMOLITION

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Demolish designated structures.

B. Remove materials from the site.

C. Remove foundations.

D. Remove underground tanks and piping, unless noted otherwise.

E. Disconnect, cap, remove, and identify utilities.

1.02 RELATED WORK

A. Section 01510 – Temporary Utilities.

B. Section 01560 - Temporary Controls.

C. Section 02100 - Clearing and Grubbing.

1.03 SUBMITTALS

A. Submit demolition and removal procedures and schedule under provisions of General Conditions.

B. Demolition and Removal Plan: Not less than ten days prior to starting demolition Work, submit acceptable plan for demolition and removal Work, including:

1. Plan for coordinating shut-offs, capping, temporary services, and continuing utility services.

2. Other proposed procedures as applicable.

3. Equipment proposed for use in demolition operations.

4. Recycling/disposal facility(ies) proposed, including facility owner, facility name, location, and processes. Include copy of appropriate permits and licenses, and compliance status.

5. Planned demolition operating sequences.

6. Detailed schedule of demolition Work in accordance with the accepted Project Schedule.

C. Copies of all photographs and other records from the joint existing conditions surveys.

D. Submit notification of intended demolition start in writing at least 48 hours prior to commencing demolition or removal. Do not start removals without permission of Owner.

1.04 EXISTING CONDITIONS

A. Conduct demolition to minimize interference with adjacent structures.

B. Provide, erect, and maintain temporary barriers and security devices.

C. Conduct operations with minimum interference to public or private thoroughfares. Maintain a protected egress and access at all times.

D. The Owner does not assume responsibility for the actual condition of structures and equipment to be demolished and removed.

E. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner so far as practicable.

F. The information regarding the existing structures and equipment shown on the Drawings is based on visual inspection and a walkthrough survey only. The Owner will not be responsible for interpretations or conclusions drawn therefrom by the Contractor.

1.05 TITLE TO EQUIPMENT AND MATERIALS

A. Contractor shall have no right or title to any of the equipment, materials, or other items to be removed from the existing buildings or structures unless and until said equipment, materials, and other items have been removed from the premises. The Contractor shall not sell or assign or attempt to sell or assign any interest in the said equipment, materials, or other items until the said equipment, materials, or other items have been removed.

B. Contractor shall have no claim against the Owner because of the absence of such fixtures and materials.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 PREPARATIONS

A. Prevent movement or settlement of adjacent structures. Provide bracing and shoring.

B. Protect existing landscaping materials, appurtenances, structures, which are not to be demolished.

C. Disconnect, remove, and cap designated utility lines within demolition areas.

D. Mark location of disconnected utilities. Identify utilities and indicate capping locations on Project Record Documents.

E. Prior to the execution of the work, the Contractor and Owner shall jointly survey the condition of the adjoining and/or nearby pavements and structures. Photographs and records shall be made of any prior settlement or cracking of structures, pavements, and the like, that may become the subject of possible damage claims. Contractor shall provide Owner a copy of all records of the joint survey of conditions before demolition activities may begin. Contractor shall provide copies of the existing conditions survey report to the Owner before any demolition or construction activities begin.

3.02 PROTECTION

A. Demolition and removal work shall be performed by competent experienced workmen for the various type of demolition and removal work and shall be carried out through to completion with due regard to the safety of Owner employees, workmen on site and the public. The work shall be performed with as little nuisance as possible.

B. The work shall comply with the applicable provisions and recommendation of OSHA all governing codes, and as hereinafter specified.

C. The Contractor shall make such investigations, explorations, and probes as are necessary to ascertain any required protective measures before proceeding with demolition and removal. The Contractor shall give particular attention to shoring and bracing requirements to prevent any damage to new or existing construction.

D. The Contractor shall provide, erect, and maintain catch platforms, lights, barriers, weather protection, warning signs and other items as required for proper protection of the public, occupants of the building, workmen engaged in demolition operations, and adjacent construction.

E. The Contractor shall provide and maintain weather protection at exterior openings to fully protect the interior premises against damage from the elements until such openings are closed by new construction.

F. The Contractor shall provide and maintain temporary protection of the existing structure designated to remain where demolition, removal and new work is being done, connections made, materials handled, or equipment moved.

G. The Contractor shall take necessary precautions to prevent dust from rising by wetting demolished masonry, concrete, plaster, and similar debris. Unaltered portions of the existing buildings affected by the operations under this Section shall be protected by dust proof partitions and other adequate means.

H. The Contractor shall provide adequate fire protection in accordance with local Fire Department requirements.

I. The Contractor shall not close or obstruct walkways, passageways, or stairways and shall not store or place materials in passageways, stairs, or other means of egress. The Contractor shall conduct operations with minimum traffic interference.

J. The Contractor shall be responsible for any damage to the existing structure or contents by reason of the insufficiency of protection provided.

K. When structures are adjacent to demolition activities, before commencing demolition, provide surveyed elevation benchmarks on structure at locations directed by Engineer. Record and report the elevation of each benchmark after demolition and at least once a day while demolition is in progress. Should benchmark readings indicate displacement, halt demolition activities until corrective action is provided acceptable to Engineer.

3.03 DEMOLITION

A. Demolish indicated structures and appurtenances in an orderly and careful manner, and in

accordance with staging requirements.

B. Work shall be performed in such manner as not to endanger the safety of the workmen or the public or cause damage to nearby structures. Cease operations and notify the Engineer immediately if adjacent structures appear to be endangered. Do not resume operations until corrective measures have been taken.

C. Except where noted otherwise, immediately remove demolished material from site.

D. Remove salvage materials to be re-installed or retained in a manner that prevents damage. Store and protect.

E. Remove and promptly dispose of contaminated, vermin infested, or dangerous materials encountered.

F. Remove foundation walls and footings to a minimum two feet below finished grade.

G. Remove concrete slabs on grade in their entirety.

H. Backfill excavated areas, open pits, and holes caused as a result of demolition. Excavation caused by demolition shall be backfilled with fill free from rubbish and debris.

I. Keep work sprinkled to minimize dust. Provide hoses and watermain or hydrant connections for this purpose.

J. Rough grade and compact areas affected by demolition to maintain site grades and contours.

K. Remove demolished materials from site as work progresses. Leave site in clean condition.

L. Where parts of existing pavements or structures are to remain in service, demolish the portions to be removed, repair damage, and leave the pavement or structure in proper condition for the intended use. Remove asphalt or concrete pavement, concrete, and masonry to the lines designated by saw-cutting, drilling, chipping, or other suitable methods. Leave the resulting surfaces reasonably true and even, with sharp straight corners that will result in neat joints with new construction and be satisfactory for the purpose intended. Where existing reinforcing rods are to extend into new construction, remove the concrete so that the reinforcing is clean and undamaged. Cut off other reinforcing 1/2-inch below the surface and fill with epoxy resin binder flush with the surface.

M. Wherever piping is to be removed for disposition, the piping shall be drained by the Contractor and adjacent pipe and headers that are to remain in service shall be blanked off or plugged and then anchored in an approved manner.

N. The Contractor shall remove temporary work, such as enclosures, signs, guards, and the like when such temporary work is no longer required or when directed at the completion of the work.

3.04 DISPOSAL

A. All debris resulting from the demolition and removal work shall be disposed of by the Contractor at a properly permitted facility as part of the work of this Contract. Material designated to be salvaged shall be stored on the construction site as directed. All other

material shall be disposed of off-site by the Contractor at his expense.

B. Burning or burying of any debris resulting from the demolition will not be permitted at the site.

3.05 MAINTENANCE

A. The Contractor shall maintain the buildings, structures, and public properties free from accumulations of waste, debris, and rubbish, caused by the demolition and removal operations.

B. The Contractor shall provide on-site dump containers for collection of waste materials, debris, and rubbish, and he shall wet down dry materials to lay down and prevent blowing dust.

C. At reasonable intervals during the progress of the demolition and removal work or as directed by the Engineer, the Contractor shall clean the site and properties, and dispose of waste materials, debris, and rubbish.

3.06 SALVAGE ITEMS

A. Materials and equipment to remain Owner's property shall be carefully removed and appropriately handled by Contractor to avoid damage and invalidation of warranties in effect, and shall be cleaned and stored at the Site (or other site specified in the Contract Documents) at place designated by Engineer or Owner.

[END OF SECTION]

SECTION 02064

MODIFICATIONS TO EXISTING STRUCTURES AND EQUIPMENT

PART 1 – GENERAL

1.01 SCOPE OF WORK

A. Furnish all labor, materials, equipment, and incidentals required to modify, alter, and/or convert existing equipment, structures, piping, and appurtenances as shown or specified, and as required for the installation of new equipment, structures, piping, and appurtenances.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 GENERAL

A. The Contractor shall cut, repair, reuse, excavate, demolish, or otherwise remove parts of the existing structures or appurtenances, as indicated on the Contract Drawings, herein specified, or necessary to permit completion of the work under this Contract. Dispose of surplus materials resulting from the above work in an approved manner, in accordance with the Contract Documents, and at no additional cost to the Owner. The Work shall include all necessary cutting and bending of reinforcing steel, structural steel, or miscellaneous metal work found embedded in the existing structures.

B. At the time that a new connection is made to an existing equipment unit, control panel, or structure new work shall be installed to the limits shown on the Drawings, or as specified herein.

C. No existing structure, equipment, piping, or appurtenance shall be shifted, cut, removed, or otherwise altered except as shown on the Drawings, as specified herein, or approved by Owner in writing.

D. When removing materials or constructing openings in structures, the Contractor shall take all precautions and use all necessary barriers and other protective devices so as not to damage the structures beyond the limits necessary for the new Work.

E. Materials and equipment that are removed to accommodate the modifications to existing structures and equipment shall remain the property of the Owner. However, items that are not salvageable, as determined by the Owner, shall become the property of the Contractor to be disposed of offsite.

F. All alterations to existing equipment and structures shall be done at such time and in such manner that complies with the project schedule. Prior to execution of the Work, all tools, equipment, and materials shall be onsite, assembled, and made ready so that the Work can be completed without delay.

G. All cutting of existing material shall be done in a manner that provides suitable bonding for the new Work.

H. Where necessary or required for the purpose of making connections, the Contractor shall cut existing pipelines in a manner to provide an approved joint. Provide flanges or couplings, as

required.

I. Provide caps, plugs, bulkheads, or other means to provide isolation and flow control in the performance of the Work under this Contract.

J. Blasting will not be permitted to complete any work under this Contract. Care shall be taken not to damage any part of existing buildings or foundations or outside structures.

K. The Contractor shall cut out embedded anchorage and attachment items as required to properly provide for patching and repair of the respective finishes.

L. All supports, pedestals, and anchors shall be removed with the equipment and piping unless otherwise specified or required. Concrete bases, anchor bolts and other supports shall be removed to approximately 1 inch below the surrounding finished area and the recesses shall be patched to match the adjacent areas. Superstructure wall and roof openings shall be closed, and damaged surfaces shall be patched to match the adjacent areas, as specified under applicable Sections of these Specifications, as shown on the Drawings, or as directed by the Owner. Wall sleeves and castings shall be plugged or blanked off, all openings in concrete shall be closed in a manner meeting the requirements of the appropriate Sections of these Specifications, as shown on the Drawings, and as directed and approved by the Owner.

M. Where alterations occur, or new and old work join, the Contractor shall cut, remove, patch, repair, or refinish the adjacent surfaces to the extent required by the construction conditions, to leave the altered work in as good a condition as existed prior to the start of the work. The materials and workmanship employed in the alterations, unless otherwise shown on the Drawing or specified, shall comply with that of the various respective trades which normally perform the particular items of work.

N. The Contractor shall finish adjacent existing surfaces to new work to match the specified finish for new work. The Contractor shall clean existing surfaces of dirt, grease, loose paint, etc., before refinishing.

3.02 CLEANING EXISTING STRUCTURES

A. Before commencing work on any structures, the Contractor shall prepare the Work surfaces by removing and disposing of all liquid, wastewater, settled solids, and debris from within structures.

3.03 CONNECTING TO EXISTING EQUIPMENT AND STRUCTURES

A. The Contractor shall field verify the properties of existing equipment and structures prior to making the connections indicated in the Drawings. The verifications shall be performed with adequate time to correct any potential alignment or other problems prior to the actual time of connection.

[END OF SECTION]

SECTION 02100

CLEARING AND GRUBBING

PART 1 – GENERAL

1.01 SCOPE OF WORK

A. The Work to be performed shall include the clearing and grubbing of the area of Work designated on the Drawings.

B. Clearing shall consist of the cutting, removal, and clearing of the surface of all trees (except for those marked to remain), stumps, bushes, logs, down timber, hedges, snags, brush, undergrowth, grass and weeds, and other encumbrances or loose or projecting material including fences, structures, debris, rubbish from within the limits of disturbance indicated on the Drawings. The grubbing of stumps, roots, foundations shall be required.

C. Principal items of work also include:

1. Notifying all authorities owning utility lines running to or on the property. Protecting and maintaining all utility lines to remain and capping those that are not required in accordance with instructions of the utility companies, and all other authorities having jurisdiction.

2. Barricading and protecting all trees, shrubs, lawns and the like within areas to be preserved. Relocating trees and shrubs, so indicated on the Drawings, to designated areas.

3. Repairing all injury to trees, shrubs, and other plants caused by site preparation operations. Work shall be completed under the direction of a Certified and Licensed Arborist or Landscape Architect.

4. Removing topsoil to its full depth from designated areas and stockpiling on site for future use.

5. Disposing from the site all debris resulting from work under this Section.

1.02 REFERENCES

A. Florida Department of Transportation Standard Specifications for Road and Bridge Construction (F.D.O.T.) latest edition.

1.03 STREET AND ROAD BLOCKAGE

A. Closing of streets and roads during progress of the Work shall be in compliance with the requirements of the Owner and other authorities having jurisdiction. Access shall be provided to all facilities remaining in operation.

1.04 PROTECTION OF PERSONS AND PROPERTY

A. All Work shall be performed in such a manner to protect all personnel, workmen, pedestrians, and adjacent property and structures from possible injury and damage.

B. All conduits, wires, cables, and appurtenances above or below ground shall be protected from damage.

C. Provide warning and barrier fence where shown on the Drawings and as specified herein.

PART 2 – PRODUCTS

2.01 MATERIALS FOR PLACEMENT

A. All materials required to be brought on to the site for filling of holes caused by grubbing or otherwise shall be consistent with materials of the surrounding area.

PART 3 – EXECUTION

3.01 SCHEDULE

A. Contractor shall schedule the clearing and grubbing work in advance of the Work and in coordination with the Owner.

3.02 SPOIL MATERIALS REMOVAL

A. All spoil materials shall be removed from the Site and disposed of by Contractor.

3.03 CLEARING

A. Clear the area of all objectionable materials. Limbs of trees scheduled for removal that fall outside of the limits of disturbance shall be removed and disposed of in a satisfactory manner. Preserve and protect from injury all trees not scheduled for removal.

B. The area shall be cut to a height of not more than 12 inches above the ground surface. The grubbing of stumps and roots will be required.

C. Fences shall be removed and disposed of when directed by Owner. Fence wire shall be neatly rolled and the wire and posts stored on the project if they are to be used again, or stored at a designated location if the fence is to remain the property of Owner.

D. Before removal of topsoil, and start of excavation and grading operations, the areas within the clearing limits shall be cleared and grubbed.

E. Clearing shall consist of cutting, removal, and satisfactory disposal of all trees, fallen timber, brush, bushes, rubbish, sanitary landfill material, fencing, and other perishable and objectionable material within the areas to be excavated or other designated areas. Prior to the start of construction, the Contractor shall survey the entire Contract site and shall prepare a plan which defines the areas to be cleared and grubbed, trees to be pruned, extent of tree pruning, and/or areas which are to be cleared but not grubbed. This plan shall be submitted to the Owner for approval. Should it become necessary to remove a tree, bush, brush, or other plants adjacent to the area to be excavated, the Contractor shall do so only after permission has been granted by the Owner.

F. Excavation resulting from the removal of trees, roots and the like shall be filled with suitable material, as approved by the Engineer, and thoroughly compacted in accordance with Section 02200 - Earthwork.

G. Unless otherwise shown or specified, the Contractor shall clear and grub a strip at least 15 ft. wide along all permanent fence lines installed under this Contract.

H. In temporary construction easement locations, only those trees and shrubs shall be removed which are in actual interference with excavation or grading work under this Contract, and removal shall be subject to approval by the Owner. However, the Owner reserves the right to order additional trees and shrubs removed at no additional cost to the Owner, if such, in his opinion, are too close to the Work to be maintained or have become damaged due to the Contractor's operations.

3.04 STRIPPING AND STOCKPILING EXISTING TOPSOIL

A. Existing topsoil and sod on the site within areas designated on the Drawings shall be stripped to whatever depth it may occur and stored in locations designated by the Owner.

B. The topsoil shall be free of stones, roots, brush, rubbish, or other unsuitable materials before stockpiling the topsoil.

C. Care shall be taken not to contaminate the stockpiled topsoil with any unsuitable materials.

3.05 GRUBBING

A. Grubbing shall consist of the removal and disposal of all stumps, roots, logs, sticks and other perishable materials to a depth of at least 6 inches below ground surfaces.

B. Large stumps located in areas to be excavated may be removed during grading operations, subject to the approval of the Owner.

C. All holes remaining after the grubbing operation in embankment areas shall have the sides broken down to flatten out the slopes, and shall be filled with acceptable material, moistened and properly compacted in layers to the density required. The same construction procedure shall be applied to all holes remaining after grubbing in excavation areas where the depth of holes exceeds the depth of the proposed excavation.

3.06 DISPOSAL OF MATERIAL

A. All debris resulting from the clearing and grubbing work shall be disposed of by the Contractor as part of the work of this Contract. Material designated to be salvaged shall be stored on the construction site as directed for reuse in this Project or removal by others.

B. Burning of any debris resulting from the clearing and grubbing work will not be permitted at the site.

3.07 WARNING AND TREE PROTECTION BARRIER FENCE

A. Tree protection barriers shall be as detailed in the City of Largo Engineering Design and Construction Standards (latest edition).

[END OF SECTION]

SECTION 02200

EARTHWORK

PART 1 – GENERAL

1.01 RESPONSIBILITY

A. The Contractor shall furnish all labor, equipment, and materials required to complete all work associated with excavation (including off-site borrow excavation), fill and backfill placement and compaction, testing of soil materials and compaction by an independent materials testing consultant, constructing embankments, dewatering, construction of drainage layers, installing foundation and backfill aggregate, placing filter and separation fabrics, stockpiling topsoil and any excess suitable material, designing, installing, maintaining and removing excavation support systems, disposing of all excess and unsuitable materials, providing erosion and sedimentation control, encasing utility conduits, site grading, preparation of pavement and structure subgrades, and other related and incidental work as required to complete the work shown on the Drawings and as specified herein.

B. All excavations shall be in conformity with the lines, grades, and cross sections shown on the Drawings or established by the Engineer.

C. It is the intent of this Specification that the Contractor conduct the construction activities in such a manner that erosion of disturbed areas and off-site sedimentation be absolutely minimized.

D. Earthwork performed under this Contract shall be done in conformance with these specifications. Items and activities not addressed herein shall be subject to the limitations of the latest editions of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction. If there is a conflict between this specification and the Standard Specifications for Roads and Structures, the more conservative of the two shall take precedent.

E. Erosion and Sediment Control shall be performed in accordance with individual specifications, the Drawings, and with the latest edition of the Florida Stormwater, Erosion, and Sedimentation Control Inspector Manual (FSESCI Tier I). If there is a conflict between this specification and the FSESCI, the more conservative of the two shall take precedent.

F. All fill materials (soil, aggregate, topsoil, etc.) imported to the site and onsite materials to be reused as fill, backfill, or embankment shall be subjected to the testing requirements contained in Part 3.0 of this Section. The Contractor shall retain a materials testing consultant who shall perform all testing. The test results shall be used to determine if a material meets the requirements included herein. The Contractor shall furnish all necessary samples for laboratory testing and shall provide assistance and cooperation during field tests. The Contractor shall plan their operations to allow adequate time for laboratory tests and to permit taking of field density tests during compaction.

G. Any costs for re-testing required as a result of failure to meet compaction requirements shall be borne solely by the Contractor.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Without limiting the generality of the other requirements of the Specifications, all work herein shall conform to the applicable requirements of the following documents. All referenced Specifications, codes, and standards refer to the most current issue available at the time of Bid.

1. Florida Department of Transportation Standard Specifications for Road and Bridge Construction

2. Florida Department of Transportation Section 120 "Excavation and Embankment".

3. American Society for Testing and Materials (ASTM):

   a. ASTM C 127 – Standard Test Method for Relative Density (Specific Gravity) and Absorption of Coarse Aggregate.

   b. ASTM C 136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

   c. ASTM D 698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft3 (600 kN-m/m3))

   d. ASTM D 1140 – Standard Test Method for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing

   e. ASTM D 1556 – Standard Test Method for Density and Unit Weight of Soil in Place by Sand Cone Method.

   f. ASTM D 1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/lb3 (2,700 kN-m/m3)).

   g. ASTM D 1883 – Standard Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils.

   h. ASTM D 2216 – Test for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.

   i. ASTM D 2487 – Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).

   j. ASTM D 4253 – Standard Test Method for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

   k. ASTM D 4318 – Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

   l. ASTM D 6913 - Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

   m. ASTM D 6938 – Standard Test Method for In-Place Density and Water Content of Soil and Soil Aggregate by Nuclear Methods (Shallow Depth).

1.03 SUBSURFACE CONDITIONS

A. Information on subsurface conditions is referenced under Section 02010 – Subsurface Investigation.

B. Attention is directed to the possible location of water pipes, sanitary pipes, storm drains, and other utilities located in the area of proposed excavation. In the event that excavation activities disrupt service, the Contractor shall perform all repairs at no additional cost to the Owner. The

Contractor shall contact Sunshine 811 or 1-800-432-4770 to request underground utility location mark-out at least three (3) working days, not including the day the request is called in, but no more than ten (10) working days prior to the beginning of excavation. The Contractor shall also contact and request utility location mark-out from buried utility owners with utilities on the project site that are not participants of Sunshine 811.

1.04 SUBMITTALS

A. In accordance with the procedures and requirements set forth in Section 01300 – Submittals, the Contractor shall submit the following:

1. Name and location of all material suppliers.

2. List of disposal sites for waste and unsuitable materials and all required permits for use of those sites.

3. Procedures for dewatering proposed by the Contractor shall be submitted for review and approval prior to any earthwork operations.

4. Temporary excavation support system design engineer qualifications.

5. Construction drawings and structural calculations for any types of excavation support required. Drawings and calculations shall be sealed by a currently registered Professional Engineer licensed in the State of Florida. Contractor shall also submit a monitoring plan developed by the excavation support design engineer.

6. Pre-construction condition inspection and documentation of all adjacent structures, utilities, and roadways near proposed installation of excavation support systems and near areas where dewatering is required to facilitate construction.

1.05 PRODUCT HANDLING

A. Soil and rock material shall be excavated, transported, placed, and stored in a manner so as to prevent contamination, segregation, and excessive wetting. Materials which have become contaminated or segregated will not be permitted in the performance of the work and shall be removed from the site.

1.06 USE OF EXPLOSIVES

A. The use of explosives will not be allowed for the prosecution of this work.

PART 2 – PRODUCTS

2.01 FILL MATERIALS

A. The Contractor shall be responsible for providing fill materials meeting the gradation requirements included herein.

B. All fill materials shall be free of organic material, environmental contaminants, and other unsuitable material.

C. Bedding material installed above and below the water table shall meet the requirements of the FDOT Standard Specifications for Road and Bridge Construction.

D. Below-grade walls shall be backfilled with Select Fill.

E. When the excavated material from required excavations meets the requirements of Select Fill or Common Fill, but is replaced with off-site borrow material for the Contractor's convenience, the costs associated with such work and material shall be borne by the Contractor.

F. Where excavated material does not meet requirements for Select Fill or Common Fill, the Contractor shall furnish off-site borrow material meeting the specified requirements herein. Determination of whether the borrow material will be paid for as an extra cost will be made based on the Contract Documents.

G. Contractor may stockpile excavated material to be used as Select Fill, Common Fill, Drainage Fill or Topsoil on site in areas designated in the Contract Documents. Soil materials may be stockpiled as necessary to sort, segregate, test, and transfer the materials. Excess material and materials considered unsuitable for reuse by the Owner shall be removed from the site for off-site disposal. No stockpiling of excavated material is allowed in a manner or location that would permit erosion and its subsequent sedimentation in wetlands or other natural areas.

2.02 SELECT FILL

A. Select fill shall be used where shown on the Contract Drawings.

B. Select fill shall not include particles or lumps larger than 3 inches.

C. Select fill used as backfill against walls shall not contain any rock larger than 1½ -inches.

D. Select fill shall consist of non-plastic materials classifying as GW, GW-GM, GP, SW, SW-SM, SP-SM, or SP per ASTM D-2487. Select fill shall be free of organic material, environmental contaminants, or other unsuitable material.

E. Open-graded and dense-graded FDOT aggregates meeting the gradation requirements above may be used as Select Fill.

F. Select Fill to be used as pavement subbase material shall be FDOT Aggregate Base Course.

G. Select Fill shall be placed in 8-inch-thick lifts, with the exception of FDOT No. 57 stone, which may be placed in 12-inch-thick lifts.

H. Select Fill shall be compacted to not less than 95 percent of the maximum dry density obtainable by ASTM D 698 and does not contain unsuitable material.

I. Select Fill shall be compacted at a moisture content within 20 percent of the optimum moisture content of the fill material in accordance with the ASTM D 698, Standard Proctor.

J. All materials used as Select Fill are subject to approval by the Owner.

2.03 DRAINAGE FILL

A. Drainage Fill shall be used where shown on the Contract Drawings.

B. Drainage Fill shall consist of FDOT No. 57 stone.

2.04 COMMON FILL

A. Common Fill shall be used where shown on the Contract Drawings.

B. Common Fill shall consist of non-organic on-site soils classifying as CH, MH, CL, ML, SC, SM, SP, SW, GC, GM, GP, or GW according to ASTM D 2487.

C. Common Fill shall be placed in 8-inch-thick loose lifts.

D. Common Fill shall be compacted to not less than 95 percent of the maximum dry density obtainable by ASTM D 698 and does not contain unsuitable material.

E. Common Fill shall be compacted at a moisture content within 20 percent of the optimum moisture content of the fill material in accordance with the ASTM D 698, Standard Proctor.

F. All material used as common fill is subject to approval by the Owner. If there is insufficient suitable material onsite, import whatever additional material is required which conforms to the specifications, at no additional cost to the Owner.

G. Select Fill may be used as Common Fill, subject to approval by the Owner and at no additional cost to the Owner.

2.05 TOPSOIL

A. Topsoil shall be friable and loamy (loam, sandy loam, silt loam, sandy clay loam, clay loam). It shall be free of debris, trash, stumps, rocks, roots, and noxious weeds, and shall give evidence of being able to support healthy vegetation. It shall contain no substance potentially toxic to plant growth. All topsoil shall be tested by a recognized laboratory for the following criteria: Organic matter content shall not be less than 1.5% by weight. pH range shall be from 6.0 -7.5. If pH is less than 6.0, lime shall be added in accordance with test results or in accordance with the recommendations of the vegetative establishment practice being used. Soluble salts shall not exceed 500 ppm. If additional topsoil is needed, it must meet the standards stated above.

2.06 GEOTEXTILES

A. The Contractor shall provide geotextiles as indicated on the Contract Drawings and specified herein.

2.07 UNDERCUT AND STABILIZATION

A. Where directed by Owner, undercut unsuitable materials and replace with No. 57 stone.

PART 3 – EXECUTION

3.01 STRIPPING

A. All vegetation such as brush, heavy sods, heavy growth of grass, decayed vegetable matter, rubbish, and any other unsuitable material within the area upon which embankment is to be placed shall be stripped or otherwise removed before the embankment is started, and in no case shall such objectionable material be allowed in or under the embankment.

B. In all areas to be excavated, filled, or paved, the topsoil shall be stripped to its full depth.

C. Topsoil may be stockpiled for subsequent reuse on site at locations shown on the Contract Drawings or designated by the Owner. Topsoil shall be kept separated from other excavated materials and shall be piled free of roots and other undesirable materials. Topsoil shall not be

stored in areas where it will interfere with surface drainage or with the conservation of trees, shrubs, and other vegetation to remain. No stockpile shall be placed within 50-feet of a pond, stream, wetland, or stormwater inlet.

3.02 EXCAVATION

A. All material excavated, regardless of its nature or composition, shall be classified as unclassified excavation. Excavation shall include the removal of all soil, rock, weathered rock, rocks of all types, boulders, conduits, pipe, all other obstacles encountered, and all other obstacles shown to be removed within the limits of excavation shown on the Contract Drawings or specified herein. No additional payment will be made for the removal of obstacles encountered within the excavation limits shown on the Drawings and specified herein.

B. All suitable material removed in the excavation shall be used as far as practicable in the formation of embankments, subgrades, and shoulders, and at such other places as may be indicated on the Drawings or indicated by the Engineer. No excavation shall be wasted except as may be permitted by the Owner. The Engineer and/or materials testing consultant will designate materials that are unsuitable. The Contractor shall furnish off-site disposal areas for the unsuitable material. Where suitable materials containing excessive moisture are encountered above grade in cuts, the Contractor shall construct above grade ditch drains prior to the excavation of the cut material when in the opinion of the Engineer and/or materials testing consultant such measures are necessary to provide proper construction.

C. All excavations shall be made in the dry and in such a manner and to such widths as will give ample room for properly constructing and inspecting the structures and/or piping they are to contain and for such excavation support, pumping, and drainage as may be required. Excavation shall be made in accordance with the grades and details shown on the Drawings and as specified herein.

D. Excavation slopes shall be flat enough to avoid slides that will cause disturbance of the subgrade or damage of adjacent areas. Excavation requirements and slopes shall be as indicated in the Drawings.

E. The Contractor shall intercept and collect surface runoff both at the top and bottom of cut slopes. The intersection of slopes with natural ground surfaces, including the beginning and ending of cut slopes, shall be uniformly rounded as shown on the Drawings or as may be indicated by the Engineer. Concurrent with the excavation of cuts the Contractor shall construct intercepting berm ditches or earth berms along and on top of the cut slopes at locations shown on the Drawings or designated by the Engineer. All slopes shall be finished to reasonably uniform surfaces acceptable for seeding and mulching operations. No rock or boulders shall be left in place which protrude more than 1 foot within the typical section cut slope lines, and all rock cuts shall be cleaned of loose and overhanging material. All protruding roots and other objectionable vegetation shall be removed from slopes.

F. It is the intent of these Specifications that all structures shall bear on an aggregate base, crushed stone or screened gravel bedding placed to the thickness shown on the Drawings, specified in these Specifications, or not less than 6-inches. Bedding for buried piping shall be as shown on the Drawings.

G. The bottom of all excavations for structures and pipes shall be examined by the Engineer and/or materials testing consultant for bearing value and the presence of unsuitable material. If, in the opinion of the Engineer and/or materials testing consultant, additional excavation is required due to the low bearing value of the subgrade material, or if the in-place soils are soft, yielding, pumping, or wet, the Contractor shall remove such material to the required width and depth and

replace it with thoroughly compacted select fill, and/or crushed stone or screened gravel as indicated by the Engineer. Payment for such additional work ordered by the Engineer shall be made as an extra by a Change Order in accordance with Section 01153. No payment will be made for subgrade disturbance caused by inadequate dewatering or improper construction methods.

H. All cuts shall be brought to the grade and cross section shown on the Drawings, or established by the Engineer, prior to final inspection and acceptance by the Engineer.

I. Slides and over-breaks which occur due to negligence, carelessness, or improper construction techniques on the part of the Contractor shall be removed and disposed of by the Contractor as indicated by the Engineer at no additional cost to the Owner. If grading operations are suspended for any reason whatsoever, partially completed cut and fill slopes shall be brought to the required slope and the work of seeding and mulching or other required erosion and sedimentation control operations shall be performed.

3.03 EXCAVATION SUPPORT

A. The Contractor shall furnish, place, and maintain such excavation support which may be required to provide safe working conditions and support sides of excavation or to protect structures, pipes, and utilities from possible. The Contractor shall be exclusively responsible for maintaining safe working conditions and structure integrity without overstressing or damaging existing structures, pipes, and utilities resulting from the Contractor temporarily placing, moving, or removing loads on or adjacent to existing structures, pipes, and utilities. If the Engineer is of the opinion that at any point sufficient or proper supports have not been provided, the Engineer may order additional supports put in at the expense of the Contractor. The Contractor shall be responsible for the adequacy of all supports used and for all damage resulting from failure of support system or from placing, maintaining, and removing the support system.

B. The selection of and design of any proposed excavation support systems is exclusively the responsibility of the Contractor. Contractor shall submit drawings and calculations to the Engineer on the proposed systems signed and stamped by a licensed Professional Engineer currently registered in the in the State of Florida.

C. The excavation support system shall be installed by a specialized contactor with a minimum of five (5) years' experience installing the type of excavation support system proposed.

D. The Contractor shall exercise caution in the installation and removal of supports to ensure no excessive or unusual loadings or vibrations are transmitted to any new or existing structure. The Contractor shall promptly repair at their expense any and all damage that can be reasonably attributed to installation or removal of excavation support system.

E. Contractor shall monitor movement and vibration in the excavation support systems as well as movement and vibration at adjacent structures, utilities and roadways near excavation supports. Contractor shall submit a monitoring plan developed by the excavation support design engineer. All pre-construction condition assessment and documentation of adjacent structures on-site and off-site shall be performed by the Contractor. If any sign of distress such as cracking or movement occurs in any adjacent structure, utility or roadway during installation of supports, subsequent excavation, service period of supports, subsequent backfill and construction, or removal of supports, Engineer shall be notified immediately. The Contractor shall be exclusively responsible for repair of any damage to any roadway, structure, utility, pipes, etc. both on-site and off-site, as a result of their operations.

F. All excavation supports shall be removed upon completion of the work except as indicated herein. The Engineer may permit supports to be left in place at the request and expense of the Contractor. The Engineer may order certain supports left permanently in place in addition to that required by the Contract. The cost of the materials so ordered left in place, less a reasonable amount for the eliminated expense of the removal work omitted, will be paid as an extra by a Change Order in accordance with Section 01153. Vibrations of new and existing structures shall be considered when the Contractor decides whether to remove excavation supports or leave them in place. Any excavation supports left in place shall be cut off at least two (2) feet below the finished ground surface or as directed by the Engineer.

3.04 PROTECTION OF SUBGRADE

A. To minimize the disturbance of bearing materials and provide a firm foundation, the Contractor shall comply with the following requirements:

1. Use of heavy rubber-tired construction equipment shall not be permitted on the final subgrade unless it can be demonstrated that drawdown of groundwater throughout the entire area of the structure is at least 3 feet below the bottom of the excavation (subgrade). Even then, the use of such equipment shall be prohibited should subgrade disturbance result from concentrated wheel loads.

2. Subgrade soils disturbed through the operations of the Contractor shall be excavated and replaced with compacted select fill or crushed stone at the Contractor's expense as indicated by the Engineer.

3.05 PROOF-ROLLING

A. The subgrade of all structures and all areas that will support pavements or select fill shall be proof-rolled. After stripping of topsoil, excavation to subgrade and prior to placement of fills, the exposed subgrade shall be carefully inspected by probing and testing as needed. Any topsoil or other organic material still in place, wet, soft, or loose soil, and other undesirable materials shall be removed. The exposed subgrade shall be proof-rolled with a heavily loaded tandem-wheeled dump truck to check for pockets of soft material hidden beneath a thin crust of better soil. Any unsuitable materials thus exposed shall be removed and replaced with an approved compacted material, as directed by the materials testing consultant.

3.06 DEWATERING

A. The Contractor shall perform all dewatering as required for the completion of the work. Procedures for dewatering proposed by the Contractor shall be submitted to the Engineer for review prior to any earthwork operations.

B. The dewatering system shall be of sufficient size and capacity as required to control groundwater or seepage, to permit proper excavation operations, embankment construction and reconstruction, and subgrade preparation, and to allow concrete to be placed in a dry condition. The system shall include a sump system or other equipment, appurtenances, and other related earthwork necessary for the required control of water. The Contractor shall drawdown groundwater to at least 2 feet below the bottom of excavations (subgrade), over the entire excavation area, at all times in order to maintain a dry and undisturbed condition.

C. The Contractor shall control, by acceptable means, all water regardless of source. Water shall be controlled, and its disposal provided for at each berm, structure, etc. The entire periphery of the excavation areas shall be ditched and diked to prevent water from entering the excavation. The Contractor shall be fully responsible for disposal of the water and shall provide all necessary

means at no additional expense to the Owner. The Contractor shall be solely responsible for proper design, installation, proper operation, maintenance, and any failure of any component of the system.

D. The Contractor shall be responsible for and shall repair without cost to the Owner, any damage to work in place and the excavation, including damage to the bottom due to heave and including removal of material and pumping out of the excavated area. The Contractor shall be responsible for damages to any other area or structure caused by their failure to maintain and operate the dewatering system proposed and installed by the Contractor.

E. The Contractor shall be responsible for and shall repair, without cost to the Owner, any damage to work in place and nearby structures, roadways, and utilities which can be reasonably attributed to dewatering operations. This includes settlement of structures, roadways, and utilities due to dewatering of soils supporting the structures, roadways, and utilities.

F. The Contractor shall take all the steps considered necessary to familiarize himself with the surface and subsurface site conditions, and shall obtain the data that is required to analyze the water and soil environment at the site and to assure that the materials used for the dewatering systems will not erode, deteriorate, or clog to the extent that the dewatering systems will not perform properly during the period of dewatering.

G. Prior to the execution of the work, the Contractor, Owner and Engineer shall jointly survey the condition of adjoining structures. Photographs and records shall be made of any prior settlement or cracking of structures, pavements, and the like, that may become the subject of possible damage claims.

H. If it is necessary to interrupt existing irrigation systems, sewers or under drainage conduits, utilities or similar underground structures, or parts thereof, the Contractor shall be responsible for and shall take all necessary precautions to protect and preserve or provide temporary services. When such facilities are encountered, the Contractor shall, at his own expense, satisfactorily repair all damage to such facilities or structures which may result from any of his operations during the period of the Contract.

3.07 FILL OR EMBANKMENTS

A. Contractor shall perform the construction of fill or embankments in such a manner that cut and fill slopes will be completed to final slopes and grade in a continuous operation. The operation of removing excavation material from any cut and the placement of embankment in any fill shall be a continuous operation to completion unless otherwise permitted by the Engineer.

B. Subgrades upon which fill or embankments are to be constructed shall be stripped of topsoil, organic material, rubbish and other extraneous materials. After stripping and prior to placing fill or embankment material, the Contractor shall compact the top 12inches of in-place soil as specified under this Section.

C. Any soft or unsuitable materials revealed before or during placement fill or embankment placement shall be removed as indicated by the Engineer and/or materials testing consultant and replaced with select fill and compacted as required.

D. Fill subgrades on which fill or embankment is to be placed, shall be scarified or stepped in a manner which will permit bonding of the embankment with the existing surface. The fill or embankment soils shall be as specified under Part 2 - Products, and shall be deposited and spread in successive, uniform, approximately horizontal layers. The loose thickness of each lift shall not exceed the thickness for each fill type noted herein.

E. Hauling shall be distributed over the full width of the embankment, and in no case will deep ruts be allowed to form during the construction of the embankment. Fill or embankment subgrades shall be properly drained at all times and kept free of flowing or ponding water. Saturated soils, shall be removed as directed by the Engineer.

F. Each layer of the embankment shall be thoroughly compacted to the density specified herein

G. The embankment or fill material in the layers shall be of the proper moisture content before rolling to obtain the prescribed compaction. Moisture conditions and manipulation of the fill or embankment material, when necessary, shall be performed to maintain a uniform moisture content throughout the layer. Should the material be too wet or too dry to permit proper compaction, earthwork operations shall be delayed until the material is adequately moisture conditioned. Samples of all fill or embankment materials for testing, both before and after placement and compaction, will be taken at frequent intervals. From these tests, corrections, adjustments, and modifications of methods, materials, and moisture content will be made to construct the embankment.

H. Where fill or embankments materials are to be placed and compacted on sloped subgrades steeper than 4:1 shall be benched. Benches shall be at least 6-feet wide.

I. When rock and other embankment material are excavated at approximately the same time, the rock shall be incorporated into the outer portions of the embankments and the other material which meets the requirements for select fill shall be incorporated into the formation of the embankments. Stones or fragmentary rock larger than 4inches in their greatest dimension will not be allowed within the top 6 inches of the final grade. Stones, fragmentary rock, or boulders larger than 12 inches in their greatest dimension will not be allowed in any portions of embankments and shall be disposed of by the Contractor as indicated by the Engineer. When rock fragments or stone are used in embankments, the material shall be brought up in layers as specified or directed and every effort shall be exerted to fill the voids with finer material to form a dense, compact mass which meets the densities specified for embankment compaction.

3.08 BACKFILLING

A. All structures and pipes shall be backfilled with the type of materials shown on the Drawings and specified herein. Fill placed as structure or utility backfill shall be deposited in successive, uniform, approximately horizontal lifts.

B. Each lift of fill placed backfill shall be thoroughly compacted to the density specified herein for each type of fill.

C. Where excavation support is used, the Contractor shall take all reasonable measures to prevent loss of support beneath and adjacent to pipes and existing structures when supports are removed. If significant volumes of soil cannot be prevented from clinging to the extracted supports, the voids shall be continuously backfilled as rapidly as possible. The Contractor shall thereafter limit the depth below subgrade that supports will be installed in similar soil conditions or employ other appropriate means to prevent loss of support.

D. Backfill against concrete or masonry structure shall not be performed until the Work has been reviewed and backfilling permitted. Backfill against walls shall also be deferred until the structural slab for floors above the top fill line have been placed and attained design strength or earlier at the discretion of the Engineer. Partial backfilling against adequately braced wall may be considered by the Engineer on an individual situation basis. Where walls are to be waterproofed, all Work shall be completed and membrane materials dried or cured according to the manufacturer's instructions before backfilling.

E. Backfill against tanks and other structures which are to retain liquids shall not be performed until leakage tests are completed and accepted.

3.09 COMPACTION

A. The Contractor shall compact embankments, backfill, crushed stone, aggregate base, and in-place subgrade in accordance with the requirements of this Section. The densities specified herein refer to percentages of maximum density as determined by the noted test methods. Compaction of materials on the project shall be in accordance with the following schedule:

	Density % Standard Proctor (D 698)	Density % Mod. Proctor (D 1557)	Max. Lift Thickness as Compacted Inches
Embankments Beneath Structures, Roadways, and Sidewalks*	98	92	8
Common Fill Areas	95	90	8
Backfill Around Structures	95	90	8
Backfill in Pipe Trenches	95	90	8
Crushed Stone Beneath Structures	**	**	12
Select Sand	98	92	8
Aggregate Base Course (ABC) Beneath Structures, Roadways, and Sidewalks	**	**	8
Crushed Stone Backfill	**	**	12
Crushed Stone Pipe Bedding	**	**	12
In Place Subgrade Beneath Structures, Roadways, and Sidewalks	98	92	Top 12-inches

* Embankments beneath structures shall be considered to include a zone 10 feet out from the foundation of the structure extending down to the natural ground on a 45° slope.
** The aggregate shall be compacted to a degree acceptable to the Engineer by use of a vibratory compactor and/or crawler tractor.

B. Compaction Near Existing Structures

1. Vibratory equipment shall not be used with 25 feet of any existing structure.

2. Within 25 feet of any existing structure, non-vibratory compaction equipment such as a drum roller with a maximum weight of 4 tons should be used. Within 5 feet of any existing structure, a walk behind vibratory sled or roller shall be used.

C. Field density tests will be made by the materials testing consultant to determine if the specified densities have been achieved, and these tests shall be the basis for accepting or rejecting the compaction. In-place density tests will be performed in accordance with ASTM D 1556, ASTM D 1557, or ASTM D 6938. The Engineer, in conjunction with the materials testing consultant, will be the judge as to which test method will be the most appropriate. Failure to achieve the specified

densities shall require the Contractor to recompact the material or remove it as required. The Contractor shall, if necessary, increase the compactive effort by increasing the number of passes, using heavier or more suitable compaction equipment, or by reducing the thickness of the layers. The Contractor shall adjust the moisture contents of the soils to bring them within the optimum range by drying them or adding water as required.

D. Testing will be performed as frequently as deemed necessary by the Engineer and/or materials testing consultant. As a minimum, one in place density test shall be performed for each 1000 cubic yards of embankment placed and 500 cubic yards of backfill placed or one test performed each day for either or as directed by the Engineer or recommended by material testing consultant.

E. Those areas outside of the pavement areas in which the top layer of soil material becomes compacted, due to hauling or to any other activity of the Contractor, shall be scarified to a depth of 4 inches, as directed, to loosen and pulverize the soil.

3.10 VIBRATION MONITORING

A. Vibration monitoring shall be performed at nearby structures when compaction work is ongoing. A single monitoring point using vibration monitoring equipment capable of detecting velocities of 0.1 inch/second or less and survey measurements shall be used for vibration monitoring at each of the nearest structures. An elevation measurement on nearby structures shall be taken before compaction work starts, and then at least twice a day during the work with one reading taken at the conclusion of the day's operations. Elevation measurements shall be recorded to an accuracy of 0.005 foot. If at any time the Contractor detects settlement or heave of 0.005-feet or more, or vibration levels of 1.0 inch/second or more, the vibratory compaction shall be stopped immediately, and the Engineer notified.

3.11 REMOVAL OF EXCESS AND UNSUITABLE MATERIALS

A. The Contractor shall remove and dispose of off-site all excess and unsuitable materials. Within thirty (30) consecutive days after Notice to Proceed, the Contractor shall submit to the Engineer for review all required permits and a list of disposal sites for the unsuitable materials. If the disposal site is located on private property, the submittal shall also include written permission from the owner of record.

B. All excess and unsuitable materials shall be disposed of in locations and under conditions that comply with federal, state/commonwealth and local laws and regulations.

C. The Contractor shall obtain an off-site disposal area prior to beginning excavation operations.

D. All excess and unsuitable materials shall be hauled in trucks of sufficient capacity and tight construction to prevent spillage. Trucks shall be covered to prevent the propagation of dust.

[END OF SECTION]

SECTION 02540

SITE GRADING

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Remove topsoil and stockpile on site for later use.

B. Excavate sub soil and reform to grades, contours and levels.

C. Excavate or fill for roadways, walks, curbs, gutters, parking areas, landscaped areas and as shown on the Drawings.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02100: Clearing and Grubbing

B. Section 02222: Excavation and Backfill for Utilities

C. Section 02224: Excavation and Backfill for Structures

D. Section 02550: Finish Grading

1.03 EXISTING CONDITIONS

A. Known underground, surface and aerial utility lines, and buried objects are based on best available data and indicated on the Drawings. Contractor shall verify all locations.

1.04 PROTECTION

A. Protect trees, shrubs and lawns and other features remaining as part of final landscaping.

B. Protect bench marks, and existing structures, fences, roads, sidewalks, paving and curbs against damage from equipment and vehicular traffic.

C. Protect aerial, surface, or underground utility lines or appurtenance which are to remain.

D. Repair any damage, at no cost to Owner.

1.05 QUALITY CONTROL

A. Grade the site to the required elevations. Spot elevations are shown on the Drawings and the finished surfaces shall be uniformly sloped between these locations.

PART 2 – PRODUCTS

2.01 FILL

A. New fill used for site grading shall be noncohesive, nonplastic, granual mixture of local sand and limerock, shall be free from vegetation, organic material or muck and shall contain not more than 8 percent material by weight which passes the No. 200 sieve. Broken concrete shall not be used in the fill. Fill material containing limerock shall have sufficient sand to fill the voids in the limerock,

and no individual rocks or pieces of hard material that will not pass a 6 inch diameter ring shall be used in the fill; except that the upper 4 inches of all backfill or fills shall not contain any rock or hard material that will not pass a 3 inch diameter ring. Provide all fill material from any excess suitable on site material or from off site sources, all subject to review and acceptance by the Engineer prior to use. Determine the volume of material required for the site.

B. Excavated fill material: Soil free from roots, rocks larger than 3 inches, and building debris. Backfill shall be free of unsuitable material such as large rock, muck and debris.

C. Additional fill material: Shall meet the requirements in 2.01.A.

PART 3 – EXECUTION

3.01 PREPARATION

A. Establish and identify required lines, levels, contours and datum.

B. Maintain bench marks, monuments, and other reference points. Re-establish if disturbed or destroyed, at no cost to Owner.

C. Before start of grading, establish the location and extent of utilities in the work areas. Notify utilities to remove and relocate lines which are in the way of construction.

D. Maintain, protect, reroute or extend as required existing utilities to remain which pass through the work area.

3.02 REMOVAL OF TOPSOIL

A. Topsoil of horticultural value shall be stripped from areas of construction under this contract and stockpiled in area designated by Engineer. Said material shall be stockpiled separately from fill material.

B. Do not permit topsoil to be mixed with subsoil

C. Do not strip topsoil when wet.

D. Do not drive heavy equipment over stockpiled topsoil.

3.03 GRADING AND COMPACTION

A. Place fill material in lifts not to exceed 6 inches and compact to a density of not less than 95 percent of maximum density at optimum moisture as determined by ASTM D 1557. Fill material shall be within plus or minus 2 percentage points of optimum moisture content.

3.04 ROUGH GRADING

A. Rough grade site to required levels, profiles, contours and elevations ready for finish grading and surface treatment. Maintain the following:

B. Sodded areas 4 1/2 inches below finished grade elevation.

C. Seeded areas 6 inches below finished grade.

D. Paved areas 18-24 inches based on asphalt thickness below finished grade elevations.

E. Shrub beds 24 inches below finished grade elevations.

F. Flower beds 18 inches below finished grade elevations.

G. Concrete surface 8 inches below finished grade elevations.

H. Prior to placing fill material over undisturbed subsoil, scarify surface to depth of 6 inches.

3.05 FINE GRADING

A. After structures, bases and pavements are completed and the yard piping trenches backfilled, fine grade the disturbed areas of the site. Remove all construction debris, regardless of size. Shape and slope the completed surface to drain away from the structures. The completed surface shall be within 0.1 foot of the elevations shown on the Drawings, unless otherwise accepted by the Engineer. Minor adjustments to line and grade may be required as the Work progresses in order to satisfy field conditions.

3.06 SURPLUS MATERIAL

A. Remove surplus materials from site.

B. Dispose of surplus material at no cost to Owner.

[END OF SECTION]

SECTION 02550

FINISH GRADING

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. The Contractor shall, under this Section, supply, place, compact and roll finish grade materials prior to landscaping work.

B. Finish grade sub soil.

C. Cut out areas to receive stabilizing base course materials for paving and sidewalks.

D. Place, finish grade and compact topsoil.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02222: Excavation and Backfill for Utilities.

B. Section 02224: Excavation and Backfill for Structures.

C. Section 02540: Site Grading.

D. Section 02560: Sodding, Sprigging, and Seeding.

1.03 PROTECTION

A. The Contractor shall prevent damage to existing fencing, trees, landscaping, natural features, bench marks, pavement, utility lines, and irrigation piping and control system . Correct damage at no cost to the Owner. Damaged irrigation system control wiring shall be replaced. No splice repairs will be accepted.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Topsoil shall be friable loam free from subsoil, roots, grass, excessive amount of weeds, stones and foreign matter; acidity range (pH) of 5.5 to 7.5; containing a minimum of 4% and a maximum of 25% organic matter. (Use topsoil stockpiled on site if conforming to these requirements, or as directed by the Engineer.)

PART 3 – EXECUTION

3.01 SUB-SOIL PREPARATION

A. Rough grade sub soil systematically to allow for a maximum amount of natural settlement and compaction. Eliminate uneven areas and low spots. Remove debris, roots, branches, stones, etc., in excess of 2 inches in size. Remove sub soil which has been contaminated with petroleum products.

B. Cut out areas, to sub grade elevation, which are to receive stabilizing base for paving and sidewalks.

C. Bring sub soil to required levels, profiles and contours. Make changes in grade gradual. Blend slopes in to level areas.

D. Slope grade away from building minimum 4 inches in 10 feet (unless indicated otherwise on Drawings).

3.02 PLACING TOPSOIL

A. Place topsoil in area where seeding, sodding and planting is to be performed. Place to the following minimum depths, up to finished grade elevations:

1. 4 1/2 inches for sodded areas.

2. 6 inches for seeded areas.

3. 24 inches for shrub beds.

4. 18 inches for flower beds.

B. Use topsoil in relatively dry state. Place during dry weather.

C. Fine grade topsoil eliminating rough and low areas to ensure positive drainage. Maintain levels, profiles and contours of sub grades.

D. Remove stones, roots, grass, weeds, debris and other foreign material while spreading.

E. Manually spread topsoil around trees, plants, buildings and other structures to prevent damage which may be caused by grading equipment.

F. Lightly compact placed topsoil.

3.03 SURPLUS MATERIAL

A. Remove surplus sub soil and topsoil from site.

B. Leave stockpile areas and entire job site clean and raked, ready to receive landscaping.

[END OF SECTION]

SECTION 02604

UTILITY STRUCTURES

PART 1 GENERAL

1.01 SCOPE

A. Furnish and install, as shown on the Drawings, manholes and vaults including:

1. Precast concrete sections
2. Brick
3. Mortar
4. Cast iron frame and lids

1.02 RELATED WORK

A. Section 02710 - Underdrain System

B. Section 02222 – Excavation and Backfill for Utilities

1.03 REFERENCE STANDARDS

A. Without limiting the generality of the other requirements of the specifications, all work herein shall conform to the applicable requirements of the following documents. All referenced specifications, codes, and standards refer to the most current issue available at the time of Bid.

1. ASTM C478: Precast Reinforced Concrete Manhole Sections.
2. ASTM C443: Joints for Circular Concrete Sewer and Culvert Pipe Using Rubber Gaskets.
3. ASTM C857: Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
4. ASTM C990: Specifications for Joints in Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
5. FDOT 425: Inlets, Manholes, and Junction Boxes

1.04 SUBMITTALS

A. Submit samples and/or Shop Drawings in accordance with Section 01300 - Submittals.

B. In addition to items listed in Section 03400 - Precast Concrete, Shop Drawings shall include, but not be limited to:

1. Complete layout and installation Drawings and schedules with clearly marked dimensions.
2. Material certificates on all piping materials.

3. Structural design calculations sealed by a P.E. registered in the State of Florida. Design calculations for precast manholes and vaults shall include confirmation structures adequately resist flotation when they are totally empty and subjected to groundwater at the full height of structure.

4. Results of leakage test.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Neenah No. R 1712 with Type A Lid.

B. Russco No. M 510 with Type C lid.

C. Clark No. R502 with Type A lid.

D. Or approved equal.

2.02 PRECAST MANHOLES, VAULTS, AND METER BOXES

A. Precast utility structures shall be furnished with waterstops, sleeves and openings as noted on the Drawings. Box out for wall pipes shall conform accurately to the sizes and elevations of the adjoining pipes. Precast utility structures shall be watertight and conform to the requirements of ASTM C 478 and ASTM C857 with the following modifications there to:

1. Materials shall conform to Section 03400 - Precast Concrete.

2. The date and name of manufacturer shall be marked inside each precast section.

3. Dimensions shall be as shown on the Drawings.

4. Covers and frames shall be as specified in Section 2.02 H.

5. Mechanical Details such as piping, electrical, and other details shall be as shown on the Drawings.

B. Manholes

1. Manhole section shall have a minimum internal diameter of 4'-0", unless noted otherwise.

2. Details and dimensions for manhole construction shall be as shown on the Drawings.

3. Manholes and utility structures shall include ballast concrete and/or other means necessary to ensure manholes resist flotation when empty and subjected to groundwater full height of structure.

4. Concrete floor slab shall be minimum eight inches thick with #5 bar at 10-inch spacing each way or precast bases.

5. Manholes shall be concentric unless otherwise indicated on drawings, standards, and specifications.

6. Joints shall be a compression type, neoprene gasket joint conforming to ASTM C443, of

a design approved by the Engineer.

7. Lifting holes through the structures are not permitted.

8. All grout used for sealing around pipe openings shall be of a non-shrinking type, acceptable to the Engineer, designed for use in water. All openings and joints shall be sealed watertight.

9. Precast manhole tops shall terminate at such elevations as will permit laying up a minimum of five inches of brick under the manhole frame to make allowance for future street grade adjustments.

10. Drop connections, where required on precast manholes, shall be cast monolithically with the manhole elements.

11. Inverts shall be formed of 4,000 PSI concrete with approved coating sealant as described below, to provide a smooth flowing channel of the exact shape of the sewer to which it connects. All inverts of manholes shall be shaped while the manholes are under construction. All inverts shall follow the grades of the pipe entering the manholes. Changes in direction of the sewer and entering branch or branches shall have a true curve of as large a radius as the size of the manhole will permit.

12. Where shown on the Drawings or ordered by the Engineer, the Contractor shall provide manholes with stub lines for connection to future sewer lines. Provide the end of each stub line with a bell and close by means of an approved plug. This plug shall be removed, at some later time, without injury to the pipe. Reference each stub accurately to the center of the manhole and record the actual invert elevation of each end.

C. BRICK

1. Brick shall be sound, hard-burned common brick conforming to ASTM C32, Grade MS.

D. CONCRETE BLOCK

1. Concrete block shall be solid, rectangular concrete masonry units conforming to ASTM C139.

E. JOINT SEALANT

1. Joint sealant shall be a preformed flexible sealant conforming to the requirements of ASTM C990, paragraph 6.2, Butyl Rubber Sealant. Joint sealant shall be Pro-Stik Butyl Sealant by Press-Seal, Butyl-Nek Join Sealant by Henry, CS-102 Butyl Rubber Sealant for all Precast Structures by ConSeal, or equal.

F. FLEXIBLE RUBBER SLEEVE

1. The spring set type shall have a stainless steel interior power sleeve or expander and shall be the PSX assembly by Press-Seal Gasket Corporation, the Kor-N-Seal assembly by National Pollution Control Systems, Lock Joint Flexible Manhole Sleeve by Interpace Corp, or equal.

2. The cast-in-place type shall conform to ASTM C923 and shall include stainless steel take up clamps.

3. Flexible seal assemblies shall permit at least an eight (8) degree deflection from the center line of the opening in any direction while maintaining a watertight connection.

G. RUBBER BLADDER

1. The rubber bladder seal shall conform to ASTM C923 suitable for pressure testing at 10 psi minimum, with a 3/8-inch minimum wall thickness.

2. The rubber bladder seal shall contain an environmentally safe, anti-bacterial compound which turns into a high viscosity gel when in contact with pressurized water.

3. The rubber bladder seal shall be NPC Contour Seal by Kor-N-Seal, or equal.

H. COVERS AND FRAMES

1. Covers and frames shall comply with Section 05540 - Castings and shall be provided by the utility structure manufacturer.

2. Manhole covers and frames shall meet the following requirements:

   a. Dimensions shall match those indicated on the Drawings.

   b. All manhole frames and covers shall be US Foundry, Neenah, East Jordan Iron Works or approved equal.

   c. Storm drain grated inlet frames and grates shall be Neenah, East Jordan Iron Works, or equal.

   d. Curb inlet frames and grates shall be Neenah, East Jordan Iron Works, or equal, and shall include frame, grate, and hood.

3. Vault covers shall have lifting handles and shall be bolted with stainless steel bolts.

4. Frames and covers shall be identical throughout the Contract.

I. CONCRETE BALLAST

1. Concrete ballast shall be Class B concrete Ballast shall be provided as necessary to ensure manhole resists flotation when empty and subjected to full height groundwater conditions.

J. FLEXIBLE JOINT SEALER

1. Flexible joint sealer shall be a rubber ring waterstop as manufactured by Fernco Joint Sealer Co., or equal.

K. VAULTS

1. Vaults and similar structures shall be constructed as shown on the Drawings of size and shape indicated. The installation shall be in accordance with all other sections of this specification.

2. Pipes entering the vault or structure shall enter through wall sleeves, except for concrete or VCP pipe entering a wet vault, wherein the pipe may be installed as follows:

3. The pipe may be cast into the wall of the structure provided the first three pipe lengths outside the structure shall have minimum laying length, dependent on pipe type and size, with the first point occurring within 12 inches of the structure.

4. Grout the pipe into the structure with a non-shrinking grout, acceptable to the Engineer, designed for use in water. All joints shall be sealed watertight.

5. Utilize a sealing material between the pipe and structure such as Link Seal manufactured by the Thunderline Corporation, or equal when approved by the Engineer.

PART 3 EXECUTION

3.01 DESIGN CRITERIA

A. Minimum structural design loading for underground precast concrete vaults shall be as indicated in ASTM C857, unless otherwise noted herein. Precast items subjected to vehicular traffic shall be designed for H-20 traffic loading. Other precast items shall be designed for a vertical live load of 300 psf.

B. Walls of precast items shall be designed for a vertical surcharge of 100 psf.

C. Precast manholes and vaults shall be designed to resist flotation when totally empty and subjected to groundwater full height of the manhole/vault.

3.02 FABRICATION AND CASTING

A. Fabrication and casting shall conform to specifications herein.

B. All base sections designated to receive concrete ballast and all electrical manholes shall extend monolithically a minimum of 6 inches beyond the outside face of the wall for the entire periphery. All other utility structures shall have a standard base.

C. Utility structures built around existing pipe shall have a cast-in-place base slab.

3.03 HANDLING, TRANSPORTING, AND STORING

A. Handling, transporting and storing of precast items shall comply with Section 03400 - Precast Concrete.

3.04 INSTALLATION

A. Installation shall conform with Section 03400 - Precast Concrete.

B. Frames and covers or grates shall be set so that tops are at elevations indicated on the Drawings or flush with finished grade where no elevation is indicated.

C. Joints between riser sections shall be sealed with joint sealant.

D. All openings in utility structures shall have flexible rubber sleeves sized to fit the connecting pipe and installed to provide watertight joints in accordance with the manufacturer's recommendations. The interior of the sleeve shall be filled with Class B concrete.

E. Openings that are too large for flexible rubber sleeves shall utilize rubber bladder seals which are expanded by water injected using a pressure pump.

F. All units shall be installed plumb and level.

G. All lift holes and joints shall be filled with non-shrink grout conforming to Section 03600, grout inside and out.

H. The manhole frames shall be set to their required elevations either with grade rings or with two or three courses of brick masonry laid around the top of the upper wall section. Such brick work shall be given a 1-inch mortar coat on the inside and out.

I. Concrete ballast shall be placed so that it bears directly on the utility structure base against the outer wall monolithically encircling the structure for the full height indicated on the Drawings. Additional ballast may be required where the depth or elevation of the structure varies from the Drawings.

J. Brick or Concrete Block

1. Brick or concrete block shall be laid with broken joints and all horizontal and vertical joints filled with cement-sand mortar. Outside of walls shall be plastered with a minimum 1-inch thick coat of cement-sand mortar troweled smooth.

K. Connection to Existing Pipe

1. Verify the diameter and invert elevation of existing pipe to be connected to new utility structures prior to beginning work on the structures.

2. Provide adequate protection to prevent damage to the existing pipe.

3. Provide adequate means for plugging and/or transferring the existing flow in the pipe to allow for the construction of inverts and grouting.

4. Cut off the existing pipe sufficiently for connection to the new structure and remove.

5. Thoroughly clean all foreign matter and coat the pipe surface with epoxy adhesive where the pipe joins the new structure.

6. Install a flexible joint sealer around the pipe.

7. Grout inside and outside of wall penetration with nonshrink grout.

L. Backfill structures in accordance with Section 02200 - Earthwork.

M. Clean all structures of any accumulation of silt, debris, or foreign matter and keep clean until final acceptance of the work.

N. Excavation shall conform to Section 02200 - Earthwork.

O. Structure bases shall bear on a minimum of 12 inches of compacted stone unless otherwise indicated on the Drawings. Compacted stone shall be wrapped when under parking lot or roadways or when weepholes are present.

P. Channel Inverts

1. Inverts shall be placed using Class B concrete with forms sufficient to provide a smooth half-round shape as shown on the Drawings. Manhole bases employing full depth

precast inverts are acceptable.

2. Where the slope of the line does not change through a manhole, a constant slope shall be maintained in the invert. Where slope changes occur within a given manhole, the transition shall be smooth and shall occur at the approximate center of the manhole.

3. Inverts shown on the Drawings are taken at the center of the manhole unless otherwise noted.

Q. No backfilling of excavation, above elevation of top of interior concrete fill, shall be performed until waterproof coating has been cured for at least twenty-four (24) hours and inspected and approved by the Engineer. Any defective coverage shall be repaired to the satisfaction of the Engineer before backfilling is performed.

3.05 LEAK PROOFING

A. Walls shall be sealed against leakage by the application on the complete exterior surface of a plaster coat of cement mortar of approximately the same composition as mortar for masonry joints, applied not less than 1/2 inch in thickness at any point by steel trowel as the wall is built. Precast manholes shall be sealed at ring joints.

B. Walls alternatively may be sealed against leakage by a heavy brush coat application of an approved waterproofing compound, mixed and applied in accordance with manufacturer's recommendations. Not less than 50 pounds of compound shall be used on each 125 square feet of exterior surface area, and the coverage of block and joints shall be continuous and uniform. Joints must be struck and troweled flush and dried for at least twenty-four (24) hours under good curing conditions, before seal coat is applied.

3.06 ADJUSTMENTS TO EXISTING UTILITY STRUCTURES

A. Adjust structures as indicated on the Drawings using concrete or cast iron adjustment rings by approved methods.

B. Clean covers and inlet castings of all foreign material and paint with one coat of coal tar epoxy.

3.07 ADJUSTING COLLARS AND FINAL ADJUSTMENTS

A. Adjusting collars shall be as shown on the Drawings. Final adjustments shall be made so that the manhole ring and cover will be smooth and flush with the finished grade of the adjacent surface, or as otherwise indicated on the Drawings for manholes shown above grade.

3.08 LEAKAGE TESTING FOR MANHOLES

A. All manholes shall be vacuum tested as specified below.

B. Manhole vacuum testing shall include the following minimum requirements:

C. Testing shall be done in accordance with ASTM C1244-05 (or latest revision).

D. Prior to testing all pipes, holes, and vents entering manhole shall be plugged and braced.

E. Contractor shall have an approved test head and copy of instructions for use by the

manufacturer.

F. Test will be conducted with Pinellas County potable water.

3.09 FLUSHING AND TESTING OF SEWERS

A. Obstruction – After backfilling, all sewers shall be inspected for obstructions and shall be flushed with water. Flushing shall be a minimum velocity of 2.5 feet per second for a duration acceptable to the Engineer. Flushing shall remove all dirt, stones, pieces of wood and other debris which accumulated in the sewer during construction. The Contractor shall provide a means acceptable to the Engineer for removal of debris flushed from each section of sewer. If after flushing, any obstructions remain, they shall be removed at the Contractor's expense.

B. Visual Inspection – All pipe lines of 8 inch or larger shall be CCTVed. All piping shall be laid, true to lines and grades given, with hubs (bells) upgrade and tongue end (Spigot) fully entered into the hub (homed). Do not allow departure from and return to plan alignment and grade to exceed 1/16th of an inch per foot of nominal pipe length, with total of not more than 1” inch departure from theoretical line and grade. Mirror inspections are acceptable for lines 6-inch and smaller. For lines 8-inch and larger, CCTV inspection are required.

C. Leakage – Sewers shall be tested for leakage. The program of testing shall fit the conditions as mutually determined by the Engineer and the Contractor. The Contractor shall take all necessary precautions to prevent any joints from drawing while the sewers or their appurtenances are being tested. The Contractor shall, at his own expense, correct any excess leakage and repair any damage to the pipe and their appurtenances, or to any structures resulting from or caused by these tests.

D. Leakage Test Procedure – Each section of sewer shall be tested by closing the lower end of the sewer to be tested and the inlet sewer of the upper manhole with stoppers and filling the pipe and manhole with water to a point 6 feet above the crown of the open sewer in the upper manhole, or, if ground water is present, 6 feet above the sections average adjacent ground water level as indicated by a monitor well installed adjacent to each manhole. The line shall be filled with water prior to testing and allowed to stand until the pipe has reached its maximum absorption, but not less than two (2) hours. After maximum absorption has been reached, the head shall be reestablished and tested for at least six (6) hours maintaining the head specified above by measured additions of water. The sum of these additions shall be the leakage for the test period.

   1. If ground water is present to a height of at least 6 feet above the crown of the sewer at the upper end of the pipe section to be tested, the leakage test may be made by measuring the rate of infiltration using a suitable weir or other measuring device approved by the Engineer. Whether the test is made by infiltration or exfiltration, the allowable leakage shall not exceed 100 gallons per day per inch of diameter per mile of sewer being tested.

   2. Where the actual leakage exceeds the allowable, the Contractor shall discover the cause and correct it before the sewer will be accepted. For the purpose of this subsection, a section of sewer is defined as that length of sewer between successive manholes or special structures or stub-outs for future connections.

E. Low Pressure Compressed Air Test – If the leakage cannot be located by infiltration or exfiltration testing, this type test may be used. The pipeline shall be considered acceptable, when tested at an average pressure of 3.0 psi greater than the average back pressure of any groundwater that may submerge the pipe, if the section under test does not lose air at a

rate greater than 0.0030 cfm per sq. ft. of internal pipe surface.

F. Deflection Test – No sooner than thirty (30) days after final backfill installation, each section of PVC pipe shall be checked for vertical deflection using an electronic deflectometer or a rigid "GoNoGo" device. Vertical deflection shall not exceed five (5) percent of the inside pipe diameter for PVC pipe.

   1. Where the actual deflection exceeds the allowable, the Contractor shall discover the cause and correct it before the pipe will be acceptable. For the purpose of this subsection, a section of sewer is defined as that length of sewer between successive manholes or special structures or stubouts for future connections.

   2. Cost of Testing and Repairs – Any and all work necessary to bring the line into conformance with the infiltration and deflection specifications shall be performed by the Contractor at no extra cost to the Owner. All apparent sources of infiltration and excessive deflection shall be repaired by the Contractor.

G. The Contractor shall provide all water, plugs, hoses, pumps, equipment, etc. necessary for the proper flushing and testing of the sewers.

[END OF SECTION]

SECTION 02607

MANHOLE HEIGHT ADJUSTMENT

PART 1 GENERAL

1.01 GENERAL

A. Furnish all materials, labor, equipment, tools, and incidentals required to adjust the height of manholes in accordance with the Drawings and as specified herein.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Without limiting the generality of the other requirements of the Specifications, all work herein shall conform to the applicable requirements of the following documents. All referenced specifications, codes, and standards refer to the most current issue available at the time of Bid.

B. ASTM C478 Standard Specification for Precast Reinforced Concrete Manhole Sections

C. ASTM D149 Standard Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies

D. ASTM D256 Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics

E. ASTM D570 Standard Test Method for Water Absorption of Plastics

F. ASTM D638 Standard Test Method for Tensile Properties of Plastics

G. ASTM D648 Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position

H. ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

I. ASTM D955 Standard Test Method of Measuring Shrinkage from Mold Dimensions of Thermoplastics

J. ASTM D1000 Standard Test Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications

K. ASTM D1002 Standard Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal)

L. ASTM D1044 Standard Test Method for Resistance of Transparent Plastics to Surface Abrasion

M. ASTM D2240 Standard Test Method for Rubber Property – Durometer Hardness

N. ASTM D2671 Standard Test Methods for Heat-Shrinkable Tubing for Electrical Use

O. ASTM D4976 Standard Specification for Polyethylene Plastics Molding and Extrusion Materials

P. ASTM E28 Standard Test Methods for Softening Point of Resins Derived from Naval Stores by Ring-and-Ball Apparatus

Q. ASTM G17 Standard Test Method for Penetration Resistance of Pipeline Coatings (Blunt Rod)

1.03 SUBMITTALS

A. The Contractor shall submit the following shop drawings and product data in accordance with requirements of Section 01300 – Submittals:

1. Proposed method of height adjustment for each manhole to be adjusted in height

2. Design and construction details of all manhole grade rings, including details of joints between grade rings and existing manhole top cone/slab and between grade rings and existing cover and frame, all with clearly marked dimensions

3. Design and construction details of all precast concrete manhole components (riser sections and top cones), including materials, reinforcement, and details of joints between manhole components and existing manhole components, all with clearly marked dimensions

4. Manufacturer's installation instructions, procedures, and materials for external manhole sleeves

5. Manufacturer's certification indicating external manhole sleeves are manufactured in an ISO 9002 registered facility

1.04 QUALITY ASSURANCE

A. External Manhole Sleeve Manufacturer Qualifications:

1. External manhole heat-shrink sleeves shall be manufactured in an ISO 9002 registered facility.

2. Manufacturer shall have the capability of producing irradiated and cross-linked polyethylene coating to allow shrinking of coating material in circumferential direction under influence of heat.

3. Manufacturer shall have the capability of providing manufacturer-employed field service personnel for onsite assistance as required.

B. External Manhole Sleeve Installer Qualifications:

1. Installer shall be experienced with installation techniques.

2. Installer shall have attended a minimum of one (1) day of training at the external manhole sleeve manufacturer's facility or onsite with the external manhole sleeve manufacturer's representative.

C. Pre-Installation Meeting: External manhole sleeve manufacturer's representative and external manhole sleeve installer shall attend a pre-installation meeting with the Contractor and Engineer one (1) week prior to the start of installation of the initial external manhole

sleeve. At the meeting, the attendees shall review surface preparation, installation, field quality control, backfilling, protection, and coordination with other work.

1.05 DELIVERY, STORAGE, AND HANDLING

A. External Manhole Sleeve Delivery:

1. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, batch or lot number, and date of manufacture.

2. Protect individual sleeves to prevent adherence to other sleeves, packing material, and containers in accordance with manufacturer's instructions.

B. External Manhole Sleeve Storage:

1. Store materials in accordance with manufacturer's instructions.

2. Keep containers sealed until ready for use.

3. Do not store at temperatures above 95 degrees Fahrenheit (35 degrees Celsius) or below -4 degrees Fahrenheit (-20 degrees Celsius).

4. Protect materials and containers from exposure to direct sunlight, rain, snow, dirt, and dust.

5. Store materials off ground or floor in ventilated area.

C. External Manhole Sleeve Handling: Protect materials during handling and installation to prevent damage or contamination in accordance with manufacturer's instructions.

D. Delivery, storage, and handling of all other materials specified herein, other than the external manhole sleeves, shall be in accordance with the manufacturer's requirements.

1.06 WARRANTY

A. Warranty period for high density polyethylene (HDPE) and concrete grade rings shall be for five (5) years from the date of acceptance.

PART 2 PRODUCTS

2.01 MANHOLE GRADE RINGS

A. Round manhole grade rings shall be used to set manhole frames to their required elevations by methods approved by the Owner and/or Engineer. Manhole grade rings shall be composed of either precast concrete or high density polyethylene (HDPE).

1. All manhole grade rings shall be composed of precast concrete in accordance with ASTM C478 and Section 03400 – Precast Concrete.

B. All manhole grade rings shall be of approved design and of sufficient strength to withstand the typical loads that will be imposed upon them after installation. For manholes located in pavement that are adjusted in height, manhole grade ring shall be rated for an AASHTO live HS-20 traffic load at a minimum.

C. Prior to reinstallation of an existing manhole cover and frame, Contractor shall clean cover and frame of all foreign material and shall paint cover and frame with one (1) coat of coal tar epoxy.

2.02 PRECAST CONCRETE MANHOLE COMPONENTS

A. Precast concrete manhole components (riser sections or top cones) shall be used to set manhole frames to their required elevations by methods approved by the Owner and/or Engineer in accordance with Section 02604 – Utility Structures.

2.03 JOINT GASKET AND WATERSTOP

A. Joints between manhole components, grade rings, and covers and frames shall be sealed as follows:

1. Existing Top Cone/Slab and New Precast Concrete Manhole Grade Ring: Waterstop

2. Adjacent New Precast Concrete Manhole Grade Rings: Waterstop

3. New Precast Concrete Manhole Grade Ring and Existing (Reinstalled) Manhole Cover and Frame: Waterstop

4. Existing Precast Manhole Component (Riser Section or Top Cone) and New Precast Manhole Component (Riser Section or Top Cone): Gasket and waterstop

5. Pre-lubricated profile gaskets and hydrophilic waterstop rings shall be as specified in Section 02604 – Utility Structures.

2.04 GASKETS

A. Gaskets between covers and frames shall be in accordance with the requirements of Section 02604 – Utility Structures.

1. Prior to reinstalling an existing manhole cover and frame, Contractor shall install a new gasket between the cover and frame in accordance with the gasket manufacturer's recommendations. Gaskets shall be secured to the seating surface of the frame with a non-degrading glue as recommended by the gasket manufacturer.

2. New manhole covers and frames shall be shipped from the factory with gaskets already installed in the seating surface of the frame.

2.05 EXTERNAL MANHOLE SLEEVES

A. Heat-shrinkable, wrap around sleeves shall be provided on the exterior of manholes to create a barrier to water infiltration and effectively protect the manholes' support structures and frames from ground moisture, thus preventing corrosion and freeze-thaw damage. Sleeves shall accommodate ground movement and resist soil stress. External manhole sleeves shall be WrapidSeal Manhole Encapsulation System by Canusa-CPS (a division of ShawCor Inc.), Riser-Wrap Sealing System by Pipeline Seal and Insulator, Inc. of Houston, TX, or Engineer-approved equal.

1. Material: Irradiated and cross-linked polyethylene impermeable backing, coated with a protective heat-activated adhesive

2. Bonding: Bond to primed concrete, metal, and fiberglass surfaces

3. Compatibility: Compatible with concrete, steel, iron, and fiberglass

4. Closure: Separate closure seal to secure sleeve in place during installation and seal overlap area

5. Functional Performance of Heat-Shrinkable Sleeves:

    a. Minimum Peel Strength per ASTM D1000: 9 pounds/linear inch (15 N/cm)

    b. Lap Shear per ASTM D1002: 1.5 psi (1.0 N/cm2)

    c. Maximum Water Absorption per ASTM D570: 0.05 percent

    d. Low Temperature Flexibility per ASTM D2671: -40 degrees Fahrenheit (-40 degrees Celsius)

    e. Penetration Resistance per ASTM G17: Pass

6. Physical Properties of Heat-Shrinkable Sleeves:

    a. Type: High shrink

    b. Supplied Thickness: 101 mils (2.5 mm)

    c. Fully Recovered Thickness: 125 mils (3.2 mm)

    d. Minimum Shrink Factor: 40 percent

7. Sleeve Adhesive:

    a. Minimum Softening Point per ASTM E28: 212 degrees Fahrenheit (100 degrees Celsius)

    b. Minimum Lap Shear Strength per ASTM D1002: 12 psi (8 N/cm2)

8. Sleeve Backing:

    a. Minimum Tensile Strength per ASTM D638: 2,900 psi (20 MPa)

    b. Minimum Elongation per ASTM D638: 600 percent

    c. Minimum Hardness per ASTM D2240: 46 Shore D

    d. Abrasion Resistance per ASTM D1044: 45 mg

    e. Shrink Force per ASTM D638: 38 psi (26 N/cm2)

    f. Dielectric Strength per ASTM D149: 500 KV/inch (20 KV/mm)

9. Primer shall be suitable for priming steel, concrete, and fiberglass surfaces for installation of sleeve, shall be compatible with common substrates and sleeve adhesive, and shall be the WrapidSeal Manhole Encapsulation System primer, Polyken #1027 or #1039

liquid adhesive primers for Riser-Wrap Sealing System, or as recommended by the equivalent external manhole sleeve manufacturer.

PART 3 EXECUTION

3.01 MANHOLE ENTRY

A. The Contractor shall exercise extreme caution during any manhole entry operations on live sewer lines. Particular attention shall be paid while working on larger diameter sewers. The Contractor shall implement all necessary safety precautions, in accordance with OSHA regulations, to give maximum protection at all times to persons or property at or near the work area.

3.02 MANHOLE GRADE RINGS AND PRECAST MANHOLE COMPONENTS

A. Manhole grade rings or precast manhole components shall be used for all precast concrete manholes to adjust the height of the manhole frame casting where required. If the Contractor locates and uncovers an existing manhole composed of masonry/brick, Contractor shall notify the Engineer, who shall instruct the Contractor how to proceed with adjusting the height of the masonry/brick manhole.

1. Individual grade rings shall be a maximum of 10 inches in height and shall be installed on the existing top cone/slab of the manhole to be adjusted in height after removal of the existing manhole cover and frame. The existing manhole cover and frame shall subsequently be reinstalled on top of the grade rings.

2. The height of the grade ring(s) shall be such as is necessary to bring the manhole frame to the proper grade.

3. HDPE rings shall be used for grade adjustment from 2 inches to a maximum of 6 inches in height.

4. Precast concrete rings shall be used for grade adjustments 4 inches to a maximum of 12 inches in height.

5. Precast concrete manhole components (riser sections or top cones) with joints in accordance with Section 02604 – Utility Structures shall be used for grade adjustment measuring 16 inches and greater.

6. For all grade adjustments using a precast concrete riser section, the existing top cone/slab with cover and frame shall be removed and then reinstalled after installation of the new riser section.

7. For all grade adjustments using a precast concrete top cone, the existing top cone/slab with cover and frame shall be removed and properly disposed of and a new top cone with new cover and frame shall be installed. New frames shall be attached to the new top cone using four (4) 5/8-inch diameter stainless steel.

8. Rings shall be set concentrically on top of the existing top cone/slab.

9. The joints of all precast concrete manhole grade rings, HDPE grade rings, and precast concrete manhole components (riser sections or top cones) shall be sealed in accordance with Article 2.03 herein.

10. Manhole grade rings and precast concrete manhole components shall be installed in accordance with the manufacturer's recommendations.

B. Existing casting frames shall be reinstalled on the new grade ring(s).

3.03 PROCEDURES FOR MANHOLE HEIGHT ADJUSTMENT

A. Height adjustment of manholes shall conform to the Owner's standards as noted herein and as shown on the drawings.

B. The Contractor shall utilize maps, surveys, sounding instruments, or information from local residents to determine approximate location of buried manholes. Manholes shall be exposed utilizing hand techniques or by carefully probing with mechanical equipment. Manhole exposure in pavement shall be accomplished by making a square cut in the surface with sufficient width to allow for the excavation of the material around the manhole to expose it to a depth necessary for adequate adjustments.

C. The Contractor shall adjust the top of the manhole frame to its required elevation as directed by the Owner or Engineer using manhole grade rings or precast manhole components (riser sections or top cones) conforming to the requirements of this Section. For manholes located in unpaved areas (lawns, wooded areas, other inaccessible areas, etc.), their frames and covers shall be adjusted to be either two (2) feet above the surrounding ground surface or as otherwise directed by the Owner and/or Engineer. For manholes located in pavement (roads, parking lots, sidewalks, etc.), their frames and covers shall be adjusted to be smooth and flush with the finished grade of the adjacent pavement, and sloping grade rings shall be provided as required to match the surrounding road grade if necessary.

1. Both reinstalled covers and frames and new covers and frames shall be positioned so the existing manhole steps can be readily and easily accessed.

D. Existing Concrete Manholes Located in Pavement: All adjustments measuring less than 12 inches shall be performed using manhole grade rings. All adjustments measuring 12 inches and greater shall be performed using only precast manhole components by one of the following methods:

1. Removing the existing top cone/slab with cover and frame, installing a new appropriate precast manhole riser section, and reinstalling the existing top cone/slab with cover and frame

2. Removing and properly disposing of the existing top cone/slab with cover and frame and installing a new appropriate precast manhole top cone with new cover and frame

E. Existing Concrete Manholes Located in Unpaved Areas: All adjustments shall be performed using only precast manhole components by one of the previous methods.

F. Contractor shall be solely responsible for the proper height of all manholes necessary to reach the final grade at all locations. Contractor is cautioned that Engineer's review of shop drawings for manhole grade rings and precast manhole components will be general in nature, and Contractor shall provide an adequate supply of random length manhole grade rings and precast manhole components to adjust any manhole to meet field conditions for final grading.

G. Contractor shall also install an external manhole sleeve as specified herein for the following existing manholes that are adjusted in height by the Contractor:

1. Manholes adjusted in height under this Project using either precast concrete grade rings

2. Manholes that have been previously rehabilitated prior to this Project

3. Manholes adjusted in height under this Project using new precast concrete top cones and new covers and frames.

External manhole sleeve shall cover the exterior of the existing manhole frame (after re-installation) or new manhole frame (after installation), the new grade rings (if installed), and the upper portion of the existing or new manhole top cone/slab as recommended by the manufacturer. Size and width of external manhole sleeve shall be as recommended by the manufacturer.

H. After a manhole is adjusted in height as specified herein, Contractor shall backfill the area around the existing manhole in accordance with Section 02200 – Earthwork.

1. Manholes Located in Unpaved Areas: After backfilling, the portion of the surrounding ground surface that is disturbed during height adjustment shall be graded at a 1:5 (1 vertical to 5 horizontal) slope to provide surface drainage away from the manhole and subsequently grassed in accordance with Section 02910 – Final Grading and Landscaping.

2. Manholes Located in Pavement: After backfilling, the portion of the surrounding ground surface that is disturbed during height adjustment shall be repaved in accordance with Section 02575 – Pavement Repair.

3.04 EXTERNAL MANHOLE SLEEVES

A. Examination: Examine surfaces to receive external manhole sleeve. Notify the Engineer if surfaces are not acceptable. Do not begin surface preparation until unacceptable conditions have been corrected.

B. Surface Preparation:

1. Prepare surfaces in accordance with manufacturer's instructions.

2. Brush exterior of manhole using broom or hand wire tools to ensure surfaces are clean, dry, and free of loose cement, dust, small rock particles, frost, surface rust, foreign objects, sharp edges, and projections that could damage external manhole sleeve.

3. Cleaned surfaces of precast manhole components and grade rings shall not remain overnight or for extended periods under wet or humid conditions prior to the application of the external manhole sleeve.

4. Inspection by Owner and/or Engineer:

a. Give the Owner and/or Engineer a minimum of twenty-four (24) hours advance notice of start of installation of external manhole sleeve at any specific manhole.

b. Before installation, surfaces to be covered by the external manhole sleeve will be inspected by the Owner and/or Engineer.

c. Do not begin installation until defects or deficiencies identified by the Owner and/or Engineer have been corrected.

C. Installation:

1. Install external manhole sleeve in accordance with manufacturer's instructions.

2. Install sleeve to create barrier to water infiltration and protect manhole support structure and frame from ground moisture, preventing corrosion and freeze-thaw damage.

D. Field Quality Control:

1. Sleeve Inspection: Visually inspect installed sleeve to ensure:

   a. Sleeve is in full contact with substrate, including top cone/slab, grade rings (if installed), and manhole frame

   b. There are no cracks or holes in polyethylene backing

   c. There are no voids below sleeve

   d. Adhesive has flowed beyond sleeve edges

2. Site Adhesion Testing: Peel tests

   a. Frequency of Test: 1 in every 10 sleeves

   b. Surface Temperature at Time of Test: 77 degrees Fahrenheit +/- 10 degrees Fahrenheit (25 degrees Celsius +/- 5 degrees Celsius), unless environmental conditions will not allow and continuation of test is approved by the Engineer

   c. Peel Rate: 4 inches/minute (100 mm/minute)

   d. Perform testing using hand peel gauge on 1-inch (25-mm) wide strip.

   e. Cut strip and induce initial failure by undercutting and peeling back strip until 2-inch (50-mm) flap is created.

   f. Attach clamp to strip and hand peel gauge to clamp and peel back at a 90 degree angle to surface at specified peel rate.

   g. Passing Minimum Peel Strength: 8.6 pounds/linear inch (15 N/cm) with cohesive failure of adhesive

3. Contractor shall be responsible for verifying the integrity of the installed external manhole sleeve prior to proceeding with backfilling. Damaged sleeves shall be repaired in accordance with the manufacturer's recommendations at the Contractor's expense.

E. Backfilling and Protection:

1. Allow sleeve to cool before backfilling manhole. Water quenching shall be permissible to expedite backfilling.

2. Prevent damage to sleeve by backfilling with select backfill or material with no sharp stones or large particles, or protect sleeve with extruded polyethylene mesh or other suitable protective shield as approved by the Engineer.

3. Backfill manhole as specified in Section 02200 – Earthwork.

[END OF SECTION]

SECTION 02710

UNDERDRAINS, STORM DRAINS AND ROOF DRAINS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Furnish all labor, equipment and materials in connection with the installation and testing of exterior underground Storm drains and Roof drains as shown on the Contract Drawings and specified herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02100 – Clearing and Grubbing

B. Section 02222 – Excavation and Backfill for Utilities

1.03 REFERENCE SPECFICATIONS, CODES AND STANDARDS

A.	ASTM C76	Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
B.	ASTM C361	Standard Specification for Reinforced Concrete Low-Head Pressure Pipe
C.	ASTM C443	Standard Specification for Joints in Concrete Pipe and Manholes, Using Rubber Gaskets
D.	ASTM C478	Standard Specification for Precast Reinforced Concrete Manhole Sections
E.	ASTM C857	Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
F.	ASTM C969	Standard Practices for Infiltration and Exfiltration Testing of Installed Precast Concrete Pipe Sewer Lines
G.	ASTM C990	Standard Specification for Joints in Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
H.	ASTM C1103	Standard Practice for Joint Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines
I.	ASTM C1619	Standard Specification for Elastomeric Seals for Joining Concrete Structures
J.	ASTM C1628	Standard Specification for Joints for Concrete Gravity Flow Sewer Pipe, Using Rubber Gaskets
K.	ASTM D 2321	Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and other Gravity-Flow Applications.

L.	ASTM D 3350	Standard Specifications for Polyethylene Plastic Pipe and Fitting Material.
M.	AWWA C 110	Standard Specification for Ductile Iron Pipe & Fittings for Water and Other Liquids.
N.	ASTM C 150	Standard Specification for Portland Cement
O.	AWWA C 151	American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.
P.	ASTM F 447	Standard Specifications for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
Q.	AASHTO R82-17	
R.	AASHTO M 198	Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
S.	AASHTO M 294	Standard Specifications for Corrugated Polyethylene Pipe (12” to 36”).
T.	AASHTO Section 30	Thermoplastic Pipe.

1.04 SUBMITTALS

A. Submit the following in accordance with Section 01300 – Submittals.

1. Submit shop drawings for underdrain pipe, storm drain pipes and culverts, roof drains, filter fabric, filter aggregate.

2. Special care shall be exercised during delivery, distribution and storage of the pipe and fittings to prevent damage. Damaged pipe will be rejected and shall be replaced at the Contractor's expense. Storage of pipe and fittings, prior to use, shall be in such a manner as to keep the materials clean and dry.

PART 2 – PRODUCTS

2.01 REINFORCED CONCRETE PIPE (RCP) – STORM DRAINS AND CULVERTS

A. Pipe and Joints

1. Reinforced concrete pipe for storm drains and culverts shall conform to ASTM Standard C76, Class III, Wall thickness B, unless otherwise noted on the Contract Drawings. Elliptical reinforcement will not be permitted. All pipe shall be aged at the manufacturing plant for at least fourteen (14) days before delivery to the job site. All pipe shall be of the sizes indicated on the drawings

2. Pipe joints shall be designed per ASTM C-443-19a and ASTM C-1628 –19. Pipe shall be provided with bell and spigot ends.

B. Gaskets

1. Gaskets shall be leak-resistant with elastomeric seals (gaskets) made of natural rubber, synthetic rubber, or a blend of both meeting the physical requirements prescribed in Specification ASTM 1619-19 for Class A, C, or E gaskets.

2. Gaskets showing prior use or damage will be rejected. If gasket shows signs of wear or cracking, a replacement shall be provided at no additional cost.

C. Joint Lubricant

1. Joint lubricant shall be of the type recommended by the manufacturer. Use of petroleum-based lubricants is not permitted.

2.02 Ductile Iron Pipe (DIP) – ROOF DRAINS

A. Pipe

1. Shall be centrifugally cast in metal molds or sand lined molds in accordance with ANSI A21.51 (AWWA C151) of grade 70 50 05 ductile iron. The above standard covers ductile iron pipe with nominal pipe sizes from three (3) inches up to and including fifty four (54) inches in diameter.

2. Shall have a rated working pressure of 150 psi.

3. Shall be a minimum PC 150.

B. Fittings

1. Shall be manufactured in accordance with ANSI A21.10 (AWWA C110).

2. Shall be manufactured of grade 70-50-05 ductile iron.

3. Shall have a rated working pressure of 250 psi.

4. Grey iron fittings which conform to the specifications contained herein may be used with ductile iron pipe providing the piping systems minimum working pressure is met or exceeded, and only where ductile iron fittings are not manufactured for a specific fitting.

C. Coatings and Linings for Pipe and Fittings

1. Protecto 401 asphaltic coating shall be applied to the exterior wall of the pipe and fittings in accordance with ANSI A21.51 (AWWA C151).

2. The pipe and fittings shall be cement mortar lined to twice the standard thickness in accordance with ANSI A21.4 (AWWA C104) except as specified in the pipe schedule. A seal coat of Protecto 401 shall be applied to the mortar lining.

D. Joints

1. Joints shall be push on type in accordance with ANSI A21.11 (AWWA C111).

2.03 SMOOTH LINED CORRUGATED HIGH-DENSITY (HDPE) POLYETHYLENE PIPE - STORM DRAINS AND CULVERTS

A. General

1. Smooth lined corrugated high-density polyethylene (HDPE) pipe shall be used for storm drains and shall be BLUE SEAL watertight HDPE pipe as manufactured by Hancor, Inc., N-12 WT IB (Watertight) Pipe by ADS, Inc., or approved equal.

B. Pipe and Fittings

1. Smooth lined HDPE pipe and fittings shall conform to AASHTO M252-TYPE S for 4" to 10" diameter and AASHTO M294 - TYPE S for 12" to 36" diameter. All pipes shall be of the sizes indicated on the drawings.

C. Joints

1. Joints shall be watertight bell and spigot type; Hancor, Inc. BLUE SEAL, ADS, Inc. N-12 WT IB, or approved equal.

D. Foundation Drains

1. Foundation drains shall conform to AASHTO M252-TYPE C. Drains shall have drilled perforations and be Heavy Duty-AASHTO Pipe as manufactured by Hancor, Inc., Single Wall Corrugate Pipe by ADS, Inc., or approved equal.

2.04 BACKFILL MATERIAL

A. The material obtained from excavation of the pipe trench or elsewhere on site with a particle size not greater than 3 inches shall be used for pipe backfill if they conform with the soil classes given in Table 1. Imported materials meeting the criteria of Table 1 may also be used.

TABLE 1 – ACCEPTABLE BACKFILL MATERIAL

SOIL CLASSIFICATIONS			
DESCRIPTION	ASTM D 2321	ASTM D 2487	AASHTO M 43
Graded or crushed, crushed stone, gravel	Class I	--	5 56
Well-graded sand, gravels and gravel/sand mixtures, poorly graded sand, gravels and gravel/sand mixtures; little or no fines	Class II	GW GP SW SP	57 6
Silty or clayey gravels, gravel/sand/silt or gravel and clay mixtures; silty or clayey sands, sand/clay or sand/silt mixtures	Class III	GM GC SM SC	Gravel and Sand (<10% fines)

2.05 UNDERDRAIN PIPE

A. Pipe for use as underdrain shall be 6" diameter minimum, perforated PVC, per ASTM F758, F949, or equal.

B. Pipe shall be perforated per manufacturers specifications and shall be 3/16” to 3/8” in size.

2.06 FILTER FABRIC

A. Filter fabric shall be non-degrading fibrous filter type material, Mirafi 140 N or approved equal.

2.07 FILTER AGGREGATE

A. Aggregate shall be as specified in the F.D.O.T. standard specifications, section 901, and shall be size 57.

PART 3 – EXECUTION

3.01 INSPECTION

A. Each length of pipe and fittings delivered to the property shall be inspected by the Contractor, in the presence of the Engineer, for flaws, cracks, dimensional tolerances and compliance with the referenced Standards. The Contractor shall provide the Engineer with suitable templates or calipers for checking pipe dimensions. Only lengths of pipe and fittings accepted by the Engineer and so marked may be installed in the work.

3.02 INSTALLATION

A. Trenching, bedding and backfilling shall be as specified in Section 02200 - Earthwork of these Specifications and Section 2.04 Backfill Material of this Specification. Under no condition shall pipe be laid in water or when trench conditions or weather are unsuitable for such work.

B. The trench shall be excavated carefully, to such depth to allow for the installation of the filter fabric, filter aggregate, and PVC underdrain pipe as shown in the plans.

C. All pipes and fittings shall be handled carefully in loading and unloading. They shall be lifted by hoists or lowered on skidways in such a manner as to avoid shock. Derricks, ropes or other suitable equipment shall be used for lowering the pipe into the trench. Pipe and fittings shall not be dropped or dumped.

D. Each pipe and fitting shall be inspected before it is lowered into the trench. The interior of the pipe and all joint surfaces shall be thoroughly cleaned and shall thereafter be maintained clean. The open ends of pipe shall be securely plugged whenever pipe laying is not in progress.

E. Pipe and fittings shall be selected so there will be as small a deviation as possible at the joints and so inverts present a smooth surface. All joints shall be installed, made up, and inspected in accordance with approved printed instructions of the manufacturer. Pipe and fittings which do not fit together to form a tight joint will be rejected.

F. Cutting of reinforced concrete pipe will be permitted only at connections to structures and be accomplished by abrasive saws. Cutting of other pipe materials shall be done only with mechanical cutters and in accordance with the manufacturer's recommendations.

G. Lay all pipe, true to the lines and grades give, with hubs (bels) upgrade and tongue end (spigot) fully entered into the hub (homed). Do not allow departure from the return to plan alignments and grade to exceed 1/16 inch per foot of nominal pipe length with total of not more than 1 inch departure from theoretical line and grade.

H. If an adequate foundation for the pipe is not available at the desired depth, additional excavation shall be required, and the foundation brought to desired grade with suitable granular material.

I. Rock outcroppings, very soft soils such as muck, and other similar materials not providing proper foundation support shall be removed/replaced with suitable granular material.

J. Structures shall be bedded a minimum of 1 foot below and 1 foot around pipe. Piping shall be laid in a dry or dewatered trench line. Place rock bedding material under piping to stabilize at a minimum of 6 inches.

K. Class I materials may be dumped around pipe. Voids shall be eliminated by knifing under and around the pipe or by other approved technique.

L. Inorganic silts, and gravelly, sandy, or silty clays, and other Class IV materials (not shown in Table 1) shall not be used for pipe backfill.

M. Any section of the pipe found defective in material, alignment, grade, joints, or otherwise, shall be satisfactorily corrected by the Contractor at no additional cost to the Owner.

N. After the pipe has been laid and approved by the Engineer, the trench shall be backfilled with the filter aggregate to the depth shown on the plans and the filter fabric shall overlap no less than 18" across the top of the aggregate.

O. For underdrain installation in the roadway, backfill in the trench above the underdrain system, shall be ready-mixed flowable fill as per Section 2224 of the specifications.

3.03 COMPACTION

A. General

1. Place and assure backfill and fill materials achieve an equal or higher degree of compaction than undisturbed materials adjacent to the work.

2. In no case shall degree of compaction below “Minimum Compactions” specified be accepted.

B. Compaction Requirements: Unless noted otherwise on the Drawings or more stringently by other sections of these Specifications, comply with following trench compaction criteria:

TABLE 2 – - MINIMUM COMPACTIONS

LOCATION	SOIL TYPE	DENSITY
1. Compacted select backfill:		
All applicable areas	Cohesive soil	98 percent of maximum dry density by ASTM D698
	Cohensionless soils	75 percent of maximum relative density by ASTM D4253 and ASTM D4254
2. Common trench backfill:		
Under pavements roadways surfaces, D698 within highway right-of-	Cohesive soils	98 percent of maximum dry density by ASTM D698

ways, adjacent to retaining walls		
	Cohensionless soils	75 percent of maximum relative density by ASTM D4253 and ASTM D4254
Under turfed, sodded plant seeded, non-traffic areas	Cohesive soils	95 percent of maximum dry density by ASTM D698
	Cohensionless soils	75 percent of maximum relative density by ASTM D4253 and ASTM D4254

C. Ensure backfill materials have moisture content within one (1) percent of optimum moisture content at the time of placement.

3.04 INSPECTION AND TESTING

A. General

1. The Contractor shall provide at his own expense, all labor, material, video and measuring devices, water, plugs, or other equipment necessary to perform the required tests. All tests shall be performed in the presence of the Engineer. Disposal of water shall be in accordance with Section 01010 – Summary of Work.

B. Tests by Manufacturer

1. Reinforced Concrete Storm Drains and Culverts - An infiltration and exfiltration test for the pipe shall be made at the place of manufacture. Certified test results shall be submitted. The infiltration or exfiltration allowance shall not exceed the limits as set in the “Performance requirements for Joints” paragraph in ASTM C443 – 12 (2017) or ASTM C990-09 (2014), depending on the type of gasket specified.

2. DIP and HDPE - An infiltration and exfiltration test for the pipe shall be made at the place of manufacture. Certified test results shall be submitted. The infiltration or exfiltration allowance shall not exceed 250 gallons per inch of pipe diameter per mile per day. One joint test for each two hundred feet of pipe to be furnished.

C. Field Test - Visual Inspection

1. Examine structures and pipes for:

a. Physical damage.

b. Indication of displacement of pipes or structures, reinforcement, forms, or bedding.

c. Porous areas or voids.

d. Proper placement of seals, gaskets, and embedments.

e. Visible infiltration.

2. Verify structures and pipes are set to proper line, grade as per the Contract Drawings, and are plumb.

3. Verify structure and pipe dimensions and thickness match Contract Drawings.

4. Measure inside dimensions of all flexible (HDPE) pipe prior to installation. Use these dimensions when sizing the mandrel should deflection testing be required.

    a. Using light to inspect pipe shall be done after pipe trench backfill is compacted and brought to grade or pavement base.

    b. Full pipe diameter shall be visible for entire length of each section between structures.

    c. No less than half pipe diameter shall be visible for horizontal alignment.

5. The Contractor shall be responsible to provide video recording of the all installed storm sewer systems at least 30 days after completion of backfill and one month before Owner or Engineer gives final acceptance for the two-year warranty. The recording shall be made using a color camera, self-propelled or other, having sufficient light to show detail of problem areas and joints. Camera speed shall not exceed 3 feet per second. If problems or concerns are seen by the operator, then the camera shall be reversed and an extended look at the area will be recorded. All recordings will have time, date, and footage displayed. Supplement the video recording with a written log or orally recorded tape log noting observations, findings, and deficiencies shown on the video tape.

    a. The video recording inspection shall be performed by an outside independent testing agency acceptable to the Owner or Engineer.

    b. The video tape and log will be given to the Engineer for review. If the Engineer finds any problems with the storm sewer, the Contractor will repair the problem and re-camera the repaired area before final acceptance will be given, at no added cost to the Owner.

    c. Video recording of storm sewer may be waived if pipe diameter is sufficient for human access, as determined by the Engineer. A log shall be developed for such inspection.

    d. One copy of the video tape and log will become permanent property of the Engineer and Owner as record.

D. Field Test - Manhole Testing

1. The finished manholes shall be as watertight as the pipe system of which it is part. See Specification 02604 – Utility Structures for manhole testing criteria.

2. Observed leaks (infiltration or exfiltration) at any time within the warranty period shall be cause for rejection.

E. Field Test - Storm Drains and Culverts less than 30” diameter

1. If, after the visual inspection and video recording of the storm trunk or lateral lines, the Engineer finds there is a potential joint tightness problem, or excessive deflection, and the Contractor does not agree to repairing defects in pipe based on visual inspection, he/she may require leakage testing of the line.

a. Reference ASTM C696, latest revision. Test shall be used if the groundwater level is less than 2 ft. above the crown of the pipe measured from the highest elevation of the pipe length being tested.

b. Leakage rate testing applies to only circular pipe less than 30”. The length of pipe tested shall not exceed 700 ft.

c. The leakage testing shall occur at least 30 days after completion of the backfilling and compaction.

d. If the Engineer determines reliable and uniform results are produced by the Contractor's construction techniques, the leakage testing may occur after initial backfill and compaction.

2. The Contractor shall provide all equipment and personnel to perform the leakage testing.

3. The Engineer shall record times and calculation leakage rates during the test period.

4. The leakage test shall be performed as follows:

a. Plug all pipe outlets discharging into the upstream manhole and the test section outlet. Fill the pipe with water.

b. At the upstream manhole the test head shall be established as minimum of 2 ft above the crown of the pipe, or at least 2 ft above existing groundwater, whichever is higher.

c. Allow the pipe to remain saturated for a period long enough to allow water absorption in the pipe, a minimum of 4 hours and up to a maximum of 72 hours. After the absorption period, refill the pipe to the required test head.

d. Measure the leakage loss over a timed test period. The minimum test period shall be 15 minutes and the maximum shall not exceed 24 hours.

5. The allowable leakage limit including manholes is 250 gal/(in. of internal diameter) (mile of sewer) (24 h) when the average head on the test section is 6 ft or less.

6. When the average head on the test section is greater than 6 ft, the allowable leakage shall be multiplied by the ratio of the square root of the average test head and the square root of the base head of 6 ft.

7. Manholes shall be tested separately and independently or with the pipeline with an allowance of 0.1 gal/(ft of diameter) (ft of head) (h).

8. Sections of the pipe which fail the air test, shall have the defects repaired, and the test shall be repeated.

a. The initial leakage testing, repair, and repeat testing of the failed section of pipe shall be repeated at no added cost to the Owner until the testing requirements are met.

F. Field Test - Storm Drains and Culverts 30” diameter and greater

1. If, after the visual inspection and video recording of the storm trunk or lateral lines, the Engineer finds there is a potential joint tightness problem, or excessive deflection, and the

Contractor does not agree to repair defects in pipe based in visual inspection, he/she may require air or water pressure testing of individual pipe joints.

a. Reference ASTM C1103, latest revision. The following procedures apply to testing with either air or water.

b. Pressure testing applies to only circular pipe 30” or greater and not elliptical, arch or box sections.

c. The pressure test shall occur at least 30 days after completion of the backfilling and compaction.

d. If the Engineer determines reliable and uniform results are produced by the Contractor's construction techniques, the pressure test may occur after initial backfill and compaction.

2. The Contractor shall provide all equipment and personnel to perform the pressure testing.

3. The Engineer shall record times and observe pressure losses during the test period.

4. If the groundwater pressure is equal to or greater than the test pressure, and the storm drain or joint is not leaking, the storm drain or joint is acceptable in accordance with ASTM C969 and no additional testing is required. If one or more joints are leaking, but the total amount of leakage in the storm drain being tested is equal to, or less than, the allowable leakage rate established in accordance with ASTM C969, the line is acceptable and no additional testing is required provided visible leaks are repaired. Moisture or beads of water appearing on the surface of the joint will not be considered as visible leakage.

5. The pressure test shall be performed as follows:

a. Move the joint test apparatus into the pipe to the joint to be tested and position it over the joint. The end element sealing tubes must straddle both sides of the joint and the hoses are attached. For the water test, the bleed-off petcock must be located at top dead center.

b. Inflate end element sealing tubes with air or water in accordance with equipment and manufacturer's instructions.

c. All test pressures are measured as gauge pressure, defined as any pressure greater than atmospheric pressure. Test observer shall note water produces a pressure of 0.43 psi for every foot of depth, and therefore test pressures must be increased to offset the depth of groundwater over the pipe. If the groundwater level is 2 ft or more above the top of the pipe at the upstream end or if the pressure required for the test is greater than 6-psi gauge, the joint test method shall not be used and the infiltration test may be used (see ASTM C969).

d. An air or water reservoir shall be included in the joint test system. By maintaining a constant supply of air or water in a reservoir, continuous pumping of air or water is not required, and any variances in test equipment and joint space will be negated. The reservoir shall have a minimum volume of 2.5 ft3.

6. The joint air pressure test shall be performed as follows

a. Pressurize the void volume with air to 3.5 psi greater than the pressure exerted by groundwater above the pipe. Allow the air pressure and temperature to stabilize before shutting off the air supply and start of test timing.

b. If pressure holds, or drops less than 1 psi in 5 seconds, the joint is acceptable.

c. If the joint being tested fails, it shall be retested, or repaired if necessary, and retested.

d. After the joint test is completed, exhaust void volume, then exhaust end element tubes prior to removal of apparatus.

7. The joint water pressure test shall be performed as follows

a. Introduce water into void volume until water flows evenly from open petcock. Close the petcock and pressurize with water to 3.5 psi above the pressure exerted by groundwater above the pipe. Shut off the water supply.

b. If pressure holds, or drops less than 1 psi in 5 seconds, the joint is acceptable.

c. If the joint being tested fails, it shall be retested, or repaired if necessary, and retested.

d. After the joint test is completed, exhaust end element tubes which will automatically release the water from the void volume, prior to removal of apparatus.

G. Deflection Test – Flexible Pipe

a. If after the visual or video inspection of the storm trunk or lateral lines, the Inspector finds there is “egging or deflection” of a section of pipe, a deflection test shall be performed on the defective section of pipe installed. Test shall be performed using an odd-legged mandrel pulled through the pipe without mechanical assistance or by laser profiling. The mandrel size shall be the measured inside diameter of the subject pipe minus 5% of the measured diameter. The mandrel shall have no less than nine legs.

b. Any pipe failing any deflection test shall be removed, replaced, and retested.

c. At the end of the two-year warranty period, the flexible storm pipe will be visually inspected for “egging or deflection”. If excess deflection is observed, the Owner/Warranty Holder will, at his/her expense, retest questionable portions per this section.

H. Repair

1. Repair or replace any unacceptable work at no additional cost to the Owner.

2. Repair all visible leaks.

3. Remove any concrete webs or protrusions.

4. Remove form ties and repair tie holes.

3.05 RESPONSIBILITY

A. The Contractor shall be held strictly responsible for all parts of the work that bear the load of the backfill. If structural failures in the underdrain or appurtenances develop within one (1) year from the date of final acceptance of the work, the Contractor shall be required to replace all faulty material at his full expense. To this end, the Contractor is advised to purchase material under a guarantee from the manufacturer, guaranteeing proper service under conditions which are established by the drawings, specifications and local conditions.

[END OF SECTION]

SECTION 02720

SEGMENTAL REPLACEMENT (PIPE AND TAP CONNECTIONS)

PART 1 -- GENERAL

1.01 SCOPE OF WORK

A. The work specified in this Section includes all labor, materials, accessories, equipment, and tools necessary to install and test the segmental replacements (SRs) of pipe and tap connections where shown and dimensioned on the Drawings and as specified herein.

B. SRs shall include the following:

1. Pre-excavation video or pictures of surface features in the immediate area surrounding the SR (particularly sidewalks and driveways)

2. Exposing the section of defective pipe in accordance with Section 02200 – Earthwork

3. Ensuring the SR excavation has sufficient length to install new pipe at a positive slope

4. Dewatering the excavation in accordance with Section 02200 – Earthwork

5. Installing the SR pipe or tap, coupling, and bedding

6. Replacement and reinstatement of all tap connections within the limits of the SR

   a. When an SR on a main line pipe is performed, each service lateral that falls within the limits of the main line SR shall only be connected to the main line using a factory-fabricated tee or wye on the main line. Using a Romac-type coupling, Inserta Tee to connect a new main line pipe to a service lateral is not acceptable.

7. Testing the SR pipe as specified

8. Backfilling and restoring surface features in accordance with Section 02200 – Earthwork and the Owner's guidelines

9. CCTV inspection of SR segments from manhole to manhole after installation for acceptance

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01010 – Summary of Work

B. Section 01300 – Submittals

C. Section 02050 – Building Demolition

D. Section 02200 – Earthwork

E. Section 02731 –Sewer Inspection

F. Section 15006 – Ductile Iron Pipe

1.03 SUBMITTALS

A. The Contractor shall submit Shop Drawings of pipe and couplings and other information in accordance with the requirements set forth in Section 01300 – Submittals.

B. Construction video shall be taken in accordance with the requirements of Section 01010 – Summary of Work.

PART 2 -- PRODUCTS

2.01 GENERAL

A. Main line pipes, tees, wyes, laterals, service connections, and service connection fittings shall be ductile iron or PVC of a minimum SDR 26 or as specified elsewhere in the Contract Documents.

B. Bedding, aggregate, backfill, and surface restoration shall be as specified in Section 02200 – Earthwork.

C. Concrete collars shall be Class B as specified in Section 03300 – Cast-in-Place Concrete.

2.02 PIPE COUPLINGS

A. Couplings for joining existing pipes to proposed emergency point repair (EPR) pipes shall be specifically designed and rated for joining sewer pipes composed of different materials and/or having varying diameters.

B. All couplings shall have Type 304 stainless steel clamps, one on each side.

C. All couplings shall have Type 304 stainless steel shear rings.

D. All couplings shall be as manufactured by Fernco, Mission, or Engineer-approved equal.

PART 3 -- EXECUTION

3.01 INSTALLATION

A. All EPRs shall be performed in accordance with the drawings and the following:

1. Contractor shall mark off extents of SR and limits of excavation.

2. Contractor shall take pre-excavation video of surface features (sidewalks, driveways, etc.) adjacent to the limits of excavation.

3. Contractor shall excavate in accordance with Section 02200 – Earthwork. Under no circumstances will the Contractor be allowed to remove concrete or asphalt without cutting it prior to removal. The saw cutting shall be deep enough to produce an even, straight cut.

4. Contractor shall expose the defective pipe so that undamaged sections of the existing pipe are visible on both sides of the proposed SR and shall confirm the required limits of the SR with the Owner and/or Engineer. At a minimum, a total of eight (8) feet of piping shall be replaced by the Contractor at each SR. Pipe and laterals (if present) shall be removed by cutting the pipe or lateral on each side along lines perpendicular to the longitudinal axis of the pipe so "spigot ends" remain in place to be connected to the replacement pipe. Disposal of pipe and excavated material shall be in accordance with Section 02050 – Building Demolition and Section 02200 – Earthwork.

    a. If the existing line to be repaired has been CIPP-lined and the host pipe is composed of brittle material (clay or concrete), it shall be removed to expose the CIPP liner so the liner can be securely anchored at the repair location.

5. Contractor shall confirm with Owner and/or Engineer that each proposed EPR will have a positive slope. Pipe sags shall be prohibited. Reverse grades shall be prohibited unless approved by the Owner and/or Engineer. If additional excavation and pipe removal is needed to achieve a positive slope, Contractor shall confirm length of additional footage required with Owner and/or Engineer.

6. Contractor shall dewater, sheet, and/or brace all excavations in accordance with Section 02200 – Earthwork. Well points, pumps, sump pits, sheeting, bracing, and/or sock drains shall be used to provide a safe, dry, open trench for all repairs or replacements specified herein. There shall be no sitting water in the trench bottom prior to laying new pipe. Erosion and sedimentation controls shall be provided for all SRs.

7. Contractor shall install pipe bedding and compact in accordance with Section 02200 – Earthwork.

8. New pipe shall be installed using the specified couplings. Gaps between existing pipe and new pipe shall be minimized. Couplings shall be installed in accordance with the manufacturer’s guidelines, including those related to pre-cleaning, installation direction, nut torque, etc.

9. If present, service laterals shall be reconnected at the edge of the trench. Shear rings shall be used on all lateral couplings.

10. Contractor shall confirm positive slope prior to backfilling.

11. Contractor shall flush or clean SR pipe.

12. Contractor shall backfill and compact in accordance with Section 02200 – Earthwork.

13. CCTV inspection after SR is completed shall be performed in accordance with Section 02731 –Sewer Inspection. Owner and/or Engineer shall confirm visible acceptance of EPR.

14. Contractor shall restore any surface features including roadway and driveway pavement, sidewalks, and grass. Surface features shall be restored to at least the same condition as existed before construction began.

- END OF SECTION -

SECTION 02731

TELEVISION INSPECTION

PART 1 GENERAL

1.01 SCOPE

A. The work covered by this Section includes furnishing all labor, competent certified technicians, equipment, tools, accessories, and materials required to perform closed-circuit television (CCTV) inspection of specific sanitary sewer pipes as shown on the Drawings and as specified as follows:

1. The existing sanitary sewer pipes designated for heavy cleaning after they are cleaned

2. All new sanitary sewer pipes and tap connections after they are installed

3. Additional sanitary sewer pipes as directed by the Owner or Engineer

B. Digital videos, data, and photos shall be delivered to the Engineer on external portable hard drive, which shall become property of the Owner. Data files shall be named in accordance with required standards, which will allow video files to be directly linked to pipe assets.

1.02 SUBMITTALS

A. Contractor shall submit a Traffic Control Plan.

B. Contractor shall submit schedules of work on a weekly basis. Provide 24-hour notice for deviations from the schedule that are not caused by weather or natural causes.

C. Contractor shall submit a confined space entry plan.

D. Informational Submittals: Prior to beginning CCTV inspection work, Contractor shall submit the following in accordance with Section 01300 – Submittals:

1. References: Contact names and telephone numbers of CITYs where the Contractor has performed similarly sized and type projects in the last five years

2. List of staff and equipment to be used on Project

3. Crew chief qualifications

4. Confined space entry and hazardous atmosphere training certifications

5. Submit a written description of procedures to be used to the Engineer, including product literature for all digital video equipment including, but not limited to, cabling, camera, monitor, footage counter, digital video tilting device, and recorder.

6. Proposed door hanger for public notification

E. Contractor shall furnish all labor, materials, machinery, equipment, and incidentals required to perform thorough CCTV inspection of the designated sewers.

F. Contractor shall send an email on a daily basis to the Owner and Engineer that lists the manholes that may be accessed during the next 24-hour period. A weekly list of manholes may be submitted in lieu of a daily list, subject to the Engineer's written approval.

G. Contractor shall keep, and submit to the Engineer weekly, daily work logs describing the work location, manhole numbers, work times, labor requirements, personnel names, equipment used (including identification numbers), fire hydrant and other required permits, and work progress. Work logs shall be kept independent of any other required logs.

H. The work described in this Section, including any internal sewer inspections, shall meet the minimum requirements as presented in the OSHA Standard, Title 29 CFR 1910.146, Permit Required Confined Spaces. Contractor shall notify the Owner and Engineer each day by phone or email when it is necessary for Contractor to enter a manhole(s). Contractor shall identify all manholes that he plans on entering that day by street location and manhole number.

I. Contractor shall submit final sewer inspection digital video and data as previously listed herein and as required per Article 3.05 of this Section.

1.03 QUALIFICATIONS

A. Contractor

1. Successfully performed work on at least three other projects within the last five years and at least 500,000 linear feet of CCTV experience

B. CCTV Operator: Successfully performed work on at least three other projects within the last five years and at least 250,000 linear feet of CCTV experience

C. Crew Chief: Minimum of five years' experience on projects similar to this Project and experienced using all proposed equipment for this Project

1.04 NOTIFICATIONS

A. Contractor's Notification of Owner and Engineer:

1. A minimum of five days prior to the anticipated commencement of inspections in any one area and 24 hours in advance of actual start

2. When an obstruction that is restricting flow in the sewer pipelines is discovered

3. If the conditions for CCTV inspection are found to be unsafe or impractical

4. Each week, Contractor shall send an email to the Owner's and Engineer's designated contacts that lists the location(s) of work, the pipe segments and manholes that will be accessed each day.

B. Contractor's Notification of the Public:

1. Between 24 hours and 48 hours prior to the inspection of any line segment, Contractor shall distribute door-to-door a door hanger, approved by the Owner and Engineer, describing the work to be performed to notify every residence and business that may be affected. Door hangers shall be double-sided with the notification information in the English language on one side and in the Spanish language on the reverse side.

PART 2 PRODUCTS

2.01 TELEVISION INSPECTION EQUIPMENT

A. Video inspection shall utilize PACP (Pipeline Assessment and Certification Program) certified software.

B. CCTV inspection equipment shall produce a color recording

C. Contractor shall provide a mobile vehicle with video monitoring equipment specifically compatible with the camera equipment being used. The vehicle shall be large enough to accommodate at least three people at any time for viewing of the monitor. Owner and Engineer shall have unrestricted access to observe the television screen and all other operations at all times.

D. The television camera used for the inspection shall be specifically designed and constructed for such inspection. Adjustable light source to allow an even distribution of lighting for the camera shall be suitable to allow a clear color picture of the entire periphery of the pipe. The camera shall be capable of panning 360 degrees and tilting 270 degrees to facilitate the inspection of all laterals, with optimum picture quality provided by focus and iris adjustment. The camera, television monitor, and other components of the video system shall be capable of producing a minimum 600 line resolution picture. Backup camera shall be available on the Project site. The camera shall be operative in 100 percent humidity conditions and in a hazardous and corrosive environment. The camera shall be capable of zooming at least 10:1 for looking further down the pipe or up into the laterals.

E. The camera, television monitor, and other components of the video system shall be capable of producing picture quality to the satisfaction of Owner and/or Engineer.

F. The television inspection equipment shall have an accurate footage counter that shall display on the monitor the exact distance of the camera from the centerline of the starting manhole.

G. A slope indicator shall be included on the camera and be accurately calibrated per manufacturers specifications for measurement of pipe slope.

H. The camera shall be capable of height adjustment so that the camera lens is always centered at one half the inside diameter, or higher, of the pipe being inspected.

I. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. A reflector, in front of the camera, may be required to enhance lighting in dark or large diameter pipes. The image shall be clear and bright enough to allow the reviewer to discern even small defects in the pipe being inspected Video that does not meet this requirement, or fails to meet PACP specifications, shall be cause for the Contractor to reinspect the pipe.

J. Video data will be PACP compliant and compatible with the Owner's existing software database system.

K. Video data shall be provided to the Owner in a digital format such as MPEG or WMV, as well as on an external device, such as a USB thumb drive or similar format approved by the Owner. CDs or DVDs are not approved.

PART 3 EXECUTION

3.01 PREPARATION

A. Contractor shall, in the presence of Owner's and/or Engineer's inspector, calibrate the camera footage every week with an aboveground tape measure and simultaneous CCTV footage counter.

B. Contractor shall not float the camera unless permitted by the Owner or Engineer.

C. See Article 3.04 herein for conditions under which flow control is required.

3.02 TELEVISION INSPECTION

A. Contractor is required to complete the standard National Association of Sewer Service Companies (NASSCO) industry standard Pipeline Assessment and Certification Program (PACP) forms using the standard NASSCO PACP coding during filming of the CCTV videos.

B. Obstructions that cause a stuck camera shall be the responsibility of the Contractor, and the retrieval of equipment or cameras shall be the responsibility of the Contractor and shall be performed at the Contractor's expense.

C. Adjust the camera height such that the camera lens is always centered in the pipe being televised.

D. Provide a lighting system adequate for good quality pictures. A reflector in front of the camera may be required to enhance lighting in black pipe.

E. Perform CCTV inspections as follows:

1. Before insertion of the camera into the sewer, the camera operator shall record, on the video, the upstream and downstream pipe sizes, inverts, and material, the specific location of the sewer (the standard data field in NASSCO PACP header), the direction in which the camera will travel, and all other mandatory NASSCO fields. The camera shall move through the line, in either direction, at a moderate rate, stopping when necessary to permit proper documentation of the sewer's condition. Maintain copies of video and reports for reference by the Owner for the duration of the contract

2. Collect post-cleaning inspection video at each lateral for an extended period to better understand the flow from each individual lateral. The camera shall be positioned at each lateral for sufficient duration determine the nature of the flow and condition of the lateral (Minimum 30 seconds). Any lateral inspection deemed unacceptable by the Owner shall be re-televised by the Contractor at no additional cost to the Owner.

3. Videos shall pan beginning and ending manholes to verify that all debris has been removed.

4. The Camera operator shall make a thorough video inspection of all clamped joint in the line, sectional liners and points where pipe material transitions from one material to another.

5. A video inspection report shall be prepared by the Contractor, and submitted to the Owner, for each line segment that is CCTV inspected.

6. The accuracy of the measurements for location of defects, service connections, changes in pipe materials, and all other PACP recognized conditions is paramount. Marking on cable, or the like, which would require interpolation for depth of manhole shall not be allowed, Measurement meters shall be accurate to one-tenth if a foot over the entire length of the sewer line section being inspected. Prior to recording the location of defect, service connection, etc., slack in the cable of the television inspection camera shall be taken up to assure metering device is designation proper footage. Accuracy of the measurement meters shall be checked daily by use of a walking meter, roll-a-tape, or other suitable device satisfactory to the Owner.

7. Camera distortions, in adequate lighting, dirty lens, or blurred/hazy picture will be cause for rejection of a video and rejection of the associated line segment, Any pipeline reach television inspection deemed unacceptable by the Owner shall be re-televised by the Contractor at no additional cost to the Owner. Payment for televised inspection shall not be made until the Owner approves the quality of the video and logs.

8. CCTV inspection video shall be continuous for pipe segments between manholes. The Contractor shall not leave gaps in the video of a segment between manholes.

9. The goal of the cleaning is to sufficiently remove debris, roots, and deposits to inspect the pipeline and provide at least 95 percent capacity of the pipeline. Sewers that are not sufficiently cleaned to permit television inspection shall be re-cleaned and re-inspected at no additional cost to the Owner.

3.03 PASSAGE OF TV CAMERA

A. The camera shall not be propelled through the line at a rate greater than 30 feet per minute, stopping when necessary to permit proper documentation of the condition of the sewer line section. Digital video shall be captured at a minimum video bit rate of 4,000 kbps. In no case shall the television camera be pulled at a speed greater than 30 feet per minute unless permitted by the Owner or Engineer.

B. The intention shall be to inspect the full length of sewer between each manhole and not in multiple files, unless specifically approved by Engineer. If during TV inspection of a pipe line, the camera is unable to pass an obstruction, even though flow is not obstructed, televise the remainder of the line from the other direction (reverse setup) in order to obtain a complete video of the line. If a reverse setup is conducted, then two separate video files are allowable; the two separate files shall have the same filename but with a different direction of survey, etc. in the filename or as otherwise directed by the Owner or Engineer, so that it is clear there are multiple files and videos for the same pipe segment.

C. When a line is being videoed from the opposite direction, in order to survey on either side of an obstruction, and a second obstruction is encountered, the Contractor shall notify the Owner immediately.

D. Contractor can televise multiple upstream and/or downstream sewer segments from a single manhole setup location as long as each video of sewer section from one manhole to the immediately adjacent manhole is submitted as a separate file.

E. The television camera shall travel through the lines using its own power. The pictures taken of the entire inside periphery of the pipe shall be clear and visible. Picture quality and definition shall be to the satisfaction of Engineer, and if unsatisfactory, the equipment shall be removed, and no payment shall be made for the unsatisfactory inspection.

F. Stop the camera at all service laterals and pan at such an angle that an internal view of the service lateral is available.

G. All sanitary sewer pipes (lines) 48” in diameter, or less, shall be dewatered for cleaning and inspection purposes. Exceptions to the dewatering requirement will be considered on a case by case basis. The Contractor will assume that dewatering will be required for bidding purposes.

H. Dewatering may be accomplished by pumping water around the work area or by plugging off pipes to isolate the portion of the system being worked on while cleaning and performing inspection. If plugging the line is used for dewatering purposes, the system must be properly monitored so that no overflows occur If a pipe that has been rehabilitated by the installation of a liner is plugged, the liner must be braces at the manhole to prevent movement of the liner.

3.04 SEWER FLOW CONTROL

A. At all times during CCTV inspection, the flow in the sewer line section(s) undergoing inspection shall be suitably controlled in accordance with the drawings. The depth of wastewater flow shall not exceed the following:

24-inch Pipe or Less:	10 percent of pipe diameter
Over 24-inch Pipe:	20 percent of pipe diameter

B. When the depth of flow in the section(s) (including sags) being inspected is above the maximum allowable percentage specified above for the television inspection, the flow shall be reduced to allowable levels by performing the inspection during periods of minimum flow, with bypass pumping, or by pulling the camera with swab or a high velocity jet nozzle, as approved by the Engineer.

C. When flow in a sewer line is plugged, blocked, or bypassed, sufficient precautions must be taken to protect the sewer lines from damage that might result from sewer surcharging. Further, precautions must be taken to ensure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved.

3.05 SEWER INSPECTION REPORTS

A. Summary reports shall indicate individual survey results in tabular form and shall provide a sortable list of surveys based on a user-defined description field. It shall include starting and ending manhole numbers, depths, pipe material, total survey length, and pipe diameter.

B. Contractor shall submit, in electronic format, digital videos, photos, and evaluation reports to Engineer on an external hard drive or USB stick. DVDs or CDs are not acceptable.

C. If digital videos are of such poor quality that Engineer is unable to evaluate the condition of the sanitary sewer main, locate the sewer service connections, or verify the proper installation, Contractor shall be required to re-televise the sanitary sewer and provide new digital videos of good quality, at no additional cost to Owner or Engineer.

D. All digital videos shall become the property of Owner.

E. Data to be provided weekly to Engineer shall either be recorded on a portable external hard

drive or directly copied to Engineer's portable external hard drive. Each hard drive shall be filled with as much data as practical to minimize the number of hard drives submitted. Sections of a single segment of sewer main shall not be recorded to more than one hard drive. Video footage of recorded segments shall be grouped by area and shall be submitted in sequential order relating to the area mapping designation. The footage counter reading from the camera equipment shall appear on all videos. Contractor shall review each submittal of CCTV inspection data to assure its quality and accuracy and shall revise the CCTV inspection data as needed to correct any inaccuracies prior to providing each submittal to the Engineer. Throughout the duration of the Project, should Engineer discover inaccuracies in any of the videos, Contractor shall re-inspect those segments at no additional cost to the Owner or Engineer. The Engineer will require a 30-day period to perform a quality review of sewer inspection data/videos after each submittal of data/videos has been received from the Contractor. The Contractor is encouraged to submit sewer inspection data/videos in a timely manner as payment will not be processed until the sewer inspection data/videos have successfully passed the quality review and been accepted by the Engineer. This 30-day review period applies to both the initial submittal of data/videos for a segment of sewer main and any subsequent resubmittals of data/videos originally determined to be unacceptable by the Engineer.

F. Contractor shall provide to Engineer CCTV inspection data via external hard drive on a weekly basis and on a monthly basis. The data shall specifically include video indexing for all observations. Prior to beginning the CCTV inspection work, Contractor shall submit a sample deliverable of CCTV inspection data for a single length of sewer pipeline obtained from a past CCTV inspection project performed by the Contractor; Contractor shall not proceed with the CCTV inspection work until this sample deliverable has been submitted to the Engineer for review and the Engineer has subsequently approved its format and contents. Data to be submitted with sample deliverable and weekly/monthly submittals shall include:

1. Database file

2. Videos for each pipe segment in MPEG-1 format or greater

3. An inspection report for each pipe segment as a .pdf file

Files shall be named in accordance with the Owner's and Engineer's requirements. Each video file and inspection report file name shall be composed of Asset ID to Asset ID, starting with upstream Asset (MH20-2005_to_MH20-2010_Pre.pdf or MH20-2005_to_MH20-2010_Post.pdf). All submitted video and inspection report files will follow this naming convention.

G. The camera equipment/software shall be capable of producing digitized images of all sewer mainlines and service connections in .jpg format. Contractor may be instructed to take digital still images of each mainline sewer joint and service connection to clearly depict it. The digital photographs (.jpgs) shall be at least 50 kilobytes in size. The screen capture shall include an onscreen display with date, reach number, and footage. The photographs shall become the property of the Owner.

H. Upon approval by the Engineer of all, or portions of, the data delivered via the portable external hard drives, the approved CCTV data shall be delivered to Engineer on portable external hard drives. Each portable external hard drive shall be labeled to clearly indicate the date of the inspection, the designated segment(s) of sewer main(s) contained on the portable external hard drive, the name of the Project, the Project CIP number, Contractor name, and the index number of the portable external hard drive. The portable external hard drives shall contain separate digital files for each manhole-to-manhole section. The index

number shall indicate the sequential number of the portable external hard drive followed by the mini-basin number.

I. The database shall be comprehensive for the entire Project, and additional data shall be added to the database each week. Each manhole has been given a unique manhole identification (Asset ID) per the Owner's guidelines, and the name of each database file shall be either that unique upstream Asset ID followed by the unique downstream Asset ID or as otherwise directed by the Owner or Engineer.

J. There may be situations that require Contractor to televise an individual pipe segment from more than one direction (i.e. the camera is only able to televise 75 percent of the segment heading downstream, and the remaining 25 percent must be televised heading upstream). The name of additional database files, etc. produced in these circumstances shall be as shown below or as otherwise directed by the Owner or Engineer.

Examples: Initial file name:

Asset Id_ Direction of Survey

MH20-2005_to_MH20-2010_Post _Downstream

Additional file name(s):

MH20-2005_to_MH20-2010_Post _Upstream

K. The name of each digital still image, if required, shall be based on the video/data file name of the sewer reach in which the image was taken. The name shall be either recorded as the video/data file name, followed by the footage at which the mainline sewer joint or service connection was encountered (i.e. (File Name) @(Footage).jpg) or as otherwise directed by the Owner or Engineer.

L. Contractor shall provide a typewritten summary that lists the contents of each portable external hard drive. The inspection logs shall be submitted on portable external hard drive in Adobe .pdf format with the pipe ID included in the filename, such as MH20-2005_to_MH20-2010_Post.pdf, and shall include color still photos (.jpg format) of mainline sewer joints and service connections encountered during the television inspection.

M. At the end of the Project, Contractor shall provide a digital and written summary listing of all videos provided under this Project. Digital version shall be developed and submitted in current version of either Microsoft® Excel or Microsoft® Access software. Acceptance of this portion of the Work shall be dependent upon the results of the television inspection.

[END OF SECTION]

SECTION 02740

CURED-IN-PLACE PIPE

PART 1 GENERAL

1.01 SCOPE

A. It is the intention of this specification to provide for the trenchless restoration of gravity sanitary and storm sewers by the installation of a resin-impregnated, flexible tube which is inverted or inserted into the existing conduit and inflated by use of a hydrostatic head or air pressure. The resin is cured by elevating the temperature and circulating the fluid (water/air) used for the inflation to a proper level per manufacturer's recommendations for the thermosetting reaction. When cured, the finished pipe will be continuous and tight-fitting from manhole to manhole.

B. The work covered by this section of the specifications includes the furnishing of all labor, tools, equipment, and materials, and performing all operations in connection with lining of existing sewers with a continuous cured in place (CIPP) pipe liner. The CIPP liner will be as specified herein. The work shall also include all necessary maintenance of traffic provisions, host pipe preparatory work required in advance of the lining operation, including, cleaning and removal of all debris, removal of protruding service connections, complete maintenance of all wastewater flows, reinstatement of service connections and sealing of liner ends at manholes, and the cleanup of the work site, including restoration of surfaces such as paving, and seeding, sodding and graveling, as needed, if damaged. When completed, the formed liner should extend from end-to-end of the section being lined in a continuous, tight fitting, pipe-within-a-pipe as specified herein.

C. The bidder's attention is directed to the general conditions, section 6.31, SPILL OR DISCHARGE OF WASTEWATER OR RECLAIMED WATER.

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01300 – Submittals

B. Section 01510 – Temporary Construction Utilities

C. Section 02650 – Sewer Cleaning

D. Section 02731 –Television Inspection

E. Section 02750 – Chemical Grouting

F. Section 02762 – Sewer Service Lateral CIPP Lining

1.02 REFERENCES

A. This specification references ASTM standards and other related standards, which are made a part hereof by reference and shall be the latest edition thereof.

1. ASTM D-543 Standard Test Methods for Resistance of Plastics to Chemical Reagents

2. ASTM D-638 Standard Test Method for Tensile Properties of Plastics

3. ASTM - 695 Standard Test Method for Compressive Properties of Rigid Plastics

4. ASTM D790 Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

5. ASTM D903 Standard Test Method for Peel or Stripping Strength of Adhesive Bonds

6. ASTM D2290 Standard Test Method for Apparent Hoop Tensile Strength of Plastic or Reinforced Plastic Pipe

7. ASTM D2412 Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading

8. ASTM D5813 Standard Specification for Cured-In-Place Thermosetting Resin Sewer Piping Systems

9. ASTM F1216 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube

10. ASTM F1743 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pulled-In-Place Installation of Cured-In-Place Thermosetting Resin Pipe

11. ASTM F2019 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled in Place Installation of Glass Reinforced Plastic (GRP) Cured-in-Place Thermosetting Resin Pipe (CIPP)

12. ASTM F2561 Standard Practice for Rehabilitation of a Sewer Service Lateral and Its Connection to the Main Using a One Piece Main and Lateral Cured-in-Place Liner

1.03 SUBMITTALS

A. After the award of the contract or issuance of work order, and before any materials are delivered to the job site, the Contractor shall submit the following in accordance with the requirements set forth in Section 01300 - Submittals:

1. Performance Work Statement (PWS) summarizing the work to be completed. PWS shall include verification of conformance to these Specifications and a detailed description of the work plan including product delivery, installation schedule, cleaning operations, CCTV inspection, bypass pumping, traffic control, provisions for pipes with sags too large for lining, curing method, repair methods, service reconnections, third party testing laboratory, as-built procedures, warranty, Quality Control Plan (QCP), etc. The QCP shall define the Contractor's, Owner's, Engineer's, and testing labs' role in quality control.

2. Detailed installation procedures; lining production schedule and location; testing procedures and schedule; quality control procedures; liner curing procedures including heat-up and cool-down rates, curing temperature and duration; and shipping and storage requirements, schedule, and procedures

3. A complete list and description of all equipment and materials to be used during the lining operation.

4. Name of resin supplier and liner fabric supplier.

5. Manufacturer’s certification that all materials to be used meet the referenced standards and these specifications.

6. Certification showing that the proposed installer is currently licensed by the Manufacturer to install the products referenced in this Specification.

7. Manufacturer’s approved procedure for material storage and handling, temperature control, liner insertion, curing requirements and trimming and finishing.

8. Contractors procedure for sealing the CIPP liners from groundwater infiltration at manholes/access structures and service laterals

9. Manufacturer’s approved guidelines for minimum and maximum pressures, temperatures, and time durations to be used during liner inversion, cure, and cool down.

10. Data on Contractor's monitoring equipment to be used during curing, type and tolerance of temperature gauges and thermocouples.

11. Procedure for cool down and relieving static head after the CIPP liner is cured.

12. Manufacturer's approved guidelines for factory and/or field (whichever applies) wet out procedures, including volume of resin per unit of liner, roller gap setting, mixing ratios and procedures for resin and catalyst/hardener, shelf life of resin, pot life of resin, and required wet out procedure to insure full saturation

13. Design calculations, prepared by a professional Engineer, for the minimum liner thickness. Calculations shall be submitted at least two weeks prior to mobilization. All designs calculations shall reflect protocol outlined in ASTM F-1216 or ASTM F2019 and ASTM D2412 for “fully deteriorated gravity pipe conditions”. The calculations shall demonstrate the appropriate wall thickness for each pipe segment and that the liner has been properly undersized to avoid the creation of wrinkles or folds. Tabular liner wall thickness calculations shall be provided for each pipe diameter in no less than 1-foot increments from 3 to 6 feet cover depth and in 2-foot increments thereafter. Special liner wall thickness calculations shall be submitted for installations with less than 3 feet of cover. The liner wall thickness shall be increased as required based on actual pipe ovality, as determined by the pre-installation CCTV inspection.

14. A detailed resume of the field superintendent who will direct the work. The field superintendent shall have at least two- (2) year’s field supervisory experience in trenchless pipeline reconstruction. The field superintendent shall be on the job full-time during all steps of the pipe installation.

B. After installation of the liner, the Contractor shall submit the following in accordance with the requirements set forth in Section 01300 – Submittals and in Part 3 herein:

1. Cure Report, including the following documentation:

a. Curing log, including temperatures, pressures, and times during the curing process to document that a proper cure has been achieved. Curing log shall be submitted immediately after the curing is complete for each line segment that is rehabilitated.

2. Pre and Post rehabilitation digital CCTV videos and NASSCO PACP data with proper PACP coding.

1.04 SAFETY

A. The Contractor shall be aware that this contract requires work in active sewers and shall perform the work in compliance with all federal, state, and local requirements for safety in confined spaces, work zone safety, and hazardous materials. The Contractor shall conform to all guidelines set forth by the Occupational Safety and Health Administration (OSHA) and Federal Regulations 29 CFR Ch. XVII, Section 1910.146, Confined Space Entry.

B. The Contractor shall not enter into any sewer segment where hazardous conditions may exist until such time as the source of those conditions are identified and eliminated The Contractor will report any condition to the Owner of Largo which may pose a threat to the health and welfare of employees of the Owner, Contractor, or the general public.

C. The Contractor will use employees that are properly trained and who are aware of possible work, materials, and job-site related hazards.

D. The Contractor shall take satisfactory precautions to protect the sewer segments and appurtenances from damage that might be inflicted upon them by the lining operations. Any damage caused to the sewer segment or other public or private property as a result of the grouting operations shall be repaired at the Contractor's expense.

E. The Contractor will ensure that waste material is properly disposed in accordance with applicable regulations and safety precautions.

1.05 QUALIFICATIONS

A. The Owner requires a proven and extensive track record for the CIPP liner system to be used under this agreement. All Contractors submitting bids must exhibit satisfactory experience in the installation of the proposed liner system and satisfactory evidence that the proposed liner system has been extensively and successfully installed in the Unites States and the State of Florida.

B. The qualifications of the Contractor shall be submitted with the Bid Proposal. These qualifications shall include detailed descriptions and verification of the following requirements:

1. At a minimum, the Contractor must have three (3) years of CIPP installation experience in the state of Florida

2. Contractor shall have successfully installed at least 300,000 linear feet of CIPP lining in pipelines 12-inch diameter or less and 50,000 linear feet of CIPP lining in pipelines greater than 12-inch diameter, as applicable, using the specified method of installation and curing.

3. The installer must be certified by the liner system manufacturer for installation of the liner system and shall submit a certified statement from the manufacturer that the Contractor

is a certified and/or licensed installer of the CIPP lining

4. An installation reference list of a minimum of three municipal clients that the Contractor has performed this type of work for, including contact names, phone numbers, pipeline diameter, linear footage of pipeline rehabilitated, and a description of the actual work performed.

5. Contractors using subcontractors shall submit information about the sub-contractor (i.e. Name, experience records, jobs on which the general and sub-contractor have worked jointly, etc.).

C. The Owner reserves full and complete authority to approve the satisfactory nature of both the liner system and the installer.

1.06 DELIVERY STORAGE AND HANDLING

A. Care shall be taken in shipping, storage, and handling to avoid damaging the liner. Any liner damaged in shipment shall be replaced at no cost to the Owner and as directed by the Owner and/or Engineer.

B. All materials shall be accompanied by test reports certifying that the material conforms to the specifications listed herein.

C. Materials shall be shipped, stored, and handled in a manner consistent with the written recommendations of the Manufacturer.

D. Any liner showing a split or tear, or which has otherwise received damage, shall be marked as rejected and immediately removed from the site.

E. The liner shall be maintained at a proper temperature in refrigerated facilities to prevent premature curing at all times prior to installation. The liner shall be protected from UV light prior to installation. Any liner showing evidence of premature curing shall be rejected for use and shall be immediately removed from the site.

F. The Contractor shall use all means necessary to protect pipe materials before, during and after installation and to protect the installed work and materials of all other trades.

G. In the event of damage caused to materials, the Contractor shall make all repairs and replacement necessary to the approval of the Engineer at no additional cost to the Owner.

PART 2 MATERIALS

2.01 LINER

A. The liner material shall meet the ASTM D-5813, Standard Specification for Cured-In-Place Thermosetting Resin Sewer Piping Systems

B. Inversion: The sewed tube shall consist of one or more layers of absorbent non-woven felt fabric in accordance with the requirements of ASTM F1216.

C. Pulled-in-Place: The tube shall consist of one or more layers of fiberglass laminate in accordance with the requirements of ASTM F2019 and ASTM F1743.

D. The tube shall consist of one or more layers of a flexible needled felt or an equivalent

nonwoven or woven material, or a combination of nonwoven and woven materials, capable of carrying resin and withstanding the installation pressures and curing temperatures. The tube should be compatible with the resin system to be used on this project. The material should be able to stretch to fit irregular pipe sections and negotiate bends.

E. The tube should be fabricated to a size that, when installed, will tightly fit the internal circumference for the length of the original conduit without any annular spaces between the liner and host pipe and be able to bridge short areas of missing pipe. Allowances should be made for the longitudinal and circumferential stretching that occurs during placement of the tube.

F. The wet-out tube shall be uniform in thickness and when subjected to the installation pressures will meet or exceed the designed finish wall thickness.

G. The outside layer of the tube (before wet-out) shall be coated with an impermeable, flexible membrane that shall contain the resin and facilitate monitoring of resin saturation during the resin impregnation (wet-out) procedure.

H. The tube shall be homogeneous across the entire wall thickness containing no intermediate or encapsulated elastomeric layers. No material shall be included in the tube that may cause delamination in the cured CIPP. No dry or unsaturated layers shall be evident.

I. The wall color of the interior pipe surface of CIPP after installation shall be a light reflective color so that a clear detailed examination with closed circuit television inspection equipment may be made.

J. Seams in the tube shall be stronger than the seamless felt and shall meet the requirements of ASTM D5813.

K. Any plastic film applied to the tube on what will become the interior wall of the finished CIPP shall be compatible with the resin system used, translucent enough that the resin is clearly visible, and shall be firmly bonded to the felt material.

L. The tube shall be marked for distance at regular intervals along its entire length, not to exceed 5 feet. Such markings shall also include the lining manufacturer’s name or identifying symbol.

M. The liner shall be fabricated from materials which, when cured, will be chemically resistant to internal exposure to constituents normally present in sanitary sewer and stormwater.

N. Chemical grout designed for injection shall be: AV-100 chemical grout as manufactured by Avanti International, or approved equal.

O. The CIPP shall have a minimum design life of fifty (50) years. The minimum design life shall be documented by submitting life estimates by national and/or international authorities or specifying agencies.

P. The Contractor shall have performed long term testing for flexural creep of the CIPP material installed by his company. These testing results shall be used to determine the long term, time-dependent flexural modulus to be utilized in the product design. This testing shall include demonstration of performance of the materials (tube and resin) and general workmanship of the installation and curing. A percentage of the instantaneous flexural modulus value (as measured by ASTM D790 testing) shall be used in design calculations for external buckling. The percentage, or the long-term creep retention value, utilized shall be

verified by this testing. Values more than 50 percent shall not be applied unless substantiated by qualified third-party test data. The materials utilized for this Project shall be of a quality equal to or better than the materials used in the long-term test with respect to the initial flexural modulus used in design.

2.02 RESIN SYSTEM

A The resin system shall be a corrosion resistant polyester, vinyl ester, or epoxy and catalyst system that when properly cured meets the minimum requirements given herein or those that are to be utilized in the design of the CIPP for this project.

B. The quantity of resin used for tube impregnation shall be sufficient to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and the potential loss of resin during installation through cracks and irregularities in the original pipe wall, as applicable. A vacuum impregnation process shall be used in conjunction with a roller system to achieve a uniform distribution of the resin throughout the tube.

2.03 STRUCTURAL REQUIREMENTS

A. The CIPP shall be design in accordance with the requirements of ASTM F1216 or ASTM F2019 or ASTM F1743, Appendix X1, has such an acceptable methodology that may be used where applicable. The long-term flexural modulus to be used in the design shall be verified through testing. The long-term modulus shall not exceed 50% of the short-term value for the resin system unless the tube contains reinforcements. If a reinforced tube is utilized, the long-term flexural modulus shall be the percentage of the short-term modulus as determined by the above referenced testing.

B. The minimum CIPP wall thickness for any mainline sewer pipe shall be 6 millimeters.

C. The layers of the finished CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or such that the knife blade moves freely between the layers. If separation of the layers occurs during testing of the field samples, new samples will be cut from the work.

D. Any layers of the tube that are not saturated with resin prior to insertion into the existing pipe shall not be included in the structural CIPP wall thickness computation.

E. Any reoccurrence may be cause for rejection of the work. The finished CIPP shall fit tightly to the host pipeline at all observable points and shall meet or exceed the minimum thickness established by the design process. The materials properties of the finished CIPP shall meet or exceed the following structural standards:

MINIMUM PHYSICAL PROPERTIES				
Property	ASTM Test Method	Polyester System	Filled Polyester System	Vinyl Ester System
Flexural Strength	D790	4,500 psi	4,500 psi	5,000 psi
Flexural Modulus (Initial)	D790	250,000 psi	400,000 psi	300,000 psi

Flexural Modulus (50 yr)	D790	125,000 psi	200,000 psi	150,000 psi
Tensile Strength	D638	3,000 psi	3,000 psi	4,000 psi

PART 3 EXECUTION

3.01 GENERAL

A. Contractor shall clean the pipeline with a high-pressure water jet and hydraulically-powered root cutting equipment to remove all internal debris from the pipeline in accordance with Section 02731 – Television Inspection.

B. Hydraulic cementitious patching material used for flow channel construction shall be installed as directed by the manufacturer.

C. Sectional repairs will not be permitted

3.02 SEWER REPAIRS

A. Any protruding pieces of concrete, dropped joints, or broken pipe shall be subjected to point repairs so that the pipe is left in a clean, smooth condition in all respects ready for lining, unless otherwise jointly determined by the Contractor, Engineer, and the Owner that the defect will not compromise the integrity of the liner.

B. If conditions such as broken pipe and major blockages are found that will prevent proper cleaning, or where additional damage would result if cleaning is attempted or continued, the Contractor shall notify the Engineer immediately. The Contractor shall not line through pipe sagging more than 20 percent without written permission from the Engineer.

3.03 JOINT, CRACK, ANNULAR SPACE, AND LINER END CHEMICAL SEALING

A. Prior to CIPP liner installation, all active leaks of a magnitude that will compromise the integrity of the liner shall be stopped at least one hour prior to installation of the liner using chemical seal grout, at no additional cost to the Owner.

B. Chemical seal grout shall have the following properties:

1. Chemical seal grout shall react quickly to form a permanent watertight seal.

2. Resultant seal shall be flexible and immune to the effects of wet/dry cycles.

3. Chemical seal grout shall be non-biodegradable and immune to the effects of acids, alkalis, and organics in sewage.

4. Component packaging and mixing shall be compatible with field conditions and worker safety.

5. Extraneous sealant left inside pipe shall be readily removable.

6. Chemical seal grout shall be compatible with the CIPP liner resin system utilized.

The chemical sealing materials shall be acrylic resin-type and shall be furnished with activators, initiators, inhibitors, and any other materials recommended by the manufacturer for a complete grout system. Sealing grout shall be furnished in liquid form in manufacturer's standard containers. Sealing grout shall be AV-100 by Avanti International or Engineer-approved equal.

C. The Contractor shall modify his equipment as necessary to seal the leaks. The Contractor's equipment and sealing method shall be approved by the Owner and Engineer prior to use. Extreme caution shall be utilized during leak sealing (pressure) operations to avoid damaging the already-weakened sewer pipe. If any damage occurs, it shall be repaired at the Contractor's expense and to the satisfaction of the Owner and Engineer. Excessive pumping of grout which might plug a service lateral shall be avoided. Any service laterals blocked by the grouting operation shall be immediately cleared by the Contractor at no expense to the Owner.

3.04 FLOW CONTROL

A. Any layers of the tube that are not saturated with resin prior to insertion into the existing pipe shall not be included in the structural CIPP wall thickness computation.

3.05 LINER INSTALLATION

A. The work to be performed under this specification shall be performed Monday through Friday, 7:00 a.m. through 5:00 p.m. The Owner acknowledges that the work to be performed may require performance of work outside of this time frame. All work performed outside of the stipulated time frame must be requested and approved in writing by the Owner a minimum of 72 hours in advance of performing such work. Communication, coordination, and other work-hour-related procedures shall be discussed as part of the preconstruction conference.

B. Preparation

1. It shall be the responsibility of the Owner to make all manhole access points open and accessible for the work, and to provide rights of access to these points. The Contractor shall immediately notify the Engineer of access points that cannot be opened due to obstruction by permanent structures. The Contractor shall be responsible to make all necessary provisions to ensure service conditions and structural conditions of the host pipe are suitable for installation and warranty of the liner. If a street must be closed to traffic because of the orientation of the pipeline, the Contractor shall be responsible for Maintenance of Traffic.

2. The Contractor, when required, shall remove all internal debris out of the pipeline that will interfere with the installation of the CIPP. Cleaning shall conform to the requirements of Section 02731 –Television Inspection.

3. Potable water from the Pinellas County water system shall be used for pipe cleaning and lining operations. The Contractor will obtain a portable potable water meter from the Pinellas County Utility (PCU) department and abide by all requirements set forth by PCU, as well as all applicable state and local regulations, regarding the use of the meter. The Contractor will be responsible for all water use fees, at no cost to the Owner. The Contractor is responsible for any damage resulting from improper use of hydrants. The Contractor will not use or obstruct fire hydrants in the event of a fire in the area. The Contractor shall not waste water from the Pinellas County system because of improper connections or hydrants left open

4. It shall be the responsibility of the Contractor to clear the line of obstructions such as solids and roots that will prevent the insertion of CIPP and a tight fit with the host pipe. If pre-installation inspection reveals an obstruction such as a protruding service connection, dropped joint, or a collapse that will prevent the installation process, and it cannot be removed by conventional sewer cleaning equipment, then the Contractor shall suspend lining operations and notify the Engineer.

5. The pre-installation CCTV inspection of the pipeline shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections, in accordance with the Technical Specification Section titled Sanitary Sewer Line Cleaning and Sanitary Sewer Television Inspection The interior of the pipeline shall be carefully inspected to determine the location of any conditions that may prevent proper installation of the CIPP into the pipelines, and it shall be noted so that these conditions may be corrected. A videotape and suitable log shall be kept for later reference by the Owner.

6. The Contractor, when required, shall provide for the flow of sewage around the section, or sections, of pipe designated for rehabilitation. The bypass shall be made by plugging the line at the existing upstream manhole and pumping the flow into a downstream manhole or adjacent system. The pump and bypass lines shall be of adequate capacity and size to handle the anticipated flow. The Contractor will be required to submit a detail of the bypass plan to the Engineer for prior approval.

7. The Contractor shall verify all existing pipe diameters prior to ordering liner materials.

8. The Contractor shall make every effort to maintain service usage throughout the duration of the project. In the event that a service will be temporarily out of service, the maximum amount of time of no service shall be 16 hours for any property served by the sewer. The Contractor shall be required to notify the Owner and all affected properties whose service laterals will be out of commission and to advise against water usage until the sewer main is back in service. Such notification shall be provided to the Owner at least one week prior to service disconnecting.

9. A public notification program shall be implemented, and shall as a minimum, require the Contractor to be responsible for contacting each home or business connected to the sanitary sewer and informing them of the work to be conducted, and when the sewer will be off-line. The Contractor shall also provide the following:

    a. Written notice to be delivered to each home or business describing the work, schedule, how it affects them, and a local telephone number of the Contractor they can call to discuss the project or any problems that could arise.

    b. Personal contact and attempted written notice the day prior to the beginning of work being conducted on the section relative to the residents affected.

    c. Personal contact with any home or business that cannot be reconnected within the time stated in the written notice.

C. Installation of Full Liner

1. Tube Insertion

    a. The wet-out tube shall be inserted/inverted into the pipeline using as defined within relevant ASTM standards previously stipulated. The tube should be

inserted/inverted through an existing manhole or approved access point and fully extend to the next designated manhole or termination point.

b. The application of hydrostatic head, compressed air, or other means shall fully extend the liner to the next designated manhole or termination point and inflate and firmly adhere the liner to the pipe wall.

c. The liner is to be install in a controlled manner at a rate sufficient to prevent damage to the tube. The installation rate shall not exceed 32 feet per minute. The installation head shall be such that, allowing for minor impact, at no tome shall the hoop tension in the felt exceed 500 psi or the hoop stress in the polyurethane membrane exceed 8,000 psi

D. Curing

1. The Contractor shall provide a suitable heat source and distribution system capable of delivering hot water, air and/or steam throughout the entire length of the liner to quickly and uniformly raise the temperature in the liner above the temperature required to commence the exothermic reaction of the resin, as determined by the catalyst system employed.

2. The heat source shall be fitted with suitable monitors to gauge the temperature of the incoming and outgoing water/steam supply to determine when uniform temperature is achieved throughout the length of the liner. Temperature in the liner during the initial and post cure period shall be as specified by the resin supplier. In addition to the gauges on the incoming and outgoing water/steam supply, there shall be thermo couples placed between the liner and the sewer pipe at the end of the liner being cured to accurately measure the liner temperature. The Contractor shall submit, in writing, for approval, his method of monitoring line curing temperatures.

3. A record every 15 minutes of the temperature reading of the thermocouple shall be kept and submitted for each section lined to the inspector or Engineer.

4. Initial cure shall be deemed to be completed when inspection of the exposed portions of liner appear to be hard and sound and the remote temperature sensor indicates that the temperature is of a magnitude to realize an exotherm. The cure temperature shall be held for the period recommended by the resin manufacturer, during which time the distribution and control of the curing medium shall continue. The curing process for the CIPP shall consider the host pipe material, resin/catalyst system, ambient temperature, moisture level and thermal conductivity of the soil.

E. Cool-Down

1. The hardened liner shall be cooled at rate that is no faster than the resin manufacturer’s recommendations. If no guidance is available, no faster than 10 degrees per hour should be performed. The liner shall reach a temperature below 100 degrees F before relieving the static head or pressure in the lined pipe and returning normal flow back into the system. The cool down may be accomplished by introducing cool water or air into the lined pipe. Super cold air shall not be utilized to increase the cooling rate. Care shall be taken in the release of the static head or pressure so that a vacuum will not develop which could damage the newly installed liner.

3.06 FINISH

A. The finished pipe liner shall be continuous over the entire length of an insertion run and be as free as, commercially practicable, from visual defects such as foreign inclusions, pinholes, and de-lamination. The pipe liner shall be impervious and free of any leakage from the pipe to the surrounding ground or from the ground through the sidewall of the lined pipe.

B. Any defects which will, or could, affect the integrity of strength of the liner shall be repaired at the Contractor's expense, in a manner approved by the Owner.

C. The beginning and end of the new CIPP pipe liner shall have manufacturer approved end restraints installed and be sealed to the rehabilitated host pipe using a product equal to “3M 5600 Polyurethane Grout” and a compatible acrylic additive. At the time of final inspection, there shall be no evidence of groundwater infiltration through the annular space between the liner and the host pipe. All manhole terminations sealed by grout shall also require a smooth, uniformed concrete transition between the manhole wall, bench, and invert.

3.07 SERVICE REINSTATEMENT

A. After the pipe liner has been cured, the Contractor shall internally reconnect the existing service connections. The Contractor shall be responsible to confirm the active laterals prior to reconnection. In the case of non-man entry pipes, reconnection shall be performed from the interior of the pipeline by means of the television camera and a cutting device that re-establishes them to not less than 98 percent diameter. All reinstated services shall be cut neat and smooth and shall be wire brushed and smoothed to prevent collection of solids and potential blockages at service connections.

3.08 LATERAL SEALING

A. Prior to starting work, the Contractor shall determine if leaks at service laterals can be fixed from the pipe interior. If excavation at the service lateral within the right-of-way is required, the Owner reserves the right to delete the sewer span between manholes from the work assignment at its discretion. If the service lateral is leaking upstream of the right-of-way line, the Contractor shall notify the Engineer.

B. Sewer service reconnections shall be sealed with the use of equipment which consists of a closed-circuit television system and a special sealing packer device, along with the necessary chemical sealant containers, pumps, controls, regulators, valves hoses, etc. The special lateral sealing packer with an inversion tube or bladder, 36 inch minimum length, to reach up into the service pipe shall be so constructed that it can straddle four (4) to six (6) inch diameter service connections in eight (8) inch or larger main sewer lines. When properly positioned, and with the end elements inflated, a special inflatable sealing tube shall be extended up the service connection, thereby isolating a portion of the service connection containing one or more pipe joints for sealing. The control unit for the device shall have provisions for accurately controlling the packer functions in addition to monitoring the inflation pressure and the void pressure in the isolated area to sealed.

C. After the packer device has been properly positioned in the main line, with the inflatable tube extended into the service connection, the connection shall be sealed by the injection of the chemical sealant. The chemical sealant shall be injected through the special packer device into the annular space between the inflatable tube and the service connection. The injection of the chemical sealant shall continue until the chemical fluid back pressure is enough to insure the complete sealing of all the defects along the length of the inflatable tube.

D. After the service connection has been successfully sealed, the following procedures shall

be performed to ensure that the sealing operation did not block the service connection.

1. The inflatable tube shall be removed from the connection.

2. The packer and elements shall be deflated.

3. The special packer shall be moved forward, and the 360^0 CCTV camera shall be positioned in the center of the service connection and rotated to look up the service connection to insure that the chemical sealant did not cause blockage.

E. If blockage is observed, the chemical sealant shall be removed to ensure the service connection is free flowing.

F. The chemical sealant used shall be in accordance with the requirements set forth in the specifications, or as approved by the Engineer.

G. At the time of final inspection, there shall be no evidence of groundwater infiltration entering the lined pipe from between the liner and the host pipe at the service laterals.

H. Lateral Seal Test

1. At the direction of the Engineer, the Contractor shall pressure test the lateral connection seal.

2. The Contractor shall position a bladder packer over the lateral opening and inflate the inversion tube to isolate the lateral. The bladder shall be pressurized to four (4) PSI plus 0.5 PSI for each foot of groundwater above the sewer invert. Maximum pressure shall be nine (9) PSI.

3. Once the required pressure has been achieved, the air supply shall be disconnected, and the time required for the void pressure to drop 0.5 PSI shall be recorded. If the pressure drops more than 0.5 PSI in less than ten (10) seconds, the lateral shall be regrouted and retested.

3.09 FIELD QUALITY CONTROL

A. For all runs of CIPP liner and where the thickness of the liner changes, the Contractor shall take samples and shall test them in accordance with Article 3.07 herein.

B. Where the pipe diameter is less than or equal to 15 inches, the samples shall be restrained-type samples made by extending the liner through a form with a diameter as close as possible to the existing pipeline. The formed sample shall be provided with insulation to contain cure heat as well as a heat sink, such as sandbags, for cool down. The length of the tube shall be large enough to provide at least five samples.

C. Where the pipe diameter is greater than 15 inches, a plate sample shall be prepared. The test sample shall be fabricated from the material taken from the liner and cured in a clamped mold with the resin used in the liner construction placed in the down tube.

D. Test specimens shall be clearly marked in indelible ink to identify the name of the Project, location, appropriate lateral or main section, work order number, date of installation, and orientation to the top of the pipe (direction of up) so the results can be correlated to the work performed. All test results shall use this designated labeling as a reference.

E. The extraction and labeling of test specimens shall be performed by the Contractor in the presence of the Owner and/or Engineer. The Owner and/or Engineer and Contractor shall, upon completion of sample extraction and labeling, all sign a chain-of-custody form that shall subsequently accompany the sample at all times and shall ultimately be received and signed at the testing laboratory. Test reports shall include a copy of the chain-of-custody form with all signatures to ensure that reported test results are for the correct sample.

F. Each sample shall be large enough to provide at least five total specimens for testing. One test for thickness, flexural strength, and flexural modulus shall be conducted in accordance with ASTM F1216 or ASTM F2019, ASTM D790, and ASTM D2290 for each run of lines. The material shall meet the initial strength requirements of Table 1 of ASTM F1216 or ASTM F2019 (UV cured).

3.10 WET-OUT AND CURE REPORT

A. The Contractor shall submit wet-out and cure reports documenting the specific details of the liner's vacuum impregnation and saturation with resin and the CIPP installation of the liner. A report shall be generated for each liner installation. Copies of all wet-out and cure records shall be submitted to the Owner and Engineer on a weekly basis and prior to submitting an Application for Payment on which payment for the specific liner(s) included in the wet-out and cure records is requested. If the wet-out and cure reports are not submitted prior to the associated Application for Payment, payment for the work will not be made and the Application for Payment will be rejected. At a minimum, the report shall include:

1. Contractor name
2. Owner’s Contract number
3. Line identification and location
4. Date and time of wet-out
5. Identification of sample(s) and name of technician(s)
6. Date of installation in sewer
7. Inside diameter of host sewer pipe
8. Liner thickness
9. Liner length
10. Liner and resin batch numbers
11. Resin type
12. Wet-out length
13. Roller spacing
14. Vacuum setting
15. Quantity of resin and catalyst utilized

16. Name of wet-out technician(s)

17. Time wet-out started and completed

18. Applicable remarks

19. Heat Cure: Boiler and liner heating fluid (water or steam) pressure and temperature versus time log during cure period

20. Cool down report

3.11 TESTING REQUIREMENTS

A. Testing on physical samples from a random 20 percent of cured lines shall be performed, unless a pattern of failure occurs, at which point the Owner or Engineer can request additional testing at no cost to the Owner. All of the costs for sample collection and testing shall be included in the amount bid for the applicable Bid Item for CIPP lining, and no separate payment shall be made.

B. For each inversion length, one CIPP sample shall be cut from a section of cured CIPP that has been inverted through a like-diameter pipe at an intermediate manhole or at the termination point. This sample pipe shall have been held in place by a suitable heat sink such as sandbags. Other sampling techniques may be required for special situations.

C. The Contractor shall submit a method to the Owner and Engineer for review and approval for obtaining representative samples from the installed liners in accordance with Article 3.06 herein. These samples shall be tested by a third-party ASTM-certified testing laboratory at the Contractor's expense to verify compliance with the installed material specifications. The Contractor shall produce these test samples when directed by the Owner and/or Engineer.

D. The CIPP shall meet the chemical resistance requirements of ASTM F1216 or ASTM F2019. CIPP samples for testing shall be of a tube and resin system similar to that proposed for actual construction. CIPP samples, both with and without plastic coating, shall meet these chemical testing requirements. The CIPP samples shall be prepared and the samples' physical properties tested in accordance with ASTM F1216, ASTM F2019, or Section 8 of ASTM F1743 using either proposed method. Wall thickness of samples shall be in accordance with paragraph 8.1.6 of ASTM F1743.

E. The installed CIPP liner shall be leakage tested in accordance with ASTM F1216. The leakage testing shall be conformed before the service connections are re-instated. The Contractor may perform air testing in lieu of water leakage test. The Contractor shall perform a 4 psi air test on the segment after curing the CIPP and prior to internally re-instating laterals on 18-inch and smaller diameter sewers. The CIPP shall be able to hold a 4 psi pressure for a 5-minute minimum duration after a 2-minute stabilization period. Any lining not able to meet the water leakage test or air test shall be repaired and retested at no additional cost to the Owner.

F. When post-installation thickness measurements and/or physical property testing is performed, installed liners which do not pass these material tests will be accepted at reduced payment or rejected as follows:

1. Full Payment: If the thickness, flexural strength, and flexural modulus of elasticity of installed liner are all equal or greater than 95 percent of specified values, full payment will be made.

2. Reduced Payment: If the thickness, flexural strength, or flexural modulus of elasticity of installed liner is between 90 and 94.9 percent of specified value, payment will be made based on an adjusted amount, which shall equal the appropriate unit price bid multiplied by a Value Factor calculated as follows:

   Value Factor = Thickness x Flexural Strength x Flexural Modulus of Elasticity (all percentages expressed as decimals)

3. Rejected: If the thickness, flexural strength, or flexural modulus of elasticity of installed liner is 89.9 percent or less of specified value, product may be rejected.

3.12 FINAL ACCEPTANCE

A. The finished liner shall be continuous over the entire length of the installation. The liner shall be free from visual defects, damage, deflection, holes, delaminations, uncured resin, etc. No pinholes, splits, cracks, thin spots, dry spots, lifts, ridges, or other defects in the CIPP liner shall be permitted. There shall be no visible infiltration through the liner or from behind the liner at manholes and service connections. Wrinkles in the finished liner that cause backwater, reduce the pipe's hydraulic capacity or structural stability, or create voids between the liner and pipe wall are unacceptable. Wrinkles shall neither exceed 10 percent of the diameter of the host pipe nor impede flow at any time, as determined by the Owner's Representative.

B. Cut ins and attachments at service connections shall be neat and smooth. All service connections shall be open, clear, and watertight. The liner opening shall neatly conform to the opening in the host pipe and shall be free of burrs or debris.

C. The Contractor shall prepare a sample for each installation of CIPP. The samples shall be restrained samples for diameters of CIPP less than 18"; and flat plate samples for diameters of CIPP 18" and larger. The flat plate samples shall be taken directly from the wet-out tube, clamped between flat plates, and cured in the downtube. The restrained samples shall be tested for thickness and initial physical properties; flat plate samples shall be tested for initial physical properties only.

D. After installation of the pipe liner and reinstatement of service connections, the Contractor shall perform a TV inspection in the presence of the Owner's Representative. A radial view TV camera shall be used. The finished pipe liner shall be continuous over the entire length of each installation. The pipe liner shall be free of significant visual defects, damage, deflection, holes, and the like, other than in areas of reduced host pipe cross section, wherein a minor longitudinal fold may have formed. Any deformities in the liner, not caused by irregularities in the host pipe that significantly restrict the sanitary sewer flow as determined by the Engineer, shall be repaired by the Contractor at no cost to the Owner. Reinstated service connections shall be neat, smooth, and properly grouted to prevent infiltration of groundwater.

E. Defective lining shall be removed and the pipe re-lined at no additional cost to the Owner. If the host pipe is damaged during the removal process, Contractor shall perform a point repair at Contractor's expense. Prior to removing or repairing any defective lining, the Contractor shall supply a complete CCTV inspection of the CIPP segment to the Engineer.

F. Preliminary field acceptance of the liner shall be based on the Owner's and/or Engineer's evaluation of the installation and curing data, results of air testing where required, and review of the digital CCTV recordings.

   1. Groundwater infiltration shall not be observed through the liner.

2. There shall be no evidence of splits, cracks, breaks, lifts, kinks, delaminations, or crazing in the liner.

3. If any defective liner is discovered after it has been installed, it shall be removed and replaced with either a sound liner or a new pipe at no additional cost to the Owner.

G. Final acceptance of the liner shall be based on the preliminary field acceptance of the liner by the Owner and/or Engineer as previously listed and on the results of the certified laboratory tests on the liner specimens as previously listed.

H. Liners meeting or exceeding the certified thicknesses and specified strengths, as evidenced by the certified laboratory testing results, shall be paid for as specified above.

3.13 CLEAN-UP

A. After the pipe liner installation has been completed and inspected, the Contractor shall clean up the project area. All excess material and debris not incorporated in the permanent installation shall be disposed of by the Contractor. The Contractor, in accordance with State and Federal laws and regulations shall dispose of all excess material and debris not incorporated in the permanent installation. The project area affected by the Contractor's operations shall be restored to original condition, or better.

3.14 WARRANTY

A. The manufacturer shall warrant the pipe liner to be free from defects in raw materials for one (1) year from the date of delivery. The Contractor shall warrant the pipe liner installation for a period of two (2) years from the date of acceptance described above. During the Contractor warranty period, any defect, which materially affects the integrity or strength of the pipe liner, shall be repaired at the Contractor's expense in a manner mutually agreed to by the Owner and the Contractor.

B. If a liner fails to reform, the Contractor shall be required to remove the failed liner at no additional cost to the Owner. This shall include, but not be limited to, all material, excavation, backfilling, cutting concrete, pipe, shoring, temporary pavement, permanent pavement, permits, and other incidental work required to remove the liner from the host pipe. If removal is not feasible, or if removal will cause more harm than acceptable to the host pipe, alternatives may be proposed by the Contractor to the Engineer for review and approval. The integrity of the existing pipe, where the liner was removed, shall be rehabilitated by installing another new pipe section. There shall be no direct payment for this work

[END OF SECTION]

SECTION 02750

CHEMICAL GROUTING

PART 1 GENERAL

1.01 SCOPE

A. It is the intent of this Specification to provide for the rehabilitation of defective pipe joints, some circumferential pipe cracks and other small pipe defects by the application of chemical grouting materials in accordance with ASTM F-2304-03 Standard Practice for Rehabilitation of Sewers Using Chemical Grouting.

B. The work covered by this section of the specifications includes the furnishing of all labor, tools, equipment and materials, and performing all operations in connection with sealing sewer pipe joints, cracks, holes and similar defects, including, but not limited to, cleaning and CCTV inspection of the pipe, pressure testing sewer pipe joints, and sealing pipe joints with chemical grout. The work shall also include all necessary maintenance of traffic provisions, host pipe preparatory work required in advance of the lining operation, including, removal of all debris, removal of protruding service connections, complete maintenance of all wastewater flows, and the cleanup of the work site, including restoration of surfaces such as paving, and seeding, sodding and graveling, as needed, if damaged.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Without limiting the generality of the other requirements of the Specifications, all work herein shall conform to the applicable requirements of the following documents. All referenced specifications, codes, and standards refer to the most current issue available at the time of Bid.

1. ASTM F2304 Standard Practice for Sealing of Sewers Using Chemical Grouting

2. ASTM F2414 Standard Practice for Sealing Sewer Manholes Using Chemical Grouting

3. ASTM F2454 Standard Practice for Sealing Lateral Connections and lines from the mainline Sewer Systems by the Lateral Packer Method, Using Chemical Grouting

4. NASSCO Specification Guidelines – Specification for Sewer Line Cleaning

5. NASSCO Specification Guidelines – Specification for Television Inspection Main Sewer

6. NASSCO/ICGA Suggested Standard Specification for Pressure Testing and Grouting of Sewer Pipe Joints, Laterals and Lateral Connections Using the Packer Method with Solution Grouts

1.03 SUBMITTALS

A. After the award of the contract or issuance of work order, and before any materials are delivered to the job site, the Contractor shall submit to the Engineer the following:

1. A complete list and description of all equipment and materials to be used during the grouting operation.

2. Pump calibration information, field sealing records, certification of pressure

sensing/monitoring equipment, and a list of chemicals to be used together with information on toxicity and hazardous nature of chemicals.

3. Manufacturer's certification that all materials to be used meet the referenced standards and these specifications.

4. Information on recommended or required safe storage and handling of each chemical and evidence that chemicals are approved by OSHA and U.S. Environmental Protection Agency.

5. Manufacturer's approved procedure for material storage and handling, temperature control, liner insertion, curing requirements and trimming and finishing.

6. Contractors procedure for sealing the CIPP liners from groundwater infiltration at manholes/access structures and service laterals

7. Detailed plans for maintenance of wastewater flows including pumps, plugs, pipe size, tank trucks, material, locations, calculations, noise control methods, etc., to the Engineer for approval.

1.03 QUALIFICATIONS

A. The Owner requires a proven and extensive track record for the chemical grouting system to be used under this agreement. All Contractors submitting bids must exhibit extensive satisfactory experience with the equipment and materials used, and satisfactory evidence that the proposed grouting system has been extensively and successfully used in the Unites States and the State of Florida. The installer must be certified by the grouting system manufacturer for use of the system. Contractors using subcontractors shall submit information about the subcontractor (i.e. Name, experience records, jobs on which the general and subcontractor have worked jointly, etc.). The Owner reserves full and complete authority to approve the satisfactory nature of both the grouting system and the installer.

B. The qualifications of the Contractor shall be submitted with the Bid Proposal. These qualifications shall include detailed descriptions of the following:

1. Name, business address, and telephone number of the Contractor

2. Name(s) of all supervisory personnel that will be directly involved in the Project

3. Proposed product information showing compliance with the specified requirements listed herein, including chemical grouts, additives, and packers

4. Documentation of certification of Contractor by the chemical grout manufacturer and/or its authorized representative

5. A reference list of previous projects on which the Contractor has provided chemical grouting over the last five years, including project name, project number, customer name, and Owner's contact information (name and phone number

6. To be acceptable, the Contractor must have had a minimum of five (5) years of active experience in chemical grouting.

7. The chemical grout shall have documented service of successful performance in similar usage, with a minimum of 10,000 joints, laterals, and manholes grouted in the United

States.

8. The Contractor shall sign and date the information provided and certify that, to the extent of his knowledge, the information is true and accurate and that the supervisory personnel will be directly involved with and used on the Project. Substitutions of personnel and/or methods will not be allowed without written authorization by the Owner and/or Engineer.

1.04 SAFETY

A. The Contractor shall be aware that this contract requires work in active sewers and shall perform the work in compliance with all federal, state, and local requirements for safety in confined spaces, work zone safety, and hazardous materials. The Contractor shall conform to all guidelines set forth by the Occupational Safety and Health Administration (OSHA) and Federal Regulations 29 CFR Ch. XVII, Section 1910.146, Confined Space Entry.

B. The Contractor shall not enter into any sewer segment where hazardous conditions may exist until such time as the source of those conditions are identified and eliminated The Contractor will report any condition to the Owner which may pose a threat to the health and welfare of employees of the Owner, Contractor, or the general public.

C. The Contractor will use employees that are properly trained and who are aware of possible work, materials, and job-site related hazards.

D. Mixing and handling of chemical grout may be toxic by passing through unbroken skin, by inhalation of dust or droplets of the materials or by swallowing. Therefore, mixing, handling, and pumping of the chemicals shall be done by personnel thoroughly familiar with the handling of the chemicals involved. All chemicals shall be subject to the approval of the Engineer.

E. The Contractor shall take satisfactory precautions to protect the sewer segments and appurtenances from damage that might be inflicted upon them by the use of grouting equipment. Any damage caused to the sewer segment or other public or private property as a result of the grouting operations shall be repaired at the Contractors expense

F. The Contractor will ensure that waste material is properly disposed in accordance with applicable regulations and safety precautions.

PART 2 PRODUCTS

2.01 CHEMICAL GROUT

A. The Contractor shall provide a chemical sealant solution containing principal chemical sealant constituent, initiator (trigger) and catalyst specifically recommended for the purpose of sealing leaks in sanitary sewer lines and manholes. Chemical sealant constituent, initiator (trigger) and catalyst shall be compatible when mixed. Solution shall have ability to tolerate dilution and react in moving water. After final reaction, it shall be a stiff, impermeable, yet flexible gel. The grout proportions shall be such that dilute aqueous solutions, when properly catalyzed, will form stiff gels. Grout shall make true solution at concentrations as high as three pounds per gallon of water. Solutions shall have ability to accept dilution by groundwater of at least 50% by volume, without significantly changing sealing ability of the gel when at rest or in motion. Solutions shall gel in a predetermined time when exposed to normal groundwater pH ranges and be capable of formula adjustments to compensate for changing conditions. Final reaction shall produce a continuous, irreversible, impermeable stiff gel at chemical concentrations as low as 0.4 lbs per gallon of water. Gel shall not be

rigid or brittle. Gel shall have negligible corrosion rate on mild steel plates.

B. For main lines and laterals, chemical grout shall be a minimum of 10 percent acrylamide base material by weight.

C. Chemical grout shall have the ability to tolerate dilution and react in moving water.

D. Chemical grout shall have the ability to increase viscosity, density, and strength with the use of approved additives.

E. Chemical grout shall have an initial viscosity of approximately 2 centipoise.

F. Chemical grout shall have a controllable reaction time of 10 seconds to 60 minutes

2.02 ADDITIVES

A. The following additives, in quantities as recommended by the manufacturer and as approved by the Engineer, shall be used for all grouting applications:

1. Strengthening Agents: For joint grouting, a latex or diatomaceous earth additive shall be added to increase compressive and tensile strength. The strengthening agent shall be Avanti AV-257 Icoset or Engineer-approved equal.

2. Root Inhibitor: A root deterrent chemical shall be added to control root re-growth. The root inhibitor shall be Avanti AC-50W or Engineer-approved equal.

B. If required by field conditions, the following additives, in quantities as recommended by the manufacturer, may be used at the Contractor's discretion:

1. Dye: A manufacturer-approved water soluble dye without trace metals may be added to the grout tank(s) for visual confirmation.

2. Gel Time Modifier: A gel time extending agent may be used to extend gel time as necessary.

3. Freeze/Thaw: In those lines where the grouting material may be exposed to a freeze-thaw cycle, ethylene glycol or an alternative Engineer-approved additive shall be used to prevent chemical grout cracking once set.

C. When using non-soluble additives, the grout tanks shall have mechanical mixing devices to keep the additives in suspension and maintain a uniform solution of grout and additive.

2.03 ROOT INHIBITOR

A. Root inhibitor shall be dichlorobenil (2-6-dichlorobenzonitrile)

B. The Contractor shall add root inhibitor to the chemical grout mixture at a safe level of concentration having the ability to remain active within the grout for a minimum of 12 months.

2.04 EQUIPMENT

A. The Contractor shall provide equipment consisting of closed-circuit television systems, necessary chemical sealant containers/tanks, pumps, regulators, valves, hoses, etc. and joint sealing packers for appropriate sizes of pipe designated to receive chemical grouting.

The packer shall be cylindrical and have a diameter less than the pipe size. The packer shall be constructed in a manner to allow restricted amounts of sewage to flow and shall be pneumatically operated. Hydraulically or mechanically expanded devices shall not be permitted.

B. To test the accuracy, integrity, and performance capabilities of sealing equipment units, The Contractor shall perform a demonstration test in a test cylinder constructed so that a minimum of two known leak sizes can be simulated. The Contractor shall provide test cylinders and pressure gauges. Contractor shall perform the demonstration test for each chemical sealing unit prior to beginning work. This technique will establish test equipment performance capability in relationship to test criteria and ensure that there is no leakage of the test medium from the system or other equipment defects that could affect joint testing results. Tests may be required at any other time during joint testing work if the Engineer suspects testing equipment is not functioning properly. All testing costs shall be borne by the Contractor.

PART 3 EXECUTION

3.01 CLEANING AND INSPECTION

A. Prior to the application of chemical grouting materials, the Contractor shall thoroughly clean and inspect the sewer designated to receive the chemical grouting. Cleaning shall constitute removal of all debris, solids, roots, and other deposits in the sewer line; particularly at the sewer pipe joints. Sewer cleaning and inspection requirements are in accordance with Section 02650 – Sewer Cleaning.

3.02 SEWAGE FLOW CONTROL

A. The Contractor shall provide for maintenance of flow in the affected portions of the sewer system during grouting of the sewer line. Requirements for sewage flow control and bypass pumping are contained in the Technical Specification titled Sanitary Sewer Line Cleaning and Closed-Circuit Television Inspection.

B. Sewage flow control shall be employed by the Contractor when sewer line depth of flow at the upstream manhole of the sewer line section being worked is above the maximum allowable for joint testing and sealing. Flow control shall be accomplished by bypass pumping of flow from upstream of the sewer segment to be grouted to a point downstream of the sewer segment to be grouted. Depth of flow shall not exceed that shown below for respective pipe sizes as measured in the upstream and downstream manholes when performing joint testing and sealing.

Maximum Depth of Flow for Joint Testing/Sealing	
24 in. Dia. Pipe or less	10% of Pipe Dia.
>24 in. Dia. Pipe	20% of Pipe Dia.

C. When required, the Contractor shall provide for the transfer of flow around a section or sections of pipe to be grouted. The proposed bypassing system shall be approved in advance by the Owner and Engineer. The approval of the bypassing system shall in no way relieve the Contractor of his responsibility and/or public liability.

1. If the grouting can be completed in a few hours, bypass pumping may not be required. The placement carriage shall be equipped with a bypass section to allow flow once

grouting is completed.

3.03 PRESSURE TESTING JOINTS IN SEWER LINES

A. Preconstruction Testing

1. The Contractor shall provide equipment such as pumps, gauges, regulators, and hoses, necessary to perform air tests of each joint in those sewer line sections designated for grouting work. Equipment configuration shall be such that there are no valves on or along the air line between the measuring point at the joint and the pressure transducer or sensing device located in the control unit on the surface. Systems which incorporate bladders, hoses, or the like for monitoring the pressures and which have questionable accuracy shall not be allowed. The amount of pressure being exerted on the joint shall be readable above ground on a pressure gauge.

2. The accuracy and calibration of pressure sensing/monitoring system shall have been certified by an independent testing firm within a one-month period preceding the use of equipment. Proof of certification shall be submitted to the Engineer.

3. To confirm that joint testing is not a more severe test than the pipe itself can pass, the Contractor shall perform an on-job barrel test between joints in each pipe line to be tested to determine that the pipe barrel can pass the test criteria. If the pipe barrel will not pass decay rate limits, adjustment of maximum pressure levels will be evaluated jointly between the Contractor and Engineer. Engineer shall render final written decision on each such situation.

B. Sewer Pipe Joint Testing

1. The Contractor shall test each joint by isolating the area to be tested within the testing device and applying positive pressure into the joint and void area created by the test device. The Contractor shall then introduce pressurized air into the isolated void created by testing device. Pressure shall be applied until it is determined that the pressure cannot be built in the void or until the test pressure of 5 psi is reached as recorded by the void pressure monitor. When either of these conditions is reached, the Contractor shall shut off the air supply.

2. If the required pressure cannot be developed, joint shall have failed the test. If the required test pressure in the void was increased to 5 psi, rate of decay of this pressure shall not exceed 1 psi in 30 sec. The joint being tested will also have failed if the pressure drops more than 1 psi in 30 sec. Failure of the joint indicates the need for sealing. Sealing shall be accomplished by the Contractor as specified elsewhere in these Technical Specifications

C. Test Records

1. During grout testing, records shall be kept which include identification of the sewer line section tested, test pressure used, location (footage) of each grouted defect tested and location of grouted defects not tested due to close proximity to building service connections and sanitary sewer manholes, a statement indicating test results (passed or failed) for each grouted defect tested, test pressure achieved and maintained for each grouted defect passing air test, weekly equipment pressure test results, sewer line section barrel test results, daily gel check results, and air temperature at time of testing joints

3.04 CHEMICAL GROUT APPLICATION

A. The entire chemical grouting process shall be performed in strict accordance with the manufacturer's current guidelines. If any deviations from the guidelines are proposed, Contractor shall submit explanation and approval from grout and/or packer manufacturer(s).

B. Repairs shall take place at joints, generally small circumferential cracks, small holes, or similar points of infiltration as identified. The repair shall be such that the original cross-sectional area and shape of the interior of sewer pipe shall not be permanently reduced or changed.

C. Sewer Pipe Joints or Defects

1. Placement of Chemical Grout

a. The Contractor shall position the sealing packer over the area of infiltration by means of a metering device at the surface and closed-circuit television camera in the line.

b. Accurate measurement of the location of the defect to be sealed shall be made, using the portion of sealing packer as "Datum" or measurement point or target.

c. A similar measurement to the target shall also be used to obtain necessary measurement for positioning the injection area of sealing packer over area to be sealed.

d. The Contractor shall expand the sealing packer sleeves using controlled pressures.

e. Expanded sleeves shall seal against the inside periphery of pipe to form a void area at the point of infiltration, completely isolated from the remainder of pipe the line.

f. The Contractor shall pump sealant materials into this isolated area through hose systems at controlled pressures which are in excess of groundwater pressures. Under pressure, the grout shall then be forced out into the soil through any leaking joints and pipe defects. No more than 20 gallons of grout shall be pumped into a single sewer section. If a sewer section requires more than 20 gallons of grout to achieve an effective seal, the Engineer shall be notified and shall approve the use of the additional grout before pumping is continued.

g. Upon completion of injection, the Contractor shall retest the point of repair. If retesting shows the seal was not completely effective, the Contractor shall repeat the sealing process until the defect successfully passes the pressure test. After sealing the entire sewer line section, the Contractor shall remove surplus grouting material from the line section at the immediate downstream manhole. If surplus grouting materials left in the sewer line section by the Contractor results in sewer surcharging and subsequent damage to public or private property, the Contractor shall be responsible for damage to property and expenses incurred by the Owner.

2. Gel Checks

a. The Contractor shall make gel checks daily for each sealing vehicle to monitor both induction period and gel characteristics. The Contractor shall also make checks for every mixed batch or at least twice per day if only one batch is used. The Engineer reserves the right to request adjustment of gel times or reject the entire batch if

acceptable gel characteristics do not exist. Periodic gel checks shall also be made in the pipe (at request of the Engineer) by seating the sealing packer on the pipe barrel and filling the packer void with grout solutions. Pressure will then be monitored until a rise in pressure is observed, indicating that grout has gelled in the packer void. The Contractor shall certify, for each of the sealing vehicles, results of required gel checks.

D. Lateral Connections

1. All lateral connections that are not designated on the Drawings or directed by the Owner and/or Engineer to be replaced via excavation or rehabilitated with a full-circle lateral liner shall be chemically grouted after the CIPP liner is installed and lateral opening has been reinstated in accordance with Section 02740 – Cured-in-Place Pipe. The grout shall extend a minimum of 6 inches up the lateral pipe. If a minimum of 6 inches of grout in the lateral cannot be achieved due to blockages, the Contractor shall proceed to the next connection and shall immediately inform the Engineer of the location and cause of the blocked connection.

2. The lateral packer shall remain in position during the sealing of the connection so the isolated void is maintained. Grout shall be pressure-injected through the lateral packer into the annular space between the inversion tube and the lateral pipe. Under pressure, the grout shall then be forced out into the soil through any leaking joints and pipe defects. No more than 20 gallons of grout shall be pumped through a single lateral connection. If a connection requires more than 20 gallons of grout to achieve an effective seal, the Engineer shall be notified and shall approve the use of the additional grout before pumping is continued.

3. Upon completion of the lateral sealing procedure, the lateral shall be air-tested to confirm the sealing of the connection. If the lateral fails the air test, the grouting procedure shall be repeated at no additional cost to the Owner. This sequence of grouting and subsequent air testing shall be repeated until either the lateral is sealed or it is determined that the grout consumption is too high and may result in the blockage of the lateral pipe. The final determination to stop subsequent attempts to seal a lateral will be jointly made by the Engineer and the Contractor.

4. The Contractor shall confirm lateral flow after the successful sealing of each lateral tap. With the lateral packer in position, the inversion tube shall be retracted and air shall be pressure-injected into the lateral. If a pressure builds in the lateral and does not drop to approximately zero in a few seconds, the packer shall be moved off the connection and the connection shall be viewed with a television camera. With the camera viewing the connection point, an attempt shall be made to obtain a water flush by the property Owner served by the lateral. If water is not visible during this flushing procedure, it shall be assumed that the building sewer connection is blocked with grout and the Contractor shall clear the lateral at no additional cost to the Owner. Contractor shall not be responsible for clearing blockages in the lateral that are not due to grouting operations.

E. Curtain Grouting (Manholes):

1. The entire manhole shall be sealed with grout, including the corbel, wall, pipe seals, bench, and invert using the manufacturer's recommended material(s) and method(s).

2. Drilling grout injection holes in the manhole in strategic locations to redirect flow coming through cracks and other defects in the wall, or to seal the entire exterior surface of the

manhole, shall be in accordance with the grout manufacturer's recommendations. Injection holes shall be in staggered rows and near observed defects and pipe seals.

3. Grout typically shall be injected through the lowest holes first and shall proceed higher up the manhole until it is externally sealed with grout. Additional holes may be required to verify that the grout has encompassed the entire exterior of the manhole.

4. The injection holes shall be cleaned and patched as recommended by the manufacturer.

F. Field Records

1. The Contractor shall keep field records for each sewer line section prior to, during, and after completion of the chemical grouting operation. Records shall include information such as accurate locations, gel times, grout volumes, grout pressures, air temperatures, and joints not sealed due to close proximity to building service connections and sanitary sewer manholes.

3.05 TESTING FOR ACCEPTANCE/WARRANTY

A. Prior to and during the joint testing phases of the work, the Contractor shall perform control, intermediate, and final testing in accordance with ASTM F2304, ASTM F2414, and ASTM F2454.

B. Testing Sewer Joints:

1. Joint testing pressure shall be equal to 5 psi. Test pressure shall not exceed 10 psi without prior approval by the Engineer.

2. Joints in laterals which are directly connected to manholes shall be tested to 18 inches.

3. Each sewer pipe joint shall be tested at the previously-specified pressure in accordance with the following air test procedure:

a. The packer shall be positioned within the pipe so it straddles the joint to be tested.

b. The packer ends shall be expanded so the joint is isolated from the remainder of the pipe and a void area is created between the packer and the pipe joint. The ends of the testing device shall be expanded against the pipe per the manufacturer's recommendations. If all attempts to isolate the joint fail, grout shall be pumped to seal the leak around the packer end elements. The Contractor shall be paid at the unit price for grout to seal the packer unless the Engineer determines that the sewer was inadequately cleaned or the packer is not properly working.

c. Air shall then be slowly introduced into the void area until a pressure equal to or greater than the required test pressure, but in no cases greater than 2 psi above the required test pressure, is observed on the pressure monitoring equipment. When the desired pressure is reached, the air flow shall be stopped. If the void pressure decreases by more than 1.0 psi within the next 15 seconds, the joint will have failed the test and shall be sealed.

d. Upon completing the testing of each individual joint, the packer shall be deflated with the pressure meter continuing to display void pressure. If the void pressure reading does not drop to 0.0 plus or minus 0.5 psi, the test equipment shall be cleaned of residual grout material or repaired as needed to result in an accurate void pressure

reading.

C. Testing Lateral Connections:

1. Lateral connection testing pressure shall be equal to 5 psi. Test pressure shall not exceed 10 psi without prior approval by the Engineer.

2. Each lateral connection shall be tested at the previously-specified pressure in accordance with the following air test procedure:

a. The area to be tested shall be isolated using the lateral connection packer and by applying positive pressure into the isolated void area. For laterals directly connected to the main line sewer, a pan and tilt camera shall be used to position the lateral packer.

b. The lateral bladder shall be inverted from the main line assembly into the lateral pipe and inflated. The main line elements shall then be inflated to isolate the lateral connection and the portion of the lateral to be tested.

c. A sensing unit shall monitor the pressure of the packer void and shall accurately transmit a continuous readout of the void pressure to the control panel at the grouting truck or to a pressure gauge on the packer recorded by the CCTV camera.

d. Air shall then be slowly introduced into the void area until a pressure equal to or greater than the required test pressure, but in no cases greater than 2 psi above the required test pressure, is observed on the pressure monitoring equipment. When the desired pressure is reached, the air flow shall be stopped. If the void pressure decreases by more than 2.0 psi within the next 15 seconds, the lateral will have failed the test and shall be grouted and retested.

e. Upon completing the testing of each individual lateral, the lateral packer shall be deflated with the pressure meter continuing to display void pressure. If the void pressure reading does not drop to 0.0 plus or minus 0.5 psi, the test equipment shall be cleaned of residual grout material or repaired as needed to result in an accurate void pressure reading.

D. Manholes:

1. All manholes shall be visually inspected to ensure that the inflow and infiltration into the manhole has been eliminated.

E. Field Testing for Final Acceptance

1. No sooner than nine (9) months but no later than Twelve (12) months after the completion of all chemical grouting work, the Contractor shall conduct testing in an initial retest area consisting of specific sewer line sections selected by the Engineer. Sewer line segments to be retested will be randomly selected by the Engineer throughout the project area and shall be representative of a majority of sealing work performed. The initial retest area shall consist of 10% of the sewer segment lineal footage contained in the Work.

2. Within the initial retest area, Contractor shall retest designated defects previously grouted. Grouted defects which were sealed previously and fail the retest shall be resealed at no additional cost to the Owner.

3. If the failure rate of these retested defects is less than 5% of defects retested, work shall be considered satisfactory and no further retesting will be required

4. If failure rate of retested defects exceeds 5% of defects retested, an additional retest area of equivalent size shall be selected, and all grouted defects shall be retested. Additional testing and sealing, if necessary, will continue until a failure rate of less than 5% of the total retested grouted defects is met. Any additional cleaning and testing beyond the initial test area that is required due to a failure rate greater than 5% shall be at no cost to the Owner

5. Should as much as 25% of Work be retested and fail to meet the 5% requirement, the Contractor shall provide the same number of crews as utilized in the original project so that retesting will proceed at a rapid rate.

6. If 25% of the original number of joints or defects grouted fail the retest and must be re-grouted, the Contractor shall again provide a one year warranty and perform a one year retest the following year for those joints and defects re-grouted during the first one year retest.

3.06 SITE RESTORATION

A. After the grouting has been completed and accepted by the Owner, the Contractor shall restore the entire Project area and shall return the ground cover to its original or better condition. All excess material and debris not incorporated into the permanent installation shall be disposed of by the Contractor.

B. A container shall be furnished for the collection of solvents used in the cleaning of the grouting equipment. Contractor shall use an approved solvent recovery process to dispose of the collected solvents. Disposal of cleaning solvents into the sewer system or into natural watercourses is strictly prohibited.

[END OF SECTION]

SECTION 02762

SEWER SERVICE LATERAL CIPP LINING

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Furnish all labor, materials, equipment, and incidentals required to install cured-in-place pipe (CIPP) lining to rehabilitate existing active service laterals as shown on the Drawings or as directed by the Engineer. Service laterals shall be lined from the connection with the main sewer to the property line or easement edge, unless otherwise noted or approved by the Engineer. A full-wrap style lining shall be used to address the connection between the main sewer and the service lateral.

B. Furnish all labor, materials, equipment, and incidentals required to conduct air testing, post-rehabilitation CCTV inspections, and other requirements described herein for final service lateral lining acceptance.

C. This specification shall also apply to installing CIPP lining for laterals discharging directly into manholes, if the pipe diameter is 6-inch or less.

D. Service laterals may be a combination of tees, wyes, or break-in taps of varying sizes (4-inch to 8-inch) with angles generally ranging up to 90 degrees. In most cases, a cleanout will be installed at the property line or easement edge.

E. If any active service laterals are identified as defective and the Contractor is unable to line the lateral from the main sewer to the cleanout, the Contractor shall inform the Engineer about the lateral's condition and shall propose a rehabilitation method that maximizes the lateral's rehabilitated length while minimizing the extent of surface disruption. The Engineer will direct the Contractor as to the acceptable approach for rehabilitating or replacing the service lateral in question.

1.02 SUBMITTALS

A. Submit the following in accordance with Section 01300 - Submittals:

1. Shop drawings and schedules for all service lateral lining and appurtenances required

2. Design data and specification data sheets listing all parameters used in the lining design

3. Thickness calculations based on ASTM F1216-09, for fully deteriorated pipe

    a. All service lateral lining design calculations shall be sealed and signed by a Florida registered professional Engineer.

4. Detailed procedure for installing the service lateral lining

5. The service lateral lining manufacturer's name and the facility location where the service lateral lining will be manufactured

6. Contractor's Qualifications. Submit copy of manufacturer's licenses certificate. A qualified bidder for installing a mainline/lateral connection and lateral repair system shall use a manufactured system with a minimum 5-year history of satisfactory performance.

The manufactured system must have a minimum of 10,000 documented successful installations in the state of Florida. A licensed and certified trainer and representative from the lining system manufacturer shall be on-site to assist in the work for a minimum of 2 weeks. This trainer shall have a minimum of 5 years' experience installing this system with 2,000 minimum installations. As an alternate requirement, the superintendent must have the same minimum installations and experience. Submit list with 10 similar jobs within the past 3 years that used this manufacturer's product. Provide project information such as project name, number of service connection laterals, date completed, and project references.

7. The following information shall be submitted for review and approval:

    a. The Contractor's years of experience in performing service lateral lining projects

    b. The name for the service lateral lining manufacturer and supplier for this work and previous work listed below. The Contractor shall be an approved installer as certified and/or licensed by the lining manufacturer.

    c. A list with municipal clients for whom the Contractor has performed this type without defects or performance problems

        (i) The list shall contain names, email addresses, and telephone numbers for persons to be contacted to verify previous satisfactory performance.

        (ii) A full description for the actual work performed

        (iii) The number of service laterals lined over the past 3 years

8. Material Certifications. Written certification is required from the manufacturer stating all materials used in the work were manufactured and tested in accordance with ASTM F1216 and is being used or installed in conformance with the manufacturer's recommendations.

9. Customer Notifications. Submit a copy of the initial customer notification as described below under Public Notification.

10. Storage and Delivery Procedures. Provide the lining manufacturer's recommended storage and delivery procedures. This shall include storage and delivery temperatures, maximum time from wet-out to installation, and other pertinent information.

11. Material Safety Data Sheets. Submit Material Safety Data Sheets (MSDS) for each component of the service lateral lining system.

12. Test Results. Prior to using any materials, furnish the proposed material's test results from an independent laboratory in conformance with these specifications. All submitted test data shall have been performed on field installed samples within the last 12 months. Testing by an independent laboratory shall verify the products to be used meet all minimum strength standards as set forth in ASTM F1216, Table 1. Testing shall also verify any product to be used on the project meets the minimum chemical resistance requirements as established in ASTM F1743, Table 2, where the testing is in accordance with Section 7.2.1 of ASTM F1743.

13. Pipe Cleaning Narrative. Submit a narrative describing in sufficient detail the proposed methods for root cutting and cleaning the existing laterals. Prepare such narrative to

include the degree of cleaning as recommended by the lining manufacturer. Such narrative shall indicate the lining manufacturer's technical representative's approval for the proposed cleaning methods.

14. Lining Thickness Calculations. Perform lining thickness calculations for each set of laterals for each manhole-to-manhole section, and furnish them to the Engineer with supporting assumptions. Calculations shall be done after cleaning, televising, and other field inspections have been accomplished. Design parameters shall be used in calculations.

15. Curing Cycle and Cooling Rate. If the lateral lining is heat-cured, submit the resin manufacturer's recommended curing cycle and the recommended cooling rate. Submit a copy of the cure logs for each lateral installation.

16. Post-lining inspection data. Submit the final television inspection in a Granite XP compatible database that shows the rehabilitated lateral.

1.03 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM)

1. ASTM D790 – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

2. ASTM F1216 – Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin Impregnated Tube

3. ASTM F2561 – Standard Practice for Rehabilitation of a Sewer Service Lateral and its Connection to the Main Using a One Piece Main and Lateral Cured-in-Place Liner

4. ASTM F1743 – Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)

5. ASTM D2990 – Standard Test Methods for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics

B. Where reference is made to one of the above standards, the revision in effect at the time of the bid opening shall apply.

1.04 QUALITY ASSURANCE

A. The Contractor performing the service lateral lining work shall be fully qualified, experienced, and equipped to complete this work expeditiously and in a satisfactory manner. See above for description under Submittals of Contractor qualifications.

B. Be able to provide crews as needed to complete the work without undue delay and within the contract time allotted.

C. The service lateral lining shall be provided by a single manufacturer. The supplier shall be responsible for providing all test requirements specified herein as applicable.

D. The Engineer may inspect the service lateral lining after delivery. The service lateral lining shall be subject to rejection at any time if it fails to meet any requirements specified, even though sample lining may have been accepted as satisfactory at the manufacturer. Lining

rejected after delivery shall be marked for identification and removed from the job site at once.

E. Final Installed Lining Thickness. The final installed lining thickness shall not be less than or more than 10 percent greater than the required thickness. The final installed lining thickness measurement shall be determined from lining sample coupons retrieved from the sewer, plate samples or as deemed necessary by the Engineer. It shall be the Contractor's responsibility to consider site conditions and their installation process to determine the proper lining thickness to install.

F. Non-Compliance. If the flat plate samples do not meet the required 4,500 psi flexural strength and 250,000 psi flexural elasticity modulus as outlined, actual installed samples must be taken. The installed samples shall be taken as directed by the Engineer and in accordance with all applicable ASTM requirements. From these samples, the installed thickness shall be determined by taking an average of at least 10 thickness measurements. Installed samples shall then be prepared for re-testing in accordance with these specifications.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Care shall be taken in shipping, handling, and storing to avoid damaging the service lateral lining. Extra care shall be taken during cold weather construction. Any lining damaged in shipment shall be replaced as directed by the Engineer.

B. Any lining showing a split or tear, or which has received a blow that may have caused damage, even though damage may not be visible, shall be marked as rejected and removed at once from the job site.

C. At all times, the lining materials, including the wet-out lining, shall be maintained at a proper temperature, such as in refrigerated facilities, to prevent premature curing prior to installation. The lining shall be protected from UV light prior to installation. Any lining showing evidence of premature curing will be rejected for use and will be removed from the site immediately.

1.06 PUBLIC NOTIFICATION

A. Notify the owners and residents of any homes or businesses whose service lateral will be affected by the lining work. Also deliver written notification to each such resident or business 3 days prior to such lining work, further advising of the work. Include in the notifications any restrictions on using the sewage system facilities. Describe exact days and hours when the sewer system cannot be used. CONTACT ANY HOME OR BUSINESS THAT CANNOT BE RECONNECTED WITHIN TIME STATED IN THE WRITTEN NOTICE.

B. THE MAXIMUM TIME ANY HOME OR BUSINESS SHALL BE WITHOUT SANITARY SEWER SERVICE IS 10 HOURS, AND NOT BETWEEN 6:00 PM AND 8:00 A.M. ANY SERVICE OUT LONGER THAN 10 HOURS WILL HAVE SERVICE RESTORED AT CONTRACTOR'S EXPENSE OR TEMPORARY MEASURES TAKEN.

1.07 GUARANTEE

A. The manufacturer shall warrant the pipe liner to be free from defects in raw materials for one (1) year from the date of delivery. The Contractor shall warrant the pipe liner installation for a period of two (2) years from the date of acceptance. During the Contractor warranty period, any defect, which materially affects the integrity or strength of the pipe liner, shall be repaired at the Contractor's expense in a manner mutually agreed to by the Owner and the Contractor.

B. If a liner fails to reform, the Contractor shall be required to remove the failed liner at no additional cost to the Owner. This shall include, but not be limited to, all material, excavation, backfilling, cutting concrete, pipe, shoring, temporary pavement, permanent pavement, permits, and other incidental work required to remove the liner from the host pipe. If removal is not feasible, or if removal will cause more harm than acceptable to the host pipe, alternatives may be proposed by the Contractor to the Engineer for review and approval. The integrity of the existing pipe, where the liner was removed, shall be rehabilitated by installing another new pipe section. There shall be no direct payment for this work.

1.08 WATER

A. The Contractor shall arrange for its water supply through Pinellas County Utilities. Usage shall be in accordance with Pinellas County backflow and metering policies. Pinellas County water usage costs shall be compensated at no markup from the water usage item established in the Contract Documents.

PART 2 PRODUCTS

2.01 MATERIALS

A. The service lateral lining shall be a seamless, corrosion-resistant, cured-in-place pipe lining product that seals the service lateral pipe and the junction between the service lateral pipe and main sewer. The portion of the lateral lining system that connects to the main/lateral interface shall be either a full-wrap or brim-seal connection type.

B. The service lateral lining shall be a resin-impregnated, flexible polyester felt, non-woven textile tube, needle punched felt, circular knit or circular braid, glass fiber reinforced plastic or equivalent material tube which is cured -in-place by an acceptable curing method. The tube shall be able to conform to bends, offset joints, bells, and disfigured pipe sections.

C. The service lateral shall provide a 50-year service life and shall have the minimum structural properties listed below:

Physical Properties	Minimum Standard
Flexural Strength (ASTM D790)	4,500 psi
Flexural Modulus of Elasticity (ASTM D790)	250,000 psi

D. The service lateral shall be designed, fabricated, and installed for the actual conditions encountered for this application including the host pipe material, in accordance with the applicable ASTM F1216, ASTM D2990 provisions, and shall meet the following minimum design conditions:

1. AASHTO H-20 live load with two trucks passing
2. Soil Weight 120 pounds per cubic foot
3. Friction coefficient Ku′ =0.130
4. Estimated maximum groundwater level at ground surface
5. Fully deteriorated pipe with 2 percent (min.) ovality. If existing pipe's ovality is found to be worse, use actual percent up to 5 percent (max.).

6. Soil Modulus 1,000 psi

7. Safety factor = 2

8. Soil Depth: The cover depth will be determined by field measurements.

E. The finished lining shall have a 3 mm minimum thickness for 4-inch laterals and 4.5 mm for 6-inch laterals.

F. The service lateral lining shall have sufficient wall thickness to withstand all anticipated external pressures and loads that may be imposed after installation. The design shall be performed and certified by a Florida registered professional Engineer.

G. The service lateral lining shall be manufactured and installed by T-Liner by LMK, SCS+L by BLD Services, LLC, or approved equal.

H. When cured, the service lateral lining shall extend from the mainline into the lateral connection in a continuous tight fitting, watertight pipe-within-a-pipe to eliminate any visible groundwater leakage and future root growth at the lateral to mainline connection and along the lateral. The service lateral product system shall be compatible with the mainline and/or lateral pipe or lining. The lining portion within the mainline pipe may be a full-wrap or brim-seal connection or style.

I. When cured, the finished service lateral product shall be chemically resistant to domestic sewage over the rehabilitated pipe's expected lifetime. The lining material and resin shall be completely compatible.

J. The connection between the service lateral and the main sewer shall be lined so a continuous overlap between the service lateral lining and the main sewer extends 3-inches minimum from the lateral along the entire circumference.

K. A leak-free seal must be created to form a sealing bond between the service lateral product and the host lateral and mainline pipe walls. The Contractor should use either a hydrophilic) material or an epoxy-sealing component at each lining tube end to provide a leak-free seal.

L. When cured, the lining shall form a hard, impermeable lining which is chemically resistant to chemicals found in domestic sewage.

2.02 RESIN

A. The resin system shall meet the requirements of ASTM F1216, Section 5.2. The resin installed service lateral lining system shall produce a service lateral that will comply with the structural requirements specified herein, and shall provide chemical resistance for the flow media in the gravity pipe. The resin shall be compatible with the rehabilitation process, shall be able to cure in water's presence or absence, and shall have an initiation temperature for cure as recommended by the resin manufacturer. Unless otherwise specified, provide a general purpose or enhanced strength unsaturated, thermosetting, polyester, vinyl ester, epoxy or silicate resin and a catalyst system compatible with the installation process. The resin shall be vacuum impregnated into the lining.

B. Submit documentation from the resin manufacturer specifically describing the resin system's chemical characteristics including allowable mixing, impregnation, and handling time, transportation, and storage time, and recommended curing cycle including temperatures, pressures, and times. The resin manufacturer's documentation must also include maximum

allowable time for handling the impregnated tube prior to insertion and the maximum allowable elapsed time from insertion to exotherm. If remedial measures are available to extend either of the maximum allowable times indicated above, without affecting the resin's physical properties, the resin manufacturer should describe these measures and the time limits beyond which even these measures will not prevent altering the resin's physical properties.

PART 3 EXECUTION

3.01 PRE-INSTALLATION

A. In accordance with Section – 02731, Television Inspection, a pre-rehabilitation digital CCTV video inspection must be done on the mainline pipe with a pan and tilt camera and the service lateral to confirm the proposed repair falls within the limitation parameters set by the manufacturer on the following aspects:

1. The location and clock reference of the lateral junctions to be lined
2. Any offsets, any intrusions from the lateral into the main
3. Angle at which the connection comes in
4. Any changes in the lateral's approach angle for the repair length
5. Potential flows coming throughout the lateral pipe
6. Potential flows going through the main pipe
7. Diametric connection size for the lining length
8. Main pipe's size at the service lateral point
9. Service lateral's condition including the presence of debris, turns, bends, changes in diameter, or other observations
10. Active infiltration present within the work area vicinity
11. Any defects noted in the mainline pipe or lateral should be documented using NASSCO PACP/LACP Standards.

B. Inform the Engineer about service laterals in which a service lateral lining cannot be installed from the main sewer to the cleanout established at the property line or easement line. The Contractor shall identify these service laterals and provide the Engineer with documentation about the conditions encountered including the CCTV inspection. If a full length lateral lining cannot be installed or a point repair on the service cannot be performed, the Engineer may direct the Contractor to install a short lateral lining with no cleanout required extending up the lateral from the main. The length is to be field determined to the maximum length possible, but should extend 3 feet minimum up the lateral from the main

C. Inform the Engineer about service laterals in which a short length service lateral product cannot be installed. The Contractor shall identify, document, and video record these services, and inform the Engineer about the conditions encountered. If a short length lateral lining cannot be installed, the service connection will be "cut and buffed" to restore a 95% minimum service opening.

3.02 LINE PREPARATION

A. Prior to installing the service lateral product, the area around the lateral sealing surface in the main and lateral shall be inspected. Waste product build-up, hard scale, roots, lateral cutting debris, or resin slugs must be removed using high pressure water jetting or in-line cutters. All laterals to be lined shall be cleaned as required prior to lining. The term “cleaned” shall mean removing all sand, dirt, roots, grease, and other solids or semisolid materials from the interior face of the sewer mainlines and the service laterals.

B. Built-up deposits on the main and lateral pipe walls shall be removed. The removal shall reach at least 1 foot beyond the scheduled service lateral installation length to allow the bladder to inflate tightly against the pipe walls ensuring a smooth transition from service lateral product to the existing pipe wall.

C. Televise the lateral to provide a detailed record of existing conditions and lateral connections. Have a copy of the pre-lining inspections in the field. Immediately prior to lining insertion, the camera shall traverse the lateral to inspect for debris which may have entered the line after the existing condition inspection.

D. Where active infiltration is present and when it is recommended by the service lateral lining manufacturer, the infiltration must be stopped in advance by grouting.

E. Additional precautions need to be taken when applying the sleeve to a main pipe lined with a CIPP lining with a polyolefin coating. The coating is to be lightly scarified, scraping off the coating in the main CIPP in the service lateral lining’s vicinity and verified by the Engineer. This scuffing is mandated for service lateral linings required to adhere to the pipe wall. Service lateral linings with hydrophilic material are not required to have the existing lining scarified.

F. The Contractor shall be responsible, if needed, for bypassing sewage while installing the service lateral lining product. In cases where the temporary sewage backup is accepted as a replacement for bypassing, the Contractor shall be responsible for all damage caused by sewage backing up into properties or sanitary sewer overflows.

3.03 INSTALLATION

A. CIPP lining of the service lateral shall be from the main sewer to the existing cleanout at the property line. If a cleanout does not exist, the Contractor shall install a cleanout at the property line at a location designated by the Engineer and terminate the rehabilitation or replacement pipe at this new cleanout.

B. The service lateral lining shall be vacuum-impregnated with resin (wet-out) under controlled conditions. The resin volume used shall be sufficient to fill all voids in the textile lining material at nominal thickness and diameter. The volume shall be adjusted by adding 5% to 10% excess resin for the change in resin volume due to polymerization and to allow for any resin migration into the cracks and joints in the original pipe. All resin shall be contained within the translucent bladder during vacuum impregnations. No dry or unsaturated area in the lateral tube shall be acceptable upon visual inspection.

C. The service lateral product shall be loaded on the applicator apparatus, attached to a robotic manipulator device, and positioned at the cleanout or pipe opening of the service connection that is to be rehabilitated. For service lateral full-wrap style linings with compression gaskets, the mainline lining and bladder shall be wrapped around the "T" launching device and held firmly by placing 4 hydrophilic material bands around the main lining. For service lateral full-

wrap linings that do not use hydrophilic material, a 300 ml volume adhesive sealant, shall be applied to the main/lateral interface, and shall be applied as a 2-inch wide band on the main lining.

D. The pressure apparatus shall include a bladder with sufficient length in the main and lateral lines so the inflated bladder extends beyond the ends of the service lateral product's lateral tube and main line tube, pressing the end edges flat against the internal pipe wall, thus forming a smooth transition from service lateral product to pipe diameters without a step, ridge, or gap between the service lateral product and the lateral and mainline pipes' inner diameters.

E. For service lateral linings with hydrophilic materials, the main bladder shall be inflated causing the main sheet to unwrap and expand, embedding the hydrophilic material between the main lining and the main pipe as the main lining is pressed tight against the main pipe.

F. After insertion is completed, recommended pressure must be maintained on the impregnated service lateral product according to ASTM F1216-09, Sections 7.4.2 and 7.4.3, pressing the lining firmly against the inner pipe wall during the entire curing process. The lining shall be cured at ambient temperatures or by a suitable heat source. In no instance will sewage be used to invert or cure linings or calibration tubes.

G. The finished service lateral lining shall be free from dry spots, lifts, and delamination. The installed service lateral lining should not inhibit the CCTV post installation video inspection for the mainline and service lateral pipes or future pipe cleaning operations. For service lateral linings with compression gaskets, the CIPP shall taper at each end providing a smooth transition to accommodate video equipment and maintain proper flow in the mainline. In all cases, the finished product must provide an airtight/watertight verifiable non-leaking connection between the main sewer and sewer service lateral. During the warranty period, any defects with the service lateral that affect the lateral connection's performance, cleaning, or watertightness shall be repaired at the Contractor's expense in a manner acceptable to Owner.

H. Following the lining installation, provide the Engineer with an electronic picture and recorded data identifying the location and showing the completed work and restored condition for all the rehabilitated service laterals from the sewer main to the service reconnection point. The Contractor shall televise the rehabilitated lateral to provide a detailed record of finished conditions using NASCCO PACP/LACP guidelines. When complete, the Contractor shall submit the rehabilitated lateral inspections in a Granite XP-compatible database and the accompanying logs on DVDs or an external USB hard drive.

3.04 FIELD TESTING AND ACCEPTANCE

A. The lining's field acceptance shall be based on the Engineer's evaluation of the installation including post-lined digital CCTV inspection and reviewing certified test data for the installed pipe samples. The CCTV inspection for each lateral shall extend 10 feet minimum past the end of the rehabilitation work on the service lateral. For laterals where a cleanout was installed, the CCTV inspection shall include the cleanout and the connection to the existing, undisturbed service lateral.

B. The lining shall have zero groundwater infiltration, and each lateral must pass a 2-minute 4 psi air test conducted by the Contractor.

C. A flat plate sample shall be collected for every 50 lateral installations, and the sample shall be submitted to a third party testing laboratory to confirm strength properties (flexural

strength and flexural modulus) in accordance with ASTM F1216. The test results must meet or exceed the strengths in the design, or the Contractor must provide a 10% credit for up to 50 laterals the sample represents.

D. All service connections shall be open, clear, and watertight.

E. The lining shall have no evidence of splits, cracks, breaks, lifts, kinks, delaminations, or crazing.

F. If any defective lining is discovered after it has been installed, it shall be removed and replaced by the Contractor with a new lining, a new pipe, or other measures with the Engineer's approval at no additional cost to Owner. Any lining installation not meeting specified strengths or thickness shall provide other acceptable remediation measures or credit as approved by the Engineer. The re-inspection requirements as listed above shall apply to this re-installed section of line.

3.05 CLEAN-UP

A. After the installation work and testing have been accepted, restore the project area affected by the operations to a condition at least equal to what existed prior to the work.

[END OF SECTION]

SECTION 02934

SODDING

PART 1 – GENERAL

1.01 SCOPE

A. Provide all labor, materials, and equipment necessary for preparation of subsoil, placing topsoil, fertilizing, sod installation, and maintenance as required to complete Work as shown on the Drawings and specified in this Section.

B. This shall include, but not be limited to:

1. Testing of topsoil.

2. Raking and leveling topsoil as required for sodding.

3. Liming and fertilizing of topsoil.

4. Laying and rolling of sod.

5. Maintaining sod.

1.02 REFERENCES

A. ASPA (American Sod Producers Association) – Guideline Specifications to Sodding.

B. FS O-F-241 – Fertilizers, Mixed, Commercial.

1.03 QUALITY ASSURANCE

A. Sod Producer: Company specializing in sod production and harvesting with minimum five years of experience and certified by the State of Florida.

B. Installer: Company approved by the sod producer.

C. Sod: Minimum age of 18 months, with root development that will support its own weight, without tearing, when suspended vertically by holding the upper two corners.

D. Submit sod certification for grass species and location of sod source.

1.04 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Sod shall be machine cut and delivered to the Site on pallets. Protect exposed roots from dehydration.

B. Do not deliver more sod than can be laid within 24 hours of delivery.

1.06 MAINTENANCE SERVICE

A. Maintain installed sod until Owner has accepted Work.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Fertilizer

1. Fertilizer shall be commercial fertilizer, as manufactured by International Chemical Company or approved equal.

2. Fertilizer shall have a 10 20 6 N.P.K. content and contain a minimum of 60% of organic material.

3. It shall be delivered at the site in the original sealed containers.

4. Fertilizer content and application rate shall comply with Pinellas County Code of Ordinances, Chapter 58, Article XIII.

B. Sod

1. The sod shall be as grown by a certified nursery grace, cultivated grass sod with fibrous root system, free of stones and burned or bare spots.

2. Sod shall be furnished and installed in rectangular sod strips measuring 12 to 16 inches in width of standard lengths of not less than 2 feet. The area of each section of sod shall not exceed one square yard with minimum ½-inch topsoil base.

3. After the preparation of the areas to be sodded has been approved sod all disturbed areas where no permanent construction exists. Supply and install sod to match existing sod. For areas scheduled to receive new sod that do not have an existing sod to match, provide the following sods, unless otherwise directed, for stabilization of final grade:

a. Irrigated and non-irrigated areas: Sod composed of grasses grown from a Bahia Seed mixture.

C. Accessories

1. Wood Pegs: Softwood; sufficient size and length to ensure anchorage of sod on slope.

2. Wire Mesh: Interwoven hexagonal metal wire mesh of 2 size.

PART 3 – EXECUTION

3.01 INSPECTION

A. Verify that prepared soil base is ready to receive the work of this Section.

B. Beginning of installation means acceptance of existing site conditions.

3.02 PREPARATION OF SUBSOIL

A. Prepare subsoil to eliminate uneven areas and low spots. Maintain lines, levels, profiles, and contours. Make changes in grade gradual. Blend slopes into level areas.

B. Remove foreign materials and undesirable plants and their roots. Do not bury foreign material beneath areas to be sodded. Remove contaminated subsoil.

C. Scarify subsoil to a depth of 4 inches where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.

3.03 PLACING TOPSOIL

A. Fine grade to achieve the finished subgrade after compaction which shall be obtained by rolling, dragging or by an approved method which obtains an equivalent compaction to that produced by a hand roller weighing from 75 to 100 pounds per foot of width. All depressions caused by settlement or rolling shall be filled with additional existing or furnished topsoil and regraded and prepared as specified above until it presents a reasonably smooth and even finish at the required sod sub grade.

B. Spread topsoil to a minimum depth of 2 inches over area to be sodded.

C. Place topsoil during dry weather and on dry subgrade.

D. Remove vegetable matter and foreign non-organic material while spreading.

E. Grade to eliminate rough, low, or soft areas, and to ensure positive drainage.

3.04 FERTILIZING

A. Apply fertilizer in accordance with manufacturer's instructions.

B. Apply fertilizer in accordance with Pinellas County Code of Ordinances, Chapter 58, Article XIII.

1. No applicator shall apply fertilizers containing nitrogen and/or phosphorous to turf and/or landscape plants during the restricted season from June 1 through September 30.

2. No applicator shall apply fertilizers containing nitrogen and/or phosphorus to turf and/or landscape plants during a period for which the National Weather Service has issued any of the following advisories for any portion of Pinellas County: a severe thunderstorm warning or watch, flood warning or watch, tropical storm warning or watch, hurricane warning or watch, or if rain greater than or equal to two inches in a 24-hour period is forecasted.

C. Apply after smooth raking of topsoil and prior to installation of sod.

D. Apply fertilizer no more than 48 hours before laying sod.

E. Mix thoroughly into upper 2 inches of topsoil.

F. Lightly water to aid the dissipation of fertilizer.

3.05 INSTALLATION

A. All sod furnished shall be living sod containing at least 70% of thickly matter grasses as specified and free from noxious weeds.

B. No broken pads or torn or uneven ends will be accepted. Standard size sections of sod shall be strong enough to support own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10% of the section. Sod shall not be harvested when its moisture content (excessively wet or dry) may adversely affect its survival.

C. Sod shall be harvested, delivered, and installed within a period of 24 hours. Sod not installed within this time period shall be subject to inspection and rejection by Engineer, and shall be removed from the side and a fresh sod supply shall be furnished at no extra cost to Owner.

D. The topsoil shall not be moist at time of installation; however, it shall contain sufficient moisture so as not be powdery or dusty, both as determined by the supplier's representative.

E. The overlapping of existing lawn with new sod along limit of work lines will not be permitted. Sod shall be laid in strips, edge to edge, with the lateral joints staggered. All minor or unavoidable openings in the sod shall be closed with sod plugs or with topsoil, as directed by Engineer. However, sod laid with joints determined to be too large shall be lifted and reinstalled as specified herein at no extra cost to Owner. Lay sod tight with no open joints visible, and no overlapping; stagger end joints 12 inches minimum. Do not stretch or overlap sod pieces.

F. Immediately after the sod is laid, the sod shall be watered thoroughly by hand or mechanical sprinkling until the sod and at least 4 inch of the topsoil bed have been thoroughly moistened.

G. Contractor shall be responsible to furnish his own supply of water to the site at no extra cost. If possible, Owner shall furnish Contractor, upon request, with a source and supply of water. Contractor shall apply for temporary meter and pay Owner for water used at current utility billing rates. However, if Owner water supply is not available or not functioning, Contractor shall be responsible to furnish adequate supplies at his own cost. All work damaged due to the lack of, or the use of too much water, shall be Contractor's responsibility to correct.

H. Lay smooth. Align with adjoining grass areas. Place top elevation of sod 1/2 inch below adjoining paving or curbs.

I. On slopes 6 inches per foot and steeper, lay sod perpendicular to slope and secure every row with wooden pegs at maximum 2 feet on center. Drive pegs flush with soil portion of sod.

J. Prior to placing sod on slopes exceeding 8 inches per foot or where indicated, place wire mesh over topsoil. Securely anchor sod in place over wire mesh and topsoil with wood pegs sunk firmly into the ground.

K. After sod and soil have dried, roll sodded areas to ensure good bond between sod and soil and to remove minor depressions and irregularities. Roll sodded areas with roller not exceeding 150 lbs. per foot of roller width.

3.06 MAINTENANCE

A. Maintain the entire sodded areas until final acceptance at the completion of the Contract. Maintenance shall include watering as specified, weeding and removal of stones which may appear. All bare or dead spots which become apparent shall be properly prepared, limed and fertilized, and resodded at Contractor's expense as many times as necessary to secure a good

growth. In the event that the sod installation is not accepted by Engineer, the entire area shall be maintained and cut by Contractor until final acceptance of the sod installation.

B. Take whatever measures are necessary to protect the sod while it is developing. These measures shall include furnishing or warning signs, barriers, or any other necessary measures of protection.

C. Mow grass at regular intervals to maintain at a maximum height of 2½ inches.

D. Neatly trim edges and hand clip where necessary.

E. Immediately remove clippings after mowing and trimming.

F. Water to prevent grass and soil from drying out.

G. Roll surface to remove minor depressions or irregularities.

H. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.

[END OF SECTION]

SECTION 02944

SEEDING

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Preparation of subgrade to receive topsoil.

B. Seeding and fertilizing.

C. Seed protection on slopes.

D. Hydroseeding.

E. Maintaining seeded areas until acceptance.

1.02 RELATED WORK

A. Section 01410, Testing Laboratory Services.

B. Section 02550, Finish Grading.

1.03 QUALITY ASSURANCE

A. Test topsoil in accordance with Section 01410, Testing Laboratory Services.

B. Supply written analysis stating N, P, and K requirements, application rates, organic matter content, and pH value of soil.

C. Prior to seeding, the Contractor shall submit a proposed seed and seeding schedule, including the source of seed and contents by percent weight. No seed shall be purchased, nor work shall be performed until the seed mixes and schedule are approved.

D. Prior to seeding, Contractor shall perform compaction testing and forward results to Engineer for approval.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed in original containers showing analysis of seed moisture, percentage of pure seed, year of production, net weight, date of packaging and location of packaging. Damaged packages are not acceptable.

B. Deliver fertilizer in new, unopened waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.05 EXISTING CONDITIONS

A. Beginning work means acceptance of existing conditions.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Seed

1. Grass seed shall be a mixture of equal parts of Bermuda seed and Pensacola Bahia, except that during the winter months, if so directed by the Engineer, rye grass seed or other approved winter cover crop seed may be substituted for the Bermuda seed. The two types of seed used shall be thoroughly dry mixed immediately before sowing. Seed which has become wet or moldy shall not be used.

2. The Bermuda seed shall be hulled seed. The Pensacola Bahia seed shall be scarified seed, having a minimum active germination of 40 percent and a total germination of 85 percent. All seed shall meet the requirements of the Florida State Department of Agriculture and all applicable State laws, and shall be approved by the Engineer before being sown.

B. Mulch

1. Mulch shall not be used as ground cover or soil amendment and may only be used for plantings with Owner approval.

C. Commercial Fertilizer

1. Commercial fertilizers shall comply with the State fertilizer laws.

2. The numeral designations for fertilizer indicate the minimum percentages (respective) of: (1) total nitrogen, (2) available phosphoric acid, and (3) water soluble potash, contained in the fertilizer.

3. The chemical designation shall be 8-8-8. Other designations may be approved specifically for a particular project; and if liquid fertilizer other than that of chemical designation 8-8-8 is used, the total nitrogen content shall not exceed 12 percent.

4. Either dry or liquid fertilizer may be used.

5. Fertilizer content and application rate shall comply with Pinellas County Code of Ordinances, Chapter 58, Article XIII.

D. Water for Grassing

1. The water used in the grassing operations may be obtained from any approved spring, pond, lake, stream, or municipal water system. The water shall be free of excess and harmful chemicals, acids, alkalis, or any substance which might be harmful to plant growth or obnoxious to traffic. Salt water shall not be used. Municipal water shall be metered. Contractor shall apply for temporary meter and pay current utility billing rates.

2.02 EQUIPMENT

A. Fertilizer Spreader: The device for spreading dry fertilizer or for spraying liquid fertilizer shall meet the approval of the Engineer.

B. Seed Spreader: The seed spreader shall be an approved mechanical hand spreader or other approved type of spreader and may be integral with the cultipacker rolling equipment specified

below.

C. Rollers: A cultipacker, traffic roller, or other roller approved by the Engineer, will be required for rolling the grassed areas.

D. Water Metering Devices: The vehicle used for applying the water to the grassed areas shall be equipped with an approved metering device installed at such point on the vehicle as to measure the water at the time of its being applied to the grassed areas.

PART 3 – EXECUTION

3.01 INSTALLATION

A. General

1. Fertilizing and seeding operations will not be permitted when wind velocities exceed 15 miles per hour. Seed shall be sown only when the soil is moist and in proper condition to induce growth.

2. All soil manipulation shall be done at right angles to the direction of slope.

3. The soil shall be maintained in a moist condition for a period of at least two weeks after the planting.

B. Applying and Mixing Fertilizer

1. At the Contractor's option either dry or liquid commercial grade fertilizer may be used.

2. The fertilizer content and rate of application shall comply with Pinellas County Code of Ordinances, Chapter 58, Article XIII.

3. The fertilizer shall be spread or sprayed uniformly over the area to be grassed by use of the approved distributing device, except that on steep slopes or other areas where machine spreading may not be practicable, spreading may be done by hand or by hose if the Engineer so directs. Immediately after dry fertilizer is spread it shall be harrowed in and mixed with the soil to a depth of approximately four inches. When liquid fertilizer is used, the Soil, if dry, shall be moistened by sprinkling before the liquid fertilizer is applied. Liquid fertilizer shall be applied no later than seven days after the seed is in place.

4. Apply fertilizer in accordance with Pinellas County Code of Ordinances, Chapter 58, Article XIII.

a. No applicator shall apply fertilizers containing nitrogen and/or phosphorous during the restricted season from June 1 through September 30.

b. No applicator shall apply fertilizers containing nitrogen and/or phosphorus during a period for which the National Weather Service has issued any of the following advisories for any portion of Pinellas County: a severe thunderstorm warning or watch, flood warning or watch, tropical storm warning or watch, hurricane warning or watch, or if rain greater than or equal to two inches in a 24-hour period is forecasted.

C. Seeding:

1. While the soil is still loose and moist, the seed shall be scattered uniformly over the grassing area.

2. The rate of spread for the seed shall be as follows:

    a. Rate shall be 60 pounds per acre. In the period from March 15th to October 15th the seed mixture shall be 30 pounds of bahia and 30 pounds of Bermuda. In the remainder of the year the mixture shall be 20 pounds each of bahia, Bermuda, and rye seed.

3. Seeding may be done in conjunction with rolling if the equipment used is designed for that purpose.

D. Rolling: Immediately after completion of the seeding, the entire grassed area shall be rolled thoroughly with the equipment specified. At least two trips over the entire area will be required.

E. Seed Protection on Slopes

1. Cover seeded slopes where grade is 3:1 or greater with jute matting. Roll matting down over slopes without stretching or pulling.

2. Lay matting smoothly on soil surface, burying top end of each section in a narrow six inch deep trench. Leave 12-inch overlap from top roll over bottom roll. Leave four-inch overlap over adjacent section.

3. Staple outside edges and overlaps at 36-inch intervals.

4. Lightly dress slopes with topsoil to ensure close contact between matting and soil.

5. In ditches, unroll matting in direction of flow. Overlap ends of strips by six inches with upstream section on top.

3.02 MAINTENANCE PERIOD

A. Maintenance period shall be until final acceptance.

3.03 MAINTENANCE

A. Maintain surfaces and supply additional topsoil where necessary, including areas affected by erosion.

B. Water to ensure uniform seed germination and to keep surface of soil damp.

C. Apply water slowly so that surface of soil will not puddle and crust.

D. Cut grass first time when it reaches height of 2 1/2 inches and maintain to minimum height of two inches. Do not cut more than 1/3 of blade at any one mowing. Remove clippings.

E. After first mowing, water grass sufficiently to moisten soil from three to five inches deep.

F. Apply weed killer when weeds start developing, during calm weather when air temperature is above 50 degrees F.

G. Replant damaged grass areas showing root growth failure, deterioration, bare or thin spots, and eroded areas.

3.04 RESTORATION

A. Restore pavement, concrete, grassed areas, planted areas, and structures damaged during execution of work of this section.

3.05 ACCEPTANCE

A. Seeded areas will be accepted at end of maintenance period when seeded areas are properly established and otherwise acceptable.

[END OF SECTION]

SECTION 03400

PRECAST CONCRETE

PART 1 GENERAL

1.01 SCOPE

A. Furnish all labor, materials, equipment, engineering design, fabrication, incidentals, transportation, erection, forming, shoring, and supervision and perform all operations necessary to complete all pre-cast concrete and related work called for by the Drawings and/or Specifications, or reasonably inferable from either or both, including but not limited to the following:

B. Pre-cast keystone joints, corbels, and all required shoring and leveling, all designed/produced/furnished/installed by the approved fabricator.

C. Shop Drawings: Sealed by the Firm's Professional Engineer registered in Florida.

D. Design Calculations: Sealed by the Firm's Professional Engineer registered in Florida.

E. Reinforcing: All types including all additional shear, moment and temperature bars required by the Drawings.

F. Finishing and curing of prefabricated units: In Situ concrete placing and finishing shall also comply to Section 03300 "Cast In Place Concrete".

G. In addition to the Shop Drawing requirements of the General Conditions, the shop and erection drawings shall include a large scale detail of connections and joints in the structure involving pre-cast units. Every unit shall bear an erection mark on the Shop Drawing.

1.02 CONDITIONS AND REQUIREMENTS

A. All Work in this section shall be accomplished by a recognized pre-cast concrete composite framing system fabrication firm whose design, fabrication and erection operations are supervised and controlled by a Florida Registered Professional Engineer who is an officer or full time employee of the firm. The firm shall have had a minimum of 10 years in this specific business and shall have a fabrication plant in Florida capable of producing the required units on schedule. Items delivered to the site for use in the Work shall be available for inspection.

1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Without limiting the generality of other requirements of these Specifications, all work specified herein shall conform to the applicable requirements of the following documents. All referenced specifications, codes, and standards refer to the most current issue available at the end of the Bid.

1. Florida Building Code

2. ACI 318-19 Building Code Requirements for Structural Concrete

3. PCI Standard MNL-116 - Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products

4. PCI Design Handbook

1.04 DESIGN, MANUFACTURE, AND PRODUCTION

A. General: Design, materials, fabrication and installation shall conform to ACI 318 77 and to additional requirements of the Standard Building Code. Units shall be designed by manufacturer's Registered Engineer.

B. Design: Units shall be of sizes, shapes and dimensions indicated on Plans and designed to safely support the indicated minimum superimposed live loads, not including weight of concrete slabs, curbs, walls or other permanently supported dead load. Maximum deflection under live load 1/360th of span, considered at mid span. Maximum camber at mid span under dead load shall not exceed 3/8 inch.

C. Workmanship: Units shall be plant fabricated, transported and erected by methods prescribed in PCI Standards. Units damaged in any way will be rejected. Units with visible cracks will not be permitted and if installed will be rejected and ordered removed and replaced at Contractor's expense.

D. Finish: Manufacturer shall be solely responsible for true, smooth surfaces free of pock marks and/or honeycombs. Smooth forms and proper vibration for the correct lengths of time during manufacture are mandatory.

1.05 SUBMITTALS

A. Submit samples and/or Shop Drawings in accordance with Section 01300 - Submittals.

B. Submittals shall include, but not be limited to:

1. Shop drawings for all precast concrete items showing all dimensions, locations, and type of lifting inserts, and details of reinforcement and joints.

2. A list of the design criteria used by the manufacturer for all manufactured, precast items.

3. Certified reports for all lifting inserts, indicating allowable design loads.

4. Information on lifting and erection procedures.

5. Complete layout and installation Drawings and schedules with clearly marked dimensions.

6. Material certificates on all piping materials.

7. Structural design calculations sealed by a P.E. registered in the State of Florida. Design calculations for precast manholes and vaults shall include confirmation structures adequately resist flotation when they are totally empty and subjected to groundwater full height of structure.

8. Results of leakage test.

1.06 QUALITY ASSURANCE

A. All manufactured precast concrete units shall be produced by an experienced manufacturer regularly engaged in the production of such items. All manufactured precast concrete and

site-cast units shall be free of defects, spalls, and cracks. Care shall be taken in the mixing of materials, casting, curing and shipping to avoid any of the above. The Engineer may elect to examine the units at the casting yard or upon arrival of the same at the site. The Engineer shall have the option of rejecting any or all of the precast work if it does not meet with the requirements specified herein or on the Drawings. All rejected work shall be replaced at no additional cost to the Owner.

B. Manufacturer Qualifications

The precast concrete manufacturing plant shall be certified by the Prestressed Concrete Institute, Plant Certification Program, prior to the start of production. Certification is only required for plants providing prestressed structural members such as hollow core planks, double-T members, etc.

C. Plant production and engineering must be under direct supervision and control of an Engineer who possesses a minimum of five years experience in precast concrete work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Cement: ASTM C 150, Domestic Portland, Type II.

B. Concrete

1. For prestressed concrete items, minimum compressive strength of concrete at 28 days shall be 5,000 psi unless otherwise specified. Minimum compressive strength of concrete at transfer of prestressing force shall be 3,500 psi unless otherwise specified.

2. For non-prestressed concrete items, minimum compressive strength of concrete at 28 days shall be 4000 psi unless otherwise specified.

C. Grout

1. Minimum compressive strength of grout at 7 days shall be 3,000 psi.

D. Prestressing Strands

1. Prestressing strands shall be 7-wire, stress-relieved, high-strength strands Grade 250K or 270K

E. Steel Inserts

1. All steel inserts protruding from or occurring at the surface of precast units shall be galvanized

F. Bearing Pads

1. Plastic bearing pads shall be multi-monomer plastic strips which are non-leaching and support construction loads with no visible overall expansion, manufactured specifically for the purpose of bearing precast concrete.

G. Aggregate: Comply with Section 03300.

H. Water: Potable

I. Reinforcing for joists:

1. Deformed Bars: Domestic, new, made from Billet Steel conforming to ASTM A615, Grade 60.

PART 3 EXECUTION

3.01 FABRICATION AND CASTING

A. All precast members shall be fabricated and cast to the shapes, dimensions and lengths shown on the Drawings and in compliance with PCI MNL-116. Precast members shall be straight, true and free from dimensional distortions, except for camber and tolerances permitted later in this clause. All integral appurtenances, reinforcing, openings, etc., shall be accurately located and secured in position with the form work system. Form materials shall be steel and the systems free from leakage during the casting operation.

B. All cover of reinforcing shall be the same as detailed on the Drawings.

C. Because of the critical nature of the bond development length in prestressed concrete panel construction, if the transfer of stress is by burning of the fully tensioned strands at the ends of the member, each strand shall first be burned at the ends of the bed and then at each end of each member before proceeding to the next strand in the burning pattern.

D. The Contractor shall coordinate the communication of all necessary information concerning openings, sleeves, or inserts to the manufacturer of the precast members.

E. Grout all recesses due to cut tendons which will not otherwise be grouted during erection.

F. Use of a membrane curing compound will not be allowed.

G. The manufacturer shall provide lifting inserts or other approved means of lifting members.

3.02 HANDLING, TRANSPORTING AND STORING

A. Precast members shall not be transported away from the casting yard until the concrete has reached the minimum required 28 day compressive strength and a period of at least 5 days has elapsed since casting, unless otherwise permitted by the Engineer.

B. No precast member shall be transported from the plant to the job site prior to approval of that member by the plant inspector. This approval will be stamped on the member by the plant inspector.

C. During handling, transporting, and storing, precast concrete members shall be lifted and supported only at the lifting or supporting points as indicated on the shop drawings.

D. All precast members shall be stored on solid, unyielding, storage blocks in a manner to prevent torsion, objectionable bending, and contact with the ground.

E. Precast concrete members shall not be used as storage areas for other materials or equipment.

F. Precast members damaged while being handled or transported will be rejected or shall be

repaired in a manner approved by the Engineer.

3.03 INSTALLATION/ERECTION

A. Erection/installation by manufacturer of units and performed by experienced and competent mechanics regularly employed in this type of work under supervision of Firm's Registered Engineer. Adequate handling and lifting equipment must be used. Include all leveling, special anchorages and special cutting for finish fitting.

B. All units shall be carefully lifted, transported and erected in such manner that they will suffer no damage. Provide soft wood shims for temporary support during transport and erection.

C. Erectors shall inspect all bearing surfaces for level, smoothness and uniform bearing. Notify Engineer if for any reason there are defects detrimental to installation of units. Erection of units shall signify acceptance of surface.

D. Clean all bearing surfaces prior to erection.

E. Powder actuated fasteners not permitted in pre-cast unit.

F. Drilling of hole in units at job site not permitted unless done under the supervision of fabrication firm's Registered Engineer.

G. Grouting between adjacent precast members and along the edges of the assembled precast members shall be accomplished as indicated on the drawings, care being taken to solidly pack such spaces and to prevent leakage or droppings of grout through the assembled precast members. Any grout which seeps through the precast members shall be removed before it hardens.

H. In no case shall concentrated construction loads, or construction loads exceeding the design loads, be placed on the precast members. In no case shall loads be placed on the precast members prior to the welding operations associated with erection, and prior to placing of topping (if required).

I. No Contractor, Subcontractor or any of his employees shall arbitrarily cut, drill, punch or otherwise tamper with the precast members.

J. Precast members damaged while being erected will be rejected or shall be repaired in a manner approved by the Engineer.

[END OF SECTION]

SECTION 07900

JOINT FILLERS, SEALANTS AND CAULKING

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Furnish labor, materials, equipment and appliances required for the complete execution of Work shown on the Drawings and specified herein.

1.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Without limiting the generality of the other requirements of the specifications, all work herein shall conform to the applicable requirements of the following documents. All referenced specifications, codes, and standards refer to the most current issue available at the time of Bid.

1. ASTM C-920 – Elastomeric Joint Sealants

2. ASTM D-1056 – Flexible Cellular Materials – Sponge or Expanded Rubber

3. SWRI – Sealant and Caulking Guide Specification

1.03 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the Contract Documents, submit the following:

1. Manufacturers literature and installation instructions. Label each product submitted with Type as indicated in paragraph 2.01 A.

2. Color samples of each type of sealant.

1.04 QUALITY ASSURANCE

A. Applicator shall be a company specializing in the installation of sealants with a minimum of five years of experience.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in unopened labeled packages.

B. Store materials in location protected from freezing or damages.

C. Reject and remove from the site materials within broken or damaged packaging.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Sealants

1. Type 1: Multi-component, non-sag, low-modulus polyurethane rubber sealant meeting ASTM C-920, Type M, Grade NS, Class 25, use NT, M, A, and O. Capable of withstanding 50% in extension or compression such as Sikaflex-2C NS/SL, Sika Corporation, or Sonolastic NP-2, Sonneborn, or DynaTrol II by Pecora Corporation.

2. Type 2: Single component polyurethane sealant meeting ASTM C-920, Type S, Grade NS, Class 25, Use NT, M, A, and O. Capable of withstanding 25% in extension or compression such as Sikaflex 1A by Sika Corporation, DynaTrol 1-XL by Pecora Corporation, or Sonolastic NP-1 by Master Builders Solutions.

3. Type 3: Single component, low-modulus moisture curing silicone meeting ASTM C-920, Type S, Grade NS, Class 25, Use NT, M, G, and A. Capable of withstanding 50% extension and compression. Pecora 890 by Pecora Corporation, Sonolastic Omni Seal by Master Builders Solutions.

4. Type 4: Single component, mildew resistant, moisture-curing silicone meeting ASTM C-920, Type S, Grade NS, Class 25, Use NT, M, G, and A. Pecora 898 by Pecora Corporation, Sonolastic Omni Plus by Master Builders Solutions.

5. Type 5: Single component, acrylic latex meeting ASTM C-834. AC-20+ Silicone by Pecora Corporation, Sonneborn Sonolac by Master Builders Solutions.

6. Type 6: High grade butyl sealant meeting Federal Specification TT-S-00-1657. BC-158 by Pecora Corporation or equal.

7. Type 7: Multi-component chemical resistant polysulfide sealant conforming to ASTM C-920, Type M, Grade NS, Class 25 such as Deck-O-Seal by W.R. Meadows, Tammsflex by DuraJoint Concrete Accessories, or Synthacalk GC2+ by Pecora Corporation.

8. Type 8: Nonsag, Multi Component, traffic grade polyurethane sealant meeting ASTM C920, Type 19, Grade NS, Class 25, use T, M, A, and O. DynaTread by Pecora Corporation, Sonolastic Ultra by Master Builders Solutions.

B. Primer: Non-staining primer recommended by sealant manufacturer for the substrates on this project.

C. Backer Rod: Closed cell foam, nonreactive with caulking materials, non-oily, and approved by the sealant manufacturer. Minimum density shall be 2.00 pounds per cubic foot. Use no asphalt or bitumen-impregnated fiber with sealants.

D. Joint Cleaner: Recommended by sealant or caulking compound manufacturer.

E. Bond breaker: Either polyethylene film or plastic tape as recommended by the sealant manufacturer.

F. Color: Where manufacturer's standard colors do not closely match materials being sealed, provide a custom color.

PART 3 – EXECUTION

3.01 QUALITY CONTROL

A. Coordinate work with details shown on approved shop drawings prepared by other trades.

B. Verify conditions in the field.

C. Schedule work to follow closely the installation of other trades.

D. Apply sealants and related items in temperatures and dry conditions recommended by the manufacturers.

E. Do not paint sealant, unless recommended by sealant and paint manufacturer.

3.02 PREPARATION

A. Protect finished surfaces adjoining by using masking tape or other suitable materials.

B. Clean and prime joints before starting any caulking or sealing work.

C. Thoroughly clean joints and spaces of mortar and other foreign materials. Cleaning agent shall be Xylol or similar non-contaminating solvent to remove any film from metal surfaces. Masonry or concrete surfaces shall be brushed or air jet cleaned.

D. Joint Requirements

1. All joints and spaces to be sealed in exterior work shall be less than ½-inch deep and not less than 1/4 inch wide. If joints in masonry are less than that specified herein, the mortar shall be cut out to the required width and depth. All joints and spaces to receive sealant shall be completely prepared and thoroughly dry before installation of sealant.

2. Unless otherwise specified, joints and spaces which are open to a depth of 1/2 inch or greater shall be solidly filled with back-up material to within 1/4 inch of the surface. Back-up material shall be packed tightly and made continuous throughout the length of the joints. Bond breaker shall be applied as required. If joints are less than ¼-inch deep, the back-up material may be omitted, a bond breaker

substituted and the joint completely filled with sealant. The back-up material shall not project beyond the ¼-inch depth of the open space in any joint. The following width-to-depth ratio table shall be adhered to, unless otherwise recommended by manufacturer.

	Sealant Depth	
Joint Width	**Minimum**	**Maximum**
¼ inch	1/4 inch	1/4 inch
Over 1/4 inch to 1/2 inch	1/4 inch	Equal to width
Over 1/2 inch to 1 inch	1/2 inch	Equal to width
Over 1 inch to 2 inches	1/2 inch	1/2 of width

3.03 APPLICATION

A. Exercise care before, during, and after installation so as not to damage any material by tearing or puncturing. All finished work shall be approved before covering with any other material or construction.

B. Apply sealant by an approved type of gun except where the use of a gun is not practicable, suitable hand tools shall be used. Avoid applying the compound to any surface outside of the joints or spaces to be sealed. Mask areas where required to prevent overlapping of sealant.

C. All joints shall be waterproof and weathertight.

D. Point sealed joints to make a slightly concave joint, the edges of which are flush with the surrounding surfaces. Exposed joints in the interior side of the door and other frames shall be neatly pointed flush or to match adjacent jointing work.

E. Adjacent materials which have been soiled shall be cleaned immediately and the work left in neat and clean condition.

F. Comply with sealant manufacturer's written instructions except where more stringent requirements are shown or specified and except where manufacturer's technical representative directs otherwise.

3.04 ADJUSTMENT AND CLEANING

A. Remove misplaced sealant compounds promptly using methods and materials recommended by the manufacturer, as the work progresses.

B. Allow sealants to cure and remove protective edging, of doors, louvers, saddles windows etc. as directed by the Engineer.

3.05 SCHEDULE

Schedule of Sealants

Application	Sealant	Color
Vertical and horizontal expansion and construction joints in concrete structures unless noted otherwise herein or on Drawings.	Type 1	To closely match adjacent surfaces or mortar and as selected by the Owner.
Vertical and horizontal joints bordered on both sides by masonry, precast concrete, natural stone or other porous building material, unless noted otherwise herein or on Drawings.	Type 2	To closely match adjacent surfaces or mortar and as selected by the Owner.
Vertical and horizontal joints bordered on both sides by painted metals, anodized aluminum, mill finished aluminum, PVC, glass or other non-porous building material.	Type 3	To closely match adjacent surfaces and as selected by the Owner.
Masonry expansion and control joints less than 1¼" wide.	Type 2	To closely match adjacent surfaces and as selected by the Owner.
Masonry expansion and control joints equal or greater than 1¼ inches wide and not to exceed 2".	Type 1	To closely match adjacent surfaces and as selected by the Owner.
Interior – wood trim and finish joints.	Type 5	Color to be selected by Owner
Sanitary areas, joints in ceramic tile, around plumbing fixtures, countertops, and back splashes.[1]	Type 4	To closely match adjacent surfaces and as selected by the Owner.
Perimeter sealing of doors, windows, louvers, piping, ducts, and electrical conduit.[2]	Type 2 or Type 3	To closely match adjacent surfaces and as selected by the Owner.
Below thresholds.	Type 6	Manufacturer's standard
Submerged in liquids.[4]	Type 1	Manufacturer's standard
Submerged in liquids with high concentration of chlorine (> 2 ppm) or wastewater.	Type 7	Manufacturer's standard
Horizontal Joints exposed to vehicular or pedestrian traffic.	Type 8	To closely match adjacent surfaces.
Other joints indicated on the drawings or customarily sealed but not listed.	Type recommended by manufacturer	To closely match adjacent surfaces and as selected by the Owner.

[1] Sealant for Laboratory Countertop shall be as recommended by countertop manufacturer.
[2] Provide UL approved sealants for penetrations thru fire-rated walls.
[3] Sealants which will come in contact with potable water shall meet the requirements of NSF 61.
[4] Where sealant will be immersed in liquid chemicals verify compatibility prior to installation of sealant.

[END OF SECTION]

SECTION 09900

PAINTING

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Furnish labor, materials, equipment and appliances required for complete execution of Work shown on Drawings and Specified herein.

B. Section Includes:

1. Paint Materials
2. Shop Painting
3. Field Painting
    a. Surface Preparation
    b. Piping and Equipment Identification
    c. Schedule of Colors
    d. Work in Confined Spaces
    e. OSHA Safety Colors

1.02 RELATED SECTIONS

A. Section 07900 – Joint Fillers, Sealants, and Caulking

B. Section 15030 – Piping and Equipment Identification Systems

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Without limiting the generality of these specifications, the Work shall conform to the applicable requirements of the following documents:

1. SSPC – The Society for Protective Coatings Standards
    a. SSPC-Vis 1 – Pictorial Surface Preparation Standards for Painting Steel Structures
    b. SSPC-SP2 – Hand Tool Cleaning
    c. SSPC-SP3 – Power Tool Cleaning

d. SSPC-SP5/NACE 1 – White Metal Blast Cleaning

e. SSPC-SP6/NACE 3 – Commercial Blast Cleaning

f. SSPC-SP7/NACE 4 – Brush-off Blast Cleaning

g. SSPC-SP10/NACE 2 – Near-White Metal Blast

h. SSPC-SP11 – Power Tool Cleaning to Bare Metal

i. SSPC-SP13/NACE6 – Surface Preparation of Concrete

2. ICRI – International Concrete Repair Institute

3. NACE – National Association of Corrosion Engineers

4. NAFP – The National Association of Pipe Fabricators

5. ASTM D1737 – Test Method for Elongation of Attached Organic Coatings with Cylindrical Mandrel Apparatus

6. ASTM B117 – Method of Salt Spray (Fog) Testing

7. ASTM D4060 – Test Method for Abrasion Resistance of Organic Coating by the Taber Abraser

8. ASTM D3359 – Method for Measuring Adhesion by Tape Test

1.04 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the Contract Documents, submit the following:

1. Manufacturer's literature and Material Safety Data Sheets for each product.

2. Samples of each finish and color. Submitted samples of each finish and color shall be prepared in a step-down format so that the area of each sample indicates the appearance of the various coats. For example, where a three-coat system is specified, the sample shall be divided into three areas indicating one coat only, two coats and all three coats. The Engineer will provide written authorization constituting a standard, as to color and finish only, for each coating system

3. Painting schedule identifying surface preparation and paint systems proposed. Cross reference with Tables 1 and 2. Provide the name of the paint manufacturer, and name, address, and telephone number of manufacturer's representative who will inspect the work. Submit schedule for approval as soon as possible following the Award of Contract, so approved schedule may be used to identify colors and

specify shop paint systems for fabricated items. Manufacturer shall substitute paint system with equal performance where required for VOC compliance.

4. Contractor shall submit Q.C. Inspection plan describing all tests and inspections task to be performed. Include copy of daily log showing environmental conditions measurements and frequency. Copy of completed log shall be provided at completion of work.

5. Name and detailed qualifications of the protective coating applicator or subcontractor. Qualifications shall include, but not be limited to, five (5) project references which show that the painting applicator or subcontractor has previous successful experience with the specified or comparable coating systems, a list of installations that are currently in service and documentation that applicator or subcontractor is currently a qualified applicator of the proposed coatings by the manufacturer. Include the name, address and telephone number of the owner of each installation for which the coating applicator provided the coating.

6. Certifications: The coating manufacturer shall submit the following certifications:

   a. A letter from the coating manufacturer stating that the specified material is suitable for the application.

   b. Inspection reports of coating manufacturer certifying that all inspections by the manufacturer showed satisfactory performance of the work by the coating applicator.

   c. A letter from the coating manufacturer certifying that the surface preparation has been properly completed.

   d. A letter from the coating manufacturer certifying that the coating system has been properly applied and acknowledging that their warranty is in effect.

   e. A sample copy of the warranty to be issued after completion of the work.

7. Test reports of all testing and inspections during the work.

1.05 SYSTEM DESCRIPTION

A. Work shall include surface preparation, paint application, inspection of painted surfaces and corrective action required, protection of adjacent surfaces, cleanup and appurtenant work required for the proper painting of all surfaces to be painted. Surfaces to be painted are designated within the Painting Schedule and may include new and existing piping, miscellaneous metals, equipment, buildings, exterior fiberglass, exposed electrical conduit and appurtenances.

B. Perform Work in strict accordance with manufacturer's published recommendations and instructions, unless the Engineer stipulates that deviations will be for the benefit of the project.

C. Paint surfaces which are customarily painted, whether indicated to be painted or not, with painting system applied to similar surfaces, areas and environments, and as approved by Engineer.

D. Piping and equipment shall receive color coding and identification. Equipment shall be the same color as the piping system.

1.06 QUALITY ASSURANCE

A. The Applicator must have a minimum NACE Level 1 certified inspector on staff.

B. Painting operations shall be accomplished by skilled craftsman and licensed by the state/commonwealth to perform painting work.

C. Provide a letter indicating that the painting applicator has five years of experience, and 5 references which show previously successful application of the specified or comparable painting systems. Include the name, address, and the telephone number for the Owner of each installation for which the painting applicator provided services.

D. Contractor shall coordinate Q.C. Inspections.

E. Notify Owner and Engineer at completion of surface preparation, priming application and final cure to allow inspection by Owner and Engineer or their Third-Party Inspector.

1.07 STORAGE AND DELIVERY

A. Bring materials to the job site in the original sealed and labeled containers.

B. Container label to include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Store paint materials at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.08 SAFETY AND HEALTH REQUIREMENTS

A. Require that personnel perform work in strict accordance with the latest requirements of OSHA Safety and Health Standards for construction. Meet or exceed requirements of regulatory agencies having jurisdiction and the manufacturer's published instructions and recommendations. Maintain a copy of all Material Safety Data Sheets at the job site of each product being used prior to commencement of work. Provide and require that personnel use protective and safety equipment in or about the project site. Provide respiratory devices, eye and face protection, ventilation, ear protection, illumination and other safety devices required to provide a safe work environment.

B. Respirators shall be worn by persons engaged or assisting in spray painting. The Contractor shall provide ventilating equipment and all necessary safety equipment for the protection of the workmen and the work.

C. All paint shall comply with all requirements of the Air Pollution Regulatory Acts concerning the application and formulation of paints and coatings for an area in which the paints are applied. Specifically, paints shall be reformulated as required to meet the local, State and Federal requirements.

1.09 SERVICES OF MANUFACTURER'S REPRESENTATIVE

A. The Contractor shall purchase paint from an acceptable manufacturer. The manufacturer shall assign a representative to inspect the application of his product both in the shop and field. The Contractor, through the manufacturer's representative, shall submit his report to the Engineer at the completion of his Work identifying the products used and verifying that said products were properly applied and that the paint systems were proper for the exposure and service.

B. Services shall also include, but not be limited to, inspecting prior coatings of paint, determination of best means of surface preparation, inspection of complete work, and re-inspection of painted work to be performed six months after the job is completed.

1.10 MANUFACTURER'S INSTRUCTIONS

A. The manufacturer's published instructions for use as a guide in specifying and applying the manufacturers proposed paint shall be submitted to the Engineer. Paint shall not be delivered to the job before acceptance of the manufacturer's instructions is given by the Engineer.

B. A manufacturer's paint will not be considered for use unless that manufacturer's published instructions meets the following requirements:

C. The instructions must have been written and published by the manufacturer for the purpose and with the intent of giving complete instruction for the use and application of the proposed paint in the locality and for the conditions for which the paint is specified or shown to be applied under this Contract.

D. All limitations, precautions, and requirements that may adversely affect the paint; that may cause unsatisfactory results after the painting application; or that may cause the paint not to serve the purpose for which it was intended; that is, to protect the covered material from corrosion, shall be clearly and completely stated in the instructions. These limitations and requirements shall, if they exist, include, but not be limited to the following:

1. Methods of application

2. Number of coats

3. Thickness of each coat

4. Total thickness

5. Drying time of each coat, including primer

6. Primer required to be used

7. Primers not permitted

8. Use of a primer

9. Thinner and use of thinner

10. Temperature and relative humidity limitations during application and after application

11. Time allowed between coats

12. Protection from sun

13. Physical properties of paint including solids content and ingredient analysis

14. Surface preparation

15. Touch up requirements and limitations

E. Concrete surfaces specified by the paint manufacturer to be acid etched shall be etched in accordance with the manufacturer's instructions. The surface shall then be thoroughly scrubbed with clean water, rinsed, and allowed to dry. The surface shall be tested with a moisture meter to determine when dry before coating. The surface shall also be tested for pH to determine the acid has been properly neutralized.

1.11 SURFACES NOT TO BE COATED

A. The following items shall not be coated unless otherwise noted:

1. Encased piping or conduit.

2. Stainless steel work.

3. Clear PVC secondary containment piping.

4. Galvanized checkered plate.

5. Aluminum handrails, walkways, windows, louvers, grating and checkered plate.

6. Flexible couplings, lubricated bearing surfaces and insulation.

7. Packing glands and other adjustable parts of mechanical equipment.

8. Finish hardware.

9. Steel encased in concrete or masonry

10. Plastic switch plates and receptacle plates.

11. Signs and nameplates.

12. Any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.

13. Any moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sensing devices, motor and fan shafts, unless otherwise indicated

1.12 QUALITY WORKMANSHIP

A. The Contractor shall be responsible for the cleanliness of his painting operations and shall use covers and masking tape to protect work whenever such covering is necessary, or if so requested by the Owner. Any unwanted paint shall be carefully removed without damage to any finished paint or surface. If damage occurs, the entire surface, adjacent to and including the damaged area, shall be repainted without visible lapmarks and without additional cost to the Owner.

B. Painting found defective shall be scraped or sandblasted off and repainted as the Owner may direct. Before final acceptance of the work, damaged surfaces of paint shall be cleaned and repainted as directed by the Owner.

1.13 ADDITIONAL PAINT

A. At the end of the project, the Contractor shall turn over to the Owner a one gallon can (single component material) or small kit (multi component material – minimum of one gallon yield) of each type and color of paint, primer, thinner or other coating used in the field painting. The material shall be delivered in unopened, labeled cans as it comes from the factory. The manufacturer's literature describing the materials and giving directions for their use shall be furnished in three bound copies. A type-written inventory list shall be furnished at the time of delivery.

1.14 WARRANTY

A. The coating manufacturer shall provide a standard material product warranty for a period of 5 years from the date of Substantial Completion.

PART 2 – MATERIALS

2.01 GENERAL INFORMATION

A. The term "paint" is defined as both paints and coatings including emulsions, enamels, stains, varnishes, sealers, and other coatings whether organic or inorganic and whether used as prime, intermediate, or finish coats.

B. Purchase paint from an approved manufacturer. Manufacturer shall assign a representative to inspect application of their product both in the shop and field. The manufacturer's representative shall submit a report to the Engineer at the completion the Work identifying products used and verifying that surfaces were properly prepared, products were properly applied, and the paint systems were proper for the exposure and service.

C. Provide primers and intermediate coats produced by same manufacturer as finish coat. Use only thinners approved by paint manufacturer, and only within manufacturer's recommended limits.

D. Ensure compatibility of total paint system for each substrate. Test shop primed equipment delivered to the site for compatibility with final paint system. Provide an acceptable barrier coat or totally remove shop applied paint system when incompatible with system specified, and repaint with specified paint system.

E. Use painting materials suitable for the intended use and recommended by paint manufacturer for the intended use.

F. Require that personnel perform work in strict accordance with the latest requirements of OSHA Safety and Health Standards for construction. Meet or exceed requirements of regulatory agencies having jurisdiction and the manufacturer's published instructions and recommendations. Maintain a copy of all Material Safety Data Sheets at the job site of each product being used prior to commencement of work. Provide and require that personnel use protective and safety equipment in or about the project site. Provide respiratory devices, eye and face protection, ventilation, ear protection, illumination and other safety devices required to provide a safe work environment.

G. All building, facilities, structures, and appurtenances, as indicated on the Drawings and as specified herein, shall be painted with not less than one shop coat and two field coats, or one prime coat and two finish coats of the appropriate paint. Items to be painted include, but are not limited to, exterior and interior concrete, structural steel, miscellaneous metals, steel and aluminum doors and frames, concrete block, ductwork, sluice gates, operators, pipe fittings, valves, mechanical equipment, motors, conduit, and all other work which is obviously required to be painted unless otherwise specified.

H. Baked-on enamel finishes and items with standard shop finishes such as graphic panels, electrical equipment, toilet partitions, lockers, instrumentation, etc., shall not be field painted unless the finish is damaged during shipment or installation. Aluminum,

stainless steel, fiberglass and bronze work shall not be painted unless color coding and marking is required or otherwise specified.

2.02 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Specifications, provide products from one of the following manufacturers:

1. Tnemec Company Inc.

2. CARBOLINE.

3. Sherwin-Williams.

4. Or approved equal.

PART 3 – EXECUTION

3.01 SHOP PAINTING

A. Shop prime fabricated steel and equipment with at least one shop coat of prime paint compatible with finish paint system specified. Prepare surface to be shop painted in strict accordance with paint manufacturer's recommendations and as specified. Finish coats may be shop applied, if approved by the Engineer. Package, store and protect shop painted items until they are incorporated into Work. Repair painted surfaces damaged during handling, transporting, storage, or installation to provide a painting system equal to the original painting received at the shop.

B. Identify surface preparation and shop paints on Shop Drawings. Verify compatibility with field applied paints.

C. Coordinate shop painting and field coating to ensure item is delivered and field coating occurs within recoat window of shop painted system requirements.

D. Shop finish coats may be the standard finish as ordinarily applied by the manufacturer if it can be demonstrated to the Engineer that the paint system is equal to and compatible with the paint system specified. However, all pumps, motors and other equipment shall receive at least one field applied finish coat after installation.

3.02 SURFACE PREPARATION

A. General

1. Surfaces to be painted shall be clean and dry, and free of dust, rust, scale, and foreign matter. No solvent cleaning, power or hand tool cleaning shall be permitted unless approved by the Engineer.

2. Protect or remove, during painting operations, hardware, accessories, machined surfaces, nameplates, lighting fixtures, and similar items not intended to be painted prior to cleaning and painting. Reposition items removed upon completion of painting operations.

3. Examine surfaces to be coated to determine that surfaces are suitable for specified surface preparation and painting. Report to Engineer surfaces found to be unsuitable in writing. Do not start surface preparation until unsuitable surfaces have been corrected. Starting surface preparation precludes subsequent claim that such surfaces were unsuitable for the specified surface preparation or painting.

4. Surface preparation shall be in accordance with specifications and manufacturer's recommendations. Provide additional surface preparation, and fill coats where manufacturer recommends additional surface preparation, in addition to requirements of specification.

5. Touch-up shop or field applied coatings damaged by surface preparation or any other activity, with the same shop or field applied coating; even to the extent of applying an entire coat when required to correct damage prior to application of the next coating. Touchup coats are in addition to the specified applied systems, and not considered a field coat.

6. Protect motors and other equipment during blasting operation to ensure blasting material is not blown into motors or other equipment. Inspect motors and other equipment after blasting operations and certify that no damage occurred, or where damage occurred, the proper remedial action was taken.

7. Field paint shop painted equipment in compliance with Color Coding and as approved by Engineer.

B. Metal Surface Preparation

1. Prepare all welds to a minimum NACE weld preparation level “C” per NACE Standard SP0178. Provide additional weld preparation where required by the coating manufacturer. Contractor shall provide NACE SP0178 weld mold visual aids on site for evaluation of all weld preparation.

2. Conform to current The Society for Protective Coatings Standards (SSPC) Specifications for metal surface preparation. Use SSPC-Vis-1 pictorial standards or NACE visual standards TM-01-70 or TM-01-75 to determine cleanliness of abrasive blast cleaned steel.

3. Perform blast cleaning operations for metal when following conditions exist:

   a. Moisture is not present on the surface.

b. Ambient and surface temperatures are 5°F or greater than the dew point temperature.

c. Painting or drying of paint is not being performed in the area.

d. Equipment is in good operating condition.

e. Proper ventilation, illumination, and other safety procedures and equipment are being provided and followed.

4. Abrasive blast ferrous metals to be shop primed, or component mechanical equipment in accordance with SSPC-SP10, Near-White Metal Blast.

5. Abrasive blast field prepared ferrous metals in accordance with SSPC-SP10, Near White Metal Blast, where metal is to be submerged, in a corrosive environment, or in severe service. Provide a 3.0 mil minimum angular anchor profile unless recommended otherwise by the coating manufacturer in writing.

6. Abrasive blast field prepared ferrous metals in accordance with SSPC-SP6 Commercial Blast, where metal is to be used in mild or moderate service, or non-corrosive environment or weathering exposure. Provide a 1.5 mil minimum angular anchor profile unless recommended otherwise by the coating manufacturer in writing.

7. Clean nonferrous metals, copper, or galvanized metal surfaces in accordance to SSPC-SP1, Solvent Cleaning, or give one coat of metal passivator or metal conditioner compatible with the complete paint system. Galvanized metal shall be prepared in accordance with SSPC SP-16. Abrasive blast clean to increase mechanical adhesion in accordance with ASTM D6386, Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting when required by coating manufacturer. Provide a 1.5 mil minimum angular anchor profile unless recommended otherwise by the coating manufacturer in writing. All nonferrous metals are to be coated as soon as possible on the same day of surface preparation.

8. Abrasive blast clean internal and external ductile iron pipe surfaces prior to coating in accordance with NAPF 500-03-04, Surface Preparations Standard for Abrasive Blast Cleaning of Ductile Iron Pipe. Abrasive blast clean internal and external cast ductile iron and cast-iron fitting surfaces in accordance with NAPF-03-05.

9. Prime cleaned metals immediately after cleaning to prevent rusting.

10. Clean rusted metals down to bright metal by abrasive blasting and immediately field primed.

C. Concrete Surface Preparation

1. Cure concrete a minimum of 28 days at 75° F before surface preparation, and painting begins. Allow more time at lower temperatures if specified by paint manufacturer.

2. Test concrete for pH and salts using test methods recommended by the paint manufacturer. A minimum of one test per 1000 square feet of area to be coated shall be performed unless approved otherwise by Engineer. All concrete that was previously exposed to acidic environments must be confirmed to have a minimum pH of 9. Do not begin painting until acceptable to manufacturer and Engineer.

3. Floor Coatings: Moisture content of concrete and masonry surfaces shall conform to manufacturer's recommended limits, and as listed in SSPC-SP13/NACE 6 Section 6 Acceptance Criteria Table 1. Floor surfaces to be coated shall be tested in accordance with ASTM F1869 – Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride or as required by the coating manufacturer. For epoxy coating systems, moisture vapor transmission shall not exceed ten pounds per 1,000 square feet in a 24-hour period or less if specified by Coating Manufacturer. Vertical and horizontal floor surfaces shall be tested in accordance with ASTM F2170 – Standard Test Method for Determining Relative Humidity in Concrete using in situ Probes (relative humidity shall not exceed 80% or as required by the coating manufacturer) or with ASTM D4263 – Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Test Method (test results shall be no moisture present). Engineer or Coating Manufacturer Representative shall specify all test locations. A minimum of one test per 1000 square feet of area to be coated shall be performed unless approved otherwise by Engineer.

4. Prepare concrete surfaces to receive coatings in accordance with NACE 6/SSPC-13 – Joint Surface Preparation Standards and ICRI Technical Guidelines. Remove contaminants, open bugholes, surface voids, air pockets, and other subsurface irregularities using abrasive blasting, shot blasting, water jetting or mechanical abrading. Use dry, oil-free air for blasting operations. Surface texture after blasting shall achieve profile as required by manufacturer or where not defined by manufacturer, profile shall be a minimum ICRI-CSP 5 surface profile. Remove residual abrasives, dust, and loose particles by vacuuming or other approved method.

5. Surface defects, such as hollow areas, bugholes, honeycombs, and voids shall be filled with polymeric or waterborne epoxy cementitious filler compatible with painting system. Complete fill coats may be used in addition to specified painting system and as approved by the Engineer. Fins, form marks, and all protrusions or rough edges shall be removed.

6. Repair existing concrete surfaces which are deteriorated to the point that surface preparation exposes aggregate with fill coats or patching mortar as recommended by paint manufacturer and as directed by the Engineer.

7. Clean concrete of all dust, form oils, curing compounds, oil, tar, laitance, efflorescence, loose mortar, and other foreign materials before paints are applied.

8. To ease coating around outside corners, provide ¾-inch chamfered edges on all new concrete outside corners and grind existing concrete outside corners to a minimum radius of ¾-inch.

9. Unless recommended otherwise by the coating manufacturer, provide ¼" deep by ¼" wide tool cut terminations at 1-inch maximum from all coating edges for anchorage. Provide terminations around all equipment, piping, openings, gates, top and bottom of walls, stop locations of each day's work and overlap onto previously completed work. Transition coating 3-inches onto interior lining of piping except where coating compatibility concerns are noted by coating manufacturer.

10. Apply epoxy or polymeric filler compatible with painting system to all inside corners of areas to be coated with a margin trowel to form a continuous 45-degree cant cove across corners with a minimum dimension of 1.5-inch. Roughen or prepare cured filler as recommended by coating manufacturer for proper coating adhesion.

11. All equipment grouting shall be installed and cured prior to starting coating work. Coating shall be applied over grout up to the edges of all equipment, gates and uninterrupted piping unless specifically noted otherwise.

D. Wood

1. Clean wood surfaces free of all foreign matter, with cracks and nail holes and other defects properly filled and smoothed. Remove sap and resin by scraping and wipe clean with rags dampened with mineral spirits.

2. Saturate end grain, cut wood, knots, and pitch pockets with an appropriate sealer before priming.

3. Prime and backprime wood trim before setting in place.

4. After prime coat has dried, fill nailholes, cracks, open joints, and other small holes with approved spackling putty. Lightly sand wood trim prior to applying second coat of paint.

E. Castings

1. Prepare castings for painting by applying a brush or a knife-applied filler. Fillers are not to be used to conceal cracks, gasholes, or excessive porosity.

2. Apply one coat of primer with a minimum thickness of 1.2 mils in addition to coats specified. Allow sufficient drying time before further handling.

F. Exposed Pipe, Valves and Pumps

1. Bituminous coated pipe shall not be used in exposed locations. Pipe which shall be exposed after project completion shall be primed in accordance with the requirements herein. Any bituminous coated ferrous pipe which is inadvertently installed in exposed locations shall be sandblasted to SSPC-SP-10 Near-white Metal before priming and painting.

2. After installation and prior to finish painting, all exterior, exposed flanged joints shall have the gap between adjoining flanges and gaps between the pipe wall and threaded-on flanges sealed with a single component Thiokol caulking to prevent rust stains.

G. Masonry

1. Cure for a minimum of 30 days prior to paint application.

2. Clean masonry surfaces free from all dust, dirt, oil, grease, loose mortar, chalky deposits, efflorescence, and other foreign materials.

3. Test masonry for moisture content. Use test method recommended by paint manufacturer. Do not begin painting until moisture content is acceptable to manufacturer.

H. Gypsum Drywall

1. Sand joint compound with sandpaper to provide a smooth flat surface. Avoid sanding of adjacent drywall paper.

2. Remove dust, dirt, and other contaminants.

I. PVC Pipe Surfaces

1. All pipe surfaces shall be cleaned and lightly sanded before painting.

J. Previously-Painted Surfaces

1. Totally remove existing paint when: surface is to be submerged in a severe environment, paint is less than 75% intact, brittle, eroded or has underfilm rusting.

2. Surfaces which are greater than 75% intact require removal of failed paints and then spot primed. Spot priming is in addition to coats specified.

3. Remove surface contamination such as oil, grease, loose paint, mill scale, dirt, foreign matter, rust, mold, mildew, mortar, efflorescence, and sealers.

4. Clean and dull glossy surfaces prior to painting in accordance with the manufacturer's recommendations.

5. Check existing paints for compatibility with new paint system. If incompatible, totally remove existing paint system or apply a barrier coat recommended by the paint manufacturer. Remove existing paints of undetermined origin. Prepare a test patch of approximately 3 square feet over existing paint. Allow test patch to dry thoroughly and test for adhesion. If proper adhesion is not achieved remove existing paint and repaint.

3.03 APPLICATION OF PAINT

A. Apply paint by experienced painters with brushes or other applicators approved by the Engineer, and paint manufacturer.

B. Apply paint without runs, sags, thin spots, or unacceptable marks.

C. Apply at rate specified by the manufacturer to achieve at least the minimum dry mil thickness specified. Apply additional coats, if necessary, to obtain thickness.

D. Special attention shall be given to nuts, bolts, edges, angles, flanges, welds, etc., where insufficient film thicknesses are likely. Stripe paint outside corners and edges in accordance with SSPC PA Guide 11. Stripe painting shall be in addition to coats specified.

E. Perform thinning in strict accordance with the manufacturer's instructions, and with the full knowledge and approval of the Engineer and paint manufacturer.

F. Allow paint to dry a minimum of twenty-four hours between application of any two coats of paint on a particular surface, unless shorter time periods are a requirement by the manufacturer. Longer drying times may be required for abnormal conditions as defined by the Engineer and paint manufacturer. Do not exceed manufacturer's recommended drying time between coats.

G. Suspend painting when any of the following conditions exist:

1. Rainy or excessively damp weather.

2. General air temperature cannot be maintained at 50°F or above through the drying period, except on approval by the Engineer and paint manufacturer.

3. Unsuitable environmental conditions are expected within 1 hour of the listed “Dry to Touch” time for the coating.

4. Surface temperature of item is within 5 degrees of dewpoint.

5. Dew or moisture condensation are anticipated.

6. Surface temperature exceeds the manufacturer's recommendations.

H. Where application of coating across concrete control joints or expansion joints has the potential to crack, turn coating into joints and caulk joints with a sealant compatible with coating rated for the intended service per Section 07900 – Joint Fillers, Sealants, Caulking.

I. All surfaces which are to be installed against concrete, masonry etc., and will not be accessible for field priming and/or painting shall be back primed and painted as specified herein, before erection. Anchor bolts shall be painted before the erection of equipment and then the accessible surfaces repainted when the equipment is painted.

J. Painting found defective shall be scraped or sandblasted off and repainted as the Engineer may direct. Before final acceptance of the Work, damaged surfaces of paint shall be cleaned and repainted as directed by the Engineer.

3.04 INSPECTION

A. Each field coat of paint will be inspected and approved by the Engineer or his authorized representative before succeeding coat is applied. Tint successive coats so that no two coats for a given surface are exactly the same color. Tick-mark surfaces to receive black paint in white between coats.

B. Use magnetic dry film thickness gauges and wet fiber thickness gauges for quality control. Furnish magnetic dry film thickness gauge for use by the Engineer.

C. Coatings shall pass a holiday detector test.

D. Determination of Film Thickness: Randomly selected areas, each of at least 107.5 contiguous square feet, totaling at least 5% of the entire control area shall be tested. Within this area, at least 5 squares, each of 7.75 square inches, shall be randomly selected. Three readings shall be taken in each square, from which the mean film thickness shall be calculated. No more than 20 percent of the mean film thickness measurements shall be below the specified thickness. No single measurement shall be below 80 percent of the specified film thickness. Total dry film thickness greater than twice the specified film thickness shall not be acceptable. Areas where the measured dry film thickness exceeds twice that specified shall be completely redone unless otherwise approved by the Engineer. When measured dry film thickness is less than that specified additional coats shall be applied as required.

E. Holiday Testing: Holiday test painted ferrous metal surfaces which will be submerged in water or other liquids, or surfaces which are enclosed in a vapor space in such structures. Holiday testing shall be in accordance with (NACE SP 0188). Mark areas which contain holidays. Repair or repaint in accordance with paint manufacturer's printed instructions and retest.

1. Dry Film Thickness Exceeding 20 Mils: For surfaces having a total dry film thickness exceeding 20 mils: Pulse-type holiday detector such as Tinker & Rasor Model AP-W, D.E. Stearns Co. Model 14/20, shall be used. The unit shall be

adjusted to operate at the voltage required to cause a spark jump across an air gap equal to twice the specified coating thickness.

2. Dry Film Thickness of 20 Mils or Less: For surfaces having a total dry film thickness of 20 mils or less: Tinker & Rasor Model M1 non-destructive type holiday detector, K-D Bird Dog, shall be used. The unit shall operate at less than 75-volts. For thicknesses between 10 and 20 mils, a non-sudsing type wetting agent, such as Kodak Photo-Flow, shall be added to the water prior to wetting the detector sponge.

F. Paint manufacturer's NACE certified representative shall provide their services as required by the Engineer. Services shall include, but not be limited to, inspecting existing paint, determination of best means of surface preparation, inspection of completed work, and final inspection of painted work 11 months after the job is completed.

3.05 PROTECTION OF ADJACENT PAINT AND FINISHED SURFACES

A. Use covers, masking tape, other method when protection is necessary, or requested by Owner or Engineer. Remove unwanted paint carefully without damage to finished paint or surface. If damage does occur, repair the entire surface adjacent to and including the damaged area without visible lapmarks and without additional cost to the Owner.

B. Take all necessary precautions to contain dispersion of abrasive blasting debris and paint to the limits of the work. Take into account the effect of wind and other factors which may cause dispersion of the abrasive blasting debris and paint. Suspend painting operations when abrasive blasting debris or paint cannot be properly confined. Assume all responsibilities and cost associated with damage to adjacent structures, vehicles, or surfaces caused by the surface preparation and painting operations.

3.06 PIPING AND EQUIPMENT IDENTIFICATION

A. Piping and equipment identification shall be in accordance with Section 15030 – Piping and Equipment Identification Systems.

3.07 SCHEDULE OF COLORS

A. Match colors indicated. Piping and equipment colors are indicated in Section 15030 – Piping and Equipment Identification Systems. Colors which are not indicated shall be selected from the manufacturer's full range of colors by the Engineer. No variation shall be made in colors without the Engineer's approval. Color names and numbers shall be identified according to the appropriate color chart issued by the manufacturer of the particular product in question.

3.08 WORK IN CONFINED SPACES

A. Provide and maintain safe working conditions for all employees. Supply fresh air continuously to confined spaces through the combined use of existing openings, forced

draft fans and temporary ducts to the outside, or direct air supply to individual workers. Exhaust paint fumes to the outside from the lowest level in the contained space. Provide explosionproof electrical fans, if in contact with fumes. No smoking or open fires will be permitted in, or near, confined spaces where painting is being done. Follow OSHA, state/commonwealth, and local regulations at all times.

3.09 OSHA SAFETY COLORS

A. Paint wall around wall-mounted breathing or fire apparatus with the appropriate safety red color; area not to exceed 2 feet wide by 3 feet high, unless apparatus covers the area. Fire apparatus include fire hoses, extinguisher, and hydrants.

B. Paint hazardous areas and objects in accordance with OSHA regulations.

3.10 VOC REGULATIONS

A. Provide paint systems in accordance with local, state, and federal regulations. Where paint systems shown in schedule do not comply substitute equal products with VOC limits which comply with local, state, and federal regulations.

Table 1: Painting Schedule

Surface	Application	Painting System and No. of Coats	Product Reference (Table 2)	Total Min. Dry Film Thickness (Mils)
Concrete and Masonry				
Interior masonry and concrete walls and ceilings	All new structures	1 coat sealer 2 coats acrylic epoxy	101 116	75-85 sq.ft./gal. 4-6/coat
Interior masonry and concrete walls in chemical rooms		1 coat sealer 2 coats epoxy polyamide	117 102	60-80 sq.ft./gal. 4-6/coat
Exterior masonry cavity walls on cavity face of inner wythe	All new structures	Dampproofing	Refer to Individual Specifications	
Exterior below grade if interior is dry	Accessible areas (e.g. pipe galleries, pump rooms, basements)	Waterproofing	Refer to Individual Specifications	
Submerged water	Water retaining side of new wall surfaces where opposite side of wall is interior and dry and where indicated "epoxy waterproofing" on drawing	1 coat resurfacer at a minimum 1/16" on vertical surfaces and as needed to bring surfaces to level 2 coats NSF-600 approved epoxy polyamide	121 105	1/16" 6-10/coat
Submerged wastewater (aerobic)		1 coat resurfacer at a minimum 1/16" on vertical surfaces and as needed to bring surfaces to level 2 coats high solids epoxy 1 coat urethane above the waterline, extending down 1' below the waterline.	121 119 115	1/16" 5-10/coat 2-5
Submerged wastewater (anaerobic)		1 coat resurfacer at a minimum 1/16" on vertical surfaces and as needed to bring surfaces to level 1 coat epoxy primer 1 coat specialty high build epoxy	121 128 130	1/16" 6-10 125
Containment Liner[1]	Interior and exterior secondary containment floors, tank supports and walls	1 coat resurfacer at a minimum 1/16" on vertical surfaces and as needed to bring surfaces to level 1 coat primer 1 coat mortar with embedded fiberglass mat 1 coat saturant coat 1 coat topcoat	121 122 123/124 125 126	1/16" 6-10 60-80 10-12 6-10

Surface	Application	Painting System and No. of Coats	Product Reference (Table 2)	Total Min. Dry Film Thickness (Mils)
Metals				
Interior and exterior nonsubmerged (gloss)	All new blowers, pumps, motors and mechanical equipment, piping, etc.	1 coat epoxy polyamide primer 1 coat epoxy polyamide 1 coat aliphatic polyurethane	104 104 115	3-6 3-6 3-5
Interior insulated		1 coat acrylic	103	2-3
Submerged water	All metal piping, and mechanical equipment, etc.	1 coat MIO/Zinc primer 2 coats NSF-600 approved epoxy	127 105	2.5-3.5 6-10/coat
Submerged Wastewater (Aerobic)		1 coat MIO/Zinc primer 2 coats high solids epoxy 1 coat urethane above the waterline, extending down 1' below the waterline.	127 119 115	2.5-3.5 6-10/coat 3-5
Submerged Wastewater (Anaerobic)		1 coat epoxy primer 1 or 2 coats specialty high build epoxy	128 129	5-10 25-40
Steel doors, windows and door frames, steel stairs, monorails, structural steel, misc. metals (steel), galvanized lintels,		1 tie coat 2 coats aliphatic polyurethane	113 115	1-2 2-5/coat
Aluminum surfaces in contact with concrete		2 coats coal tar	107	26
Shop Primed Structural Steel	Pre-Engineered Buildings	1 tie coat 1 coat epoxy 1 coat epoxy	113 114 102	1-2 3-4 3-4
Other				
Interior: Gypsum Wallboard	All new structures	1 coat acrylic primer/sealer 2 coats acrylic	131 103	2-3/coat
PVC Piping		1 coat epoxy polyamine 1 coat aliphatic polyurethane	104 115	2-6 3-5

1 Painting manufacturer shall verify compatibility of containment liner and chemical to be contained. Where incompatible substitute a compatible coating system.

Ref.	System	Purpose	Product		
			Tnemec Series	CARBOLINE	Sherwin-Williams
101	Acrylic filler	Primer-sealer	130	Sanitile 100	Cement-Plex 875
102	Epoxy polyamine	Finish coat semi-gloss or gloss	N69	Carboguard 60	Macropoxy 646
103	Acrylic	Acrylic finish	1026 or 1028 or 1029	Carbocrylic 3359DTM	DTM Acrylic Primer/Finish
104	Epoxy polyamide	Primer/intermediate/finish	66	Carboguard 60	Macropoxy 646
105	Epoxy	Primer/Finish	21	Carboguard 61/891VOC	Macropoxy 646 PW
107	Coal tar	Sealer	46H-413	Bitumastic 300M	Hi-Mil Sher Tar Epoxy
113	Urethane	Barrier coat	530	Rustbond	-
114	Polyamine Epoxy	Intermediate coat	27	Carboguard 60	Copoxy Primer
115	Aliphatic Polyurethane	Finish coat	1094 or 1095	Carbothane 134HG	Acrolon 218HS
116	Acrylic epoxy	Finish coat	113 or 114	Sanitile 255	Water-Based Catalyzed Epoxy
117	Epoxy block filler	Sealer	1254	Sanitile 500	Kem Cati-Coat HS Epoxy Filler
119	High solids epoxy	Finish coat	104	Carboguard 890	Dura-Plate 235
121	Cementitious Epoxy	Resurfacer	218	-	-
122	Secondary Containment	Primer	201	-	-
123	Secondary Containment	Novolac Epoxy Mortar Bedcoat	239SC-MCK	-	-
124	Secondary Containment	Fiberglass Reinforcement	211-0215 or 211-0216	-	-
125	Secondary Containment	Novolac Epoxy Saturant Coat	239SC-RCK	-	-
126	Secondary Containment	Novolac Epoxy Topcoat	282	-	-
127	Submerged Metals	MIO/Zinc Urethane Primer	1	-	-
128	Severe Wastewater Finish - Metal	High Build Epoxy	435	-	-

Ref.	System	Purpose	Product		
			Tnemec Series	CARBOLINE	Sherwin-Williams
129	Severe Wastewater Finish - Metal	High Build Epoxy	435	-	-
130	Severe Wastewater Finish – Concrete	High Build Epoxy	436	-	-
131	Drywall primer/sealer	Vinyl Acrylic	51	-	-

Table 2: Product Listing

[END OF SECTION]

SECTION 11000

EQUIPMENT - GENERAL

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish, install, test, and place in acceptable operation all mechanical equipment and all accessories as specified herein, as shown on the Drawings, and as required for a complete and operable system.

B. The mechanical equipment shall be provided complete with all accessories, special tools, spare parts, mountings, shims, sheaves, couplings, and other appurtenances as specified, and as may be required for a complete and operating installation.

C. The Contractor shall provide the Owner complete and operational equipment/systems. To this end, it is the responsibility of the Contractor to coordinate all interfaces with related mechanical, structural, electrical, instrumentation, and control work and to provide necessary ancillary items such as controls, wiring, etc., to make each piece of equipment operational as shown and specified.

D. The complete installation shall be free from excessive vibration, cavitation, noise, and oil or water leaks.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. All equipment, materials, and installations shall conform to the requirements of the most recent editions with latest revisions, supplements, and amendments of the specifications, codes, and standards listed in the individual specifications.

1.03 ACTION/INFORMATIONAL SUBMITTALS

A. Product Data: Comply with Contract Documents submittal requirements.

B. Shop Drawings shall be submitted to the Engineer for all equipment and shall include the following additional information:

1. Equipment name, identification number and specification number.

2. Performance characteristics and descriptive data.

3. Detailed equipment dimensional drawings and setting plans.

4. Drive and motor data as required by individual specifications. Where pump and motor speeds are to be regulated by variable speed drives, the Contractor shall coordinate, furnish and exchange all necessary requirements with the respective

equipment manufacturers to ensure compatibility and shall submit pump, motor and variable speed drive shop drawings together as a complete system.

5. Information on bearing types and bearing life.

6. Gear box design and performance criteria and AGMA service factor.

7. Piping schematics.

8. Equipment protective device details and connection diagrams.

9. Panel layout drawings, schematic wiring diagrams, and component product data sheets for control panels.

10. A list of spare parts and special tools to be provided.

11. Any additional information required to demonstrate conformance with the equipment specifications.

12. Warranty documentation including statement of duration of warranty period and contact phone numbers and addresses for warranty issues.

13. Shipment, delivery, handling, and storage instructions.

1.04 CLOESOUT SUBMITTALS

A. Submit warranty documentation.

B. Submit Operation and Maintenance (O&M) manuals.

1.05 MAINTENANCE MATERIALS SUBMITTALS

A. Operation and Maintenance (O&M) manuals shall be submitted in accordance with:

1. Section 01730 – Operation and Maintenance Data.

B. Spare parts and extra materials shall be provided in accordance with the individual specifications:

1. For spare parts, extra stock materials, and tools, submit quantity of items specified in associated Specification Section.

1.06 QUALTIY ASSURANCE SUBMITTALS

A. Factory testing plan.

B. Factory Test Results shall be submitted and approved prior to shipment of equipment.

C. Field testing plan.

D. Preliminary field test data.

E. Final field test data.

1.07 GENERAL INFORMATION AND DESCRIPTION

A. All parts of the equipment furnished shall, be designed and constructed for the maximum stresses occurring during fabrication, transportation, installation, testing, and all conditions of operation. All materials shall be new and shall conform to all applicable Sections of these Specifications.

B. All parts of duplicate equipment shall be interchangeable without modification. Manufacturer's design shall accommodate all the requirements of these Specifications.

C. Equipment and appurtenances shall be designed in conformity with specifications, codes and reference standards.

D. All bearings and moving parts shall be protected by bushings or other Engineer approved means against wear, and provision shall be made for accessible lubrication by extending lubrication lines and fittings to approximately 30 inches above finished floor elevation.

E. Details shall be designed for appearance as well as utility. Protruding members, joints, corners, gear covers, etc., shall be finished in appearance. All exposed welds on machinery shall be ground smooth and the corners of structural shapes shall be rounded or chamfered.

F. Machinery parts shall conform within allowable tolerances to the dimensions shown on the working drawings.

G. All machinery and equipment shall be safeguarded in accordance with the specifications, codes, and reference standards.

H. All rotating shafts, couplings, or other moving pieces of equipment shall be provided with protective guards of sheet metal or wire mesh, neatly and rigidly supported. Guards shall be removable as required to provide access for repairs.

I. All equipment greater than 100 pounds shall have lifting lugs, eyebolts, etc., for ease of lifting, without damage or undue stress exerted on its components.

J. All manufactured items provided under this Section shall be of current manufacture and shall be the products of manufacturers specializing in the manufacture of such products.

1.08 EQUIPMENT WARRANTIES

A. Warranty requirements shall be as specified in the individual equipment specifications.

PART 2 – PRODUCTS

2.01 ANCHORS AND SUPPORTS

A. The Contractor shall furnish, install, and protect all necessary guides, bearing plates, anchor and attachment bolts, and all other appurtenances required for the installation of the devices included in the equipment specified. Working Drawings for installation shall be furnished by the equipment manufacturer, and suitable templates shall be used by the Contractor when required in the detailed equipment Specifications.

B. Anchor bolts and fasteners shall be furnished in accordance with the individual equipment Specifications. All anchor bolts, guard bolts, washers, clips, clamps, and fasteners of any type shall be constructed of 316 stainless steel, unless otherwise specified the individual equipment Specifications.

C. The Contractor shall provide all concrete pads or pedestals required for equipment furnished. All concrete equipment pads shall be a minimum of 6” high, unless otherwise shown on the Drawings and shall be doweled.

D. Pipe sleeves or other means of adjusting anchor bolts shall be provided where indicated or required. Equipment shall be leveled by first using sitting nuts on the anchor bolts, and then filling the space between the equipment base and concrete pedestal with non-shrink grout, unless alternate methods are recommended by the manufacturer and are acceptable to the Engineer (such as shim leveling pumps, or chemical grout).

E. Equipment anchors shall be in accordance with the manufacturer’s recommendations with respect to diameter, length, spacing, quantity, and depth of embedment.

2.02 STRUCTURAL STEEL

A. All materials shall conform to applicable provisions of the AISC Specifications for the design and fabrication of structural steel, and to pertinent ASTM Standard Specifications.

2.03 DISSIMILAR METALS

A. All dissimilar metals shall be isolated to the satisfaction of the Engineer.

2.04 GALVANIZING

A. Where required by the equipment specifications, galvanizing shall be performed.

2.05 STANDARDIZATION OF GREASE FITTINGS

A. The grease fittings on all mechanical equipment shall be such that they can be serviced with a single type of grease gun. Fittings shall be “Zerk” type.

2.06 ELECTRICAL REQUIREMENTS

A. All electrical equipment and appurtenances, including but not limited to motors, panels, conduit, and wiring, etc., specified in the equipment specifications shall comply with the applicable requirements of the individual electrical specifications and the latest National Electric Code.

B. In the individual equipment specifications, specified motor horsepower is intended to be the minimum size motor to be provided. If a larger motor is required to meet the specified operating conditions and performance requirements, the Contractor shall furnish the larger sized motor and shall upgrade the electrical service (conduit, wires, starters, etc.) at no additional cost to the Owner.

C. Where variable frequency drives (VFDs) are specified, the Contractor shall be responsible for coordinating between equipment supplier and VFD supplier to ensure a complete and operational system.

2.07 ACCESSORIES, SPARE PARTS, AND SPECIAL TOOLS

A. Accessories, spare parts, and special tools shall be provided in accordance with the individual equipment specifications.

2.08 EQUIPMENT IDENTIFICATION

A. All mechanical equipment shall be provided with a substantial stainless-steel nameplate, mechanically fastened with stainless steel hardware in a conspicuous place, and clearly inscribed with the manufacturer's name, year of manufacture, serial number, and principal rating data.

B. Each pump and other piece of mechanical equipment shall also be identified as to name and number by a suitable laminated plastic or stainless-steel nameplate mechanically fastened with stainless steel hardware; for example, "Raw Water Pump #1". Coordinate name and number with same on remotely located controls, control panel, and other related equipment.

C. Nameplates shall not be painted over.

PART 3 – EXECUTION

3.01 SHOP TESTING

A. All equipment shall be tested in the shop of the manufacturer in a manner which shall conclusively prove that its characteristics comply fully with the requirements of the Contract Documents and that it will operate in the manner specified or implied.

B. No equipment shall be shipped to the project until the Engineer has been furnished a certified copy of test results and has notified the Contractor, in writing, that the results of such tests are acceptable.

C. A certified copy of the manufacturer's actual test data and interpreted results thereof shall be forwarded to the Engineer for review.

D. If required by the individual equipment Specifications, arrangements shall be made for the Owner/Engineer to witness performance tests in the manufacturer's shop. The Engineer shall be notified ten working days before shop testing commences. Expenses are to be paid by Contractor.

3.02 SHIPMENT, DELIVERY, HANDLING AND STORAGE

A. Shipment, delivery, and handling of equipment and materials shall be in accordance with individual equipment specifications and manufacturer’s written instructions.

B. Storage of equipment and materials shall be in accordance with individual equipment specifications and manufacturer’s written instructions.

3.03 MANUFACTURER’S FIELD SERVICES

A. Manufacturer’s field services shall be in accordance with individual equipment specifications.

B. The Contractor shall arrange for a qualified factory trained Technical Representative from each manufacturer or supplier of equipment who is regularly involved in the inspection, installation, start-up, troubleshooting, testing, maintenance, and operation of the specified equipment. Qualification of the Technical Representative shall be appropriate to the type of equipment furnished and subject to the approval of the Engineer and the Owner. Where equipment furnished has significant process complexity, furnish the services of engineering personnel knowledgeable in the process involved and the function of the equipment. When necessary, the Contractor shall schedule multiple Technical Representatives to be present at the same time for the purpose of coordinating the operation of multiple pieces of related equipment.

C. Services of the Technical Representative will require a minimum of two (2) site visits, one for installation and testing and one for startup and training, and will be for the minimum number of days recommended by the manufacturer and approved by the Engineer but will not be less than the number of days specified in individual equipment sections. Additional site visits may be required as described below and in the equipment specifications.

D. For each site visit, the Technical Representative shall submit jointly to the Owner, the Engineer, and the Contractor a complete signed report of the results of his inspection, operation, adjustments, and testing. The report shall include detailed descriptions of the

points inspected, tests and adjustments made, quantitative results obtained if such are specified.

E. The manufacturer's Technical Representative shall provide the following services.

1. Installation: The Technical Representative shall inspect the installed equipment to verify that installation is in accordance with the manufacturer’s requirements. Where required by individual equipment specifications, the Technical Representative shall also supervise the installation of the equipment.

2. Testing: After installation of the equipment has been completed and the equipment is presumably ready for operation, but before it is operated by others, the Technical Representative shall inspect, operate, test, and adjust the equipment as required to prove that the equipment is in proper condition for satisfactory operation under the conditions specified. Unless otherwise noted in the signed site visit report, the report shall constitute a certification that the equipment conforms to the requirements of the Contract and is ready for startup and that nothing in the installation will render the manufacturer's warranty null and void. The report shall include date of final acceptance field test, as well as a listing of all persons present during tests.

3. Startup: The Technical Representative shall start up the equipment for actual service with the help of the Contractor. If equipment or installation problems are experienced, the Contractor and the representative shall provide the necessary services until the equipment is operating satisfactorily and performing according to the specifications at no additional cost to the Owner. Unless otherwise noted in the signed site visit report, the report shall constitute a certification that the equipment conforms to the requirements of the Contract and is ready for permanent operation and that nothing in the installation will render the manufacturer's warranty null and void.

4. Training: Training shall be provided in accordance with individual equipment specifications.

5. Services after Startup: Where required by the individual equipment specifications, the Technical Representative shall return to the project site thirty (30) days after the startup date to review the equipment performance, correct any equipment problems, and conduct operation and maintenance classes as required by the Owner. This follow-up trip is required in addition to the specified services of Technical Representative prior to and during equipment startup. At this time, if there are no equipment problems, each manufacturer shall certify to the Owner in writing that his equipment is fully operational and capable of meeting operating requirements. If the equipment is operating incorrectly, the Technical Representative will make no certification to the Owner until the problems are corrected and the equipment demonstrates a successful thirty (30) days operating period.

F. The Contract amount shall include the cost of furnishing the Technical Representative for the minimum number of days specified, and any additional time required to achieve successful installation and operation. The times specified for services by the Technical Representative in the equipment Specifications are exclusive of travel time to and from the facility and shall not be construed as to relieve the manufacturer of any additional visits to provide sufficient service to place the equipment in satisfactory operation.

G. The Contractor shall notify the Engineer at least 14 days in advance of each equipment test or Owner training session.

H. The Technical Representative shall sign in and out at the office of the Engineer's Resident Project Representative on each day the Technical Representative is at the project.

3.04 INSTALLATION

A. The Contractor shall obtain written installation manuals from the equipment manufacturer prior to installation. Equipment shall be installed strictly in accordance with recommendations of the manufacturer. A copy of all installation instructions shall be furnished the Engineer's field representative one week prior to installation.

B. The Contractor shall have on hand sufficient personnel, proper construction equipment, and machinery of ample capacity to facilitate the work and to handle all emergencies normally encountered in work of this character. To minimize field erection problems, mechanical units shall be factory-assembled insofar as practical.

C. Equipment shall be erected in a neat and workmanlike manner on the foundations at the locations and elevations shown on the Drawings.

D. All equipment sections and loose items shall be match-marked prior to shipping.

E. For equipment that requires field alignment and connections, the Contractor shall provide the services of the manufacturer's qualified mechanic, millwright, or machinist, to align the equipment and motor prior to making piping connections or anchoring the equipment base. Alignment shall be as specified herein.

F. The Contractor shall furnish oil and grease for initial operation and testing. The manufacturer and grades of oil and grease shall be in accordance with the recommendations of the equipment manufacturer.

3.05 ALIGNMENT

A. Set equipment to dimensions shown on drawings. Dimensions shall be accurate to +/- 1/16 inch unless otherwise noted on the drawings. Wedges shall not be used for leveling, aligning, or supporting equipment.

B. General Equipment Leveling: Non-rotating equipment shall be set level to +/- 1/16 inch per 10-foot length (.005 inch per foot) unless otherwise noted on the drawings. Shims

shall be used unless equipment is furnished with leveling feet. Set shims flush with equipment baseplate edges. When grouting is required, equipment shall be shimmed to allow a minimum of one-inch grout thickness. Grout shall cover shims at least 3 inches. Final level check shall be held for inspection and approval by Engineer before proceeding.

C. Grouting

1. Fill anchor bolt holes or sleeves with grout, after bolt alignment is proven, and prior to placing grout under equipment bases.

2. Surface Preparation. Roughen surface by chipping, removing laitance, and unsound concrete. Clean area of all foreign material such as oil, grease, and scale. Saturate area with water at least 4 hours prior to grouting, removing excess water ponds.

3. Application. Place grout after the equipment base has been set and its alignment and level have been approved. Form around the base, mix grout, and place in accordance with the grout manufacturers published instructions. Eliminate all air or water pockets beneath the base using a drag chain or rope.

4. Finishing. Point the edges of the grout to form a smooth 45-degree slope.

5. After grout has cured (not before 3 days after placement) paint exposed surfaces of grout with shellac.

6. Level Verification. After grout has cured, and immediately prior to drive alignment, recheck equipment for level and plumb. Re-level and square as necessary. Hold final checks for inspection and approval by Engineer.

D. Inspect for and remove all machining burrs or thread pulls in female holes on mating surfaces of mounting frame and machine feet.

E. Inspect and clean equipment mounting base pads, feet, and frames to remove all grease, rust, paint, and dirt.

F. Assembled equipment shafts shall be set level to .0015 inches per foot of shaft length (+/- .0005 inches) up to a maximum of 0.015 inches for any length shaft unless the manufacturers requirements are more stringent or unless otherwise noted in the equipment specifications. Use the machined surfaces on which the equipment sets for the base/mounting frame leveling plane. Use the machined shaft surface for equipment leveling plane.

G. Sprocket and Sheave Alignment. Check shaft mounted components for face runout and eccentricity (outside diameter) runout by magnetically mounting a dial indicator on a stationary base and indicating over 360 degrees on a continuous machined surface at

the outside diameter of the component. Maximum allowable total indicated face runout and eccentricity for sprockets and sheaves will be per ANSI Standard B29.1-1975.

H. Belt tensioning. Set drive belt tension to manufacturer's specification for the belt type. Recheck alignment after drive tensioning.

I. Thermal/Mechanical Growth. Thermal/mechanical growth corrections for driver and driven machines will be used in vertical and horizontal alignment where applicable. The equipment manufacturer will determine thermal/mechanical growth applicability for any machine and provide the correction offsets to be used.

J. Rotating Shaft Alignment

1. Fixtures will be set up on the driver and driven machine, machines shaft surfaces. Machined coupling hubs may be used only if there is no clearance to mount fixtures directly on the shafts.

2. Primary alignment method for direct drive machines is when coupled. Uncoupled alignment will be used only when approved by the Engineer.

3. Account for possible coupling flex by always rotating coupled machines in the same direction during alignment.

4. Uncoupled machines must be connected so that both shafts turn together without relative motion during alignment.

5. Indicator bar sag will be measured and included for each reverse indicator alignment setup.

6. Reverse Dial Indicator. The final maximum allowable misalignment: vertical and horizontal from the desired targets of .000 inches (for a non-thermal growth machine) or from the given target readings (for a thermal growth machine) must meet both of the following conditions simultaneously: 1/2 the final total indicator reading at each indicator will be no more than shown in the table below and the final remaining correction at each machine foot be no more than .001 inches of required movement.

Machine Speed (RPM)	Total Misalignment* (inches)
Up to 1800	.002
1800 and greater	.001

* 1/2 indicator reading

3.06 FIELD TESTING

A. Field testing shall be in accordance with the individual equipment specifications.

B. All equipment shall be set, aligned, and assembled in conformance with the manufacturer's drawings and instructions. Provide all necessary calibrated instruments to execute performance tests. Submit report certified by the pump manufacturer’s representative.

C. Preliminary Field Tests, Yellow Tag

1. As soon as conditions permit, after the equipment has been secured in its permanent position, the Contractor shall:

a. Verify that the equipment is free from defects.

b. Check for alignment as specified herein.

c. Check for direction of rotation.

d. Check motor for no load current draw.

2. Contractor shall flush all bearings, gear housings, etc., in accordance with the manufacturer's recommendations, to remove any foreign matter accumulated during shipment, storage or erection. Lubricants shall be added as required by the manufacturer's instructions.

3. When the Contractor has demonstrated to the Engineer that the equipment is ready for operation, a yellow tag will be issued. The tag will be signed by the Engineer, or his assigned representative and attached to the equipment. The tag shall not be removed.

4. Preliminary field tests, yellow tag, must be completed before equipment is subjected to final field tests, blue tag.

D. Final Field Tests, Blue Tag

1. Upon completion of the above, and at a time approved by the Engineer, the equipment will be tested by operating it as a unit with all related piping, ducting, electrical and controls, and other ancillary facilities.

2. The equipment will be placed in continuous operation as prescribed or required and witnessed by the Engineer or his assigned representative and the Owner or his assigned representative.

3. The tests shall prove that the equipment and appurtenances are properly installed, meet their operating cycles and are free from defects such as overheating,

overloading, and undue vibration and noise. Operating field tests shall consist of the following:

a. Check equipment for excessive vibration and noise as specified herein.

b. Check motor current draw under load conditions. The rated motor nameplate current shall not be exceeded.

c. Recheck alignment with dial indicators where applicable, after unit has run under load for a minimum of 24 hours.

E. Additional field testing recommended by the manufacturer shall be performed at no cost to Owner.

F. Until final field tests are acceptable to the Engineer, the Contractor shall make all necessary changes, readjustments, and replacements at no additional cost to the Owner.

G. Upon acceptance of the field tests, a blue tag will be issued. The tag will be signed by the Engineer and attached to the unit. The tag shall not be removed, and no further construction work will be performed on the unit, except as required during start-up operations and directed by the Engineer.

H. Defects which cannot be corrected by installation adjustments will be sufficient grounds for rejection of any equipment.

I. All costs in connection with field testing of equipment such as lubricants, temporary instruments, labor, equipment, etc., shall be borne by the Contractor. Power, fuel, chemicals, water, etc. normally consumed by specific equipment shall be supplied by the Owner unless otherwise specified in the individual equipment specifications.

J. The Contractor shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the Owner formally takes over the operation thereof.

K. Field testing of electric motors shall be in accordance with individual electrical and equipment specifications.

3.07 VIBRATION TESTING

A. Vibration testing shall be in accordance with individual equipment specifications.

3.08 FAILURE OF EQUIPMENT TO PERFORM

A. Any defects in the equipment, or failure to meet the guarantees or performance requirements of the Specifications shall be promptly corrected by the Contractor by replacements or otherwise.

B. If the Contractor fails to make these corrections, or if the improved equipment shall fail again to meet the guarantees or specified requirements, the Owner, notwithstanding his having made partial payment for work and materials which have entered into the manufacture of said equipment, may reject said equipment and order the Contractor to remove it from the premises at the Contractor's expense.

C. The Contractor shall then obtain specified equipment to meet the contract requirements or upon mutual agreement with the Owner, adjust the contract price to reflect not supplying the specific equipment item.

D. In case the Owner rejects said equipment, then the Contractor hereby agrees to repay to the Owner all sums of money paid to him for said rejected equipment on progress certificates or otherwise on account of the lump sum prices herein specified.

E. Upon receipt of said sums of money, the Owner will execute and deliver to the Contractor a bill of sale of all his rights, title, and interest in and to said rejected equipment; provided, however, that said equipment shall not be removed from the premises until the Owner obtains from other sources other equipment to take the place of that rejected.

F. Said bill of sale shall not abrogate Owner's right to recover damages for delays, losses, or other conditions arising out of the basic contract.

3.09 PAINTING

A. All surface preparation, shop painting, field repairs, finish painting, and other pertinent detailed painting specifications shall conform to applicable paragraphs of Section 09900 – Painting.

B. All shop coatings shall be compatible with proposed field coatings.

C. All inaccessible surfaces of the equipment, which normally require painting, shall be finished painted by the manufacturer. The equipment and motor shall be painted with a high-quality epoxy polyamide semi-gloss coating specifically resistant to chemical, solvent, moisture, and acid environmental conditions, unless otherwise specified.

D. Gears, bearing surfaces, and other unpainted surfaces shall be protected prior to shipment by a heavy covering of rust-preventive compound sprayed or hand applied which shall be maintained until the equipment is placed in operation. This coating shall be easily removable by a solvent.

3.10 WELDING

A. The Equipment Manufacturer's shop welding procedures, welders, and welding operators shall be qualified and certified in accordance with the requirement of AWS D1.1 "Structural Welding Code - Steel" or AWS D1.2 "Structural Welding Code - Aluminum" of the American Welding Society, as applicable.

B. The Contractor's welding procedures, welders, and welding operators shall be qualified and certified in accordance with the requirements of AWS D1.1 "Structural Welding Code - Steel" or AWS D1.2 "Structural Welding Code - Aluminum" of the American Welding Society, as applicable.

C. The Contractor shall perform all field welding in conformance with the information shown on the Equipment Manufacturer's drawings regarding location, type, size, and length of all welds in accordance with "Standard Welding Symbols" AWS A2.0 of the American Welding Society, and special conditions, as shown by notes and details.

[END OF SECTION]

SECTION 11100

PUMPS – GENERAL

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Comply with the requirements of Section 11000, Equipment - General.

B. The pumps shall be provided complete with all accessories, special tools, spare parts, mountings, shims, sheaves, couplings, and other appurtenances as specified, and as may be required for a complete and operating installation.

C. The provisions of this section shall apply to all pumps and pumping equipment specified except where specifically noted otherwise in the Contract Documents.

D. All pumps provided under an individual specification section shall be by the same manufacturer unless otherwise indicated in the specification.

E. All equipment for the pumps, including motors, cans and bases, shall be provided as a complete unit by the pump Manufacturer.

F. The pump supplier shall have unit responsibility for coordinating the proper pump mounting system with the Contractor to ensure stable pump operation free from abnormal vibration.

G. The pump supplier shall include, in his bid, time, labor, materials and tools required for installation assistance, testing and start-up with the Contractor.

1.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. All equipment, materials, and installations shall conform to the requirements of the most recent editions with latest revisions, supplements, and amendments of the specifications, codes, and standards listed in the individual specifications.

B. Pumping system equipment, installation and testing shall be in accordance with the following applicable codes and standards. All standards shall be the latest version as of the date of project bidding.

1. Hydraulic Institute

    a. ANSI/HI 3.1-3.5 Rotary Pumps for Nomenclature, Definitions, Application and Operation

    b. ANSI/HI 3.6 Rotary Pump Test

    c. ANSI/HI 9.6.1 Rotodynamic Pumps – Guideline for NPSH Margin

d. ANSI/HI 9.6.2 Rotodynamic Pumps for Assessment of Applied Nozzle Loads

e. ANSI/HI 9.6.3 Rotodynamic Pumps – Guideline for Operating Regions

f. ANSI/HI 9.6.4 Rotodynamic Pumps for Vibration Measurements and Allowable Values

g. ANSI/HI 9.6.5 Rotodynamic Pumps Guideline for Condition Monitoring

h. ANSI/HI 9.6.6 Rotodynamic Pumps for Pump Piping

i. ANSI/HI 9.6.8 Rotodynamic Pumps -Guideline for Dynamics of Pumping Machinery

j. ANSI/HI 9.8 Rotodynamic Pumps for Pump Intake Design

k. ANSI/HI 11.6 Rotodynamic Submersible Pumps for Hydraulic Performance, Hydrostatic Pressure, Mechanical and Electrical Tests

l. ANSI/HI 12.1-12.6 Rotodynamic Slurry Pump for Nomenclature, Definitions, Applications and Operation

m. ANSI/HI 14.1-14.2 Rotodynamic Pumps for Nomenclature and Definitions

n. ANSI/HI 14.3 Rotodynamic Pumps for Design and Application

o. ANSI/HI 14.6 Rotodynamic Pumps for Hydraulic Performance Acceptance Tests

2. American Society of Mechanical Engineers

   a. ANSI/ASME B73.1 Specifications for Horizontal End Suction Centrifugal Pumps for Chemical Process

3. American Petroleum Institute

   a. ANSI/API Standard 610 Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries

4. American Water Works Association

   a. ANSI/AWWA E103 Standard for Horizontal and Vertical Line-Shaft Pumps

5. American Society for Testing and Materials

   a. A36 Specification for Structural Steel

   b. A48 Specification for Gray Iron Castings

c. A53 Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

d. A148 Specification for Steel Castings, High Strength, for Structural Purposes

e. A193 Specification for Alloy Steel and Stainless Steel Bolting Materials for High Temperature Service

f. A276 Specification for Stainless Steel Hot/Cold-Finished Bars

g. A322 Specification for Steel Bars, Alloy, Standard Grades

h. A514 Specification for High Yield Strength, Quenched and Tempered alloy Steel Plate, Suitable for Welding

i. A532 Specification for Abrasion-Resistant Cast Irons

j. A536 Specification for Ductile Iron Castings

k. A565 Specification for Martensitic Stainless Steel Bars

l. A582 Specification for Free-Machining Stainless and Heat-Resisting Steel Bar, Hot-Rolled and Cold-Rolled

m. A743 Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel and Nickel-Base, Corrosion-Resistant for General Application

n. B148 Specification for Aluminum-Bronze Sand Castings

o. B584 Specification for Copper Alloy Sand Castings for General Application

6. American National Standards Institute

   a. B16.1 Standard for Cast Iron Pipe Flanges and Flanged Fittings

   b. B16.5 Standard for Pipe Flanges and Flanged Fittings

7. ANSI/NFPA 70 National Electric Code

8. Society of Automotive Engineers SAE J404 Chemical Compositions of SAE Alloy Steels

9. Standard, ISO 1940 – Mechanical Vibration – Balance quality requirements for rotors balance quality grade for rotors in a constant rigid state.

1.03 ACTION/INFORMATIONAL SUBMITTALS

A. Provide submittals identified in Specification Section 11000, Equipment General Provisions in addition to the submittals identified herein and in addition to the submittals identified in the individual pumping specification sections.

B. Shop Drawings shall include the following information in addition to the requirements specified elsewhere in the Contract Documents and shall include the following information:

1. Pump name, identification number, and specification number.

2. Performance characteristics and descriptive data, including but not limited to pump performance curves at rated speed and reduced speeds (if reduced speeds are specified). Curves shall indicate flow, head, impeller diameter, efficiency, brake horsepower, and NPSH required. Curves shall identify minimum continuous stable flow (minimum flow to avoid suction recirculation), preferred operating region (POR) and allowable operating region (AOR) per the latest version of ANSI/HI 9.6.3. Performance curves submitted shall be for the entire pump assembly, including efficiency corrections and losses. Pump performance curves shall be submitted both in the form of performance data cut sheets and in tabular format. Tabular data shall include the following:

a. Flow

b. Pump Head

c. NPSH required

d. Pump Efficiency

e. A minimum of 10 data points shall define rotodynamic pump performance curves listed above. Performance curve data points shall include the following:

1) best efficiency point

2) all specified operating points

3) preferred operating range minimum and maximum

4) allowable operating range minimum and maximum

5) shutoff condition

6) runout.

7) The remainder of the points shall be distributed evenly to clearly define the shape of each of the curves.

8) Each data point shall be reported to a minimum of three (3) significant figures.

9) The curve data shall align with the HI acceptance grade (1B, 2B, 1U, etc.) as specified in the individual pump specification and shall explicitly state the applicable tolerance band, as defined by the Hydraulic Institute Standards, associated with each value.

3. Minimum submergence requirements shall be provided for vertically suspended pumps and submersible pumps.

4. Detailed dimensional drawings and setting plans including but not limited to:

   a. General cutaway sections

   b. Materials

   c. Dimension of shaft projections

   d. Shaft and keyway dimensions

   e. Shaft diameter

   f. Shaft-impeller connection details

   g. Dimension between bearings

   h. General dimensions of pump

   i. Suction head bolt orientation

   j. Anchor bolt locations

   k. Forces.

   l. Assembly views

   m. Provide weight of entire pump assembly, including motor and base weight of individual major subassemblies. Indicate the weight of each component, and total static and dynamic loads imparted by the equipment to the supporting structure.

   n. Impeller

   o. Drawings shall identify each component by tag number to which the catalog data and detail sheets pertain.

5. Complete motor data shall include but not be limited to size, make, type and characteristics along with wiring diagrams. Where pump and motor speeds are to be regulated by variable speed drives, the Contractor shall coordinate, furnish, and exchange all necessary requirements with the respective equipment manufacturers to ensure compatibility and shall submit pump, motor, and variable speed drive shop drawings together as a complete system.

6. Information on bearing types and bearing life.

7. Gear box design and performance criteria and AGMA service factor.

8. Equipment protective device details and connection diagrams.

9. Details of shaft sealing system including seal/packing type, seal water control devices, and seal water piping schematic.

10. Information on pump appurtenances including couplings, shaft guards, v-belt drive systems, etc.

11. Submersible pump submittals shall also include:

    a. Product data sheets for power and control cables, length of cables and cable support system.

    b. Details on pump guide rail system and mounting requirements.

    c. Minimum allowable pump submergence

    d. Details on submersible pump's retrieval system.

12. Any additional information required to demonstrate compliance with the specifications.

C. Results of structural, lateral, and torsional dynamic analyses as required herein and in the individual specification sections.

D. Shipment, Delivery, Handling and Storage instructions.

E. Installation instructions.

F. Manufacturer's literature and brochures

G. Lubrication Information: Complete lubrication instructions and lubricant schedule, including manufacturer's recommended lubricant. All lubricants shall be food grade, NSF 61 approved. Schedule shall include frequency of lubricant application, type of lubricant, and instructions regarding lubricant application

H. Materials of construction and associated specifications (such as AISI, ASTM, SAE, etc.), including grade and type.

I. Coatings: Coating system data and description of coating system, surface preparation and shop painting, including certification that the shop paint is compatible with the finish paint.

1.04 CLOSEOUT SUBMITTALS

A. Submit warranty documentation in accordance with the Contract Documents.

B. Operation and Maintenance (O&M) manuals shall be submitted in accordance with:

1. Section 01730 – Operation and Maintenance Data.

2. Section 11000 – Equipment - General.

1.05 QUALTIY ASSURANCE SUBMITTALS

A. Factory testing plan.

B. Factory Test Results shall be submitted and approved prior to shipment of equipment.

C. Field testing plan.

D. Preliminary field test data.

E. System field quality control testing.

F. Final field test data.

G. Certified test reports.

H. Startup report including data substantiation of successful completion of 30-day operational demonstration of performance.

1.06 GENERAL INFORMATION AND DESCRIPTION

A. Comply with Section 11000, Equipment – General.

1.07 WARRANTY

A. Warranty requirements shall be as specified in the individual equipment specifications.

B. Comply with the Equipment Warranties requirements specified in Section 11000, Equipment.

1.08 OPERATING CONDITIONS AND PERFORMANCE REQUIREMENTS:

A. When operating at the maximum output speed each pump shall have a characteristic performance curve which meets the conditions listed in the pump schedule. The pumps and drive motors shall be capable of operating satisfactorily under the full-range of speed, flow and pressure conditions as defined by the pump schedule. Pump efficiency as defined herein shall include all mechanical losses from bearings and shaft seals.

B. Each pumping unit and its driving equipment shall be designed and constructed to withstand the maximum turbine run-away speed of the unit due to backflow through the pump with the primary TDH specified available at the pump discharge flange. Maximum reverse run-away speed shall not exceed 130 percent of the design operating speed.

C. Pump manufacture shall certify a Minimum Continuous Stable Flow (MCSF) rating at maximum speed that is lower than the specified minimum operating flow. Where a reduced speed operating condition is specified, the manufacturer shall also certify MCSF at the pump speed required to meet this condition.

D. Factory test acceptance grade for rating point shall be as specified herein, except where superseded via specification and/or scheduled values in the individual pump specifications, however power required shall not exceed the rated motor horsepower.

E. Pump Operating Conditions: Refer to respective individual pump specifications for specific performance requirements.

PART 2 – PRODUCTS

2.01 GENERAL

A. Performance Curves: All centrifugal pumps shall have a continuously rising curve. In no case shall the required horsepower at any point on the performance curve exceed the rated horsepower of the motor or drive. Safety factors will not be considered in determining compliance with this requirement.

B. Suction and discharge flanges shall conform to ASME B16.1 or B16.5 dimensions.

C. For pumps in raw sewage service and as required by individual pump specifications, handholes shall be provided on the pump suction nozzle and the pump volute and shall be shaped to follow the contours of the casing or adjoining piping to avoid any obstructions in the water passage.

D. The minimum ABMA L10 bearing life for all pump, motor and drive bearings shall be 60,000 hours unless otherwise specified in the individual pump specification sections.

2.02 ANCHORS AND SUPPORTS

A. Comply with the following Specification Sections:

1. Specification Section 11000, Equipment - General.

2. Comply with individual pump specifications.

B. Comply with ACI 351.3R-04 – Foundations for Dynamic Equipment.

2.03 DEFAULT MATERIALS

A. Pumps shall be constructed out of the materials specified in respective individual pumping specification sections. Material not specifically called for shall be high-grade, standard commercial quality, free from all defects and imperfection that might affect the serviceability of the product for the purpose for which it is intended, and shall conform to the following requirements unless otherwise specified in individual pumping equipment Specifications:

Component	Material
Casings and Bowls	Close-grained gray cast iron, conforming to ASTM A 48, or equal
Impellers	ASTM B 148, aluminum bronze
Shafts, wetted	Type 400 series stainless steel
Shafts, non-wetted	AISI 4140 steel
Miscellaneous stainless steel parts	Type 316 series stainless steel
Anchor Bolts and Fasteners	Type 316 stainless steel

2.04 COMPONENTS:

A. Refer to individual specification sections for specific requirements.

B. Pump Shaft:

1. The shaft shall be heat treated, turned, ground, and polished over its entire length and shall be provided with keyways on both ends.

2. Shall be sufficiently large in diameter to safely transmit the maximum torque developed by the drive unit and provide a rigid support for the impeller to prevent excessive vibration.

C. Bearings:

1. Bearings shall be designed for continuous heavy duty loads and for both axial and radial thrust loads.

2. The specified AFBMA B-10 life for bearings shall be under worst possible operating conditions.

3. Bearings shall support the shaft and the complete rotating elements.

2.05 STRUCTURAL STEEL

A. Structural steel used for fabricating equipment supports, etc. shall conform to applicable provisions of the AISC Specifications for the design and fabrication of structural steel, and to pertinent ASTM Standard Specifications

2.06 DISSIMILAR METALS

A. All dissimilar metals shall be isolated to the satisfaction of the Engineer.

2.07 GALVANIZING

A. Where required by the equipment specifications, galvanizing shall be performed.

2.08 STANDARDIZATION OF GREASE FITTINGS

A. Grease Fittings: Comply with Section 11000, Equipment - General.

2.09 APPURTENANCES

A. Seals:

1. Mechanical seals shall be furnished as specified in individual pumping equipment sections.

2. If the pump manufacturer recommends a better seal or alternate flushing arrangement for a specific application, the substitution may be submitted to the Engineer for approval in accordance with the Contract Documents.

B. Pressure Gauges:

1. Contractor shall supply all pressure gauges for all pumps by one manufacturer.

2. Gauges shall be provided through the instrumentation subcontractor to match other gauges on the project.

3. All gauges shall be provided with diaphragm seals or isolating ring seals.

4. The Contractor shall furnish and install pressure gauges as shown on the Drawings, but the following gauges shall be provided as a minimum:

a. On the suction and discharge of each pump, except wet-pit submersible pumps and vertical turbine pumps.

b. On the discharge piping of each wet-pit submersible pump and vertical turbine pump in the locations shown on the Drawings or as directed by the Engineer.

5. Gauge ranges shall be coordinated with the pump manufacturer and shall meet the following requirements, except where otherwise specified:

Location	Type	Graduation	Suction Range	Discharge Range
Suction	Single Scale, Compound	FT H20	-34-FT	+34-FT
Discharge	Single Scale	FT H20	0-FT	Greatest of the following: - Shutoff + 5-FT - 130% of Maximum

C. Shaft Couplings:

1. Except as otherwise specified in individual pump specification sections, flexible couplings for direct driven pumps shall be as manufactured by Falk, Dodge, Woods Corp., or equal and shall be furnished with guards in accordance with OSHA Rules and Regulations.

2. Spacer couplings shall be provided where necessary to allow removal of the pump rotating element without disturbing the driver.

3. Comply with protective guard requirements of Section 11000, Equipment - General.

D. Equipment Guards: Provide guards in accordance with OSHA requirements for all rotating assemblies that would otherwise be exposed at the operating deck level.

E. Provide access to:

1. Couplings

2. Oil drains

2.10 ELECTRICAL REQUIREMENTS

A. All electrical equipment and appurtenances, including but not limited to motors, panels, conduit and wiring, etc., specified in the equipment specifications shall comply with the applicable requirements of the individual electrical specifications and the latest National Electric Code.

B. All pumps shall be furnished with motors such that the motor shall not be overloaded throughout the full range of the pump operation. The use of service factor will not be allowed in determining overloaded condition.

C. In the individual pump specifications, specified motor horsepower is intended to be the minimum size motor to be provided. If a larger motor is required to meet the specified operating conditions and performance requirements, the Contractor shall furnish the

larger sized motor and shall upgrade the electrical service (conduit, wires, starters, etc.) at no additional cost to the Owner.

D. Where variable frequency drives (VFDs) are specified, the Contractor shall be responsible for coordinating between pump supplier and VFD supplier to ensure a complete and operational system.

2.11 SPARE PARTS AND SPECIAL TOOLS

A. Accessories, spare parts, and special tools shall be provided in accordance with the individual equipment specifications.

B. Spare parts for equipment shall be furnished where indicated in the equipment Specifications and/or where recommended by the equipment manufacturer.

C. Spare parts shall be identical and interchangeable with original parts.

D. The Contractor shall furnish a one-year supply of all recommended lubricating oils and greases.

2.12 EQUIPMENT IDENTIFICATION

A. Comply with the requirements of Section 11000, Equipment - General.

B. All pumps shall be provided with a substantial stainless steel nameplate, mechanically fastened with stainless steel hardware in a conspicuous place, and clearly inscribed with:

1. the manufacturer's name
2. year of manufacture
3. model number
4. serial number
5. and principal rating data including the following at the primary design point:
    a. Capacity in gallons per minute
    b. rated total dynamic head
    c. speed in rotations per minute
    d. efficiency at the primary design point.

C. Each pump shall also be identified as to name and number by a suitable laminated plastic or stainless steel nameplate mechanically fastened with stainless steel hardware;

for example, "Raw Water Pump – 1 (RWP-1)". Coordinate name and number with same on remotely located controls, control panel, and other related equipment.

D. Nameplates shall not be painted over.

PART 3 – EXECUTION

3.01 SHOP TESTING

A. The terms Shop Testing and Factory Testing shall be considered to be interchangeable.

B. Perform Shop Testing in conformance with Section 11000, Equipment - General.

C. The Contractor shall be responsible for the coordination of factory testing of each pump, variable speed drive, and motor. Pump tests shall utilize the actual motors and pump motor bases and couplings to be furnished with the pumping equipment. Where required as indicated by the individual pump specification sections, variable speed pumps shall be tested with the actual variable speed controllers supplied for the project. Use of the pump manufacturers standard test motors and test stand is not acceptable.

D. Factory testing shall be conducted in accordance with the latest version of Hydraulic Institute Standard 14.6, Hydraulic Performance Acceptance Tests. For submersible pumps, testing shall be conducted in accordance with the latest version of ANSI/HI 11.6.

E. Hydraulic Performance Acceptance Tests

1. The testing procedure shall be submitted to the Engineer for review and approval before scheduling the testing. The Owner/Engineer shall be given at least 2 weeks advanced notice of the scheduled testing date.

2. Notification and payment of expenses for witness testing shall be as described in Section 11000, Equipment - General wherever individual pump specifications call for witness testing.

3. Pump rating point shall be within the tolerances specified for Acceptance Grade 1U unless otherwise specified in the individual pump specifications.

4. Factory performance test shall include a minimum of seven test points between shutoff and runout.

5. Where required by the individual equipment specification sections, NPSH tests shall be conducted to demonstrate compliance with the specified NSPH requirements. Where full curve NPSH testing is required, a minimum of four points shall be tested.

6. Certified test curves shall be provided for all centrifugal pumps unless otherwise specified in the individual pump specifications.

a. Certified tests will not be required for submersible sump pumps with motors less than 5 hp.

b. Certified curves shall identify minimum continuous stable flow (minimum flow to avoid suction recirculation) and preferred operating region (POR) and allowable operating region (AOR) per the latest version of ANSI/HI 9.6.3.

7. Where required by the individual pump specification sections, factory vibration testing shall be performed to demonstrate compliance with HI 9.6.4.

8. For wet pit submersible pumps and vertical turbine pumps, all tests shall be run at minimum pump submergence specified in the individual pump specifications.

9. All instruments shall be calibrated as required by ANSI/HI 14.6 or 11.6 as applicable.

F. Where required in the individual pump specifications, a certified hydrostatic test shall be completed on each pumping unit in accordance with ANSI/HI 14.6 or 11.6 as applicable. Test pressure shall be 1.5 times maximum operating head or 1.25 times shutoff head, whichever is greater.

G. Where required in the individual pump specifications, each individual casting shall be Brinnell tested in a minimum of two places, in an area of representative casting thickness to ASTM Method E-10. Results shall be certified by a registered professional ENGINEER.

H. Shop testing of electric motors shall conform to:

1. Section 11000, Equipment - General.

3.02 SHIPMENT, DELIVERY, HANDLING AND STORAGE

A. Shipment, delivery and handling of equipment and materials shall be in accordance with individual specifications and manufacturer’s written instructions.

B. Storage of equipment shall be in accordance with individual specifications and manufacturer’s written instructions.

C. Factory assembled parts and components shall not be dismantled for shipment unless permission is received in writing from the Engineer.

D. Machined surfaces of all exposed pump openings or other exposed unpainted surfaces shall be protected by wooden blanks or Cosmoline, as appropriate, strongly built and securely bolted thereto.

E. After hydrostatic or other tests, all entrapped water shall be drained prior to shipment, and proper care shall be taken to protect parts from the entrance of water during shipment, storage and handling.

3.03 MANUFACTURER'S FIELD SERVICES

A. Manufacturer’s field services shall be in accordance with individual equipment specifications.

B. Unless otherwise referenced in the individual pump specification section, as a minimum the services of the manufacturer's representative shall be provided for as stated in the following schedule:

Service	Number of Trips	Number of Days/Trip
Installation and Testing	1	2
Startup and Training	1	2
Services after Startup	1	1

C. Any additional time required to achieve successful installation and operation shall be at the expense of the Contractor.

3.04 INSTALLATION

A. Pumping equipment shall be installed in accordance with Section 11000, Equipment General, the manufacturer's recommendations, accepted procedures submitted with the shop drawings and as indicated on the Drawings, unless otherwise accepted by the Engineer.

B. Level pump and motor and grout feet or baseplate with non-shrink grout. Ensure minimum grout depth is obtained as recommended by the pump and grout manufacturers.

C. Drains: All gland seals, air valves, and drains shall be piped to the nearest floor drain or trench drain with stainless steel pipe or copper tube (as appropriate for the environment), properly supported with brackets.

D. Contractor shall have unit responsibility for the proper coordination, sizing, and installation of the pump foundation/mounting requirements based on the manufacturer’s recommendations, subject to Engineer’s review and comment.

3.05 ALIGNMENT

A. Pumping equipment shall be aligned in accordance with Section 11000, Equipment - General, the manufacturer's recommendations, accepted procedures submitted with the shop drawings and as indicated on the Drawings.

B. Equipment shall be aligned and free from binding, scraping, excessive vibration, shaft runout, or other defects. Pump drive shafts shall be measured just prior to assembly to ensure correct alignment without forcing.

C. As a minimum, comply with International Standard, ISO 1940 – Mechanical Vibration – Balance quality requirements for rotors balance quality grade for rotors in a constant rigid state.

3.06 FIELD TESTING

A. Comply with Section 11000, Equipment - General for applicable preliminary and final field testing requirements supplementary to those described in this specification.

B. All pumping units shall be field tested after installation, in accordance with the Contract Documents, to demonstrate satisfactory operation over the full operating speed range, without excessive noise, vibration, cavitation, and overheating of the bearings. The field testing shall be performed in the presence of an experienced field representative of the manufacturer of each major item of equipment, who shall supervise the following tasks and shall certify in writing that the equipment and controls have been properly installed, aligned, lubricated, adjusted, and readied for operation:

1. Pumps shall be tested for vibration over the full specified speed range. Unless otherwise required by individual specification sections, vibration shall be within the limits identified in the latest version of ANSI/HI 9.6.4 (or ANSI/HI 11.6 for submersible pumps), or manufacturer's limits if more stringent. If vibration is greater than 80% of the limits identified in ANSI/HI 9.6.4, follow-up vibration testing shall be completed after a 90-day break-in period to ensure that vibration remains within ANSI/HI 9.6.4 allowable limits. If vibration exceeds the allowable limits during the follow up testing, modifications shall be made as a warranty repair.

2. Bearing temperatures shall be determined. A running time of at least 20 minutes shall be maintained for this test, unless liquid volume available is insufficient for a complete test.

3. Where specified in the individual pump specifications, the natural frequencies of each installed pump shall be determined using the “bump test” method. Natural frequency testing shall demonstrate a minimum of 10% separation from the 1x running speed, 2x running speed and vane pass frequencies.

4. Pump performance shall be documented by obtaining concurrent readings, showing motor voltage, amperage, motor power, flow, pump suction head, and pump discharge head, for at least five (5) pumping conditions at full speed. One of the points shall be within -5% and 0%, and one being within 0% and +5% of the guarantee point flow rate; the remaining three points shall be spaced over the allowable operating range of the pump performance curve with points taken at or near the maximum allowable (shutoff) head region and at or near the maximum allowable flow (runout). Additional reduced speed testing shall be performed to

demonstrate that pumps can achieve performance at turndown conditions where specified in individual pump specification sections. Each power lead to the motor shall be checked for proper current balance. Flow shall be measured to the extent possible by permanently installed instrumentation or drawdown measurement. The rated motor nameplate current shall not be exceeded at any point. Pumps with drive motors rated at less than five horsepower shall only be tested for overcurrent when overheating or other malfunction becomes evident in general testing. Field performance testing shall meet HI 14.6 pump acceptance test grade and tolerance band grade specified herein, unless individual equipment specifications indicate otherwise.

C. The field testing shall be witnessed by the Owner or its representative. The Contractor shall submit to the Engineer a written notification of all pump field tests a minimum of one (1) week prior to testing. In the event of failure of any pump to meet any of the above requirements, the Contractor shall make all necessary modifications, repairs, or replacements to conform to the requirements of the Contract Documents and the pump shall be re-tested at no additional compensation, until found satisfactory. The Contractor shall then certify in writing that the equipment has been satisfactorily tested, and that all final adjustments thereto have been made. Certification shall include date of final acceptance test, as well as a listing of all persons present during tests, and resulting test data. The costs of all Work performed in this Paragraph by factory-trained representatives shall be borne by the Contractor.

3.07 FAILURE OF EQUIPMENT TO PERFORM

A. Comply with Section 11000, Equipment - General.

3.08 PAINTING

A. Comply with Section 11000, Equipment - General.

B. Comply with Section 09900, Painting.

[END OF SECTION]

SECTION 11115

HORIZONTAL CENTRIFUGAL SELF-PRIMING PUMPS

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish horizontal centrifugal self-priming pumps at the locations shown on the Drawings and as specified herein. All pumps shall be supplied by the same manufacturer.

B. Equipment shall be provided in accordance with the requirements of Section 11000, Equipment - General and Section 11100, Pumps – General.

1.02 DEFINITIONS

A. The following definitions are used to clarify restart requirements.

1. Priming shall refer to the start-up at any time when the pump casing is full of water or sewage.

2. Repriming shall refer to start-up when, for whatever reason, a portion of liquid is lost from the pump casing with the resultant loss of suction head in the suction leg.

3. Static Suction Lift shall be the vertical distance, measured in feet, from the centerline of pump suction to the water surface elevation.

1.03 SUBMITTALS

A. Provide submittals identified in Section 11000, Equipment - General and Section 11100, Pumps - General in addition to the submittals identified herein.

B. Action Submittals: Submit the following:

1. Shop Drawings:

a. Fabrication, assembly, installation, and wiring diagrams.

b. Product Data:

1) Manufacturer’s literature, illustrations, specifications, paint certification (if required) and engineering data including; dimensions, materials, size, weight of pumping assembly with and without motor, and part lists for all components in sufficient detail to allow an item-by-item comparison with the Contract Documents.

2) Pump performance data and curves showing overall pump efficiencies, required net positive suction head (NPSH), allowable suction lift, flow rate, head, brake horsepower, motor horsepower, speed, and shut-off head. Curves shall range from minimum flow to shut-off head at full speed and for all speed curves specified. Curves shall indicate Preferred Operating Region (POR) and Allowable Operating Region (AOR), as defined in ANSI/HI 9.6.3.

c. Motor Data: Furnish certified motor data sheet for previously tested, electrically duplicate motor to that specified, including the following:

1) Speed-torque relationship.

2) Efficiency at 1/2, 3/4, and full load.

3) Power factor at 1/2, 3/4, and full load.

4) Slip at full load.

5) Running light, full load and locked rotor current.

6) Temperature rises and results of dielectric tests.

7) Bearing type and lubrication medium

8) Insulation class and temperature ratings.

d. Testing Plans, Procedures, and Testing Limitations:

1) Provide pump Supplier's proposed shop testing plan, including complete list of testing facility limitations.

2) Provide proposed field-testing plan.

C. Informational Submittals:

1. Manufacturer Instructions:

a. Provide Supplier's instructions for handling and installing products.

b. Setting drawings, templates, and directions for installing anchor bolts and other anchorages.

2. Source Quality Control Submittals:

a. Results of shop testing for complete pump and motor unit.

b. Location of nearest permanent service headquarters of pump manufacturer to the Site.

3. Field Quality Control Submittals:

    a. Results of field testing.

    b. Submit a written report of the results of each visit to Site by pump manufacturer's service representative, including purpose and time of visit, tasks performed, and results obtained.

1.04 CLOSEOUT SUBMITTALS

A. Submit warranty documentation in compliance with the Contract Documents.

B. Submit complete installation, operation, and maintenance manuals, including shop and field test reports, maintenance data and schedules, description of operation, and spare parts information. Operation and Maintenance (O&M) manuals shall be submitted in accordance with:

1. Section 01730, Operation and Maintenance Data.

2. Section 11000, Equipment - General.

3. Section 11100, Pumps - General.

1.05 WARRANTY

A. Warranty shall be as specified in Section 11000, Equipment - General with the exception that the warranty period shall be an extended to cover two (2) years.

1.06 OPERATING CONDITIONS AND PERFORMANCE REQUIREMENTS

A. Design criteria and performance requirements shall be as shown on the Drawings or specified elsewhere in the Contract Documents.

PART 2 – PRODUCTS

2.01 GENERAL

A. Comply with Section 11100, Pumps - General, except where superseded in this specification section.

B. Pump Type: Horizontal, non-clog, self-priming, centrifugal.

C. All equipment for the pumps, including motors and bases, shall be provided as a complete unit by the pump manufacturer.

D. All pumps for same pumping application shall be provided by one manufacturer.

E. Each pump shall be designed to retain adequate liquid in the pump casing to insure unattended, automatic repriming of the pump at its rated speed.

2.02 MANUFACTURERS

A. Pump Manufacturer:

1. Model Super T Series as manufactured by Gorman-Rupp Pumps.

2. Or approved equal.

2.03 ANCHORAGE

A. Contractor shall provide anchorage in accordance with Section 11000, Equipment - General and Section 11100, Pumps - General. Anchor quantity, spacing, size, length, and depth of embedment shall be according to manufacturer's recommendations.

2.04 MATERIALS OF CONSTRUCTION

Materials of Construction Schedule

Component	Materials of Construction
Pump Casing and Castings (Cover Plates and Seal Plate)	Cast Iron, ASTM A48, CL30
Shaft	ANSI 17-4PH stainless steel
Shaft Sleeve	Alloy Steel 4130
Wear Plate	Carbon Steel 1015, Carbon Steel 1026, or Cast Iron CL30
Flap Valve	Neoprene
Bearing Housing	Cast Iron, ASTM A48, CL30
Impeller	High chromium hard iron
Fasteners, Anchorage, and Hardware	Zinc plated steel
O-Rings and Gaskets	Nitrile (NBR) or Viton
Mechanical Seal Stationary and Rotating Members	Tungsten-Titanium Carbide Alloy

2.05 COMPONENTS

A. Casing

1. The openings and passages of the pump shall be large enough to permit the passage of a sphere of the specified diameter including any trash or stringy material.

2. The pump must be equipped with a removable suction inlet cover, allowing access to pump interior to permit the clearing of stoppages and to provide easy access for service and repairs without disturbing the suction or discharge piping.

3. Each pump shall incorporate a molded one-piece suction flap check valve that can be removed or installed through the removable cover plate opening, without disturbing the suction piping.

4. The pump casing and volute and all areas exposed to sewage shall contain no openings of a lesser diameter than the sphere size specified.

5. Screens or any internal devices that interfere with priming and performance of the pump will not be permitted.

6. An easily accessible tapped drain plug, minimum of 1 inch, shall be provided in the bottom of the casing to facilitate draining the pumps for maintenance purposes. The bearing cavity and the seal cavity shall have individual oil level sight gauges to monitor the level and condition of cavity oil.

B. Impeller

1. The impellers and wear plates shall have a minimum Brinell hardness of 360. Foundry certificates and results of Brinell hardness testing shall be submitted. Each individual impeller and wear plate casting shall be Brinell Tested to ASTM method E-10, reflecting a minimum 360 Brinell hardness.

2. Each casting shall be checked in a minimum of two places, in an area that is representative of casting thickness. Results of the Brinell test shall be certified by a Registered Professional Engineer and submitted for approval before final shipment.

C. The impeller shall be two-vaned, semi-open, non-clog, with integral pump out vanes on the back shroud.

D. The impeller shall thread onto the pump shaft and be secured with a sockethead self-locking capscrew and conical washer.

E. Means shall be provided for external adjustment of the clearance between the impeller and wear plate without requiring disassembly of the pump. Clearances shall be maintained by a four-point external shimless cover plate adjustment system, which utilizes a four collar and four adjusting screw design allowing for incremental adjustment of clearances by hand as required.

2.06 WEAR PLATE

A. The pump shall be fitted with a replaceable wear plate. Replacement of the wear plate, impeller, and seal shall be accomplished through the removable suction inlet cover without disturbing the pump volute or piping.

B. The entire rotating assembly, which includes bearings, shaft, seal, and impeller, shall be removable as a unit from the pump casing without disturbing the pump volute or piping. Openings into pump shall provide a line of sight for the adjustment of clearance for the wear plate and impeller.

C. The impeller shall be removable from both the front and rear of the pump casing without disturbing the pump volute or casing.

2.07 SHAFT AND BEARINGS

A. Pump shaft connections to drives shall be connected through a flexible coupling.

B. The shaft shall be contained within a bearing pedestal of ample size to contain roller-type radial and thrust ball bearings.

C. The bearings shall be oil lubricated. The bearing cavity shall be cooled by the pumped liquid.

2.08 MECHANICAL SEAL

A. The pump shaft shall be sealed against leakage by a dynamically balanced mechanical seal.

B. Both the stationary sealing member and mated rotating member's surfaces must be ground and polished.

C. The stationary seal seat must be double floating and self-aligning during periods of shock loads that will cause deflection, vibration, and axial or radial movement of the pumps shaft.

D. The seal shall be installed within a separate oil-filled reservoir of the pump pedestal, the oil being both the lubricating and the cooling media.

E. Drain plug opening shall be provided to check oil for contamination in case of inner seal failure.

2.09 ACCESSORIES

A. Drain Kit

1. Each pumping unit shall be supplied with a drain kit for ease of maintenance. The kit shall contain a minimum of 10 feet of reinforced plastic hose with a female quick connect fitting at one end and factory installed drain fittings in each pump. Fittings shall include a pipe nipple, bushing, bronze ball valve and male quick connect fitting.

B. Automatic Air Release Valves

1. An automatic air release valve shall be furnished for each pump. Valves shall be designed to permit the escape of air to the atmosphere during initial priming or unattended re-priming cycles. Upon completion of the priming cycle or re-priming cycle, the valve shall close to prevent re-circulation. Valves shall provide visual indication of valve closure, and shall operate solely on discharge pressure. Valves, which require connection to the suction line, shall not be acceptable.

2. All valve parts exposed to sewage shall be constructed of stainless steel, or similar corrosion resistant materials. Diaphragms, if used, shall be of fabric-reinforced neoprene or similar inert material.

3. A cleanout port, three inches in diameter, shall be provided for ease of inspection, cleanout, and service.

4. Valves shall be field adjustable for varying discharge heads.

2.10 ELECTRICAL AND CONTROL REQUIREMENTS

A. Comply with Specification Section 11100, Pumps - General.

B. Motor power requirements shall be as indicated on the Drawings.

C. The pump motor shall be designed for operation with the voltage, frequency and phase electrical characteristics indicated in the Contract Documents. Motors shall be mounted on each pump and shall conform to the latest applicable NEMA, IEEE, and ANSI standards. The motors shall be rated for continuous duty with a minimum service factor as required by schedules herein.

D. Motors shall be provided with anti-condensation space heaters, motor winding temperature switches, and tropicalized windings unless otherwise specified.

2.11 CONTROLS

A. Refer to individual specifications and the Drawings.

2.12 SPARE PARTS

A. Spare parts shall be provided in accordance with Section 11000, Equipment - General and shall include the following for each pump.

Spare Parts Schedule

Component	Quantity
Complete mechanical shaft seal	1
Sets of gaskets and O ring seals	2

Component	Quantity
Replaceable wear plate	1

2.13 PAINT

A. Entire pump/motor assembly shall be shop finish coated with manufacturer's standard coating system. This paint system shall be appropriate for the application and shall provide corrosion and chemical protection.

2.14 EQUIPMENT IDENTIFICATION

A. Equipment nameplates shall comply with Section 11100, Pumps - General.

PART 3 – EXECUTION

3.01 SHOP TESTING

A. Shop testing shall be in accordance with Section 11000, Equipment - General Provisions and with the following additional requirements.

B. Hydrostatic Test

C. Performance Test

D. Impeller Hardness Test

E. Certified Reprime Test

1. The Contractor shall furnish a certified reprime test for a minimum of one pump for each pump model submitted. Each pump shall be capable of the reprime lift as listed below. Reprime lift shall be defined as the static height of the pump suction centerline above the liquid level that will prime utilizing the liquid remaining within the pump casing after a pumping cycle with the suction check valve removed. The reprime cycle, pump on to liquid discharge, shall be accomplished within five minutes, maximum.

2. Additional requirements are as follows:

    a. A ten-foot length of one-inch pipe shall be installed between the pump and the first bend of the discharge piping. This line shall be open to atmosphere to duplicate the action of an air release valve.

    b. Suction pipe configuration for the reprime test shall incorporate a minimum horizontal run of 2 feet and one 90 degree bend.

c. The impeller shall be set at the clearances recommended by the pump manufacturer.

d. Reprime lift repeatability shall be demonstrated by a minimum of five (5) sequential reprime cycles.

e. Liquid to be used in the reprime testing shall be water, free of debris.

3. Reprime performance test data shall be certified by the pump manufacturer and shall be submitted to the Engineer for approval prior to shipment.

3.02 SHIPMENT, DELIVERY, HANDLING AND STORAGE

A. Shipment, delivery, and handling of equipment and materials shall be in accordance with manufacturer's written instructions.

3.03 INSTALLATION

A. Install pump in strict accordance with manufacturer's recommendations and Section 11100, Pumps - General.

3.04 FIELD TESTING

A. Field testing shall be in accordance with Section 11000, Equipment – General and Section 11100, Pumps - General, and shall include:

Field Testing Schedule

Test	Requirement
Field Performance Testing	Yes
Vibration Testing	Yes
Natural Frequency "Bump" Test	Yes
Field Reprime Test	Yes

B. Field Reprime Test

1. Each pump shall be given a reprime test in the field. Each pump shall be tested three times, and the elapsed time required to achieve reprime shall be recorded for each test. The average time of the three tests shall be used. This average time must be less than or equal to the specified times. No external devices or vacuum assist units shall be used during reprime tests.

2. The test shall be conducted as follows:

a. Fill pump casing full of water.

b. Drain suction pipe.

c. Drain liquid level in pump casing to the cutwater tip.

d. Record time from instant starter energizes until pump comes to full prime and is pumping at full rated capacity against the specified head. Suction and discharge gauges shall be attached to the pump during the test to confirm when full prime is reached.

e. The reprime test shall also be readministered as above, but rather than drain the pump casing to the cutwater tip, the suction check valve shall be removed and the pump brought to prime. Once the pump is pumping at its fully rated capacity the pump shall be shut off. The air valve on the discharge piping shall be opened to assist in draining of the suction leg. The suction leg will drain and a natural siphonage shall occur from the pump casing. The time required for each pump to reprime under this condition shall be recorded. The average time of three tests shall be used.

3. Should the proposed equipment fail to meet the specified performance criteria or fail to reprime within the specified time, the equipment will be rejected. The pump manufacturer shall have seven (7) days to correct any deficiencies prior to a retest. The retest shall be identical to the first test. Should equipment fail to perform as specified during the retest, the Engineer shall direct the equipment be removed from the jobsite and an equipment offering which will perform as specified shall be provided.

3.05 MANUFACTURER'S FIELD SERVICES

A. The services of a qualified manufacturer's technical representative shall be provided in accordance with Section 11000, Equipment - General. Field services shall include the following site visits:

Service	Number of Trips	Number of Days/Trip
Installation and Testing	1	1
Startup and Training	1	1
Services after Startup	1	1

[END OF SECTION]

SECTION 11130

SUBMERSIBLE SOLIDS-HANDLING PUMPS

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish, install, and place into satisfactory operation submersible, non-clog, solids-handling, end suction centrifugal pumps at the locations shown on the Drawings and as specified herein. All pumps specified herein shall be supplied by the same manufacturer.

B. Equipment shall be provided in accordance with the requirements of Section 11100, Pumps - General.

C. The pump and all related equipment shall be designed for the wastewater applications specified herein and shall be suitable for continuous or intermittent operation. The pump shall be bottom suction, side discharge construction and shall be supplied with a discharge connection elbow and integral sliding rail removal system of the pump manufacturer's design matched to the pumps being supplied.

1.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Comply with Section 11000, Equipment - General.

B. Comply with Section 11100, Pumps - General.

1.03 ACTION/INFORMATIONAL SUBMITTALS

A. Provide submittals identified in Section 11000, Equipment - General and Section 11100, Pumps - General in addition to the submittals identified herein.

B. Action Submittals: Submit the following:

1. Shop Drawings:

    a. Fabrication, assembly, installation, and wiring diagrams.

    b. Product Data:

        1) Manufacturer’s literature, illustrations, specifications, paint certification (if required) and engineering data including; dimensions, materials, size, weight of pumping assembly, and part lists for all components in sufficient detail to allow an item-by-item comparison with the Contract Documents.

2) Pump performance data and curves showing overall pump efficiencies, required net positive suction head (NPSH), flow rate, head, brake horsepower, motor horsepower, speed, and shut-off head. Curves shall range from minimum flow to shut-off head at full speed and for all speed curves specified. Curves shall indicate Best Efficiency Point (BEP), Preferred Operating Region (POR), and Allowable Operating Region (AOR), as defined in ANSI/HI 9.6.3.

3) Minimum pump submergence.

c. Motor Data: Furnish certified motor data sheet for previously tested, electrically duplicate motor to that specified, including the following:

1) Speed-torque relationship.

2) Efficiency at 1/2, 3/4, and full load.

3) Power factor at 1/2, 3/4, and full load.

4) Slip at full load.

5) Running light, full load and locked rotor current.

6) Temperature rises and results of dielectric tests.

7) Bearing type and lubrication medium

8) Insulation class and temperature ratings.

d. Testing Plans, Procedures, and Testing Limitations:

1) Provide pump Supplier’s proposed shop testing plan, including complete list of testing facility limitations.

2) Provide proposed field-testing plan.

C. Informational Submittals:

1. Manufacturer Instructions:

a. Provide Supplier’s instructions for handling and installing products.

b. Setting drawings, templates, and directions for installing anchor bolts and other anchorages.

2. Source Quality Control Submittals:

a. Results of shop testing.

b. Location of nearest permanent service headquarters of pump manufacturer to the Site.

3. Field Quality Control Submittals:

a. Results of field testing.

b. Submit a written report of the results of each visit to Site by pump manufacturer's service representative, including purpose and time of visit, tasks performed, and results obtained.

1.04 CLOSEOUT SUBMITTALS

A. Submit warranty documentation in compliance with the Contract Documents.

B. Submit complete installation, operation, and maintenance manuals, including shop and field test reports, maintenance data and schedules, description of operation, and spare parts information. Operation and Maintenance (O&M) manuals shall be submitted in accordance with:

1. Section 01730, Operation and Maintenance Data.

2. Section 11000, Equipment - General.

3. Section 11100, Pumps - General.

1.05 WARRANTY

A. Warranty shall be as specified in Section 11000, Equipment - General with the exception that the warranty period shall be an extended to cover two (2) years.

1.06 OPERATING CONDITIONS AND PERFORMANCE REQUIREMENTS

A. Design criteria and performance requirements shall be as shown on the Drawings or specified elsewhere in the Contract Documents.

PART 2 – PRODUCTS

2.01 GENERAL

A. Comply with Section 11100, Pumps - General, except where superseded in this specification section.

B. Pump Type: Non-clog, submersible, centrifugal pump.

C. All equipment for the pumps, including motors and bases, shall be provided as a complete unit by the pump manufacturer.

D. All pumps for same pumping application shall be provided by one manufacturer.

2.02 MANUFACTURERS

A. Pump Manufacturer:

1. Xylem/Flygt N3000 series.

2. No equal.

2.03 ANCHORAGE

A. Contractor shall provide anchorage in accordance with Section 11000, Equipment - General and Section 11100, Pumps - General. Anchor quantity, spacing, size, length, and depth of embedment shall be according to manufacturer's recommendations.

2.04 MATERIALS OF CONSTRUCTION

Materials of Construction Schedule

Component	Materials of Construction
Pump Housing and Castings	Cast Iron, ASTM A48, CL35B
Shaft	AISI 400 Series Stainless Steel
Impeller and Insert Ring	A532 Class III Type A (25% Chromium) hard iron alloy (Ni-hard)
Fasteners, Anchorage, and Hardware	AISI Type 316L SS
O-Rings	Nitrile (NBR)
Foot mounted discharge connection elbow	Cast Iron, ASTM A48, CL35B or Ductile Iron ASTM A536
Guide Rails and Brackets	Sch. 40 Type 316 Stainless Steel

2.05 COMPONENTS

A. Impeller

1. Impeller Type: One-piece, single-suction, non-clogging, multiple-vane, solids-handling, mixed flow type.

2. The impeller blades shall be self-cleaning upon each rotation as they pass across a sharp relief groove in the Insert ring and shall keep the impeller blades clear of debris. The clearance between the insert ring and the impeller leading edges shall be adjustable.

3. Impeller Construction:

a. Solids Passage:

1) Shall be designed with smooth flow passages to pass a spherical solid of the specified size and to prevent clogging by stringy materials.

2) Impeller shall handle: solids of the specified sphere size, fibrous materials, heavy sludge, and other matter found in normal wastewater applications.

b. The impeller shall be bolted, keyed and locked to the pump shaft at the factory. Adhesive or friction type fits are not acceptable.

4. Impeller Balancing: Dynamically balanced.

B. Casing/Volute

1. Casing/Volute Type:

a. End suction, side discharge construction type having sufficient strength and thickness to withstand all stress and strain from service at full operating pressure and load.

2. Casing/Volute Construction:

a. The volute shall be single piece construction.

b. Pump casing shall be designed with a pullout assembly so that the impeller can be withdrawn. The complete rotating assembly shall be capable of being removed from the volute without disturbing the suction piping, discharge piping, or volute.

c. Casing shall be equipped with removable suction cover which can be removed for access to the impeller.

d. All non-stainless steel metal surfaces coming in contact with the pumped media shall be protected by a factory applied protective coating.

e. Pump shall not bear on wet well floor when pump to base elbow connection is engaged.

3. Solids Passage:

a. Passages shall have smooth unobstructed passages for solids. Volute shall have smooth fluid passages large enough at all points to pass any size solids which can pass through the impeller.

b. Passage Size: Large enough to pass a 3-inch spherical solid.

c. Cleanouts:

1) Pump volute shall be provided with a cleanout port to allow for removal of any foreign material blocking or impeding performance of the pump.

2) Provide cleanout handhole near cutwater.

3) Cleanout cover shall be removable.

4) The inner contours of the handhole cover shall match the contours of the casing in which it fits.

d. Flanges: Integrally cast ANSI Standard flat faced flange with 125-lb drilling.

4. Lifting: Casing/Volute shall be provided with lifting bolts and eye lugs for installation and maintenance of the pumps.

C. Shaft

1. Diameter: Shall be sufficiently large in diameter to safely transmit the maximum torque developed by the drive unit and of such design as to provide a rigid support for the impeller and to prevent excessive vibration.

2. Construction: The shaft shall be heat treated, turned, ground, and polished over its entire length.

D. Bearing Housing & Bearings

1. Type: Permanently lubricated, heavy-duty, upper radial and lower thrust anti-friction ball or tapered roller bearings.

2. Minimum AFBMA L-10 Bearing Life (at all points along the usable portion of the pump curve at maximum pump speed) shall be 50,000 hours

3. Construction:

a. Bearing housing shall fully enclose the bearings to prevent entrance of contaminants and shall be designed to provide for axial adjustment of rotating assembly.

b. Bearing housing shall be designed with a machined self-centering fit with the stuffing box cover.

c. Bearing Lubrication: Bearings shall be permanently lubricated.

E. Sealing of Mating Surfaces:

1. All mating surfaces where watertight sealing is required shall be machined and fitted with O-rings.

2. Fitting shall be such that sealing is accomplished by metal-to-metal contact between machined surfaces. This will result in controlled compression of the O-rings without the requirement of a specific torque limit.

3. Secondary sealing compounds, rectangular gaskets, elliptical O-rings, grease or other devices shall not be acceptable.

F. Discharge Base Elbow and Lifting System:

1. Provide permanently installed slide rail mounting systems for each pump as shown on the Drawings and as specified herein.

2. Slide rail system shall facilitate pump removal from the wet pit for inspection or service without entering the pit or disconnecting piping.

3. The pump shall be provided with a base discharge connection elbow permanently installed in the wet well along with the discharge piping.

4. The discharge connection elbow shall be constructed with a 125 lb. ANSI standard flat faced flange.

5. The base discharge connection elbow shall be mounted either directly to the concrete or onto a baseplate as indicated on the Drawings.

6. The pump shall be automatically connected to the discharge connection elbow when lowered into place and shall be easily removed for inspection or service. Sealing of the pumping unit to the discharge connection elbow shall be accomplished by a simple downward motion of the pump.

7. A sliding guide bracket shall be an integral part of the pump unit. The entire weight of the pump unit shall be guided by the guide bar(s) and pressed tightly against the discharge connection elbow to provide positive sealing under all conditions.

8. The entire sliding rail system shall be designed to safely withstand all stresses imposed thereon by vibration, torque, shock and all possible direct and eccentric loads. No portion of the pump shall bear directly on the floor of the sump.

9. Lower guide bar holders shall be integral with the discharge connection. Guide bars shall be at a minimum Schedule 40, 316 stainless steel pipe of a conservative size that is at least one diameter oversized and adequate for its intended use. The guide bars shall not support any portion of the weight of the pump.

10. Provide upper and intermediate guide brackets, as required and where indicated on the Drawings.

11. All metal-to-metal interfaces where movement might occur shall be non-sparking. The slide mounting system for the influent pumps shall meet or exceed

Underwriters Laboratory requirements for operation in a Class I, Division 1, Group D hazardous location.

2.06 STRUCTURAL STEEL

A. Comply with Section 11100, Pumps - General.

2.07 DISSIMILAR METALS

A. Comply with Section 11100, Pumps - General.

2.08 SHAFT SEALS

A. Shaft Seals: Shaft sealing shall be accomplished by the following method as identified in the schedule below.

1. Mechanical seals shall run in an oil-filled chamber to provide constant lubrication. The lubricant chamber shall be designed to prevent overfilling and to provide lubricant expansion capacity. The drain and inspection plug, with positive anti-leak seal shall be easily accessible from the outside. The seal system shall not rely upon the pumped media for lubrication.

2. The lower, primary seal unit, located between the pump and the lubricant chamber shall contain one stationary and one positively driven rotating, industrial duty, corrosion resistant, seal rings. The lower seal shall be independent of the impeller hub.

3. The upper, secondary seal unit, located between the lubricant chamber and the motor housing, chamber shall contain one stationary and one positively driven rotating, industrial duty, corrosion resistant, seal rings.

4. Each seal interface shall be held in contact by its own spring system. The seals shall require neither maintenance nor adjustment and shall be capable of operating in either clockwise or counter-clockwise direction of rotation without damage or loss of seal. The seal system shall not be damaged when run dry. No external source of seal cooling or lubrication water shall be required.

5. The following seal types shall not be considered acceptable nor equal to the dual independent seal specified: shaft seals without positively driven rotating members, or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces. Cartridge type systems will not be acceptable. No system requiring a pressure differential to offset pressure and to effect sealing shall be used.

B. Shaft Seal

Shaft Seal Schedule

Parameter	Value
Shaft Sealing Arrangement	Tandem Mechanical Component Seal
Seal Flush Source / API Flush Plan	None
Lower Seal Unit – Seal Face Material	Tungsten Carbide
Upper Seal Unit - Seal Face Material	Tungsten Carbide
Metallic Components	316 Stainless Steel
Flexible Components	Nitrile

2.09 ACCESSORIES

A. All anchor bolts, lifting bolts, eye lugs, etc. necessary for complete installation and maintenance of the pump shall be constructed of Type 316 stainless steel and shall be adequately designed for its intended use.

B. Lifting Bail

1. Provide a type 316 stainless steel pump lifting bail for each pump.

2.10 ELECTRICAL REQUIREMENTS

A. Comply with Specification Section 11100, Pumps - General.

B. The stator, rotor and bearings shall be mounted in a sealed submersible type housing.

C. Motor shall be provided with motor winding temperature sensors.

D. The pump and motor shall be specifically designed so that they may be operated partially or completely submerged in the liquid being pumped. The pump shall not require cooling water jackets.

E. Stators shall be securely held in place via a heat shrink fit.

F. Electrical service and motor power requirements shall be as indicated on the Drawings. Electrical service options include 460V/3 ph/60 Hz, 230V/3ph/60 Hz, and 230V/1 ph/60 Hz. Provide VFD as required to convert single phase power to three phase.

G. The pump motor shall be designed for operation with the voltage, frequency and phase electrical characteristics indicated on the Drawings and specified herein. Motors shall be mounted on each pump and shall conform to the latest applicable NEMA, IEEE, and ANSI standards for submersible service. The motors shall be rated for continuous duty with a minimum service factor as required by schedules herein.

H. Type: Squirrel-cage induction, housed in a watertight chamber.

I. The stator winding and stator leads shall be moisture resistant.

J. Motor Insulation: Motor insulation shall be as scheduled herein.

K. The use of bolts, pins, or other fastening devices requiring penetration of the stator housing shall not be allowed.

L. Starts Per Hour: The motor shall be guaranteed for continuous unsubmerged duty, capable of sustaining a minimum scheduled starts per hour without overheating.

M. Motor Bearings: The motor shall be provided with pre lubricated radial and thrust bearings which are designed to carry the entire load which may be imposed upon it under all operating conditions.

N. All motors shall be housed in enclosures specifically designed for submersible pump application.

Motor Criteria Schedule

Parameter	Value
Enclosure	TEXP
Insulation	Class H
Design	NEMA B
Minimum Service Factor	1.15
Motor Winding Temperature Protection	Temperature Switches
Rated Starts Per Hour, Minimum	15

O. Cable Entry Water Seal:

1. The cable entry water seal design shall insure a watertight and submersible seal without specific torque requirements.

2. Each pump shall be equipped with separate terminal board that totally isolates the incoming power supply from the pump motor.

2.11 PROTECTIVE DEVICES

A. Pump shall be supplied with a moisture/seal fail and over-temperature protective relay device. Device shall be provided to panel fabricator loose for installation within the pump control panel.

2.12 PUMP CABLE:

A. Cable Length:

1. Power and control cables between the pumps and the control panel shall be provided by the pump manufacturer. The Contractor, in coordination with the pump manufacturer, shall determine the required cable length. Provide sufficient spool to accommodate pump removal.

2. All pumps for the same application shall be provided with the same length of cable.

3. No splices shall be allowed unless specifically called for in the electrical drawings.

B. Pump Cable Materials: PVC or oil resistant chloroprene rubber jacketed type SPC cable suitable for submersible pump applications.

C. Sizing:

1. In Accordance with NEC and ICEA standards.

2. Cables shall be UL approved.

D. PVC strain relief connectors shall be furnished for all cables.

2.13 CONTROLS

A. Refer to individual specifications and the Drawings.

2.14 SPARE PARTS

A. Spare parts shall be provided in accordance with Section 11000, Equipment - General and shall include the following for each series of pumps.

Spare Parts Schedule

Component	Quantity
Sets of gaskets and O ring seals	2

2.15 PAINT

A. Entire pump/motor assembly, including the base elbow connection, shall be shop finish coated with manufacturer's standard coating system. This paint system shall be appropriate for a raw wastewater application and shall provide corrosion and chemical protection.

2.16 EQUIPMENT IDENTIFICATION

A. Equipment nameplates shall comply with Section 11100, Pumps - General.

PART 3 – EXECUTION

3.01 SHOP TESTING

A. Factory testing will not be required. However, the pump manufacturer shall guarantee performance under the rated operating condition.

1. Impeller, motor rating and electrical connections shall be checked.

3.02 SHIPMENT, DELIVERY, HANDLING AND STORAGE

A. Shipment, delivery, and handling of equipment and materials shall be in accordance with manufacturer's written instructions.

3.03 MANUFACTURER'S FIELD SERVICES

A. The services of a qualified manufacturer's technical representative shall be provided in accordance with Section 11100, Pumps - General. Field services shall include the following site visits, as a minimum:

Site Visits Schedule

Service	Number of Trips	Number of Days/Trip
Installation and Testing	1	1
Startup and Training	1	1
Services after Startup	1	1

3.04 INSTALLATION

A. Install pump in strict accordance with manufacturer's recommendations and Section 11100, Pumps - General.

3.05 FIELD TESTING

A. Field testing shall be in accordance with Section 11100, Pumps - General, and shall include:

Field Testing Schedule

Test	Requirement
Field Performance Testing	Yes
Vibration Testing	No
Natural Frequency “Bump” Test	No

[END OF SECTION]

SECTION 11170

LIQUID CHEMICAL METERING PUMP SKID

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Contractor shall furnish and install chemical metering pumps at the locations shown on the Drawings and as specified herein. All pumps shall be supplied by the same manufacturer.

B. Equipment shall be provided in accordance with the requirements of Section 11000, Equipment - General and Section 11100, Pumps - General.

1.02 OPERATING CONDITIONS AND PERFORMANCE REQUIREMENTS

A. Chemical Properties

1. Pumps and components shall be constructed of materials compatible with the specific chemical's physical properties.

B. Pump Performance Requirements

1. Design criteria and performance requirements shall be as specified under the individual specifications or shown on the Drawings.

2. Application points shall be as indicated on the Drawings.

1.03 SUBMITTALS

A. The following items shall be submitted with the Shop Drawings in accordance with, or in addition to the submittal requirements of the Contract Documents; and Section 11000, Equipment - General:

1. Performance Affidavit.

2. Submit pump manufacturer's hydraulic calculations.

3. Shop drawings shall include all pumps and accessories and shall be submitted as a complete system. Partial submittals will be unacceptable.

4. Certification of factory testing.

5. Certification of final acceptance testing.

B. Warranty

1. Provided extended warranty period of two (2) years.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. The Manufacturer shall be a company specializing in manufacture, assembly, and field performance of mechanical metering pumps with a minimum of five years of experience.

B. The metering pumps shall be:

1. Sigma Series pumps as manufactured by Prominent Fluid Controls, Inc.

2. Equivalent by Wallace and Tiernan.

3. Equivalent by Pulsafeeder.

4. Or approved equal.

2.02 MECHANICALLY OPERATED METERING PUMPS

A. Motor operated chemical metering pumps shall be of the positive displacement, mechanical diaphragm type. The stroke frequency adjust mechanism, driven by a direct coupled, variable speed motor, shall actuate a convex-shaped, teflon-faced composite diaphragm. Solenoid driven pumps will not be accepted.

B. The manufacturer is responsible for the coordination of corrosion resistant materials for the chemical solution(s) specified. The manufacturer shall include all features as necessary for satisfactory operation of the pumping systems for chemical solutions specified. Pumps shall perform satisfactorily over the full range of solution concentrations specified. Pumps, motors and accessories shall be constructed of appropriately resistant material for the ~~coated with a heavy-duty protective epoxy coating resistant to the~~ specified chemical to prevent corrosion.

C. The metering pumps shall be provided with an oil-lubricated gear reducer and cam-and-spring drive mounted in an aluminum housing. The housing shall be sealed into an outer plastic housing for corrosion protection with heat sink fins for cooling.

D. The liquid ends shall include ~~cartridge-type~~union or threaded type ball check valves. ~~Conventional threaded valves will not be allowed.~~ Valve service or removal shall not require any disturbances to the pump head pipeworks.

E. The liquid end shall be physically separated from the drive unit by a back plate with weep hole creating an air gap. An elastomer shaft wiper seal shall prevent contamination of the gear box if the primary diaphragm fails.

~~F. The pump and motor shall be mounted on a common concrete base as indicated on the Drawings. The motor shall be direct coupled to the gear box.~~

~~G.~~F. Each pump and motor shall have a corrosion resistant nameplate giving the manufacturer's model, serial number, rating, range, speed, and other pertinent data.

~~H.~~G. Acceptable materials of construction shall be as follows, provided that each is chemically compatible. Lower quality materials of construction will not be accepted. More robust materials of construction shall be provided as required to provide excellent resistance to the specific chemical.

Component	Material of Construction
Diaphragm	PTFE faced EPDM with Steel Core
Housing Material	Glass-filled Luranyl
Liquid End Material	Kynar
Ball Check Valve	PVDF with PTFE ~~faced Viton Gasket~~ Seals
Ball Check Valve Balls	Ceramic
O-Ring Seals	Teflon (PCTFE), Viton
Hardware	Hastelloy C

2.03 ELECTRICAL AND CONTROLS REQUIREMENTS

A. Metering pump controls shall be microprocessor-based and shall be capable of remote analog operation. The pump shall accept a remote analog signal such that stroke frequency is proportional to a 4-20 mA signal. A dry contact closure to the “pause” control function shall cause pump to halt operation and illuminate an indicator light on the pump control panel, in either manual or external pacing mode. The pump shall allow setting of a maximum stroke rate which corresponds to the maximum analog signal. Analog-to-digital converters external to the pump shall not be allowed. Local operator controls on the pump shall include stroke length control knob, stroke frequency control knob stroke frequency control up/down keys, program selection key, start/stop key, an LCD display, and indicating lights for fault annunciation. In addition to the analog control capability an SPDT relay output shall be provided for fault indication such as power supply failure, or loss of pacing signal.

B. Local adjustments and settings of the stroke length and stroke frequency shall be achieved when the metering pump control is put in “manual” operation. Feed rate shall be controlled manually via a stroke length control adjuster. A percent scale and vernier shall indicate stroke length in 1% increments. Feed rate shall be infinitely adjustable from 0 through 100%. Repeatable metering accuracy shall be ± 2% of full scale, at constant hydraulic conditions, over the operating range.

C. Suction and discharge stroke length and duration shall be adjustable to optimize dosing application of required chemical.

~~C.~~D. The electronic control system of the metering pump shall be continuously self-monitoring. In the event of a system error in the microprocessor, the pump shall switch off and an alarm shall be annunciated.

2.04 METERING PUMP SKID

A. Each pump shall have the ability to function as an isolated pump (i.e., independent of piping and operation of the other pump mounted on the skid assembly). Selection for use of backup pump shall require manual manipulation of valves and controls at the skid.

B. The chemical feed skid system shall be assembled by the metering pump manufacturer. The chemical feed skid system shall be completely assembled, mounted, calibrated, tested, and delivered to the site on a single skid. Skid assembly shall contain chemical metering pumps, all necessary piping, valves, fittings, supports, electrical controls, and accessories as specified herein. The metering pump skid shall contain the following items:

1. Skid
2. Metering pumps and motors
3. Calibration columns
4. Pulsation dampeners
5. Pressure gauges with diaphragm seals
6. Isolation valves
7. Pressure relief valves
8. Backpressure valve
9. Wye strainer(s)
10. Skid mounted controls
11. All piping, valves, gaskets, supports, hardware, wiring, junction boxes, and accessories necessary for a fully functioning skid. Piping shall be terminated within 2 inches from the edge of skid. Provide flanges at all piping connections leaving the skid for any pipes > 1/2” and unions for any pipes ≤ 1/2”. Electrical cables to the skid shall terminate in the skid-mounted control panel.

C. All components of the chemical metering system shall be contained within the skid. Skids shall be floor mounted units with bottom, back, and sides of the skid frame constructed from black UV-protected, fusion-welded, high-density polyethylene of a minimum thickness suitable to rigidly support the weight of the equipment and the

chemical metered without warping or bending of any kind. Bolted construction for the frame is not acceptable.

D. The ~~top and~~ front of the skid shall be constructed of clear plastic material provided as a spray shield. F~~Top shall be removeable and f~~ront shall be provided with hinged doors for full access to the skid interior with all piping and equipment able to be easily serviced with the doors open and/or top removed. All fasteners and hardware shall be non-metallic and of suitable strength and thickness to be of solid, rigid construction.

E. Pedestals shall be provided to elevate the metering pumps above the skid base and all piping and components shall be supported to prevent them from resting on the skid deck. The skid shall incorporate a drip lip with two (2) 1/2" NPT connections for containment drain piping. Skid shall be constructed with forklift truck cut-outs and anchor bolt holes for installation. Skid shall be suitable for outdoor installations.

F. ~~The wetted end of each pump shall be oriented at the open end of the framework for easy access.~~ All pumps shall be arranged with the ~~pump wet end~~ operator interface and stroke length adjustment facing the open end of the feed system. ~~Where~~ L~~l~~ocal control panels sha~~wi~~ll be located on the skid~~, all panels shall be~~ and mounted on the side ~~so that the control interface faces the top or front open end~~ of the skid.

G. All components of the skid mounted system (pumps, piping and controls) shall be factory pressure tested with water prior to shipment. Certification of factory testing shall be submitted to the Engineer and included in the Operations and Maintenance Manuals.

H. All metering pump accessories shall have pressure ratings equal to or greater than the discharge pressure of the associated metering pumps.

I. All wiring within the skid boundaries shall be performed by the chemical feed system fabricator prior to shipping and shall terminate at the skid-mounted control panel.

2.05 METERING PUMP ACCESSORIES

A. The metering pump supplier shall furnish accessory equipment as specified herein and as shown on the Drawings including but not limited to the following:

1. Pressure Gauges

a. Gauges shall be provided on the discharge of metering pump skid and on each pulsation dampener.

b. Gauges shall be PVC housing, nominally 2.5” in diameter.

c. Each gauge shall have a pressure range, in psi, suitable to allow the normal pumping pressure to be near the mid-span of the range.

d. Each gauge shall be provided with a diaphragm seal constructed of materials which are completely resistant to corrosion by the by the pumped chemical.

e. Each pressure gauge shall also be provided with an isolation valve. Isolation valves shall be PVC with seals that are resistant to the chemical applications.

B. Pressure Relief Valves

1. Sizing of the valves shall be the responsibility of the manufacturer.

2. Pressure relief valves shall be provided in the discharge piping of each metering pump, prior to any valves, to eliminate the buildup of excess pressure in the system. Valves shall be completely resistant to the chemicals for which they are provided.

3. The pressure relief valves shall be fully adjustable.

4. Relief vents shall be piped to the suction side of the associated pump.

C. Antisiphon/Back-pressure Valves

1. Sizing of the valves shall be the responsibility of the manufacturer.

2. Back pressure/anti-siphon valves shall be provided in the discharge pipes of the skid to provide constant back pressure at the chemical metering pump discharge and eliminate siphoning.

3. Valves shall be completely resistant to the chemicals for which they are provided.

4. The back pressure valve shall be fully adjustable.

D. Pulsation Dampeners

1. Diaphragm and body materials and configuration shall be supplied for the specific chemical for which the dampener is used without corrosion, wear, or other cause of abnormally short life.

2. Each dampener shall be equipped with a charging valve and gas pad pressure gauge.

3. Pulsation dampeners shall be sized appropriately for each pump to remove a minimum of 95% of the pulsations. Sizing of the pulsation dampeners shall be the responsibility of the manufacturer, and calculations shall be submitted with Shop Drawings.

4. Pulsation dampeners shall be of the single diaphragm design, capable of arresting water hammer in the pump discharge lines created by the metering pumps.

5. Pulsation dampeners shall be provided with valves, gauges and fittings necessary for maintaining required air pressure in the air chamber.

6. Materials of construction of diaphragm shall be EPDM and body shall be PVC. All materials shall be corrosion resistant to the chemical fluid pumped.

7. Provide one dampener on the discharge side of each metering pump, located 12" or closer to the pump discharge.

8. Each pulsation dampener shall include an integral pressure gauge.

9. Provide each pulsation dampener with an isolation valve.

E. Calibration Column

1. Calibration columns shall be constructed of transparent PVC and shall be provided with threaded ends. Each calibration column shall be sized such that at 50% pump capacity, the calibration column will be emptied in 60 to 90 seconds.

2. Graduations shall be in mL and gallons. The scale shall also include direct readings in GPH to circumvent the need for calculations.

3. The calibration chamber shall be piped and valved so that each pump shall be able to utilize the calibration chamber without interfering with the operation of the other pump. The top of the chamber shall be piped to a common vent on the skid.

F. Piping, Tubing, Valves, and Appurtenances

1. Provide hard piping on the suction and discharge of each metering pump. Materials of construction shall be completely compatible with the specified chemical.

~~2. Provide flexible piping connection and quick connects or unions with flanges between fixed piping and suction and discharge of the pump in order to allow removal of the pump without disturbing the suction or discharge piping. Flexible tubing shall be as follows:~~

~~a. If chemically compatible, provide Class 125 Nexbraid clear braided PVC tubing by Nexgen Hose, Inc. or approved equal.~~

~~b. If PVC tubing is not chemically compatible, provide Teflon hose with Hastelloy C overbraid protection and permanently attached Hastelloy C true union end fittings as manufactured by Resistoflex Company, Marion, NC, or approved equal.~~

~~3.~~2. Isolation valves shall be provided at all equipment connections. Seals shall be compatible with the chemical being pumped. Isolation valves shall be true-union ball valves.

~~4.~~3. Feed system piping shall include an air bleed/flush connection on the suction and discharge of each pump. The bleed/flush connections should be located on the interior of the pump isolation valves to allow for all lines to be purged of air and to allow the pump to be flushed prior to maintenance being performed.

~~5.~~4. All piping and accessory support shall be from the skid base or rear panel. Piping and accessory support from above is not acceptable.

~~6.~~5. All piping and accessories shall be securely fastened to the frame or supported with stand-offs. The use of steel or metal bands or strapping shall not be acceptable.

~~7.~~6. Provide transition fittings for connection of dissimilar materials or provide metering pump accessories manufactured of the same material as the piping.

~~8.~~7. No threaded piping will be allowed on the skids.

2.06 TOOLS, SUPPLIES, AND SPARE PARTS

A. The equipment manufacturer shall furnish all special tools necessary to disassemble, service, repair, and adjust the equipment.

B. The manufacturer shall furnish a list of recommended spare parts.

C. In addition to any other spare parts recommended by the pump manufacturer or skid Supplier, furnish the following spare parts:

1. Two (2) spare pressure gauges with diaphragm seals.

2. One (1) spare pressure relief valve.

3. One (1) spare back pressure valve.

4. One (1) spare pulsation dampener.

5. Two (2) preventive maintenance kits including all components required to rebuild pump head.

PART 3 – EXECUTION

3.01 MANUFACTURER'S FIELD SERVICES

A. The services of a qualified manufacturer's technical representative shall be provided as follows:

Service	Number of Trips	Number of Days/Trip
Installation Supervision and Testing	1	1
Startup and Training	2~~1~~	1

B. Manufacturer's technical representative shall perform the tasks as follows for each set of metering pumps:

1. Witness and check installation.

2. Assist the Contractor in conducting field tests and preparing a written report as specified below.

3. Provide all necessary field adjustments of pressure settings for the pressure relieve valves and backpressure valves.

4. Witness and check start-up of the system.

5. Assist Contractor in making adjustments and modifications as necessary to optimize operation of the system components and to minimize surge pressures.

6. Troubleshoot and correct any mechanical or control problems with the metering pumps and accessories that are noted during tests and start-up.

7. Submit written certification that the system has been properly installed, tested, and adjusted; that the system operates as specified or as required; and that all controls and protective devices operate properly. Indicate date of final acceptance test, as well as a listing of all persons present during the tests.

8. Instruct Owner in the operation and maintenance of equipment.

C. The Contractor shall be fully informed and shall be responsible to ensure that all Contractor's employees, agents, and/or subcontractors are fully informed as to the hazards and proper procedures associated with working with and around the specified chemicals.

3.02 INSTALLATION

A. The Contractor shall furnish and install the metering pumps and all associated equipment and accessories as required and specified herein in accordance with manufacturer's instructions, Section 11000, Equipment - General, and the Drawings.

B. All metallic fasteners, brackets, mounting hardware, and accessories located in the storage and feed areas shall be constructed of materials completely resistant to the specified chemicals.

C. The Contractor shall support piping adjacent to pumps such that no weight is carried on pump casings.

3.03 TESTING, CLEANING, AND START UP

A. All pumps shall be shop tested for capacity at rated pressure prior to shipment, with documented results provided.

B. The Contractor shall demonstrate to the Engineer that the completed systems meet the functional requirements intended and that all components of the system are properly calibrated.

C. After installation of piping and accessories but before connection of piping to the storage tank and pumps the Contractor shall completely flush the system to clean and remove all foreign matter from the piping system.

D. After piping system is cleaned, perform complete system hydrostatic tests and operational tests using potable water. The Contractor shall check the functioning of all pump accessories, valves, and feed points and shall repair or replace all malfunctioning or unsatisfactory components. The Contractor shall repair all leaking joints and components identified during the test and through the guarantee period.

E. Prior to placing the required chemicals in any equipment, each component shall be blow dried to remove all moisture and any other material that could contaminate the chemicals to be used.

F. Contractor shall demonstrate and document the accuracy of each pump using project-supplied calibration chamber.

[END OF SECTION]

SECTION 15000

BASIC MECHANICAL REQUIREMENTS

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish and install to the required line and grade, all piping together with all fittings and appurtenances, required for a complete installation. Piping to be backfilled and/or encased in concrete is considered to be buried piping. Piping that is not buried is considered to be exposed.

B. The Contractor shall furnish and install fittings, couplings, connections, sleeves, adapters, harness rods and closure pieces as required to connect pipelines of dissimilar materials and/or sizes herein included under this Section and other concurrent Contracts for a complete installation.

C. The Contractor shall furnish all labor, materials, equipment, tools, and services required for the furnishing, installation and testing of all piping as shown on the Drawings, specified in this Section, and required for the Work. Piping shall be furnished and installed of the material, sizes, classes, and at the locations shown on the Drawings and/or designated in this Section. Piping shall include all fittings, adapter pieces, couplings, closure pieces, harnessing rods, hardware, bolts, gaskets, wall sleeves, wall pipes, hangers, supports, and other associated appurtenances for required connections to equipment, valves, or structures for a complete installation.

D. Piping assemblies under 4-inch size shall be generally supported on walls and ceilings, unless otherwise shown on the Drawings or ordered by the Engineer, being kept clear of openings and positioned above "headroom" space. Where practical, such piping shall be run in neat clusters, plumb and level along walls, and parallel to overhead beams.

E. The Contractor shall provide taps on piping where required or shown on the Drawings. Where pipe or fitting wall thicknesses are insufficient to provide the required number of threads, a boss or pipe saddle shall be installed.

F. The work shall include, but not be limited to, the following:

1. Connections to existing pipelines.

2. Test excavations necessary to locate or verify existing pipe and appurtenances.

3. Installation of all new pipe and materials required for a complete installation.

4. Cleaning, testing and disinfecting as required.

1.02 MATERIAL CERTIFICATION AND SHOP DRAWINGS

A. The Contractor shall furnish a Material Certification stating that the pipe materials and specials furnished under this Section conform to all applicable provisions of the corresponding Specifications. Specifically, the Certification shall state compliance with the applicable standards (ASTM, AWWA, etc.) for fabrication and testing.

B. Shop Drawings for major piping (2-inches in diameter and greater) shall be prepared and submitted in accordance with the Contract Documents.

C. Shop Drawings shall include, but not be limited to, complete piping layout, pipe material, sizes, class, locations, necessary dimensions, elevations, supports, hanger details, pipe joints, and the details of fittings including methods of joint restraint. No fabrication or installation shall begin until Shop Drawings are approved by the Engineer.

PART 2 – PRODUCTS

2.01 GENERAL

A. All specials and every length of pipe shall be marked with the manufacturer's name or trademark, size, class, and the date of manufacture. Special care in handling shall be exercised during delivery, distribution, and storage of pipe to avoid damage and unnecessary stresses. Damaged pipe will be rejected and shall be replaced at the Contractor's expense. Pipe and specials stored prior to use shall be stored in such a manner as to keep the interior free from dirt and foreign matter.

B. Testing of pipe before installation shall be as described in the corresponding ASTM or AWWA Specifications and in the applicable standard specifications listed in the following sections. Testing after the pipe is installed shall be as specified in Part 3.

C. All buried piping shall have restrained joints for thrust protection unless otherwise specified or shown on the Drawings. All exposed piping shall have flanged joints, unless otherwise specified or shown on the Drawings.

D. The Drawings indicate work affecting existing piping and appurtenances. The Contractor shall excavate test pits as required of all connections and crossings which may affect the Contractor's work prior to ordering pipe and fittings to determine sufficient information for ordering materials. The Contractor shall take whatever measurements that are required to complete the work as shown or specified.

2.02 WALL PIPES

A. Where wall sleeves or wall pipes occur in walls that are continuously wet on one or both sides, they shall have water stop flanges at the center of the casting or as shown on the Drawings. Ends of wall pipes shall be flange, mechanical joint, plain end, or bell as shown on the Drawings, or as required for connection to the piping. Wall pipes shall be of the same material as the piping that they are connected to. If welded waterstop

flanges are employed, welds shall be 360 degree continuous on both sides of flange. Unless otherwise shown on the Drawings, waterstop flanges shall conform to the minimum dimensions shown below:

Pipe Size	Waterstop Flange Diameter	Waterstop Flange Thickness
4" - 12"	OD + 3.10"	0.50"
14" - 24"	OD + 4.15"	0.75"
30" - 36"	OD + 4.50"	1.00"
42" - 48"	OD + 5.00"	1.25"
54"	OD + 5.90"	1.50"

2.03 SLEEVES

A. Unless shown otherwise, all piping passing through walls and floors shall be installed in sleeves or wall castings accurately located before concrete is poured or placed in position during construction of masonry walls. Sleeves passing through floors shall extend from the bottom of the floor to a point 3 inches above the finished floor, unless shown otherwise. Water stop flanges are required on all sleeves located in floors or walls which are continually wet or under hydrostatic pressure on one or both sides of the floor or wall.

B. Sleeves shall be cast iron or fabricated steel in accordance with details shown on the Drawings. If not shown on the Drawings, the Contractor shall submit to the Engineer the details of sleeves he proposes to install; and no fabrication or installation thereof shall take place until the Engineer's approval is obtained. Steel sleeves shall be fabricated of structural steel plate in accordance with the standards and procedures of AISC and AWS. Steel sleeve surfaces shall receive a commercial sandblast cleaning and then be shop painted in accordance with Section 09900 – Painting.

C. When shown on the Drawings or otherwise required, the annular space between the installed piping and sleeve shall be completely sealed against a maximum hydrostatic pressure of 20 psig. Seals shall be mechanically interlocked, solid rubber links, trade name "Link-Seal", as manufactured by Garlock Pipeline Technologies (GPT) or equal. Rubber link, seal-type, size, and installation thereof, shall be in strict accordance with the manufacturer's recommendations. For non-fire rated walls and floors, pressure plate shall be glass reinforced nylon plastic with EPDM rubber seal and 316 stainless steel bolts and nuts. For fire rated walls and floors, two independent seals shall be provided consisting of low carbon steel, zinc galvanized pressure plates, silicon rubber seals and 316 stainless steel bolts and nuts.

D. Cast iron mechanical joint adapter sleeves shall be Clow # 1429, as manufactured by the Clow Corp., or equal. Mechanical joint adapter sleeves shall be provided with suitable gasket, follower ring, and bolts to affect a proper seal. In general, sleeves

installed in walls, floors, or roofs against one side of which will develop a hydrostatic pressure, or through which leakage of liquid will occur, shall be so sealed. If welded waterstop flanges are employed, welds shall be 360 degree continuous on both sides of flange.

2.04 SOLID SLEEVE COUPLINGS (FOR BURIED SERVICE THROUGH 54-INCH)

A. Solid sleeve couplings shall be used to connect buried service piping where shown on the Drawings. Solid sleeves shall be ductile iron, long body and shall conform to the requirements of ANSI A21.10 (AWWA C110). Unless otherwise shown or specified, solid sleeve couplings shall be Style A11760 as manufactured by American Cast Iron Pipe Co., or equal. Solid sleeve couplings shall be restrained with wedge-type restraining glands to meet the pressures specified in 40 06 20 – Schedules.

B. Alternatively, EBAA Iron 3800 Mega-Coupling is acceptable.

2.05 SLEEVE TYPE COUPLINGS (FOR EXPOSED SERVICE AND BURIED SERVICE ABOVE 54-INCH)

A. Sleeve type, flexible couplings shall be furnished and installed where shown on the Drawings or otherwise required to resist internal operating pressures. In addition to that specified herein, harnessed, sleeve type flexible couplings shall be provided on all exposed pipe 3 inches and larger in diameter that spans any expansion joint in a building or structure.

B. Materials shall be of high strength steel and couplings shall be rated for the same pressures as the connecting piping.

C. Gaskets shall be rubber. Bolts and nuts shall be alloy steel, corrosion-resistant and prime coated.

D. Harnessing for exposed applications shall be by rodding across the sleeve type coupling to the nearest pipe joint on either side of the coupling using threaded rods and rod tabs unless otherwise approved by the Engineer.

E. Couplings shall be as manufactured by Smith-Blair Model 411, Romac Industries Model 400, Dresser Industries Style 38, or equal as required and shown on the Drawings. All couplings shall be provided without interior pipe stop.

F. Couplings shall be provided with manufacturer’s fusion bonded epoxy painting system.

2.06 FLANGED COUPLING ADAPTERS

A. Flanged coupling adapters shall be furnished as required and as shown on the Drawings.

B. Flanged coupling adapters shall be of ductile iron or carbon steel construction and shall be rated for the same pressure as the connected piping.

C. All flanged coupling adapters shall be harnessed by tying the adapter to the nearest pipe joint flange using threaded rods and rod tabs unless otherwise approved by the Engineer.

D. Flanged coupling adapters shall be manufactured by Smith-Blair Model 912 or 913, Romac Industries Model FCG or FC 400, Dresser Industries Model 128-W, or equal.

E. Flanged coupling adapters shall be provided with manufacturer's fusion bonded epoxy painting system.

2.07 RESTRAINED FLANGE COUPLING ADAPTERS

A. Description: Wedge style restrained flanging system for adapting and restraining plain end pipe to flanged pipe or fitting.

B. Products and Manufacturers: Provide one of the following:

1. Series 2100, as manufactured by EBAA.

2. Or approved equal.

C. Pressure and Service: Same as connected piping.

D. Material: Ductile iron.

E. Gasket: Recommended by the manufacturer.

F. Coating: Manufacturer's fusion bonded epoxy painting system.

G. Bolts and Nuts: Alloy steel, corrosion-resistant, primer-coated.

2.08 DISMANTLING JOINTS

A. Dismantling joints shall be furnished at locations shown on the Drawings.

B. Dismantling joints for sizes less than 12-inch shall be of ductile iron or carbon steel construction and shall be rated for the same pressure as the connected piping. Dismantling joints for sizes greater than 12-inches shall be of carbon steel construction and shall be rated for the same pressure as the connected piping.

C. Flanges for dismantling joints shall match the bolt pattern and pressure rating of the flanges for the connected piping.

D. All dismantling joints shall be restrained utilizing restraining rods provided by the manufacturer. Restraining rods shall be constructed from ASTM A193 Grade B7 steel. Restraining rods and restraint system shall be installed in strict accordance with manufacturer's recommendations.

E. Dismantling joints shall be provided with manufacturer's fusion bonded epoxy painting system.

F. Dismantling joints shall be manufactured by Smith Blair Model 975, Romac Industries Model DJ400, or equal.

2.09 GROOVED COUPLINGS

A. Grooved end pipe couplings shall be furnished as specified or shown on the Drawings.

B. Materials shall be of malleable iron and couplings shall be rated for the same pressures as the connecting piping.

C. Gaskets shall be rubber. Bolts and nuts shall be heat treated carbon steel track bolts and shall be plated.

D. After installation, buried couplings shall receive two heavy coats of an approved coal tar which is compatible with the finish of the coupling. Exposed couplings shall be painted in accordance with Section 09900 – Painting.

E. Couplings shall be manufactured by Victaulic Company of America Style 31 or equal.

2.10 TAPPING SLEEVES AND TAPPING SADDLES

A. Tapping sleeves shall be similar to Mueller Outlet Seal, American Uniseal or Kennedy Square Seal. All sleeves shall have a minimum working pressure of 150 psi. All sleeves larger than twelve (12) inches shall be ductile iron. All taps shall be machine drilled; no burned taps will be allowed.

B. Tapping saddles may be used on mains sixteen (16) inches and larger where the required tap size does not exceed one-half the size of the main (i.e. 8-inch tapping saddle for use on a 16-inch main). Tapping saddles shall be manufactured of ductile iron providing a factor of safety of at least 2.5 at a working pressure of 250 psi. Saddles shall be equipped with a standard AWWA C-110-77 flange connection on the branch. Sealing gaskets shall be "O" ring type, high quality molded rubber having an approximate seventy durometer hardness, placed into a groove on the curved surface of the tapping saddles. Straps shall be of alloy steel. The tapping saddle shall be the American tapping saddle, U.S. Pipe tapping saddle, or equal. All taps shall be machine cut, no burned taps will be allowed.

2.11 UNIONS

A. For ductile iron, carbon steel, and grey cast iron pipes assembled with threaded joints and malleable iron fittings, unions shall conform to ANSI B16.39.

B. For copper piping, unions shall have ground joints and conform to ANSI B16.18.

C. For PVC and CPVC piping, unions shall be socket weld type with Viton O-ring.

2.12 THERMOPLASTIC TUBING AND FITTINGS

A. Thermoplastic tubing shall be manufactured from polyallomor tubing. Tubing shall be protected from ultraviolet radiation degradation with a black coating or integral color conforming to ASTM D-1248, Type 1, Class C, Category 3. Fittings and connectors used with thermoplastic tubing shall be the flareless tube type constructed of brass conforming to SAE CA377, SAE CA360 or equal. Brass sleeves shall be used.

B. Assembly of the thermoplastic tubing shall consist of pushing the tubing into the fitting and hand tightening the nut with final tightening with a wrench. Care shall be taken not to overtighten the nut. Plastic tube racks and bend holders shall be provided for holding the tubing in position. Needle valves used with thermoplastic tubing shall be the globe type constructed with a brass body, stem and seat and Buna-N "O"-ring seals. Installation shall be in accordance with the manufacturer's recommendations. Thermoplastic tubing, shall be the Impolene (polyallomor) system and needle valves, fittings and connectors shall be the Poly-Flo with 261 UB Universal Nut and Sleeve system as manufactured by Imperial Eastman, or equal.

2.13 FLEXIBLE RESTRAINED EXPANSION JOINTS

A. Restrained expansion joints shall be manufactured of 60-42-10 ductile iron conforming to material and other applicable requirements of ANSI/AWWA C153/A21.53.

B. Each pressure containing component shall be lined with a minimum of 15 mils of fusion bonded epoxy conforming to the materials requirements of, and tested in accordance with, ANSI/AWWA C213 and shall meet or exceed the requirements of ANSI/AWWA C550.

C. Seals shall conform to the applicable requirements of ANSI/AWWA C111/A21.11.

D. All bolts used in the assemblies shall be stainless steel and shall be coated with a premium quality epoxy.

E. Flanged ends shall comply with ANSI/AWWA C110/A21.10, with the addition of O-ring groove and O-ring.

F. Mechanical joint ends shall comply with ANSI/AWWA C153/A21.53.

G. Restrained expansion joints shall have a minimum pressure rating of 350 psi with a minimum safety factor of 3:1. Each assembly shall be tested at 350 psi before shipment.

H. Restrained expansion joints shall provide for self-restraint without tie rods and shall provide for expansion and contraction capabilities cast as an integral part of the end connection.

I. Flexible restrained expansion joints shall consist of an expansion joint designed and cast as an integral part of a ball and socket type flexible joint having a minimum of 15 degrees deflection per ball.

J. Restrained expansion joints shall be the Single Ball or Double Ball FLEX-TEND Expansion Joint as manufactured by EBAA Iron Inc., or equal.

PART 3 – EXECUTION

3.01 INSTALLATION

A. All piping shall be installed by skilled workmen and in accordance with the best standard practice for piping installation as shown on the Drawings, specified or recommended by the pipe manufacturer. Proper tools and appliances for the safe and convenient handling and installing of the pipe and fittings shall be used. Great care shall be taken to prevent any pipe coating from being damaged on the inside or outside of the pipe and fittings. All pieces shall be carefully examined for defects, and no piece shall be installed which is known to be cracked, damaged, or otherwise defective. If any defective pieces should be discovered after having been installed, it shall be removed and replaced with a sound one in a satisfactory manner by the Contractor and at his own expense. Pipe and fittings shall be thoroughly cleaned before they are installed and shall be kept clean until they are accepted in the complete work. All piping connections to equipment shall be provided with unions or coupling flanges located so that piping may be readily dismantled from the equipment. At certain applications, Dresser, Victaulic, or equal, couplings may also be used. All piping shall be installed in such a manner that it will be free to expand and contract without injury to itself or to structures and equipment to which it is connected. All piping shall be erected to accurate lines and grades with no abrupt changes in line or grade and shall be supported and braced against movement, temporary, or permanent. All exposed piping shall be installed with vertical and horizontal angles properly related to adjoining surfaces or pipes to give the appearance of good workmanship. Unless otherwise shown or approved, provided a minimum headroom clearance under all piping of 7 feet 6 inches.

B. Unless otherwise shown or specified, all waste and vent piping shall pitch uniformly at a 1/4-inch per foot grade and accessible cleanouts shall be furnished and installed as shown and as required by local building codes. Installed length of waste and vent piping shall be determined from field measurements in lieu of the Drawings.

C. All excavation shall be made in such a manner and to such widths as will provide ample room for properly installing the pipe and permit thorough compaction of backfill around the pipe. The minimum trench widths shall be in strict accordance with the "Trench Width Excavation Limits" as shown on the Drawings. All excavation and trenching shall be done in strict accordance with these specifications and all applicable parts of the OSHA Regulations, 29CFR 1926, Subpart P.

D. All excavation required by this Contract shall be unclassified. No additional payment will be made for rock excavation required for the installation of pipe or structures shown on the Drawings.

E. Enlargements of the trench shall be made as needed to give ample space for operations at pipe joints. The width of the trench shall be limited to the maximum dimensions shown on the Drawings, except where a wider trench is needed for the installation of and work within sheeting and bracing. Except where otherwise specified, excavation slopes shall be flat enough to avoid slides which will cause disturbance of the subgrade, damage to adjacent areas, or endanger the lives or safety of persons in the vicinity.

F. Hand excavation shall be employed wherever, in the opinion of the Engineer, it is necessary for the protection of existing utilities, poles, trees, pavements, or obstructions.

G. No greater length of trench in any location shall be left open, in advance of pipe laying, than shall be authorized or directed by the Engineer and, in general, such length shall be limited to approximately one hundred (100) feet. The Contractor shall excavate the trenches to the full depth, width and grade indicated on the Drawings including the relevant requirements for bedding. The trench bottoms shall then be examined by the Engineer as to the condition and bearing value before any pipe is laid or bedding is placed.

H. No pressure testing shall be performed until the pipe has been properly backfilled in place. All pipe passing through walls and/or floors shall be provided with wall pipes or sleeves in accordance with the specifications and the details shown on the Drawings. All wall pipes shall be of ductile iron and shall have a water stop located in the center of the wall. Each wall pipe shall be of the same class, thickness, and interior coating as the piping to which it is joined. All buried wall pipes shall have a coal tar outside coating on exposed surfaces.

I. Joint deflection shall not exceed 75% of the manufacturer's allowable deflection.

J. Excavation and backfilling shall conform to the requirements of Section 02200 – Earthwork, and as specified herein. Maximum trench widths shall conform to the Trench Width Excavation Limits shown on the Drawings. All exposed, submerged, and buried piping shall be adequately supported and braced by means of hangers, concrete piers, pipe supports, or otherwise as may be required by the location.

K. Following proper preparation of the trench subgrade, pipe and fittings shall be carefully lowered into the trench so as to prevent dirt and other foreign substances from gaining entrance into the pipe and fittings. Proper facilities shall be provided for lowering sections of pipe into trenches. Under no circumstances shall any of the materials be dropped or dumped into the trench.

L. Water shall be kept out of the trench until jointing and backfilling are completed. When work is not in progress, open ends of pipe, fittings, and valves shall be securely closed so that no water, earth, or other substance will enter the pipes, fitting, or valves. Pipe ends left for future connections shall be valved, plugged, or capped, and anchored as required.

M. All piping shall be installed in such a manner that it will be free to expand and/or contract without injury to itself or to structures and equipment to which it is connected. All piping shall be erected to accurate lines and grades with no abrupt changes in line or grade and shall be supported and braced against movement, temporary, or permanent. All exposed piping shall be installed with vertical and horizontal angles properly related to adjoining surfaces or pipes to give the appearance of good workmanship. Pipes crossing within a vertical distance of less than or equal to one (1) foot shall be encased and supported with concrete at the point of crossing to prevent damage to the adjacent pipes as shown on the Drawings.

N. The full length of each section of pipe shall rest solidly upon the bed of the trench, with recesses excavated to accommodate bells, couplings, joints, and fittings. Before joints are made, each pipe shall be well bedded on a solid foundation; and no pipe shall be brought into position until the preceding length has been thoroughly bedded and secured in place. Pipe that has the grade or joint disturbed after laying shall be taken up and relaid by the Contractor at his own expense. Pipe shall not be laid in water or when trench conditions are unsuitable for work.

O. Proper and suitable tools and appliances for the safe convenient handling and laying of pipe shall be used and shall in general agree with manufacturer's recommendations.

P. At the close of each work day, the end of the pipeline shall be tightly sealed with a cap or plug so that no water, dirt, or other foreign substance may enter the pipeline, and this plug shall be kept in place until pipe laying is resumed.

Q. During the laying of pipe, each pipe manufacturer shall provide his own supervisor to instruct the Contractor's pipe laying personnel in the correct procedure to be followed.

R. Ordinarily only full lengths of pipe (as furnished by the pipe manufacturer) shall be used exceptions: closure pieces at manholes and areas where joint deflection is required.

S. For gravity sewer installations, the Contractor shall use a laser device to maintain the trench and pipe alignment. The laser device shall be re-checked for correct elevation and pipe alignment prior to pipe installation if the device is left in the pipe overnight. Corrected invert elevations at each manhole and any adjustments will be coordinated and approved by the Engineer.

T. At the close of Work each day, pipeline trenches shall be completely backfilled. In paved areas the surfaces shall be restored to allow for traffic over the trench during non-working hours. Under no conditions shall any pipeline trench be left open during non-working hours.

3.02 JOINTS IN PIPING

A. Restrained joints shall be provided on all pipe joints as specified herein and shown on the Drawings. Restrained joints shall be made up similar to that for push-on joints.

B. Push-on joints include a single rubber gasket which fits into the bell end of the pipe. The gasket shall be wiped clean, flexed and then placed in the socket. Any bulges in the gasket which might interfere with the entry of the plain end of the pipe shall be removed. A thin film of lubricant shall be applied to the gasket surface which will come into contact with the spigot end of the pipe. The lubricant shall be furnished by the pipe manufacturer. The plain end of the pipe, which is tapered for ease of assembly, shall be wiped clean and a thick film of lubricant applied to the outside. The pipe shall be aligned and carefully entered into the socket until it just makes contact with the gasket. The joint assembly shall be completed by entering the pipe past the gasket until it makes contact with the bottom of the socket. The pipe shall be pulled "home" with an approved jack assembly as recommended by the pipe manufacturer. If assembly is not accomplished by reasonable force, the plain end shall be removed, and the condition corrected.

C. Flanged joints shall be brought to exact alignment and all gaskets and bolts or studs inserted in their proper places. Bolts or studs shall be uniformly tightened around the joints. Where stud bolts are used, the bolts shall be uniformly centered in the connections and equal pressure applied to each nut on the stud. Pipes in all lines subject to temperature changes shall be cut short and cold sprung into place to compensate for expansion when hot.

D. Mechanical joints shall be made up with gaskets, glands and bolts. When a joint is to be made up, the bell or socket and plain end shall be cleaned and washed with a solution of mild soap in water; the gland and gasket shall be slid onto the plain end and the end then entered into the socket until it is fully "home" on the centering ring. The gasket shall then be painted with soapy water and slid into position, followed by the gland. All bolts shall be inserted and made up hand tight and then tightened alternately to bring the gland into position evenly. Excessive tightening of the bolts shall be avoided. All nuts shall be pulled up using a torque wrench which will not permit unequal stresses in the bolts. Torque shall not exceed the recommendations of the manufacturer of the pipe and bolts for the various sizes. Care shall be taken to assure that the pipe remains fully "home" while the joint is being made. Joints shall conform to the applicable AWWA Specifications.

E. Threaded and/or screwed joints shall have long tapered full depth threads to be made with the appropriate paste or jointing compound, depending on the type of fluid to be processed through the pipe. All pipe up to, and including 1-1/2-inches, shall be reamed to remove burr and stood on end and well pounded to remove scale and dirt. Wrenches on valves and fittings shall be applied directly over the joint being tightened. Not more than three pipe threads shall be exposed at each connection. Pipe, in all lines subject to temperature changes shall be cut short and cold sprung into place to compensate for expansion when hot. Joints in all piping used for chlorine gas lines shall be made up with a glycerine and litharge cement. Joints in plastic piping (PVC/CPVC) shall be laid and

joints made with compounds recommended by the manufacturer. Installation shall conform to the requirements of ASTM D2774 and ASTM D2855. Unions required adjacent to valves and equipment.

F. Soldered joints shall have the burrs removed and both the outside of pipe and the inside of fittings shall be thoroughly cleaned by proper tools recommended for that purpose. Flux shall be applied to both pipe and inside of fittings and the pipe placed into fittings and rotated to insure equal distribution of flux. Joints shall be heated and solder applied until it shows uniformly around the end of joints between fitting and pipe. All joints shall be allowed to self-cool to prevent the chilling of solder. Combination flux and solder paste manufactured by a reputable manufacturer is acceptable. Unions required adjacent to valves and equipment.

G. Welded joints shall be made by competent operators in a first class workmanlike manner, in complete accordance with ANSI B31.1 and AWWA C206. Welding electrodes shall conform to ASTM A233, and welding rod shall conform to ASTM A251. Only skilled welders capable of meeting the qualification tests for the type of welding which they are performing shall be employed. Tests, if so required, shall be made at the expense of the Contractor, if so ordered by the Engineer. Unions shall be required adjacent to valves and equipment.

H. Copper joints shall be thoroughly cleaned and the end of pipes uniformly flared by a suitable tool to the bevels of the fittings used. Wrenches shall be applied to the bodies of fittings where the joint is being made and in no case to a joint previously made. Dimensions of tubing and copper piping shall be in complete accordance with the fittings used. No flare joints shall be made on piping not suited for flare joints. Installations for propane gas shall be in accordance with NFPA 54 and/or 58.

I. Solvent or adhesive welded joints in plastic piping shall be accomplished in strict accordance with the pipe manufacturer's recommendations, including necessary field cuttings, sanding of pipe ends, joint support during setting period, etc. Care shall be taken that no droppings or deposits of adhesive or material remain inside the assembled piping. Solvent or adhesive material shall be compatible with the pipe itself, being a product approved by the pipe manufacturer. Unions are required adjacent to valves and equipment. Sleeve-type expansion joints shall be supplied in exposed piping to permit 1-inch minimum of expansion per 100 feet of pipe length.

J. Dielectric isolation such as flange isolation kits, dielectric unions, or similar, shall be installed wherever dissimilar metals are connected according to the following table.

	Zinc	Galvanized Steel	Aluminum	Cast Iron	Ductile Iron	Mild Steel/ Carbon Steel	Copper	Brass	Stainless Steel
Zinc			●	●	●	●	●	●	●
Galvanized Steel			●	●	●	●	●	●	●
Aluminum	●	●		●	●	●	●	●	●
Cast Iron	●	●	●				●	●	●
Ductile Iron	●	●	●				●	●	●
Mild Steel/ Carbon Steel	●	●	●				●	●	●
Copper	●	●	●	●	●	●			●
Brass	●	●	●	●	●	●			●
Stainless Steel	●	●	●	●	●	●	●	●	

Notes:
● signifies dielectric isolation is required between the two materials noted.
Consult Engineer for items not listed in table.
Provide flange isolation kits for all flanged connections of dissimilar metals and hardware including connections to equipment.
Contractor shall include all isolation descriptions with piping submittals.

K. Eccentric reducers shall be installed where air or water pockets would otherwise occur in mains because of a reduction in pipe size.

L. Joints in polypropylene and polyvinylidelene fluoride pipe shall be butt fusion weld. All butt welding shall follow the requirements of ASTM D-2657 and the manufacturer's recommendations.

3.03 FLUSHING AND TESTING

A. All piping shall be properly flushed and tested unless specifically exempted elsewhere in the Specifications or otherwise approved by the Engineer. Air and gas pipelines shall be flushed and tested with compressed air. Gravity sewer piping shall be flushed and tested as specified in Section 02640 – Utility Structures. All other liquid conveying pipelines shall be flushed and tested with water. The Contractor shall furnish and install all means and apparatus necessary for getting the air or water into the pipeline for flushing and testing including pumps, compressors, gauges, and meters, any necessary plugs and caps, and any required blow-off piping and fittings, etc., complete with any necessary reaction blocking to prevent pipe movement during the flushing and testing. All pipelines shall be flushed and tested in such lengths or sections as agreed upon among the

Owner, Engineer, and Contractor. Owner or Engineer shall provide test pressure. Test pressures shall be as measured at the lowest point of the pipe segment being tested. The Contractor shall give the Owner and Engineer reasonable notice of the time when he intends to test portions of the pipelines. The Engineer reserves the right, within reason, to request flushing and testing of any section or portion of a pipeline.

B. The Contractor shall provide water for all flushing and testing of liquid conveying pipelines. Raw water or non-potable water may be used for flushing and testing liquid pipelines not connected to the potable water system. Only potable water shall be used for flushing and testing the potable water system.

C. Air and gas piping shall be completely and thoroughly cleaned of all foreign matter, scale, and dirt prior to start-up of the air or gas system.

D. At the conclusion of the installation work, the Contractor shall thoroughly clean all new liquid conveying pipe by flushing with water or other means to remove all dirt, stones, pieces of wood, etc., which may have entered the pipe during the construction period. If after this cleaning any obstructions remain, they shall be corrected by the Contractor, at his own expense, to the satisfaction of the Engineer. Liquid conveying pipelines shall be flushed at the rate of at least 2.5 feet per second for a duration suitable to the Engineer or shall be flushed by other methods approved by the Engineer.

E. Compressed/service air and gas piping shall be flushed by removing end caps from the distribution lines and operating one (1) compressor, in accordance with the manufacturer's instructions.

F. After flushing, all air piping shall be pressure and leak tested prior to coating and wrapping of welded joints. Immediately upon successful completion of the pressure and leak test, welded joints shall be thoroughly cleaned of all foreign matter, scale, rust, and discoloration and coated in accordance with the Specifications.

G. All process air piping shall be leak tested by applying a soap solution to each joint. Leak tests shall be conducted with one (1) blower in service at normal operating pressure.

H. During testing the piping shall show no leakage. Any leaks or defective piping disclosed by the leakage test shall be repaired or replaced by the Contractor, at his own expense, and the test repeated until all such piping shows tight.

I. All buried process air piping shall be pressurized to 25 psig and tested for leaks by applying a soap solution to each joint. The air supply shall be stopped and the pipe pressure monitored. System pressure shall not fall by more than 0.5% of the 25 psig test pressure over a one-hour test period. Should the system fail to hold the required pressure for one hour, the cause shall be determined and corrected and the test repeated until a successful test of the entire system is obtained.

J. Field leakage tests shall be performed for all submerged process air piping. The procedure shall consist of operating the system under clear nonpotable water for visual

identification of all leaks. All field leakage tests shall be witnessed by the Engineer. All submerged piping shall be installed free of any leaks.

K. After flushing, all liquid conveying pipelines shall be hydrostatically tested at the test pressure specified. The procedure used for the hydrostatic test shall be in accordance with the requirements of AWWA C600. Each pipeline shall be filled with water for a period of no less than 24 hours and then subjected to the specified test pressure for 2 hours. During this test, exposed piping shall show no leakage. Allowable leakage in buried piping shall be in accordance with AWWA C600.

L. Any leaks or defective pipe disclosed by the hydrostatic test shall be repaired or replaced by the Contractor, at his own expense, and the test repeated until all such piping shows tight.

M. After flushing, all gas piping shall be leak tested in accordance with all local codes and regulations and in conformance with the recommendations or requirements of any National Institute or Association for the specific service application.

3.04 PAINTING AND COLOR-CODING SYSTEM

A. All exposed piping specified shall be color coded in accordance with the Owner's standard color designation system for pipe recognition and in accordance with Section 15030 – Piping and Equipment Identification Systems. In the absence of a standard color designation system, the Engineer will establish a standard color designation for each piping service category from color charts submitted by the Contractor in compliance with Section 09900 – Painting.

B. All piping specified in this Section shall be painted in accordance with Section 09900 – Painting, except as follows:

1. Copper pipe

2. Stainless steel pipe. Flanges and supports or hangers shall be painted.

[END OF SECTION]

SECTION 15006

DUCTILE IRON PIPE AND FITTINGS

PART 1 GENERAL

1.01 SCOPE

A. All ductile iron pipe and specials shall be marked with the manufacturer's name or trademark, size, weight, thickness class, the date of manufacture, and the word "Ductile".

B. Ductile iron pipe (DIP) of the sizes shown or specified shall conform to ANSI A21.51 (AWWA C151), Grade 60 42 10 for ductile iron pipe centrifugally cast in metal molds or sand lined molds. All ductile iron pipe shall conform to ANSI A21.50 (AWWA C150) for thickness design and shall be supplied in 18 or 20 foot nominal lengths or as required to meet the requirements of the Drawings. Fittings and specials shall be ductile iron, conforming to the requirements of ANSI A21.10 (AWWA C110) or ANSI A21.53 (AWWA C153).

C. Minimum Class 53 pipe shall be used for flanged spools.

PART 2 PRODUCTS

2.01 DUCTILE IRON PIPE AND FITTINGS

A. All pipe and fittings, with the exception of glass lined pipe and sleeves, shall be cement mortar lined. Linings shall conform to American Standard Specifications for Cement Mortar Lining for Ductile Iron Pipe and Fittings, ANSI A21.4 (AWWA C104) and shall be standard thickness. The mortar lining shall be protected with the bituminous seal coat. All buried DIP and fittings shall have a bituminous coating on the exterior surfaces in accordance with ANSI A21.51 (AWWA C151). All exposed DIP and fittings shall have a shop applied prime coat in accordance with Section 09900 - Painting.

B. Glass lined ductile iron pipe shall be furnished and installed where specified in the Exterior Piping System Schedule. The finished lining shall be from 0.008 inch to 0.012 inch thick, hardness of from 5 to 6 on the Mohs Scale, density of from 2.5 to 3.0 grams per cubic centimeter as measured in accordance with the requirements of ASTM D792 and be capable of withstanding a thermal shock of 350°F without crazing, blistering, or spalling. The lining shall be Ervite Type SG 14, as manufactured by the Ervite Corporation, Erie, Pa., Ferrock MEH 32, by Water Works Supply & Mfg., Co., Marysville, CA, or equal.

C. Cutting of glass lined pipe in the field shall be limited to only one piece per run of pipe, and this shall be for closure purposes only. Spalling of the glass liner shall be no more than 1/8 inch back from the cut. Flanges and bolt holes on spool pieces shall be aligned prior to glassing and shall be sealed and tested prior to shipment in accordance with the manufacturer's recommendation. Warping of flanges and/or pipe may be cause for rejection as determined by the Engineer.

D. Requirements for various types of joints are described in the following paragraphs. UNLESS OTHERWISE NOTED HEREIN OR ON THE DRAWINGS, ALL EXPOSED DUCTILE IRON PIPING SHALL HAVE FLANGED JOINTS.

E. Flanged joints and fittings shall have a minimum pressure rating of 250 psi with 125 lb. American Standard flanges. All flanges and fittings shall conform to the requirements of ANSI B16.1. Flanges shall be ductile iron and shall be of the threaded or screw on type. The

face of the flanges shall be machined after installation of the flange to the pipe. No raised surface shall be allowed on flanges. Flanged pipe shall conform to the requirements of ANSI Specification A21.15, (AWWA C115). Pipe lengths shall be fabricated to meet the requirements of the Drawings.

F. Gaskets shall be the "Ring Gasket" type, 1/8 inch minimum thickness, cloth inserted rubber, red rubber or neoprene and shall be suitable for the service intended. Gaskets for glass lined pipe shall be TORUSEAL flange gasket, or equal. Bolts shall be of the size and length called for and in accordance with the "American Standard" and comply with the requirements of the ANSI/AWWA Standards. The bolts for flanged joints shall be a minimum ASTM A307; Grade B carbon steel and be in accordance with ANSI A21.10, (AWWA C110). The bolts shall have hexagonal heads and nuts, no washers shall be used.

G. Bell and spigot pipe shall be provided with push on, O ring rubber gasket, compression type joints and shall conform to the requirements of ANSI A21.11 (AWWA C111). Fittings and specials shall be supplied with mechanical joints as specified for mechanical joint pipe. If required by installation conditions, pipe shall have cast on lugs for adequately tying it together.

H. Mechanical joints and fittings shall conform to the requirements of ANSI A21.11, (AWWA C111). Joints shall be made employing a tapered rubber gasket forced into a tapered groove with a ductile iron follower ring. If required by installation conditions, pipe and fittings shall have cast on lugs for adequately tying the pipe and fittings together. These shall be in conformance with standard practice and as outlined under the appropriate AWWA Specifications.

I. Bolts for mechanical joints shall be high strength corrosion resistant low-alloy steel tee-head bolts with hexagonal nuts.

J. Mechanical coupling joint pipe and fittings shall be split type, shouldered end. Coupling materials shall be malleable iron. Couplings shall have a minimum pressure rating and service equal to that of the connected piping. Gaskets shall be of rubber. Bolts and nuts shall be heat treated carbon steel track bolts and shall be plated. After installation, buried couplings shall receive two heavy coats of coal tar epoxy (min. 24 mil thickness) which is compatible with the finish of the couplings. Couplings shall be as manufactured by Victaulic Company of America Style 31, or equal.

K. Restrained joint pipe shall consist of factory manufactured bolted retainer rings, ductile iron locking segments held in place by rubber retainers, or ductile iron retaining rings that lock over the bell of the joint and are secured to prevent rotation, and factory welded retainer beads or rings on the spigot of the pipe. All components of the bolted or snap ring assemblies shall be constructed of corrosion-resistant, high strength, low-alloy steel. Restrained joint pipe shall be Flex-Ring or Lock-Ring type joints as manufactured by American Ductile Iron Pipe Company, HP LOK or TR Flex as manufactured by US Pipe, Bolt-Lok or Snap-Lok as manufactured by Griffin Pipe Products, TR Flex or Super Lock as manufactured by Clow Water Systems Co., or approved equal.

L. Restrained fittings for piping systems 16-inches in diameter and greater shall have factory restraint systems identical to the factory restrained joint pipe specified in Item K above. All fittings shall be minimum pressure Class 250 unless otherwise specified.

M. Restrained fittings for pipe systems 14-inches in diameter and smaller shall be Mechanical Joint fittings with restraint assemblies such as Stargrip by Star Pipe Systems, Mega Lug by EBAA Iron, ONE LOK by Sigma, Grip Ring by Romac, or approved equal. Where threaded-rods are allowed, the rods and tabs shall be designed for the specified restraint system

design pressure, shall have lengths less than 10 feet between fittings, and shall be painted with two heavy coats of coal tar epoxy after installation.

N. The manufactured systems for thrust restraint indicated above shall be used where restrained joint ductile iron pipe and fittings are specified or indicated on the drawings. Gripping gaskets are not an acceptable form of restraint. Thrust restraint and harnessing systems such as threaded-rods, friction clamps, retainer glands shall be used only where specifically specified herein, indicated on the drawings or if allowed by the Engineer in isolated applications where conditions warrant and necessitate their use. Concrete thrust blocks may be used in accordance with the schedule indicated on the drawings, if applicable.

O. All buried ductile iron pipe shall be polywrapped.

[END OF SECTION]

SECTION 15008

PVC PIPE

PART 1 GENERAL

1.01 SCOPE

A. Reference Section 15000, Basic Mechanical Requirements.

PART 2 PRODUCTS

2.01 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

A. PVC pipe and fittings shall be manufactured in accordance with ASTM D 1785, D 1784 and F 441, "normal impact" pipe, Schedule 40 or 80 as specified.

B. Fittings used with this pipe shall be socket type or flanged type as specified herein or indicated on the Drawings. Plastic piping shall be installed in full accordance with the manufacturer's recommendations for the specific installation. No field bending or distortion of the pipe will be permitted.

C. PVC pipe shall be Type 1 Grade 1 conforming to ASTM D 1784 and D 1785. Fittings shall conform to the following standard specifications:

1. Socket Type SDR 26

2. Socket Type SDR 18 or 19 (C-900)

D. Provide flanged fittings of the same material as the specified pipe and material conforming to ANSI B16.5 at all valves and equipment except at true (double) union valves. Flange gaskets shall be natural rubber or other material fully compatible with the fluid being conveyed. Where flanged piping is used with chemical systems, the gasket material shall conform to the requirements of the following table. Flange bolts shall be type 316 stainless steel minimum, with higher grade materials used where necessary for fluid (chemical) compatibility.

Chemical	Acceptable Gasket Material
Ammonium Hydroxide	EPDM
Aluminum Sulfate	EPDM, Viton
Ammonium Sulfate	EPDM
Calcium Hypochlorite	Viton
Carbon Dioxide Solution	Viton
Chlorine Solution	Viton
Chlorine Dioxide Solution	Viton
Ferric Chloride	EPDM, Viton
Ferric Sulfate	EPDM, Viton
Hydrochloric Acid	Viton
Hydrofluosilicic Acid	Viton
Lime Slurry	EPDM, Viton
Magnesium Chloride	EPDM, Viton

Chemical	Acceptable Gasket Material
Magnesium Hydroxide	EPDM, Viton
Methanol	EPDM
Ozone Solution	Viton
Phosphoric Acid	Viton
Polyaluminum Chloride	EPDM, Viton
Polymer	Viton
Potassium Permanganate	EPDM
Powdered Activated Carbon Slurry	EPDM, Viton
Sodium Bisulfite	EPDM, Viton
Sodium Hydroxide (Caustic)	EPDM
Sodium Hypochlorite	Viton
Sodium Permanganate	Teflon, Hypalon, Silicone, AFLAS, Kalrez, Santoprene
Sodium Silicate	EPDM, Viton
Sodium Thiosulfate	EPDM, Viton
Sulfur Dioxide Solution	EPDM, Viton
Sulfuric Acid	Viton
Zinc Orthophosphate	EPDM, Viton

E. C900-Class 200 shall be in sizes between 4 inches and 12 inches and shall meet the requirements of AWWA C900 "Poly Vinyl Chloride (PVC) Pressure Pipe" and shall conform to all the requirements of ASTM D1784 and ASTM D2241. The pipe shall be a minimum of DR 14 and shall be capable of withstanding the overburden pressures determined by the depth of burial in the field.

1. Pipe material shall be made from clean, virgin, NSF approved Class 12454-A PVC compound conforming to resin specification ASTM D1784. Standard laying lengths shall be 20-feet (±1 inch). Random lengths of not more than 15% of the total footage of each size may be shipped in lieu of the standard lengths. Reruns of reclaimed material shall not be accepted.

2. The pipe shall have bell and spigot ends with push-on, O-ring rubber gasket, compression type joints conforming to the requirements of ASTM 2672. Elastomeric gaskets shall conform to the requirements of ASTM F477.

3. Minimum pipe stiffness (F/dY) at 5% deflection shall be 914 psi for all sizes when tested in accordance with D2241.

4. The pipe shall be designed to pass a quick burst test pressure of 985 psi applied in 60 to 70 seconds when tested in accordance with ASTM D1599, as referenced in ASTM D2241.

5. Fittings for C900-Class 200, DR 14 shall be ductile iron, bolted mechanical joint.

F. C900-Class 150 shall be in sizes between 4 inches and 12 inches and shall meet the requirements of AWWA C900 "Poly Vinyl Chlorine (PVC) Pressure Pipe" and shall conform to all the requirements of ASTM D1784 and ASTM D2241. The pipe shall be a minimum of DR 18 and shall be capable of withstanding the overburden pressures determined by the depth of burial in the field.

1. Pipe material shall be made from clean, virgin, NSF approved Class 12454-A PVC compound conforming to resin specification ASTM D1784. Standard laying lengths shall be 20-feet (±1 inch). Random lengths of not more than 15% of the total footage of each size may be shipped in lieu of the standard lengths. Reruns of reclaimed material shall not be accepted.

2. The pipe shall have bell and spigot ends with push-on, O-ring rubber gasket, compression type joints conforming to the requirements of ASTM 2677. Elastomeric gaskets shall conform to the requirements of ASTM F477.

3. Minimum pipe stiffness (F/dY) at 5% deflection shall be 435 psi for all sizes when tested in accordance with D2241.

4. The pipe shall be designed to pass a quick burst test pressure of 755 psi applied in 60 to 70 seconds when tested in accordance with ASTM D1599, as referenced in ASTM D2241.

5. Fittings for C900-Class 150, DR 18 shall be ductile iron, bolted mechanical joint.

G. PVC pressure rated pipe (PR 160) shall be in sizes between 1 1/2 inches and 12 inches and shall conform to all the requirements of ASTM D1784 and ASTM D2241 and shall be a minimum of SDR 26 and shall be capable of withstanding the overburden pressures determined by the depth of burial in the field.

1. Pipe material shall be made from clean, virgin, NSF approved Class 12454-A PVC compound conforming to resin specification ASTM D1784. Standard laying lengths shall be 20-feet (1± inch). Random lengths of not more than 15% of the total footage of each size may be shipped in lieu of the standard lengths. Reruns of reclaimed materials shall not be accepted.

2. The pipe shall have bell and spigot ends with push-on, O-ring rubber gasket, compression type joints conforming to the requirements of ASTM 2672. Elastomeric gaskets shall conform to the requirements of ASTM F477.

3. Minimum pipe stiffness (F/dY) at 5% deflection shall be 135 psi for all sizes when tested in accordance with ASTM D2241.

4. The pipe shall be designed to pass a quick burst test pressure of 500 psi applied

in 60 to 70 seconds when tested in accordance with ASTM D1599, as referenced in ASTM D2241.

5. The pipe shall be designed to pass for 1000 hours a sustained test pressure of 340 psi when tested in accordance with ASTM D1598, as referenced in ASTM D2241.

H. Fittings for PR 160, SDR 26 shall be PVC and designed for the pipe being supplied.

I. Perforated and closed drainage pipe and fittings shall be rigid PVC pipe, Schedule 40 unless otherwise shown or specified with solvent welded type joints, or approved equal. Pipe shall be slotted or have two rows of 1/4-inch diameter holes spaced 4-inches apart along the circumference of the pipe. Longitudinal spacing of holes shall be 5-inches maximum.

[END OF SECTION]

SECTION 15030

PIPING AND EQUIPMENT IDENTIFICATION SYSTEMS

PART 1 GENERAL

1.01 REQUIREMENTS

A. The Contractor shall furnish and install all components of the system for identification of piping and equipment as specified hereinafter. The system shall include the application of color coding to all new and altered plant piping. The Contractor shall paint the equipment and piping of all Contracts in the colors herein specified, and in accordance with the requirements of Section 09900, Painting.

B. In addition to the legends specified herein the Engineer may order the Contractor to furnish and install additional identification legends and arrows at no additional cost to the Owner. Such additional signs may be requested near completion of the work and shall be limited to no more than five (5) signs for each type specified herein. The legends and color combinations for additional signs shall conform to the requirements specified herein.

C. The Contractor shall submit a schedule of the colors and designations proposed in accordance with Section 01300, Submittals, and this Section. A minimum of four (4) color charts with cross references to the colors listed herein shall be included with the Submittal.

PART 2 PRODUCTS

2.01 TRACER WIRE

A. All nonmetallic pipe shall be installed with two insulated 10 or 12gauge hard drawn copper clad steel core locating wires (minimum breaking strength of 1000 pounds) with color coded HDPE coating attached to the carrier pipe using (minimum) two-inch wide duct tape. Tape shall be at every joint and four to five feet spacing. Locating wires shall terminate four or more inches above the concrete valve pad and fold back inside a three-inch PVC access pipe. A continuity test shall be performed by the HDD Contractor in the presence of the County’s inspector. Wires shall be installed on terminal water lines leading to fire hydrant. Access to tracer wires at the hydrant valve, shall be provided when the hydrant is more than 10 feet from the water main.

2.02 PIPING BAND

A. All new and altered piping shall receive identification bands. Such bands shall be 6 inches wide, neatly made by masking, and spaced at intervals of 30 inches on centers regardless of the diameter of the pipe being painted. The Contractor may use approved precut and prefinished metal bands on piping, in lieu of the masked and painted bands, where approved by the Engineer.

2.02 VALVE ID

A. All valve locations shall be identified with a concrete valve pad containing a bronze disc embedded in concrete.

2.03 PIPING IDENTIFICATION LEGEND

A. The Contractor shall apply identification legends to all types and sections of piping as shown

on the Drawings or as designated by the Engineer. Such legends shall be in the form of plain block lettering giving the name of the pipe content in full or abbreviated form, and showing the direction of flow by arrows. All lettering and arrows shall be of the plastic snap on type, Seton nameplate "setmarks", or equal, or they shall be formed by stenciling in an approved manner using white or black as directed and shall have an overall height in inches in accordance with the following table:

Diameter of Pipe or Pipe Covering	Height of Lettering
3/4 to 1-1/4 inches	1/2-inches
1-1/2 to 2-inches	3/4-inches
2-1/2 to 6-inches	1-1/4-inches
8 to 10-inches	2-1/2-inches
Over 10-inches	3-1/2-inches

B. Identification lettering shall be located midway between color coding bands where possible. Identification lettering and arrows shall be placed as directed by the Engineer, but shall generally be located each fifteen (15) feet in pipe length, and shall be properly inclined to the pipe axis to facilitate easy reading. In the event lettering and arrow identifications are required for piping less than 3/4 inch in diameter, the Contractor shall furnish and attach approved color coded tags where instructed.

C. Piping and Equipment Identification

Service	Legend	Base	Band
Sanitary and Process Drains	Drain	Grey	-
Filtrate	Filtrate Drain	Grey	-
Sludge Digested Primary	DPS	Medium Brown	-
Supernatant	Supernatant	Light Brown	-
Digested Waste Activated Sludge	DWAS	Medium Brown	-
Process Air	Process Air	Dark Green	-
Chlorine Solution	Chlorine Solution	Not Painted	-
Potable Cold Water	Potable Water	Light Blue	-
Potable Hot Water	Potable Water-Hot	Light Blue	-
Nonpotable Water	Nonpotable Water	Purple	-
Nonpotable Water Hydrant	-	Purple	
Seal Water Piping	Seal Water	Light Green	-
Natural Gas Piping	Natural Gas	Safety Orange	-
Caustic Solution	Caustic Solution	Alternating Orange and Yellow Tape	-
Hydrants	-	Red	-
Alum	Alum	Not Painted	-

Sanitary and Process Drains	Drain	356 Dune Brown	-
Filtrate Drains	Filtrate Drain	356 Dune Brown	-
Primary Sludge	Primary Sludge	334 Light Brown	306 Light Grey
Return Activated Sludge	Return Act. Sludge	334 Light Brown	303 Dark Blue
Waste Activated Sludge	Waste Act. Sludge	334 Light Brown	300 Aqua
Thickened Sludge	Thickened Sludge	334 Light Brown	339 Medium Yellow
Scum Piping	Scum	334 Light Brown	305 Olive Green
Service Air	-	365 Vista Green	-
Process Air	Process Air	365 Vista Green	-
Chlorine Gas	Chlorine Gas	319 Light Yellow	-
Chlorine Solution	Chlorine Solution	339 Medium Yellow	-
Spray Piping	-	307 Medium Green	303 Dark Blue
Potable Cold Water	Potable Water	301 Light Blue	-
Potable Hot Water	Potable Water-Hot	303 Dark Blue	-
Nonpotable Water	Nonpotable Water	300 Aqua Green	315 Tile Red
Heating (HVAC) Piping	HVAC	324 Orange	-
Seal Water Piping	Seal Water	336 Jade Green	-
Natural Gas Piping	Natural Gas	315 Tile Red	-
Sump Discharge Piping	Sump Pump Disch.	332 French Grey	-
Dewatering Pump Piping	-	300 Aqua Green	-
Grit Pumping	Grit	300 Aqua Green	315 Tile Red
Caustic Solution	Caustic Solution	-	-
All valves, pumps, motors, hoist and monorails	-	324 Orange	-
Scum Operators, Scum Collectors, Slide Gate Frames and Hose Lines	-	305 Olive Green	-
Hydrants	-	319 Light Yellow	-

[END OF SECTION]

SECTION 15095

VALVES, GENERAL

PART 1 GENERAL

1.01 SCOPE

A. The Contractor shall furnish and install, complete with all assemblies and accessories, all valves shown on the Drawings and specified herein including all fittings, appurtenances and transition pieces required for a complete and operable installation.

B. All valves shall be constructed of first quality materials which have strength, wearing, and corrosion resistance characteristics entirely suitable for the types of service for which the individual valves are designated. Except where noted otherwise, valves designated for water service shall conform to pertinent sections of the latest revision of AWWA C500 Specifications. Cast iron valve bodies and parts shall meet the requirements of the latest revision of ASTM Designation A 126, "Standard Specifications for Gray Iron Castings for Valves, Flanges, and Pipe Fittings, Class B."

C. All valve body castings shall be clean, sound, and without defects of any kind. No plugging, welding, or repairing of defects will be allowed.

D. Valves shall have flanged ends for exposed service and mechanical joint ends for buried service, unless otherwise shown on the Drawings or specified herein. Flanged ends shall be flat faced, 125 lb. American Standard unless otherwise shown or specified in accordance with ANSI B16.1. All bolt heads and nuts shall be hexagonal of American Standard size. The Contractor shall be responsible for coordinating connecting piping. Valves with screwed ends shall be made tight with Teflon tape. Unions are required at all screwed joint valves.

1.02 SUBMITTALS

A. The Contractor shall furnish to the Owner, through the Engineer, a Performance Affidavit where required in individual valve specifications, utilizing the format specified in Section 11000, Equipment General Provisions. Performance tests shall be conducted in accordance with the latest revision of AWWA C500 and affidavits shall conform to the requirements of the Specifications

B. Shop Drawings conforming to the requirements of Section 01300, Submittals, are required for all valves, and accessories. Submittals shall include all layout dimensions, size and materials of construction for all components, information on support and anchoring where necessary, pneumatic and hydraulic characteristics and complete descriptive information to demonstrate full compliance with the Documents. Shop Drawings for electrically operated/controlled valves shall include all details, notes, and diagrams which clearly identify required coordination with the electrical power supply and remote status and alarm indicating devices. Electrical control schematic diagrams shall be submitted with the Shop Drawings for all electrical controls. Diagrams shall be drawn using a ladder type format in accordance with JIC standards. Shop Drawings for pneumatically operated/controlled valves shall include all details, notes, and diagrams which clearly identify required coordination with the compressed air (service air) system and electrical controls.

C. Operation and maintenance manuals and installation instructions shall be submitted for all valves and accessories in accordance with the Specifications. The manufacturer(s) shall delete all information which does not apply to the equipment being furnished.

1.03 Contractor RESPONSIBILITIES

A. The Contractor shall provide the services of a qualified representative of the manufacturer(s) of the equipment named below to check out and certify the installation(s), to supervise the initial operation, and to instruct the Owner's operating personnel in proper operation and maintenance procedures in accordance with the following schedule:

Item	Valve/Operator Type	Minimum On-Site Time Requirements
1.	Automatic Control Check Valve	One (1) 8-hour day
2.	Surge Anticipators	One (1) 8-hour day
3.	Motor Operated Modulating Valves	One (1) 8-hour day
4.	Motor Operated Open-Close Valves (required only if manufacturer is other than for Item 3 above)	One (1) 8-hour day
5.	Pneumatic Hydraulic Cylinder Operated Valves	One (1) 8-hour day

B. Any additional time required to achieve successful installation and operation shall be at the expense of the Contractor. The manufacturer's representative shall sign in and out at the office of the Engineer's Resident Project Representative on each day he is at the project.

C. A written report covering the representative's findings and installation approval shall be mailed directly to the Engineer covering all inspection and outlining in detail any deficiencies notes.

D. The times specified are exclusive of travel time to and from the facility and shall not be construed as to relieve the manufacturer of any additional visits to provide sufficient service to place the equipment in satisfactory operation.

PART 2 PRODUCTS

2.01 FLOW INDICATORS

A. Flow indicators shall be the Akron ball type as manufactured by Brooks Instrument Co., Fischer and Porter, or equal, and shall have bronze bodies, glass dome, and plastic ball.

2.02 CORPORATION STOPS

A. Corporation stops shall be manufactured from cast bronze with machined fitting surfaces, and in accordance with AWWA C 800 latest, in sizes 1 inch up to including 2 inches. The inlet connection shall be AWWA standard corporation stop thread. The outlet connection shall be a packjoint outlet for copper or plastic tubing. Corporation stops with compression joint outlets for copper or plastic tubing shall be Type FB 1102 as manufactured by Ford Meter Box Company, or approved equal.

2.03 FLOOR BOXES

A. Floor boxes shall be provided for all nut operated or floor accessed valves. Floor boxes shall

be of the adjustable, sliding type, cast iron, suitable to withstand heavy traffic, as manufactured by James B. Clow & Sons, Kennedy Valve Mfg. Co., or equal. The covers shall be marked with appropriate designations of piping contents (i.e.: water, sewer) and bases shall be the round type. All nut operated valves in this Section shall be clearly identified by stainless steel or laminated plastic identification tags. The tags shall be permanently affixed to the inside of the floor boxes, under grating, etc. and shall bear the embossed letters which clearly identify each valve by its appropriate designation.

B. Two (2) valve operating wrenches shall be supplied in 4 foot lengths with tee handles for each size nut supplied. Valve wrenches shall be Model No. F 2520 as manufactured by James B. Clow & Sons, Kennedy Valve Mfg. Co., Figure No. 122, or equal.

2.04 VALVE BOXES

A. The Contractor shall furnish and install valve boxes as shown on the Drawings and specified herein.

B. All valve boxes shall be placed so as not to transmit shock or stress to the valve and shall be centered and plumb over the operating nut of the valve. The ground in the trench upon which the valve boxes rest shall be thoroughly compacted to prevent settlement. The boxes shall be fitted together securely and set so that the cover is flush with the finished grade of the adjacent surface. A concrete pad as detailed on the Drawings shall be provided around the valve box, sloped outwards.

C. All valve boxes shall be 2 piece cast iron, sliding type, 5 1/4" shaft, with heavy duty traffic weight collar and the lid marked with the appropriate carrier product (i.e.: WATER). Boxes shall be as manufactured by Clow Corp. No. F 2452, Tyler Corp. Series 6855 or 6865 approved equal. James B. Clow & Sons, Kennedy Valve Mfg. Co., Charlotte Pipe and Foundry Company, or equal.

2.05 STRAINERS

A. Y Strainers shall be Y pattern cast iron body, flanged or screwed ends with stainless steel or Monel, 20 mesh strainers. Strainers shall be 200 psi, cold water service strainers, as manufactured by WATTS, Crane Co., Zurn, or equal.

B. Caustic service Y strainers shall be provided as shown on the drawings. Strainers shall be full port full flow design manufactured of 304 or 316 stainless steel body. Y strainers shall be furnished with flanged ends. The strainer screen shall be 1/32 inch perforation, easily removable, manufactured of the same material as the valve body.

C. Stainless steel Y strainers shall be provided as shown on the drawings. Strainers shall be full port full flow design manufactured of 304 or 316 stainless steel body. Y strainers shall be furnished with flanged ends. The strainer screen shall be 1/32 inch perforation, easily removable, manufactured of the same material as the valve body.

D. PVC and CPVC y-strainers shall be provided in PVC and CPVC piping and as shown on the Drawings. Strainer shall be provided with PVC or CPVC body and end cap, EPDM or Viton seal as required for the chemical service, and 20 mesh screen. Temperature rating shall be 30°F to 140°F, and pressure rating shall be 150 psi @ 70°F, non-shock. PVC and CPVC y-Strainers shall be as manufactured by Asahi/America, Hayward, or equal.

E. Manually cleaned strainers shall be the duplex basket tapered plug type.

1. Strainers 3 inches in diameter and larger shall have flanged ends conforming to ANSI B16.1 125/150 pound standard.

2. Strainers less than 3 inches in diameter shall have screwed end connectors, unless otherwise shown on the Drawings.

3. Strainers shall be constructed with an ASTM A48, Class 30 cast iron body, ductile iron trim, removable 0.045 inch staggered hole perforation, 304 stainless steel filter baskets and gauges on the inlet and outlet.

4. All strainers shall be suitable for 125 psi service.

5. Switching flow from one basket to the other shall be accomplished by moving the handle through a 180□ arc. The switching operation shall not stop flow through the strainer and shall provide for on line removal of either basket with the other basket functional. The plug shall be automatically positioned with integral stops and shall be easily lifted and reseated under pressure.

6. The strainer shall be designed to minimize the possibility of material bypassing the plug while being rotated and to prevent debris from building up under the plug. The strainer covers shall be designed for quick opening with swing away yoke.

7. Each basket compartment shall have a side drain outlet.

8. All strainers shall be provided with support legs.

9. Duplex basket strainers shall be similar to the Model 53BTX as manufactured by Hayward, or equal.

F. PVC and CPVC simplex basket strainers shall be provided in PVC and CPVC piping as shown on the Drawings. 1/2”-4” strainers shall be one-piece molded body with (3) ports to facilitate straight-thru flow pattern or u-shape flow pattern as required. Connections shall be true union type to ease installation/future maintenance. The cover, vent plug, and drain plug shall all be hand-removable, requiring no tools. EPDM or Viton seals shall be used as required for chemical service, and internal baskets shall be 1/32” perforation (20-mesh) for 1/2”-1” sizes, and 1/8” perforation for 1-1/2”-8” sizes. 6” and 8” strainers shall be fabricated construction and shall contain flanged connections as standard. The pressure rating for 1/2”-8” sizes shall be 150 psi @ 70°F, non-shock. Strainers shall be manufactured by Hayward Industrial Products, or equal.

2.06 QUICK DISCONNECT COUPLINGS

A. Quick disconnect type coupling for compressed/service air shall be provided where indicated on the Drawings. Coupling shall provide for instantaneous shutoff in socket end when lines are disconnected. Couplings shall be constructed of 316 stainless steel with a BUNA N O ring and integral safety lock. Couplings shall comply with Military Specification 4109 (interchangeable with standard plug of the same size).

2.07 BACKFLOW PREVENTERS

A. Backflow preventer shall be the size shown on the Drawings and shall be of the double check valve principle. Backflow preventer installation shall include isolation valves and four test cocks, furnished as an assembly. For backflow preventers less than 2-1/2", the installation assembly also shall include a strainer. Isolation valves for backflow preventers shall be ball

valves, except for size 2-1/2" and larger which shall be resilient seat gate valves. Test cocks shall be located as recommended by the manufacturer to facilitate functional testing of the assembly. The backflow preventer shall be a WATTS 709, or equal.

B. Reduced Pressure Backflow Preventer shall be of the size shown on the Drawings, and shall be of the reduced pressure principle type in accordance with AWWA Standards C510 and C511, with two (2) independent operating spring loaded check valves and one (1) spring loaded, diaphragm actuated, differential pressure relief valve shall be installed between the check valves. Backflow preventer shall be bronze body construction, with EPT rubber discs and Buna N and nylon diaphragm. Screws and springs shall be of stainless steel. End connections shall be screwed, unless otherwise specified or shown on the Drawings. Reduced pressure backflow preventer installations shall include isolation valves and four test cocks, furnished as an assembly. For reduced pressure backflow preventers less than 2-1/2" the installation assembly also shall include a strainer. Isolation valves for reduced pressure backflow preventers shall be ball valves, except for sizes 2-1/2" and larger which shall be resilient seat gate valves. Test cocks shall be located as recommended by the manufacturer to facilitate functional testing of the assembly. The reduced pressure backflow preventer shall be as manufactured by Beeco Division, Hersey Products Inc., Aergap Model 6CM, WATTS 909, or equal.

PART 3 EXECUTION

3.01 INSTALLATION

A. Except where noted otherwise herein, all valves shall be installing and tested in accordance with the latest revision of AWWA C500. Before installation, all valves shall be lubricated, manually opened and closed to check their operation and the interior of the valves shall be thoroughly cleaned. Valves shall be placed in the positions shown on the Drawings. Joints shall be made as directed under the Piping Specifications. The valves shall be so located that they are easily accessible for operating purposes, and shall bear no stresses due to loads from the adjacent pipe. The Contractor shall be responsible for coordinating connecting piping.

B. All valves shall be tested at the operating pressures at which the particular line will be used. Any leakage or "sweating" of joints shall be stopped, and all joints shall be tight. All motor operated and cylinder operated valves shall be tested for control operation as directed by the Engineer.

C. Provide valves in quantity, size, and type with all required accessories as shown on the Drawings.

D. Install all valves and appurtenances in accordance with manufacturer's instructions. Install suitable corporation stops at all points shown or required where air binding of pipe lines might occur. Install all valves so that operating handwheels or wrenches may be conveniently turned from operating floor but without interfering with access, and as approved by Engineer. Unless otherwise approved, install all valves plumb and level. Valves shall be installed free from distortion and strain caused by misaligned piping, equipment or other causes.

E. Valve boxes shall be set plumb, and centered with the bodies directly over the valves so that traffic loads are not transmitted to the valve. Earth fill shall be carefully tamped around each valve box to a distance of 4 feet on all sides of the box, or to the undisturbed trench face, if less than 4 feet.

3.02 SHOP AND FIELD TESTING

A. Shop and field testing of valves shall be as follows:

1. Certified factory testing shall be provided for all components of the valve and operator system. Valves and operators shall be shop tested in accordance with the requirements in the latest revision of AWWA C500, including performance tests, leakage test, hydrostatic tests, and proof of design tests. The manufacturer through the Contractor shall submit certified copies of the reports covering the test for acceptance by the Engineer.

2. Shop testing shall be provided for the operators consisting of a complete functional check of each unit. Any deficiencies found in shop testing shall be corrected prior to shipment. The system supplier through the Contractor shall submit written certification that shop tests for the electrical/pneumatic system and all controls were successfully conducted and that these components provide the functions specified and required for proper operation of the valve operator system.

3. The Contractor shall conduct field tests to check and adjust system components, and to test and adjust operation of the overall system. Preliminary field tests shall be conducted prior to start up with final field tests conducted during start up. The factory service representative shall assist the Contractor during all field testing and prepare a written report describing test methods, and changes made during the testing, and summarizing test results. The service representative shall certify proper operation of the valve operator system upon successful completion of the final acceptance field testing.

4. Preliminary and final field tests shall be conducted at a time approved by the Engineer. The Engineer shall witness all field testing.

5. All costs in connection with field testing of equipment such as energy, light, lubricants, water, instruments, labor, equipment, temporary facilities for test purposes, etc. shall be borne by the Contractor. The Contractor shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the Owner formally takes over the operation thereof.

6. Preliminary field tests shall be conducted prior to start up and shall include a functional check of the entire valve operator system and all system components. Preliminary field tests shall demonstrate that the valve operator system performs according to specifications and that all equipment, valves, controls, alarms, interlocks, etc., function properly. The preliminary field test report must be approved by the Engineer prior to conducting final field acceptance tests. Based on results of preliminary field tests, the Contractor shall make any adjustments required to settings, etc., to achieve the required valve closing time and operation specified or otherwise directed by the Engineer.

7. Final field acceptance tests shall be conducted simultaneously with the start up and field testing of the pumps, air compressors, process air blowers, etc. Field tests shall be conducted for the full range of operating modes and conditions specified and as directed by the Engineer. Each of the valves shall be tested at minimum, maximum, and normal head/flow conditions, and under all specified conditions of opening and closing. Performance of pneumatic valves and compressed air system under normal operating conditions and during simulated power failures shall be checked.

8. Field testing shall include optimization of opening and closing times of the valves. The Contractor shall provide the means for accurate measurement of pipeline pressures as directed by the Engineer. Valve opening and closing times shall be adjusted based on

process requirements to optimize operation of the valves. Final valve opening and closing times as determined by field tests shall be approved by the Engineer prior to final acceptance of the system.

[END OF SECTION]

SECTION 15100

VALVE OPERATORS AND ELECTRIC VALVE ACTUATORS

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Equipment shall be provided in accordance with the requirements of Section 11000, Equipment - General and Section 15000, Basic Mechanical Requirements.

B. Valve operators and electric valve actuators shall be designed to unseat, open or close, and seat the valve under the most adverse operating condition to which the valves will be subjected.

C. Operator mounting arrangements shall be as indicated on the Drawings or as directed by the manufacturer and/or Engineer. There shall be no mounting restrictions on the electric valve actuator.

D. The valve operators and electric actuators shall be the full and undivided responsibility of the valve manufacturer in order to ensure complete coordination of the components and to provide unit responsibility. Electric operators must be mounted and shop tested by valve manufacturer.

1.02 SUBMITTALS

A. The following items shall be submitted in accordance with the Contract Documents and in addition to the submittal requirements specified under Section 11000, Equipment - General:

1. Manufacturer's information and catalog data showing compliance with this specification and a full description of the product.

2. Shop Drawings.

    a. Mounting adapter shop drawings.

    b. Wiring diagrams.

    c. Design calculations.

3. O&M Manuals.

4. Certification that the force required to operate all valves is as specified herein.

5. Shop test certifications, including certification from the valve manufacturer that the valve/actuator assembly was tested at the valve manufacturer’s facility.

1.03 WARRANTY AND GUARANTEE

A. Warranty and Guarantee shall be as specified in Section 11000, Equipment – General with the exception that the warranty period shall be for two (2) years for valves, gearboxes, and actuators.

PART 2 – PRODUCTS

2.01 GENERAL

A. Electric actuators shall be provided where shown on the Drawings.

B. Manual operators shall be provided on all valves which do not receive electric actuators. Manual operator type shall be as specified herein and as shown on the Drawings.

C. Quarter turn valves 8” and greater in size shall have geared operators. Gate valves 14” and greater in size shall have geared operators.

D. Operators/actuators shall be furnished with conservatively sized extension bonnets, extension stems, or torque tubes, and all required appurtenances required for a complete installation. Operators furnished with extension bonnets shall include stainless steel extension stems, or stainless steel torque tubes.

2.02 MANUAL OPERATORS

A. Unless otherwise specified or shown on the Drawings, manual operator type shall be as follows:

1. Buried valves shall be equipped with nut operators, extended stems, and valve boxes. Where the depth of the operating nut is more than 4 feet below finish grade, a valve operator extension shall be provided to bring the operating nut to within 18-24 inches of the surface.

2. Exposed valves up to 6-inch shall be lever operated (except gate valves).

3. Exposed valves 8-inches and larger shall be handwheel operated.

4. Exposed gate valves shall be handwheel operated.

5. Valves with centerline of operator located more than 6-feet above the floor or platform from which it is to be operated shall have a chainwheel operator unless otherwise indicated on the Drawings.

B. Manual operators shall be rigidly attached to the valve body unless otherwise specified or shown on the Drawings.

C. All operators shall turn counter-clockwise to open and shall have the open direction clearly and permanently marked.

D. Valve operators shall be designed so that the force required to operate the handwheel, lever, or chain (including breakaway torque requirements) does not exceed 80 pounds applied at the extremity of handwheel or chainwheel operator. Design pressures for sizing of valve operators shall be the piping test pressure for the piping in which the valve is to be installed.

E. Handwheels for valves operators shall not be less than 12 inches in diameter. The maximum diameter of any handwheel shall not exceed 24".

F. Nut operators shall have standard 2-inch square AWWA operating nuts.

2.03 GEAR OPERATORS

A. The operator shall be cable of withstanding a minimum input torque of 300 ft-lbs. on the operating nuts or a minimum pull of 200 lbs. on the handwheel without damage to the operator components between the input and the stops. Operators on valves 30-inch and larger shall be equipped with an AWWA input shaft stop.

B. Worm gears shall be constructed in accordance AWWA C517/C504 and shall be IP68 rated for continuous duty to 50 feet.

C. Test certificates substantiating AWWA approval shall be submitted with gear operator manufacturer's signature.

D. Operators shall be enclosed in a ductile iron housing with outboard seals to protect the bearings and other internal components. Shaft and quadrant shall be supported on permanently angular contact bearings. Input shaft and fasteners shall be constructed of stainless steel. Gears shall be efficiency optimized, 3-stage gear reduction type.

E. Externally adjustable open and closed position stops shall be provided. The adjustable closed position stop shall be used to set closing torque and provide adjustment to compensate for change in pressure differential or flow direction.

F. Valves and gear actuators for buried or submerged service shall have seals on all shafts and gaskets on the valve and actuator covers to prevent entry of water. Actuators shall be 90% grease filled. Actuator mounting brackets for buried or submerged service shall be totally enclosed and shall have gasket seals.

G. Gears shall include a device for back winding protection to prevent undesirable reverse rotation of the gear train at the extents of travel when holding a residual applied torque.

H. Buried valves shall be provided with an over-torque protection device rated for a minimum shear force trip torque of 450 ft-lbs. Gearbox torque limiter shall be Aunspach Model D87 Torq Master, or approved equal.

I. Gears shall be provided with a nameplate indicating serial number, ratio, and number of turns.

J. Gears shall be Rotork Model IW-RL-MD-RAW or approved equal.

2.04 ELECTRIC VALVE ACTUATORS

A. Electric Actuators shall be open/close service or modulating service as specified.

B. Manufacturers

1. Rotork.

2. Auma.

3. EIM.

4. Or approved equal.

C. Performance Criteria

1. Ambient Temperature Rating: -20 to +158 degrees F.

2. Ambient Humidity: 100 percent.

3. Power Supply: 460-volt, three-phase, 60 Hertz, unless otherwise indicated in the Contract Documents.

4. Control Voltage: 120 VAC, single phase, 60 Hertz.

5. Torques: As determined by valve manufacturer.

6. Duty Cycle: As specified herein.

D. Performance Requirements

1. The actuators shall be designed for indoor and outdoor service and shall be capable of mounting in any position.

2. Torque capacity of the actuators shall be sufficient to operate the valves at the maximum pressure differential, with a safety factor of 1.5. Actuators in modulating service will be selected such that the required dynamic valve torque is no more than 60% of the electric actuator’s maximum rated breakaway of torque.

3. Operating time for full limits of travel shall be not more than 2 seconds per inch diameter of the valve, +/- 50 percent through 20 inches; +/- 30 percent for valves 24 inches and larger. Operating time shall not be less than 60 seconds for all modulating valves.

4. Actuators shall be capable of operating in ambient temperatures ranging from 0 degrees F – 160 degrees F.

5. For open/close (non-modulating) actuators, the gearing, motor and contactor shall be capable of 60 starts per hour without overheating.

6. For modulating actuators, the gearing, motor and contactor shall be capable of 1200 starts per hour without overheating.

E. The actuators shall include, in one integral housing, individual compartments for the motor, gearing, wiring terminals, and control circuits. The terminal compartment shall be separated from the inner electrical components of the actuator by means of a watertight seal. The inner seal shall protect the motor and all other internal electrical elements of the actuator from entrance of moisture and dust when the terminal cover is removed. Double cartridge shaft seals shall be provided on the hand wheel and output shafts for weatherproof protection. All external fasteners shall be stainless steel. Actuators shall be o-ring sealed, watertight to IP66/IP68 21 feet for 72hrs, NEMA 4 or 6, unless otherwise specifed. Actuators located in corrosive areas shall be NEMA 4X. Actuators located in classified areas shall be NEMA 7 suitable for use in Class 1, Division 1 or 2, Group D environments.

F. The actuators shall be provided with externally operable and lockable 480VAC circuit breakers integral to the control housing. Disconnect shall be minimum 16 amp, fused, with a stainless steel enclosure. Disconnect switch shall be shipped separate and loose from the actuator.

G. All gearing shall be hardened alloy steel or bronze and shall be rated at twice the output torque of the operator and shall be designed to withstand the stall torque of the motor without failure. Output drive gearing shall consist of a worm shaft and worm gear pinion operating in an oil bath. The worm gear pinion shall be alloy bronze. Worm gear drive shall be self-locking to prevent creeping of the valve disc in an intermediate position. Heavy-duty grease shall protect gearing and sealed ball bearings of the main shaft for five years without changing. Motor reduction gearing shall be spur or planetary gearing and shall allow for field repair and change in gear ratio. For quarter turn applications, overtravel of the operator shall be prevented by internal mechanical stops cast into the actuator.

H. A mechanical dial position indicator shall be furnished to continuously indicate the position of the valve at and between the fully open and fully closed positions. The indicator shall be driven by gearing driven off of the main worm gear pinion and shall operate when the actuator is in either the electrical mode or manual mode.

I. A handwheel shall be permanently attached for manual operation. A gear assembly shall be provided between the handwheel and the worm shaft if required to reduce the force necessary to operate the handwheel to less than 40 pounds. A positive declutch mechanism shall engage the handwheel when required. When the actuator is set in the declutched position for handwheel operation, it shall return automatically to electric

operation when actuator motor is energized. The handwheel shall not rotate during electric operation nor shall a fused motor prevent handwheel operation.

J. The drive motor shall be specifically designed for actuator service and shall be characterized by high starting torque and low inertia. Motors shall be reversible squirrel cage AC induction type motors and shall be specifically designed for open/close or modulating service where required. DC motor actuators with integral gearing, will not be accepted. Motors shall be totally enclosed, non-ventilated, with NEMA Class F insulation minimum (Class H for modulating actuators) and a maximum continuous temperature rating of 120 degree C (rise plus ambient). The electric motor shall have a time rating of at least 15 minutes at 104°F (40°C) or twice the valve stroking time, whichever is longer, at an average load of at least 33% of maximum valve torque. Motor bearings shall be permanently lubricated by premium lubricant. The motor shall have plug and socket electrical connection or hardwired. The actuator shall include a device to ensure that the motor runs with the correct rotation for the required direction of valve travel with either phase sequence of the three-phase power supply connected to the actuator. The motor shall include single phase protection. A suitable thermal protection device shall be incorporated in the motor or motor starter circuits, connected to a tripping device. Fast acting fuses shall be provided to protect solid state components. The motor shall be capable of starting against the rated load in either the open or close direction when voltage to the motor terminals is plus or minus ten (10) percent of nameplate rating.

   1. Open/Close actuators shall be furnished with electro-mechanical reversing starters.

   2. Modulating actuators shall be furnished with solid state reversing starters utilizing thyristors.

K. Leads from the motor shall be brought to the control circuit (limit switch) compartment without external piping or conduit box. The following items shall be located in the control circuit compartment.

   1. Torque limit switches shall be provided to de-energize the motor control circuit in the event of a stall when attempting to unseat a jammed valve and when torque is exceeded during valve travel. Each actuator shall have an open direction torque switch and a close direction torque switch. The torque switches shall be mechanically operated and able to be set in torque units. Torque switches shall be calibrated prior to the actuator's assembly to the valve.

   2. Travel limit switches shall be provided to de-energize the motor control circuit when the actuator reaches the limits of travel in the open and close directions. The limit switch drive shall be of the counter gear type and "in step'" with the actuator output drive at all times in either the electrical or manual mode of operation. A minimum of six (6) contacts, three (3) normally open and three (3) normally closed, shall be supplied at each end of valve travel. Four (4) additional

contacts shall be provided to report end of travel or any desired position between ends of travel.

L. Modulating actuators shall have a position feedback potentiometer mounted directly to the valve actuator gearing inside the gearing compartment. The potentiometer shall provide a 4-20 mA signal corresponding to valve position. Modulating valve actuators shall be designed to respond to either a 4-20mADC analog signal.

1. Modulating valve actuators designed to respond to a 4-20mADC signal shall be provided with a valve positioner which shall position the valve proportional to an externally generated 4-20mADC signal. The valve positioning control circuitry shall position the valve by comparing the command signal with the present valve position as indicated by the feedback potentiometer. The positioner shall be field adjustable to fail to the “open,” “closed,” or “last” position on loss of 4-20 mADC command signal.

M. The electrical terminals shall be housed in a double sealed terminal compartment isolated from the rest of the actuator components. The actuators shall be furnished with fuses inside of the terminal compartment. A quantity of two – ¾ inch NPT conduit entries shall be furnished.

N. Actuators shall contain wiring and terminals for the following control functions. All dry contacts shall be rated for 5A at 250VAC.

1. Open, Close, and Stop commands from external dry contacts (utilizing internal 120VAC power supply) and/or from an external signal of 12V to 120V. The inputs for the open, close, stop signals shall be field selectable to be respond to either maintained or momentary remote signals. In momentary mode, the actuator shall have internal latching circuitry that causes the operator to drive the valve to its limit of travel upon receipt of the momentary contact signal unless a stop signal is received.

2. Emergency override input from a normally closed or normally open contact. The actuator shall either open or close (field selectable) upon receiving the emergency override input.

3. Provide remote Local-Off-Remote selector switch, Open/Close pushbuttons, and Open/Closed pilot lights for a remote manual control station. The remote Local-Off-Remote selector switch and Open/Close pushbuttons shall be a dry contact input to the actuator control circuitry. The Open/Closed pilot lights shall be powered from the valve actuator control power.

4. Four (4) unpowered contacts shall be provided which can be selected to indicate valve “Opened” and “Closed” position, “Remote” status of the actuator, and fail status of the actuator. The fail status contacts shall activate upon motor overtemperature and actuator overtorque as a minimum.

5. Terminals for 4-20mADC position command and 4-20mADC position feedback as described above for modulating actuators.

O. Local Controls

1. Actuators shall be furnished with a Local-Off-Remote selector switch; Open, Close, and Stop pushbuttons for local control; a red lamp indicating closed and a green lamp indicating open. L-O-R switch shall be padlockable in any of the three positions.

   a. When the LOR is in the “Local” position, open/close control shall be by the open and close pushbuttons on the actuator. The stop push button shall stop the actuator travel.

   b. When the LOR is in the “Off” position, the actuator shall not operate.

   c. When the LOR is in the “Remote” position, the actuator shall be controlled by remote inputs from the PLC or from the remote manual controls station.

2. The local controls shall be arranged so that the direction of travel can be reversed without the necessity of stopping the actuator.

P. Remote Manual Control Station

1. Where indicated on the Drawings, provide remote manual control station with a self-contained, double sealed enclosure. NEMA rating shall match that of the actuator.

2. Actuators shall have the capability of being provided with a remote manual control station, which is a “mirror image” of the actuator face

3. Remote manual control station shall be suitable for remote connection to an electric actuator located up to 325 feet away.

4. Remote manual control station shall provide local control functionality and shall include a backlit LCD display and terminals for connecting the remote manual control station to the host actuator.

5. Adjustments to the actuator configuration settings shall not require removal of any covers and shall be capable of being accomplished using a Bluetooth wireless interface.

6. Where indicated on the Drawings, manual actuator controls shall be furnished in a separate NEMA 4X stainless steel enclosure (NEMA 7 if located in a classified area).

2.05 NAMEPLATES

A. Nameplates shall be provided on each item of equipment. Equipment nameplates shall be type 316 stainless steel bearing the equipment name and equipment number legibly engraved in 3/4 inch high letters. Nameplates shall be attached to the equipment in an accessible location with stainless steel screws.

2.06 PAINT

A. Actuator shall be factory coated in accordance with the manufacturer's standard paint system.

2.07 SPARE PARTS

A. Provide spare parts as recommended by manufacturer.

PART 3 – EXECUTION

3.01 MANUFACTURER'S FIELD SERVICES

A. The services of a qualified manufacturer's technical representative shall be provided in accordance with Section 11000 – Equipment - General and shall include the following site visits for electric actuators:

Service	Number of Trips	Number of Days/Trip
Installation and Testing	1	1
Startup and Training	1	1

3.02 INSTALLATION

A. All valve actuators shall be installed in accordance with the manufacturer's published recommendations and the applicable Specification Sections for valves.

3.03 SHOP TESTING

A. Shop testing shall be in accordance with Section 11000, Equipment - General and with the following additional requirements:

1. Test each valve actuator in manufacturer's shop in conformance with AWWA C542.

2. Conduct a complete functional check of each unit. Correct any deficiencies found in shop testing prior to shipment.

3. Submit written certification that:

a. Shop tests for the electrical system and all controls were successfully conducted;

b. Electrical system and all controls provide the functions specified and required for proper operation of the valve operator system.

4. Each actuator shall be performance tested and individual test certificates shall be supplied. The test equipment shall simulate each typical valve load and the following parameters should be recorded:

a. Current at maximum torque setting.

b. Torque at maximum torque setting.

c. Flash Test Voltage.

d. Actuator Output Speed or Operating Time.

e. In addition, the test certificate should record details of specification, such as gear ratios for both manual and automatic drive, closing direction, and wiring diagram code number.

f. Verification of actuator torque rating with valve.

3.04 FIELD TESTS

A. Field testing shall be in accordance with Section 11000, Equipment - General and with the following additional requirements:

1. Valve actuators shall be field-tested together with the associated valves.

2. Test all valves at the operating pressures at which the particular line will be used.

3. Test all valves for control operation as directed.

4. Field testing shall include optimization of opening and closing times of the valves. Valve opening and closing times shall be adjusted based on process requirements to optimize operation of the valves. Final valve opening and closing times as determined by field tests shall be approved by the Engineer prior to final acceptance of the system.

B. Preliminary Field Tests

1. General: Preliminary field tests shall be conducted prior to start-up and shall include a functional check of the entire valve operator system and all system components.

2. Scope: Preliminary field tests shall demonstrate that the valve operator system performs according to specifications and that all equipment, valves, controls, alarms, interlocks, etc., function properly.

3. Based on results of preliminary field tests, the Contractor shall make any adjustments required to settings, etc., to achieve the required valve closing time and operation, as specified or otherwise directed.

C. Final Field Tests

1. Final field tests shall be conducted in accordance with the latest revision of AWWA C542.

2. Final field tests shall be conducted for the full range of operating modes and conditions specified and as directed by the Engineer. Each of the valves shall be tested at minimum, maximum, and normal head/flow conditions, and under all specified conditions of opening and closing.

3. Certification of Equipment Compliance: After the final field tests are completed and passed, submit affidavit according to Section 11000, Equipment - General.

[END OF SECTION]

SECTION 15101

BUTTERFLY VALVES

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Reference Section 15000 – Basic Mechanical Requirements.

1.02 SUBMITTALS

A. Submittals shall be in accordance with submittal requirements of the Contract Documents and Section 11000, Equipment – General. In addition to any relevant submittal requirements within these Sections, the following shall also be submitted:

1. Shop drawings and dimensional information including valve lay length.
2. Performance and leak shop test results.
3. Equipment literature and cut sheets.
4. Statement of compliance with AWWA C504.
5. Warranty information.
6. Operation and maintenance manuals.

1.03 REFERENCES

A. American Bearing Manufacturers Association (ABMA).

B. ANSI B16.1, Cast-Iron Pipe Flanges and Flanged Fittings.

C. ANSI B16.34, Valves-Flanged, Threaded and Welding end. (ASME B16.34).

D. API STD 609, Butterfly Valves: Double Flanged, Lug-Type and Wafer-Type.

E. ASTM A126, Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings.

F. ASTM A536, Specification for Ductile Iron Castings.

G. AWWA C504, Rubber-Seated Butterfly Valves.

H. AWWA C550, Protective Interior Coatings for Valves and Hydrants.

I. AWWA Manual M49, Butterfly Valves: Torque, Head Loss, and Cavitation Analysis.

PART 2 – PRODUCTS

2.01 BUTTERFLY VALVES (LIQUID SERVICE)

A. Butterfly valves shall be of the rubber-seated, bi-directional, tight-closing type conforming to the latest revision of AWWA C504. The manufacturer shall have a minimum of 5 years of experience in manufacturing butterfly valves of the sizes required in accordance with AWWA C504. All butterfly valves shall be the product of one manufacturer.

B. Butterfly valves shall be as manufactured by:

1. DeZurik Model BAW
2. Pratt
3. Mueller Co.
4. GA Industries
5. Or approved equal.

C. Materials of Construction

Materials of Construction Schedule

Component	Materials of Construction
Valve Body	Cast Iron ASTM A 126, Grade B, ASTM A 48, Class 40 or Ductile Iron ASTM A536, Grade 65 45 12
Valve Disc	Ductile Iron, ASTM A536, Grade 65-45-12
Valve Shaft	Type 316 Stainless Steel
Shaft Seal	Grade E Bronze, ASTM B505 copper alloy UNS #C93200
Disc Trim	Type 316 Stainless Steel or Monel
Seat and O-rings	EPDM or other synthetic rubber suitable for the application
Fasteners and Hardware	Type 316 Stainless Steel

D. Each valve shall be performance and leak tested as specified in AWWA C504 revised as follows: In addition to the testing requirements of AWWA C504, each butterfly valve shall be thoroughly cleaned and opened and closed at least three (3) times prior to testing. Certified copies of the test results shall be submitted to the Engineer for approval prior to shipment of the valve.

E. Butterfly valves shall be Class 150B, unless otherwise indicated, and of the short body design with mechanical joint or flanged ends, as shown on the Drawings. Flanged end

valves shall include 125 lb. flanged ends faced and drilled per ANSI B16.1 standard for cast iron flanges. Mechanical joint ends shall meet the requirements of AWWA C111/ANSI A21.11.

F. Where required to meet design operating conditions, valve bodies shall be manufactured of higher strength materials. Valve bodies shall have integral hubs for housing shaft bearings and seals.

G. Butterfly valves shall be of the concentric or eccentric shaft types. Valve discs shall provide a full 360-degree seating surface with no external ribs transverse to flow, and shall comply with the latest revision of AWWA C504. The valve manufacturer shall furnish Shop Drawings which include end clearance dimensions when the disc is in the fully open position.

H. The resilient valve seat shall be designed to seat against a pressure differential of 150 psi on either side of the valve, unless otherwise indicated. The seat shall be molded in and vulcanized to the valve body and shall fully encapsulate interior of valve body, fully rubber lined valve.

1. The seats shall be factory tested according to AWWA C504 at a test pressure of 150 psig, unless otherwise indicated, and post adjusted for differential pressures indicated herein.

2. Compression between the seat and disc edge shall be adjustable from both the upstream and downstream side of the valve disc and the seat shall be field replaceable without disassembly of the disc and shaft.

3. Seat shall withstand 75lb per inch pull when tested in accordance with ASTM D429, Method B.

I. Valve shafts shall be one-piece or two-piece units suitably sized to transmit the torques required to operate the valves under the conditions listed in the valve schedule with appropriate safety factor. Shafts shall be securely attached to valve disc by means of conservatively sized corrosion-resistant taper pins, threaded at one end and secured with lockwashers and nuts (i.e., mechanically attached). Provide O-ring seal on taper pin if required to prevent leakage. Shaft key shall be constructed of corrosion-resistant material.

J. Shaft bearings shall be contained in the integral hubs of the valve body and shall be the permanently self-lubricated, corrosion resistant, sleeve type of teflon or heavy-duty bronze. The valve assembly shall be furnished with a factory set two-way thrust bearing designed to center the valve disc in the valve seat at all times. End cover bolts shall be of stainless steel construction.

K. The shaft seal shall be either the cartridge type with at least two O-rings, monolithic V-Type, U-Cup Type, or pull down packing type.

1. If monolithic V-Type, U-Cup Type, or pull down packings are utilized, it shall be self-adjusting, self-compensating type. Packing shall be as manufactured by Chevron, or equal. Butterfly valves with pull down packings shall be designed with an extension bonnet so that repacking can be done without removal of the actuator. For buried valves with pull down packing the packing gland cover assembly shall be heavy duty, soil and water resistant. Stuffing boxes for pull down packing shall have a depth sufficient to accept at least four rings of self-compensating type packing specifically selected for the operating pressures to be encountered.

2. The "O" ring type shaft seal shall be contained in a removable bronze cartridge. The cartridge materials shall meet the requirements of AWWA C504 for bronze, Grade E. The "O" ring material shall compatible for use with reclaimed water or wastewater and per ASTM D-2000 with a hardness of 70 Shore A Durometer.

L. Manual operators for butterfly valves 18-inches in diameter or larger shall be the worm gear type conforming to AWWA C504. Manual operators for butterfly valves mounted above 6 feet from the operating floor shall be equipped with worm gear chainwheel actuators. Operators shall be equipped with adjustable AWWA limit stops, shall be sized according to Table IV for Class 150B, and shall require a minimum of 15 turns for 90 degrees or full stem valve travel. The capacity of the manual operator shall be adequate to drive the valve under the differential pressure of 150 psi and maximum anticipated flow, unless otherwise indicated.

1. Worm gears shall be constructed in accordance with AWWA C504 and shall be IP68 rated continuous duty to 50ft. Gears shall incorporate backwinding protection to prevent undesired reverse rotation of the gear train at the extents (i.e. fully closed position) of travel when holding a residual applied torque. Output shaft of gearbox shall be a splined connection to operating nut. Gears shall be able to be mounted on valves at 90 degrees or 270-degree positions. Gearbox handwheel shall not interfere with valve body or other components.

M. The manufacturer shall certify that the butterfly valves are capable of operating in continuous duty service under the design test pressures and design flow conditions.

N. All external ferrous components and surfaces of the valves, with the exception of stainless steel and finished or bearing surfaces, shall be shop painted in accordance with AWWA C504 with two coats (10 mils min. dry film thickness) of the manufacturer's premium epoxy for corrosion resistance. Damaged surfaces shall be repaired in accordance with the manufacturer's recommendations.

O. Valves shall be coated inside. Steel, cast-iron, and ductile iron surfaces, except machined surfaces, shall be epoxy-coated in accordance with AWWA C550.

P. Valve shall include equipment tag that indicates direction of flow.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install butterfly valves in accordance with the manufacturer's instructions and requirements of applicable AWWA standards.

B. Install valves plumb and level. Install all valves to be free from distortion and strain caused by misaligned piping, equipment, and other causes.

C. Position butterfly valves so that, when valve is fully open, valve disc does not conflict with piping system elements upstream and downstream of valve.

D. Exposed Valves:

1. Provide supports for large or heavy valves and appurtenances as shown or required to prevent strain on adjoining piping.

E. Operators:

1. Install valves so that operating levers can be conveniently turned from operating floor without interfering with access to other valves, piping, structure, and equipment, and as approved by Engineer.

2. Avoid placing operators at angles to floors or walls.

3. Orient chain operators out of way of walking areas.

4. Install valves so that indicator arrows are visible from floor level.

5. For motor-operated valves located lower than five feet above operating floor, orient motor actuator to allow convenient access to pushbuttons and handwheel.

[END OF SECTION]

SECTION 15104

BALL VALVES

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Reference Section 15000 – Basic Mechanical Requirements.

B. Valves required for chemical service shall be constructed of materials suitable for the intended service.

1.02 SUBMITTALS

A. Submittals shall be in accordance with submittal requirements of Contract Documents and Section 11000, Equipment – General. In addition to any relevant submittal requirements within these Sections, the following shall also be submitted:

1. Shop drawings and dimensional information including valve lay length.

2. Performance and leak shop test results.

3. Equipment literature and cut sheets.

4. Statement of compliance with AWWA C507.

5. Warranty information.

6. Operation and maintenance manuals.

1.03 REFERENCES

A. American Bearing Manufacturers Association (ABMA).

B. ANSI B16.1, Cast-Iron Pipe Flanges and Flanged Fittings.

C. ANSI B16.34, Valves-Flanged, Threaded and Welding end. (ASME B16.34).

D. ASTM A126, Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings.

E. ASTM A536, Specification for Ductile Iron Castings.

F. AWWA C507, Ball Valves, 6-inch through 48-inch.

G. AWWA C550, Protective Interior Coatings for Valves and Hydrants.

PART 2 – PRODUCTS

2.01 BALL VALVES

A. Ball valves shall be of the full port, single seated, metal to metal seated, tight-closing type conforming to the latest revision of AWWA C507 Specifications. The manufacturer shall have a minimum of 5 years of experience in manufacturing ball valves of the sizes required in accordance with AWWA C507 Specifications. All ball valves shall be the product of one manufacturer.

B. Ball valves shall be as manufactured by:

1. Dezurik (Willamette)

2. Or approved equal.

Materials of Construction Schedule

Component	Materials of Construction
Valve Body	Cast Iron ASTM A 48, Class 35 or Ductile Iron ASTM A536 GR 65-45-12
Ball	Cast Iron ASTM A48, Class 35
Trunnions	Bronze
Body Seats	400 Series Monel
Ball Seats	ASTM A276, Type 316 Stainless Steel
Shaft	17-4P Stainless Steel or Chrome Molybdenum Steel, ASTM A 322 Grade 4140
Seat and O-rings	EPDM or Buna-N
Fasteners and Hardware	Type 316 Stainless Steel
Torque Unit Components	As specified herein

C. Each valve shall be performance and leak tested as specified in AWWA C507 revised as follows: In addition to the testing requirements of AWWA C507, each ball valve shall be thoroughly cleaned and opened and closed at least three (3) times prior to testing. Certified copies of the test results shall be submitted to the Engineer for approval prior to shipment of the valve.

D. Ball valves shall be AWWA Class 150, unless otherwise indicated in the valve schedules, design with flanged ends, and installed as shown on the Drawings.

E. The valve body shall be constructed of epoxy coated cast or ductile iron with a full, unrestricted circular inlet and outlet, with nominal opening diameter equal to the rated size of the valve.

F. Each valve body shall be provided with flanged ends conforming in diameter and drilling to ANSI B16.1, Class 125. All flanges shall be flat faced and finished to true plan surfaces within a tolerance limit of 0.005 inch. Each flange face shall be perpendicular to the longitudinal axis of the valve within a maximum angular variation tolerance of 0.002 inch per foot of flange diameter. Flange faces shall have concentric or spiral serrated finish.

G. The body shall provide rigid means for supporting the valve operating mechanism without the necessity of additional supports and shall be of such design that it shall be capable of receiving the complete ball sub assembly. The valve body shall have integral hubs for housing shaft bearings and seals.

H. The body shall have a rigidly attached metal seat. The body seat shall be machined, ground, and polished for contact with the seat mounted on the ball.

I. The ball shall be constructed of epoxy coated cast iron in accordance with AWWA C507 and with a full unobstructed, circular waterway with a diameter equal to the rated size of the valve. It shall have trunnion supports cast integral on the axis of rotation. An extension of one trunnion, called the operating shaft, shall pass through a shaft seal chamber and connect to the valve operation mechanism.

J. The plug shall have a stainless steel seat mounted thereon which shall properly align with the body seat when the valve is in the closed position. The surfaces of the seat ring shall be spherically generated and shall be machined, ground, and polished for contact with the body seat.

K. The plug trunnions shall be fitted with bronze bearings of sufficient difference in hardness from the body bushings to eliminate seizing and galling.

L. Bearing pressure shall not exceed 1500 psi at full differential pressure of 150 psi. Valve designs employing Teflon coated or other non-metallic bearing material will not be acceptable.

M. Bearings shall be machined in accurate alignment for reception of the valve ball trunnions.

N. Valve shafts shall be integral with the ball and shall connect the ball to the torque unit. The shaft shall be suitably sized to transmit the torques required to operate the valves under the conditions specified with appropriate safety factor. Shafts shall be securely attached to valve plug by means of conservatively sized corrosion-resistant taper pins, threaded at one end and secured with lockwashers and nuts (i.e.: mechanically attached). Provide O-ring seal on taper pin if required to prevent leakage. Shaft key shall be constructed of corrosion-resistant material.

O. Shaft bearings shall be contained in the integral hubs of the valve body and shall be the permanently self-lubricated, corrosion resistant, sleeve type of heavy-duty bronze. The valve assembly shall be furnished with a factory set thrust bearing designed to center

the valve plug in the valve seat at all times. End cover bolts shall be of stainless steel construction.

P. A shaft seal shall be provided of the type utilizing a plug shaft stuffing box, four (4) "O" ring seals, a bronze retainer, and a corrosion resistant steel lock ring.

Q. Manual operators for ball valves 18-inches in diameter or larger shall be the worm gear or travelling nut type conforming to AWWA C507. Manual operators for ball valves mounted above 6 feet from the operating floor shall be equipped with worm gear chainwheel actuators. Operators shall be equipped with adjustable AWWA limit stops and shall require a minimum of 15 turns for 90 degrees or full stem valve travel. The capacity of the manual operator shall be adequate to drive the valve under the differential pressure of 150 psi and maximum anticipated flow, unless otherwise indicated in the appropriate valve schedule. Provide electric motor operators where required and in accordance with Section 15100 – Valve Operators and Electric Valve Actuators.

R. The torque unit (valve operating mechanism) shall be of the traveling-nut type and shall be a product of the valve manufacturer. The assembly shall be mounted and attached to the valve body. The torque unit shall be designed to accept a manual, cylinder, or electric motor actuator. The torque unit housing shall employ the following:

1. A traveling crosshead to impart positive rotary movement to the plug which will move transversely to the valve shaft.

2. A cylinder piston rod or stainless steel Type 416 threaded leadscrew (reach rod or stem) with the crosshead directly attached thereto.

3. A rotator lever (of cast steel construction).

4. A matched set of interconnecting links (of cast steel construction) connecting the traveling crosshead to the rotator lever.

S. The traveling crosshead shall be confined to permit linear motion only and to prevent it from any tendency to rotate due to linkage reaction. A plug shaft support bearing shall be supplied on the cover.

T. The torque unit shall be so designed that during the first 50 percent of stroke in closing the flow area is reduced by approximately 81 percent. The remaining 19 percent of flow area shall be gradually reduced to a complete shutoff throughout the last 50 percent of the closing stroke.

U. The torque unit shall be totally enclosed in a suitable housing with a removable cover and shall be capable of being inspected, lubricated, adjusted and repaired without interfering with or removing the valve from the line and shall be permanently lubricated. All parts shall be of first class workmanship, easily replaceable, and manufactured of materials suited for the purpose. All parts subject to rubbing shall be of significantly

different hardness to prevent galling and shall be sized to result in a maximum bearing stress at full load of 2,000 psi. The main shaft shall be replaceable without removing the torque unit housing and while the valve is in the line under pressure.

V. The manufacturer shall certify that the ball valves are capable of operating in continuous duty service under the working and test pressures and design flow conditions.

W. Each valve shall by hydrostatically tested and tested for bubble tightness after the operator has been mounted and adjusted. Copies of the hydrostatic and leakage test certification and certification of conformance shall be submitted to the Engineer prior to shipment.

X. All internal and external ferrous components and surfaces of the valves, with the exception of stainless steel and finished or bearing surfaces, shall be shop painted with two coats (10 mils min. dry film thickness) of the manufacturer's premium epoxy for corrosion resistance. Damaged surfaces shall be repaired in accordance with the manufacturer's recommendations.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install ball valves in accordance with the manufacturer’s instructions and requirements of applicable AWWA standards.

B. Install valves plumb and level. Install all valves to be free from distortion and strain caused by misaligned piping, equipment, and other causes.

C. Exposed Valves:

1. Provide supports for large or heavy valves and appurtenances as shown or required to prevent strain on adjoining piping.

D. Operators:

1. Install valves so that operating levers can be conveniently turned from operating floor without interfering with access to other valves, piping, structure, and equipment, and as approved by Engineer.

2. Avoid placing operators at angles to floors or walls.

3. Orient chain operators out of way of walking areas.

4. Install valves so that indicator arrows are visible from floor level.

5. For motor-operated valves located lower than five feet above operating floor, orient motor actuator to allow convenient access to pushbuttons and handwheel.

[END OF SECTION]

SECTION 15105

CHECK VALVES

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Reference Section 15000 – Basic Mechanical Requirements.

B. Valves shall be constructed of materials suitable for the intended service and compatible with wastewater and reclaimed water with a chlorine residual.

PART 2 – PRODUCTS

2.01 SWING CHECK VALVES ≤ 3-INCH (LIQUID SERVICE)

A. Unless otherwise specified, check valves 3-inches and less shall be bronze, Y-pattern, swing check valves of the regrinding type.

B. Valves shall have a minimum 200 psi non-shock cold water pressure rating.

C. Valves shall be as manufactured by:

1. Jenkins Bros. Corp.

2. Crane Company.

3. Or approved equal.

2.02 RUBBER FLAPPER SWING CHECK VALVES > 3-INCH (LIQUID SERVICE)

A. Check valves larger than 3-inches shall be rubber flapper swing check valves conforming to the latest revision of AWWA C508 Specifications. The manufacturer shall have a minimum of 5 years of experience in manufacturing check valves of the sizes required in accordance with AWWA C508 Specifications. All check valves shall be the product of one manufacturer.

B. Check valves shall be:

1. Dezurik/APCO Model CRF.

2. Or approved equal.

a. Check valve designs vary with respect to lay length. Contractor shall be responsible for design modifications and alterations in the Work required to accommodate check valves that differ in dimension or other characteristics.

C. Materials of Construction

Materials of Construction Schedule

Component	Materials of Construction
Body and Cover	Cast Iron, ASTM A 126, Grade B or Ductile Iron ASTM A 536 Grade 65-45-12
Ball	Cast Iron ASTM A48, Class 35
Body Plug	Iron ATSM A 48, Class 40
Rubber Flapper and O-ring	Nitrile or other synthetic rubber suitable for the application
Bolts, Fasteners, and Hardware	Type 316 Stainless Steel
Compression Spring	Type 316 Stainless Steel

D. Each valve shall be performance and leak tested as specified in AWWA C508. Certified copies of the test results shall be submitted to the Engineer for approval prior to shipment of the valve.

E. Check valves shall be Class 150B, unless otherwise indicated, with mechanical joint or flanged end connections, as shown on the Drawings.

F. Body seat shall be on a 45-degree angle to the centerline of the pipe and possess non-slam characteristics.

G. Valve shall be rated for a minimum cold working pressure of 175 psi.

H. Valve design shall be such that flapper does not swing from a hinge pin, but rather flexes open. The flapper shall be captured between the body and valve cover to permit the disc to flex open and closed. Disc design shall provide for positive sealing.

I. Hinge section of the rubber flapper shall be designed to accelerate closing due to an elastic spring effect. High-strength fabric shall be integrally molded into the rubber over the disc and bar to form a flexible joint giving the flapper a high cycle life.

J. Internal flow area of valve body shall be elastomer lined for resistance to abrasion.

K. With the exception of the valve body and seat, all parts in contact with liquid shall be manufactured from noncorrosive materials. Internal corrosive surfaces shall be shop painted with two coats of epoxy for corrosion resistance. Exterior surfaces shall be painted in accordance with the requirements of Section 09900 – Painting.

L. External Spring Adjustment

1. Valves shall be provided with externally adjustable spring return that accelerates flapper closure before flow reversal can occur.

2. Helical compression spring shall be externally adjustable without removing the cover from the valve or removing the valve from service.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install check valves in accordance with the manufacturer's instructions and requirements of applicable AWWA standards.

B. Install valves plumb and level. Install all valves to be free from distortion and strain caused by misaligned piping, equipment, and other causes.

C. Position butterfly valves so that, when valve is fully open, valve disc does not conflict with piping system elements upstream and downstream of valve.

D. Exposed Valves:

1. Provide supports for large or heavy valves and appurtenances as shown or required to prevent strain on adjoining piping.

[END OF SECTION]

SECTION 15107

FIRE HYDRANTS

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Reference Section 15000, Basic Mechanical Requirements.

PART 2 – PRODUCTS

2.01 FIRE HYDRANTS

A. Fire hydrants shall be in accordance with the latest versions of Pinellas County Standard Engineering Details and Pinellas County Material Specification Manual.

B. Inlet shall be 6-inch mechanical joint.

C. Main valve opening of the hydrant shall not be less than 5-1/4”.

D. Hydrant nozzles shall include two (2) hose nozzles and one (1) pumper nozzle.

E. Hydrant shall be painted chrome yellow with white bonnet dome.

F. Approved products:

1. American AVK Nostalgic 2780 Series.
2. American Flow Control B-84-B.
3. American Flow Control Waterous Pacer.
4. Clow Medallion.
5. Kennedy Gardian K81-D.
6. Mueller Super Centurion A-423.
7. US Pipe Metropolitan M-94.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install hydrants in accordance with Section 15000, Basic Mechanical Requirements and the manufacturer’s instructions.

[END OF SECTION]

SECTION 15108

GATE VALVES (INCLUDING KNIFE GATE VALVES)

PART 1 GENERAL

1.01 SCOPE

A. Reference Section 15000, Basic Mechanical Requirements.

PART 2 PRODUCTS

2.01 GATE VALVES

A. All gate valves between 2 inches and less than 4 inches shall be iron body, bronze trimmed, wedge disc, and minimum 150 psi non shock cold water pressure rating. Exposed valves shall be of the outside screw and yoke (OS&Y), ANSI B 16.1, 125 pound flanges and shall be as manufactured by the Crane Company, Jenkins Bros. Corp., or equal.

B. Valves less than 2 inches shall be of bronze body, rising stem, wedge disc and minimum 300 psi non shock cold water pressure rating. Valves shall have screwed ends or as specified otherwise.

C. Gate valves 4 inches through 16 inches shall be of the non-rising stem design, shall fully comply with the requirements of AWWA C509 for resilient seated gate valves and shall be the Iowa Valve Co., Mueller Co., Crane Co., or equal.. Gate valves shall be designed for a minimum working pressure of 250 psi and a test pressure of 500 psi.

D. Gate valve body and bonnet shall be cast iron conforming to ASTM A126, Class B with resilient seat gate and O ring seals. The gate shall be cast iron with a vulcanized rubber coating with no metal to metal contact when in the fully closed position and a smooth unobstructed waterway when in the fully opened position. Gate valves 18 inches and larger shall fully comply with the requirements of AWWA C500 and shall be double disc parallel seat with bypass and inside screw spur geared operator, unless otherwise specified or shown on the Drawings. Valves shall be American Darling Series 50, Mueller, or equal.

E. Valves shall be flanged mechanical joint as shown on the Drawings, with non-rising stems, and with a 2-inch square standard AWWA operating nuts unless otherwise shown on the Drawings or specified herein.

F. All internal ferrous components and surfaces of the valves, with the exception of stainless steel and finished or bearing surfaces, shall be shop painted with two coats (10 mils min. dry film thickness) of the manufacturer's premium epoxy for corrosion resistance. Damaged surfaces shall be repaired in accordance with the manufacturer's recommendations.

G. Exterior Valve Coatings: All exterior surfaces of iron body gate valves shall be clean, dry and free from rust and grease before coating. For buried service, the exterior ferrous parts of all valves shall be coated at the factory with an asphaltic coating in accordance with ANSI/AWWA C151 latest revisions. Prior to backfilling, all uncoated nuts, bolts, glands, rods and other parts of joints shall be coated in the field with coal tar epoxy equal to Koppers Bitumastic No. 300 M.

2.02 KNIFE GATES VALVES

A. Knife gate valves shall be cast iron conforming to ASTM A126, Class B with resilient ring seal seat. The gate shall be stainless steel with a beveled, knife-like edge. The knife gate valve shall be flanged in accordance with ANSI B-16.1, 125 pound flange with a handwheel operator as manufactured by DeZurik, or equal

B. [END OF SECTION]

SECTION 15109

PLUG VALVES

PART 1 GENERAL

(NOT USED)

PART 2 PRODUCTS

2.01 PLUG VALVES

A. Plug valves shall be of the non lubricated, eccentric seating plug type with synthetic rubber faced plugs as manufactured by DeZurik Company, Pratt, Milliken, or equal. All valves shall be provided with limit stops and rotate 90° from fully open to fully shut. The minimum working pressure for all valves shall be 150 psi, and the test pressure shall be at least 270 psi for valves up through 12-inch and at least 230 psi for valves 14-inch and larger. The port area of valves shall be at least 80 percent of full pipe area for valves less than 24 inches and 70 percent for valves 24 inches and larger, unless otherwise specified herein. The body materials shall be of epoxy coated cast iron or semi steel, unless specified otherwise. Seats shall have a welded overlay of 90 percent pure nickel and machined to a finish containing no stress cracks. Plug facings shall be of Hycar, or equal and completely suitable for use with domestic sewage.

B. The shaft seal shall be either the bronze cartridge type with at least two O Rings, monolithic V Type, U-Cup Type, or pull-down packing type. If monolithic V Type, U-Cup Type, or pull-down packings are utilized, it shall be self-adjusting, self-compensating type. Packing shall be as manufactured by Chevron, or equal. Plug valves with pull down packings shall be designed with an extension bonnet so that repacking can be done without removal of the actuator.

C. All buried valves shall have mechanical joint ends (unless otherwise shown), conforming to ANSI A21.11 (AWWA C 111), and shall be operated with a standard AWWA 2-inch square nut through a totally enclosed worm gear actuator. Valve boxes shall be installed with all buried plug valves and shall be as specified herein.

D. Unless otherwise shown, all exposed valves 4 inches in diameter and larger shall have flanged ends conforming to ANSI B16.1 125/150 pound standard with face to face dimensions of standard plug valves. Valves smaller than 4 inches in diameter shall have screwed ends, unless otherwise noted.

E. Valves 8 inches in diameter and larger shall be handwheel or floorstand operated where required or indicated on the Drawings through totally enclosed worm gear actuators, unless otherwise specified or shown on the Drawings. Valves 6 inches in diameter and smaller shall have lever operators, unless otherwise specified or noted on the Drawings. Manual operators for plug valves mounted above 6 feet from the operating floor shall be equipped with worm gear chainwheel actuators.

F. The manufacturer shall certify that the plug valves are capable of operating in continuous duty service under these pressures and flow conditions.

G. Each valve shall by hydrostatically tested and tested for bubble tightness after the operator has been mounted and adjusted. Copies of the hydrostatic and leakage test certification and certification of conformance shall be submitted to the Engineer prior to shipment.

H. All internal and external ferrous components and surfaces of the valves, with the exception of stainless steel and finished or bearing surfaces, shall be shop painted with two coats (10 mils min. dry film thickness) of the manufacturer's premium epoxy for corrosion resistance. Damaged surfaces shall be repaired in accordance with the manufacturer's recommendations.

[END OF SECTION]

SECTION 15114

MISCELLANEOUS VALVES

PART 1 GENERAL

1.01 THE REQUIREMENT

A. Reference Section 15000, Basic Mechanical Requirements.

B. Valves intended for chemical service shall be constructed of materials suitable for the intended service.

PART 2 PRODUCTS

2.01 GLOBE VALVES (SERVICE/COMPRESSED AIR)

A. Globe valves (service/compressed air) shall be bronze body and bonnet with brass stem and stainless steel regrindable disc plug. Valves shall be Jenkins Valve Fig. 546 P, Crane Co., or approved equal with minimum 300 psi non shock cold water pressure rating and screwed ends.

2.02 SOLENOID VALVES

A. Three-way two position solenoid valves shall be of the two-coil type. Both coils shall be normally closed, and each shall open independently when energized. The valve shall be of forged brass body and bonnet with a Buna "N" diaphragm and screwed ends. The solenoid's internal parts shall be of 300 and 400 series stainless steel. The valve shall have a safe body working pressure of 125 psi and shall be as manufactured by ASCO Valves, Automatic Switch Co., or equal, for 120V, 60 Hz, single phase operation. Solenoid enclosure shall be NEMA 4 watertight.

B. Two-way solenoid valves shall be normally closed and shall open when the solenoid is energized, unless otherwise noted. The valve shall be of forged brass body and bonnet with a BUNA "N" diaphragm and screwed ends. The solenoid's internal parts shall be of 300 and 400 series stainless steel. The valve shall have a safe body working pressure of 125 psi, and shall be as manufactured by ASCO Valves, Automatic Switch Co., or equal, for 120-volt, 60 Hz, single phase operation. Solenoid enclosure shall be NEMA 4 watertight.

C. Four-way two position solenoid valves shall be of the single coil type and shall be normally closed and shall open when the solenoid is energized (i.e. fail closed). The remainder of the four-way two position solenoid valves shall be of the two-coil type. Both coils shall be normally closed, and each shall open independently when energized. The valve shall be of forged brass body and bonnet with a Buna "N" diaphragm and screwed ends. The solenoid's internal parts shall be of 300 and 400 series stainless steel. The valve shall have a safe body working pressure of 125 psi and shall be as manufactured by ASCO Valves, Automatic Switch Co. or equal, for 120V, 60 Hz, single phase operation. Solenoid enclosure shall be NEMA 4 watertight. The solenoid valve shall be provided with a manual override.

2.03 PRESSURE RELIEF, REDUCING, AND REGULATING VALVES

A. Pressure relief valves 1 inch and under shall have bronze bodies and above 1 inch shall have cast iron bodies, bronze fitted with grey iron diaphragm base and straight chamber and phosphorus bronze diaphragm. The ratio of the diaphragm area to the seat area shall be

adequate to overcome sticking. The seat disc shall be of non-corrodible, non-sticking material capable of withstanding extreme temperatures. Valves shall permit dismantling for repairs and cleaning without being removed from the line. Valves shall conform to the ASME Boiler Construction Code as approved by both the Underwriters Lab., and the National Board of Boiler Pressure Vessel Inspectors. All valves shall be designed for a minimum working pressure at least equal to the working pressure of the corresponding pipeline and shall have adjustment over a range of at least 20 percent above or below the required setting pressure of the installation.

B. Pressure relief valves (non-potable water service) shall be diaphragm activated, single seat, pilot operated and shall maintain a constant upstream pressure by relieving excess pressure. The valve shall be normally closed and shall open to maintain the required back pressure when the valve inlet pressure reaches the pilot control set point. The initial pilot control setting shall be 78 psi. The stem shall be stainless steel and shall be guided through the center for 100% of the stem travel. The main valve throttling plug shall be provided with V port sections to insure precise control at low flow rates. All internal metal parts shall be bronze or stainless steel. The control pilot shall be direct acting, spring loaded, and adjustable with bronze body and stainless-steel trim. The diaphragm and seat disc shall be BUNA N. The valve shall be of the angle or globe pattern as shown on the Drawings and shall be fully repairable in the line. The pressure relief valve shall be the Model 428CP as manufactured by Bailey, Fresno, California, or equal.

C. Pressure reducing and regulating valves (water service) 1/2 inch and under shall be bronze and above 1/2 inch shall have cast iron bodies bronze fitted. Valves shall be constructed with full openings and capable of supplying a full flow of water at reduced pressure. Valves shall be so constructed that repairs can be made without removing the valves from the line. The valves shall be equipped with a sedimentation chamber and stainless steel or bronze strainer. Pressure reducing and regulating valves shall be the back pressure sustaining type and shall operate over a range at differential pressures from 5 to 120 psi. Reducing and regulating valves shall meet or exceed the requirements of ASSE 1003 (ANSI A112.26.2) and shall be Model 616R, as manufactured by Fisher Controls, WATTS Series 25 AUB, GA, or equal.

2.04 SEWAGE AIR and VACUUM/PRESSURE AIR RELEASE VALVES

A. Sewage air and vacuum/pressure air release valve assemblies shall be installed at all the locations specified herein or indicated on the Drawings and shall be installed complete with all appurtenant piping and valves as required for a complete and operable installation. The valves shall be constructed of cast iron with stainless steel float, and all working parts shall be bronze, brass, stainless steel, or other corrosion resistant material. The valves shall be designed for a minimum working pressure of 150 psi and a test pressure of 300 psi. The valves shall include isolation valve and backflushing attachments which shall consist of blow off valves, quick disconnect couplings, and a minimum of 5 feet of rubber hose suitable for backflushing without dismantling the valve. All air and vacuum valves shall be provided with "soft seating" material to provide drip tight closure at 1 to 65 psig. The exhaust from the valve shall be piped to a suitable disposal point. All valves 1-inch diameter and larger shall have a 1/4-inch min. diameter drain plug.

B. The pressure air release valves shall have a 2 inch (minimum) threaded connection. The pressure air release valves shall have a discharge capacity of scfm, minimum, at a differential pressure range from 3 psi to 65 psi, and an orifice of 1/4 inch diameter, minimum.

C. All internal and external ferrous components and surfaces of the valves, with the exception

of stainless steel and finished or bearing surfaces, shall be shop painted with two coats (10 mils min. dry film thickness) of the manufacturer's premium epoxy for corrosion resistance. Damaged surfaces shall be repaired in accordance with the manufacturer's recommendations.

D. The air and vacuum valves and pressure air release valves shall be similar to the following types and models as manufactured by the Crispin Valve Division of Multiplex Manufacturing Co. or approved equal.

Location	Size	Discg. Cap @ 2 psi	Intake Cap @ 5 psi	ARV/PRV Model #	Connection
WAS	2"	125 scfm	200 scfm	SL20AB/SL20	Threaded
Int. Lift Station	3"	N/A	1500 scfm	SVR-31-121	Threaded
RAS	3"	325 scfm	1500 scfm	S30AB/SL20B	Threaded

2.05 PRESSURE AIR RELEASE VALVE (POTABLE WATER ONLY)

A. The pressure air release valve shall be constructed of cast iron with stainless steel trim and stainless-steel float, and all working parts shall be bronze, brass, stainless steel, or other corrosion resistant material. The valves shall be designed for a minimum working pressure of 150 psi and a test pressure of 300 psi. All valves shall be provided with "soft seating" material to provide drip-tight closure at 1 to 65 psig. All valves shall be provided with a vacuum check.

B. All internal and external ferrous components and surfaces of the valves, with the exception of stainless steel and finished or bearing surfaces, shall be shop painted with two coats (10 mils min. dry film thickness) of the manufacturer's premium (NSF approved) epoxy for corrosion resistance. Damaged surfaces shall be repaired in accordance with the manufacturer's recommendations.

C. The pressure air release valve shall be the following types and models as manufactured by the Crispin Valve Division of Multiplex Manufacturing Co., or equal.

Location	Size	PRV Discharge Capacity @ 2 psi	Model #	Connection
All	2"	45 SCFM	PL20/V5	Screwed

2.06 HOSE VALVES

A. Hose valves shall be 300 lbs. non-shock cold water angle or globe valves, Fig. 112/113 as manufactured by Jenkins Valve Co., or equal. Valves shall be bronze bodied with Buna N or neoprene disc and bronze bonnet and packing nut. Valve stem, gland, and lock nut shall be brass. Valve shall be provided with 3-inch diameter malleable iron handwheel, cap and chain, and 3/4 inch or 1-inch (or 2 inch near flushing connections) hose connection outlet.

2.07 NEEDLE VALVES

A. Needle valves shall be bronze body and spindle with follower gland and shall be 400 psi, non-shock cold water needle valves, Figure 743 G as manufactured by Jenkins Bros., Corp., Crane Co. No. 88, or equal.

B. Needle valves (service air) shall be bronze body, with stainless steel stem. Valves shall be Jenkins Valve Fig. 741G, Crane Co. or equal and shall have minimum 400 psi non shock cold water pressure rating and screwed ends.

2.08 PINCH VALVES

A. Pinch valves shall be of the full metal body mechanical pinch type with flanged joint ends on both body and rubber sleeve. Port areas shall be 100% of the full pipe area through the entire valve length. Flanges shall be of one size larger than pipeline size to allow extra thickness of rubber. Mating pipeline flanges shall be standard reducing flange with I.D. to exactly match valve I.D. All internal valve metal parts are to be completely protected by the rubber pinch tube. The rubber pinch tube shall be one-piece construction with integral flanges drilled to ANSI 125# standard. The pinch tube shall also be Nylon reinforced with an exterior wrapping of 1/8" thick neoprene. Handwheel closing mechanism shall be double acting and pinch the sleeve equally from two sides. The stem shall be non-rising and have a non-rising handwheel. There shall be no cast part in the operating mechanism. Each valve shall have flanges conforming to ANSI B16.1, Class 125 lb. Valves shall be Series "75 DW" as manufactured by Red Valve Co., Inc. or equal.

2.09 MUD VALVES

A. Mud valves shall be cast iron body with bronze stem, stem nut, disc ring, and seat ring. Bolts and nuts shall be corrosion resistant. Mud valve shall be flanged with non-rising stem. Mud valve shall be Model F 3075 as manufactured by Clow, or equal.

2.10 TELESCOPING VALVES

A. Telescoping valves shall be of the size shown on the Drawings. The valves shall be rising stem lift with stainless steel tube body material. All connecting bails and hardware shall be stainless steel. Minimum wall thickness for the tube shall be 1/8". At the point where the sliding tube enters the vertical stationary pipe a seal shall be affected by means of a wiper gasket retained by a stainless-steel holding flange. The friction seal flange shall have a neoprene or Buna N wiper gasket. The valves shall have two V notched weirs located at 180 degrees to each other (maximum travel 36"). The valve lift mechanism shall be ball bearing supported with torque plate, mounted on offset type cast iron pedestal. Provide electric motor operator in weather tight enclosure to be mounted on valve floorstand. The operator shall be suitable for the intended operation and sized for the telescoping valve that it is used with. The electric operator shall raise and lower the telescoping valve at a rate of 1 FPM. Provide pushbutton station for operation in stainless steel NEMA 4 enclosure. The operator shall have a manual hand crank that does not turn during electric operation. The motor drive shall be a Limitorque valve controller, or equal. Telescoping valves shall be as manufactured by Waterman Industries, Inc., or equal.

2.11 TAPPING SLEEVES

A. Tapping sleeves shall conform to the requirements of AWWA C110/A21.10 latest revision.

2.12 SAMPLING COCKS AND HOSE BIBBS

A. Sampling cocks and hose bibbs shall be provided and installed where indicated on the drawings and shall be 3/4 inch bronze body, rubber composition disc, garden hose valves.

2.13 VALVE BOXES

A. Furnish, assemble, and place a valve box over the operating nut for each buried valve. The valve box shall be designed so as to prevent the transmission of surface loads directly to the valve or piping.

B. Valve boxes shall be of the adjustable slide type of suitable length with an interior diameter of not less than 5 inches. The valve boxes shall be manufactured of cast iron and shall be adjustable for elevation and shall be set to allow equal movement above and below finished grade. The castings shall be manufactured clean, even grain, gray cast iron conforming to ASTM A48 Class 30B for Gray Iron Castings; and shall be smooth, true to pattern, free from blow holes, sand holes, projections and other harmful defects. The seating surfaces of both the cover and the top section shall be machined so that the cover will not rock after it has been seated. The valve boxes shall be coated inside and outside with an asphaltic coating prior to machining, so that the machined seating surfaces will be free of any coating. Cast iron valve box assemblies shall be Clow Corp. No. F 2452, Tyler Corp. Series 6855 or 6865 approved equal.

C. Valve extension stems shall be provided for all buried valves when operating nut is deeper than 3 feet below final grade.

2.14 VALVE VAULTS

A. Valve vaults shall be constructed of precast or cast in place concrete with dimensions as shown on the Drawings. Concrete shall have a minimum compressive strength of 4,500 psi at 28 days. The steel reinforcement for the structures shall be designed and constructed to withstand the loads expected. The cover for the valve vault shall be as shown on the Drawings as approved by the Engineer.

2.15 SERVICE SADDLES

A. Service Saddles: Service saddles shall have ductile iron bodies in accordance with ASTM A536, latest revision, with double stainless steel straps. Ductile iron body shall have a fusion bonded nylon coating with a minimum thickness of 12 mils. Straps shall be Type 304 stainless steel with premium grade Type 304 stainless steel bolts and Type 304 stainless steel washers and nuts. The nuts shall be Teflon coated. The gasket material shall be an elastomeric compound resistant to degradation by oil, natural gas, acids, alkalies, most aliphalic fluids and chloramines in potable water. The outlet to the saddle shall have CC threads. Service saddles shall be Rockwell No. 317 or an equal approved by the Engineer.

2.16 CORPORATION STOPS

A. Corporation stops shall be manufactured from cast bronze with machined fitting surfaces, and in accordance with AWWA C 800 latest, in sizes 1 inch up to including 2 inches. The inlet connection shall be AWWA standard corporation stop thread. The outlet connection shall be a packjoint outlet for copper or plastic tubing. Corporation stops with compression joint outlets for copper or plastic tubing shall be Type FB 1102 as manufactured by Ford Meter Box Company, or approved equal.

2.17 CURB STOPS

A. Curb stops shall be AWWA C 800 approved ball valve, roundway, with check, with lock wing cast on stop body and operating tee cap to provide for locking the stop in closed position. Curb stops for use with copper or plastic services shall have an inlet connection with a compression joint and an outlet connection with female iron pipe thread, as manufactured by Ford Meter Box Company B41 with padlock wings, or approved equal.

2.18 TIE RODS

A. When prior approval is obtained from the Engineer, ductile iron pipe, fittings, and valves may be restrained using tie bolt joint restraint. All bolts, nuts, washers, tie rods and other fasteners for the joint restraint system shall be manufactured of Type 316 Stainless Steel. Tie rods shall have a minimum diameter of 3/4 inch. The number of tie rods required per joint shall be as recommended by the manufacturer.

[END OF SECTION]

SECTION 15140

PIPE SUPPORTS

PART 1 – GENERAL

1.01 THE REQUIREMENT

A. Furnish all equipment, labor, materials, and design calculations required to provide pipe supports in accordance with the Contract Documents.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 15000, Basic Mechanical Requirements.

1.03 SUBMITTALS

A. Pipe support submittals will not be reviewed prior to review and acceptance of pipe layout submittal. Pipe support submittal shall be fully coordinated with approved pipe layout submittal. Contractor shall use approved piping layout submittal drawings to show proposed pipe support type and location with accurate dimensions to demonstrate that supports meet all specified requirements.

B. Applicable and associated cut sheets and drawings for materials and support components shall be submitted with the Shop Drawings in accordance with or in addition to the submittal requirements of the Contract Documents and Section 15000, Basic Mechanical Requirements.

1. Catalog cut information on all system components such as pipe supports, hangers, guides, anchors, and channel-type support.

2. Drawings of the piping support systems, locating each support, brace, hanger, guide, component, and anchor. Identify support, hanger, guide and anchor type by catalog number and Shop Drawing detail number.

3. With each piping support system Shop Drawing, the Contractor shall attach calculations prepared and sealed by a Professional Engineer, licensed in the State of Florida, showing that the piping support system complies with the specified requirements, including all building code requirements pertaining to support of piping and other non-structural components.

4. Table showing the manufacturer’s recommended hanger support spacing for PVC pipe.

PART 2 – PRODUCTS

2.01 GENERAL

A. Pipe supports shall be manufactured products, where possible.

B. The Contractor shall be responsible for the design of all piping support systems unless noted otherwise herein or specifically detailed on the Contract Drawings. The absence of pipe supports and details on the Drawings shall not relieve the Contractor of the responsibility of providing a delegated pipe support design that is signed and stamped by a registered Professional Engineer, licensed in the State of Florida. Standard details for pipe supports have been included on the Drawings to define minimum requirements as to the types of Contractor-designed pipe supports that will be acceptable.

C. Where a specific location or type of support is shown on the Drawings, the location and type shall be incorporated in the Contractor's pipe support design.

D. Where special pipe support fabrications are required, products and execution shall be as specified in other related and referenced Sections of the Specifications.

E. Existing piping support systems to support new piping shall only be used if the Contractor submits supporting calculations demonstrating that the existing supports are adequate for the load imparted by the new piping.

F. Contractor's pipe support design shall include, but not be limited to, the following criteria and loads imposed on the piping system:

1. Thrust loads based on the design pressures specified. Pipe support design shall not utilize process equipment for thrust restraint or support of piping loads.

2. Dead loads and live loads per the latest version of ASCE 7-10 and Florida Building Code if more stringent. Loads shall include, but not be limited to, the following:

    a. Weight of pipe.

    b. Weight of pipe contents.

    c. Weight of insulation, where present.

    d. Wind loads.

3. Loads associated with thermal expansion and contraction of the piping system over the full range of potential temperatures the piping system could experience that should include, but not be limited to, the following:

    a. Ambient temperature range per local historical weather data (historic high and low obtained from NOAA).

b. Process operating temperature range.

c. Exposure to sunlight where applicable.

4. Additional pipe support design considerations shall include the following:

a. A minimum safety factor of 2 or as approved by the Engineer, based upon the yield strength of the support material, shall be used for pipe supports, braces, hangers, and guides as well as for beam and column members used in channel-type support systems.

b. The horizontal pipe hanger and/or floor support spacing shall be as recommended by the pipe and/or hanger manufacturer but shall not exceed 10 feet on center unless indicated otherwise herein or on the Drawings.

c. The design, sizing, and spacing of anchors, including concrete anchors, shall be based on withstanding shear and pullout loads imposed by loading at each support. The minimum anchor size shall be ½ inches in diameter.

2.02 HANGERS AND SUPPORTS

A. All piping shall be adequately supported and braced by means of steel hangers and/or supports, concrete piers, supplemental lateral bracing components, pre-fabricated brackets, or otherwise as may be required by the location and forces applied per governing code, including gravity and lateral forces from seismic and/or wind.

B. Generally, concrete supports shall be used where pipe centerline is less than 3 feet above floor, and hangers above 6 feet unless specified or shown otherwise.

C. Supports shall be not more than 10 feet on center for steel and cast iron, 5 feet on center for plastic unless otherwise shown on the Drawings or required by the specific manufacturer.

D. All necessary inserts or appurtenances shall be furnished and installed in the concrete or structures for adequately securing hangers and supports to the structure.

1. Metal pipe support materials, where stainless steel pipe is supported, shall be Type 316L stainless steel.

2. Metal pipe support materials, where carbon steel, ductile or other ferrous pipe is supported, shall be galvanized carbon steel unless indicated otherwise on the Drawings or in the Specifications or by the Engineer.

3. Metal pipe supports indicated as standard type pipe hangers are designed and detailed for gravity loading only. Resulting lateral loads from wind, seismic, or other lateral loads per code, or special loading conditions during construction, shall be applied to the pipe in accordance with the governing building code. Supplemental lateral stiffening members (when necessary) shall be provided along

pipe or at gravity supports using appropriate supplemental members and connections when required by calculations. The Contractor shall include design calculations and details with all pipe hanger and support submissions for review by the Engineer. The main structure and structural components that will support the pipe hangers and other appurtenant components of the facility have been designed to resist all resulting secondary lateral loading from pipe hangers and other non-structural members for gravity and resulting lateral loads.

E. Hangers and supports shall conform to the following requirements:

1. All hangers and supports shall be type 316L stainless steel, hot dip galvanized, or properly coated steel piping as specified herein.

2. All fabricated metal hangers and supports shall be capable of adjustment after installation. Different types of hangers and supports along a pipe length, including bends, shall be kept to a minimum.

3. Hanger rods shall be straight and vertical. Chain, wire, strap, or perforated bar hangers shall not be used. Hangers shall not be suspended from other piping.

4. Vertical piping shall be properly supported at each floor and between floors by stays or braces to prevent rattling and vibration.

5. Supports and hangers for plastic and FRP piping shall include wide saddles or bands as recommended by the manufacturer and approved by the Engineer to distribute load and thus avoid localized deformation of the pipe.

6. Hangers and supports shall prevent contact between dissimilar metals by use of copper plated, rubber, vinyl coated, or stainless-steel hangers.

7. Ferrous pipes to be painted shall be painted in accordance with Section 09900, Painting. Ferrous pipes that require painting or galvanizing shall be supported by galvanized hangers and supports. Stainless steel piping shall be supported by stainless steel saddles and straps (if required).

8. Copper piping shall be supported by plastic coated or copper plated steel hangers and supports.

9. Plastic piping shall be supported by plastic coated steel hangers and supports.

10. Hangers and supports shall provide for thermal expansion throughout the full operating temperature range.

11. Expansion and adhesive type anchors used for pipe hangers and supports shall be Type 316 stainless steel.

F. Metallic hangers and supports may be standard make by Anvil International, Inc., "Witch" by Carpenter & Paterson, Ltd., B-Line Systems, Inc., or equal; and data on the

types and sizes to be used shall be furnished to the Engineer for approval. Metallic support system brackets, rods, support clips, clevis hangers, hardware, etc. shall be cast iron or welded steel construction. All gravity type hangers and supports shall be restrained laterally to resist loading as required by the governing code.

G. Non-metallic support system shall be a heavy-duty channel framing system. Channel frames shall be manufactured by the pultrusion process using corrosion grade polyester or vinyl ester resins. All fiberglass construction shall include suitable ultraviolet inhibitors for UV exposure and shall have a flame spread rating of 25 or less per ASTM E84. Piping accessories, pipe clamps, clevis hangers, support posts, support racks, fasteners, etc., shall be constructed of vinyl ester or polyurethane resin. Non-metallic support systems shall be standard make Aickinstrut by Aickinstrut, Inc., Unistrut Fiberglass by Unistrut, Inc., Enduro Fiberglass Systems, or equal. The Contractor shall submit data on the types and sizes of approval. Unless otherwise shown or specified the Contractor shall provide support spacings in conformance with the pipe and support system manufacturer's requirements.

PART 3 – EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS

A. Support piping connections to equipment by pipe support and not by the equipment.

B. Support large or heavy valves, fittings, flow meters, and appurtenances independently of the connected piping.

C. Support no pipe from the pipe above it.

D. Support piping at changes in direction or in elevation, adjacent to flexible joints, expansion joints, and couplings, and where shown.

E. The Contractor shall not install piping supports and hangers in equipment access areas or bridge crane runs.

F. Brace hanging pipes against horizontal movement by both longitudinal and lateral sway bracing.

G. Install pipe anchors (fixed supports and/or guides) where shown and/or as may otherwise be required to withstand expansion thrust loads and to direct and control thermal expansion. The Contractor may install additional pipe anchors and flexible couplings to facilitate piping installation, provided that complete details describing location, pipe supports, and hydraulic thrust protection are submitted.

[END OF SECTION]

SECTION 16000

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish all labor, materials, tools, and equipment, and perform all work and services necessary for, or incidental, to the furnishing and installation of all electrical work as shown on the Drawings, and as specified in accordance with the provisions of the Contract Documents and completely coordinate with the work of other trades involved in the general construction. Although such work is not specifically shown or specified, all supplementary or miscellaneous items, appurtenances, and devices incidental to or necessary for a sound, secure, and complete installation shall be furnished and installed as part of this work. The Contractor shall obtain approved Shop Drawings showing wiring diagrams, connection diagrams, roughing-in and hook up details for all equipment and comply therewith. All electrical work shall be complete and left in operating condition in accordance with the intent of the Drawings and the Specifications for the electrical work.

B. Where the word "Contractor" appears in these Division 16 Technical Specifications it shall be construed to mean the electrical subcontractor.

C. Reference Section 17000 - Instrumentation and Control – General for scope of work details as they relate to the Division 17 subcontractor.

D. Maintaining the operation of these facilities during the duration of the construction period is essential and required. The Contractor shall furnish and install temporary equipment as required to maintain facility operation. Reference individual Specifications for construction sequencing and specific operational constraint information.

E. All electrical equipment shall conform to the applicable NEMA specifications. All electrical equipment shall be properly identified in accordance with these Specifications and Contract Drawings. All panelboards, starters, control panels, cabinet enclosures, junction boxes, pull boxes, and equipment switches shall be identified per the requirements of Section 16195 – Electrical Identification

F. All materials, equipment, sizes and capacities of electrical equipment incorporated in the project shall conform to the latest requirements of the current National Electric Code, the National Electrical Manufacturer's Association, the State and local electrical codes, and to applicable rules and regulations of the local electrical utility serving the project.

G. All material and equipment must be the product of an established and reputable manufacturer; must be new and of first class construction; must be designed and guaranteed to perform the service required; and must bear the label of approval of the Underwriters Laboratories, Inc., where such approval is available for the product of the listed manufacturer as approved by the Engineer.

H. When a specified or indicated item has been superseded or is no longer available, the manufacturer's latest equivalent type or model of material or equipment as approved by the Engineer shall be furnished and installed at no additional cost to the Owner.

I. Where the Contractor's selection of equipment of specified manufacturers or additionally approved manufacturers requires changes or additions to the system design, the Contractor shall be responsible in all respects for the modifications to all system designs, subject to approval of the Engineer. The Contractor's bid shall include all costs for all work of the Contract for all trades made necessary by such changes, additions or modifications or resulting from any approved substitution.

J. Furnish and install controls for each piece of equipment requiring the controls under this Contract. The controls shall be the size and type recommended by the manufacturer for the application and as otherwise specified or indicted on the Drawings. Refer to Divisions 01 and 17 of the Specifications for control, connection and coordination descriptions and requirements.

K. Furnish and install all stands, racks, brackets, supports, and similar equipment required to properly serve the equipment which is furnished under this Contract, or equipment otherwise specified or indicated on the Drawings.

1.02 DRAWINGS

A. The Contractor shall furnish, install, and place in satisfactory condition ready for operation, all conduits, cables, and all other material needed for the complete lighting, power, control and other electrical systems shown or indicated in the Contract Drawings. Additional conduits and the required wiring shall be installed by the Contractor wherever needed to complete the installation of the specific equipment furnished.

1.03 EQUIPMENT LOCATION

A. The Drawings show the general location of feeders, transformers, outlets, conduits, and circuit arrangements. Because of the small scale of the Drawings, it is not possible to indicate all of the details involved. The Contractor shall carefully investigate the structural and finish conditions affecting all of his work and shall arrange such work accordingly; furnishing such fittings, junction boxes, and accessories as may be required to meet such conditions. The Contractor shall refer to the entire Drawing set to verify openings, special surfaces, and location of other equipment, or other special equipment prior to roughing-in for panels, switches, and other outlets. The Contractor shall verify all equipment dimensions to insure that proposed equipment will fit properly in spaces indicated.

B. Where outlets are shown near identified equipment furnished by this or other Contractors, it is the intent of the Specifications and Drawings that the outlet be located at the equipment to be served. The Contractor shall coordinate the location of these outlets to be near the final location of the equipment served whether placed correctly or incorrectly on the Drawings.

1.04 LOCAL CONDITIONS

A. The Contractor shall examine the site and become familiar with conditions affecting the work. The Contractor shall investigate, determine, and verify locations of any overhead

or buried utilities on or near the site, and shall determine such locations in conjunction with all public and/or private utility companies and with all authorities having jurisdiction. All costs, both temporary and permanent to connect all utilities, shall be included in the Bid. The Contractor shall be responsible for scheduling and coordinating with the local utility for temporary and permanent services.

B. In addition, the Contractor shall relocate all duct banks, lighting fixtures, receptacles, switches, boxes, and other electrical equipment as necessary to facilitate the Work included in this project. Costs for such work shall be included in the Bid.

C. The Contractor shall be responsible for coordinating all construction related issues and electric utility equipment with the electrical utility and the Owner.

1.05 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the General Conditions, Section 01300 - Submittals and the requirements of the individual specification sections, the Contractor shall obtain from the equipment manufacturer and submit the following:

1. Shop Drawings.

2. Operation and Maintenance Manuals.

3. Spare Parts List.

4. Special Tools List.

5. Proposed Testing Methods and Reports of Certified Shop Tests.

6. Reports of Certified Field Tests.

7. Manufacturer’s Representative’s Certification.

B. Submittals shall be sufficiently complete in detail to enable the Engineer to determine compliance with Contract requirements.

C. Submittals will be approved only to the extent of the information shown. Approval of an item of equipment shall not be construed to mean approval for components of that item for which the Contractor has provided no information.

D. Some individual Division 16 specification sections may require a Compliance, Deviations, and Exceptions (CD&E) letter to be submitted. If the CD&E letter is required and shop drawings are submitted without the letter, the submittal will be rejected. The letter shall include all comments, deviations and exceptions taken to the Drawings and Specifications by the Contractor and Equipment Manufacturer/Supplier. This letter shall include a copy of this specification section. In the left margin beside each and every paragraph/item, a letter "C", "D", or "E" shall be typed or written in. The letter "C" shall be for full compliance with the requirement. The letter "D" shall be for a deviation from the requirement. The letter "E" shall be for taking exception to a requirement. Any requirements with the letter "D" or "E" beside them shall be provided with a full typewritten explanation of the deviation/exception. Handwritten explanation of the deviations/exceptions is not

acceptable. The CD&E letter shall also address deviations, and exceptions taken to each Drawing related to this Specification Section.

1.06 APPLICABLE CODES AND REQUIREMENTS

A. Conformance

1. All work, equipment and materials furnished shall conform with the existing rules, requirements and specifications of the following:

    a. Insurance Rating Organization having jurisdiction

    b. The serving electrical utility company

    c. The currently adopted edition of the National Electrical Code (NEC)

    d. The National Electric Manufacturers Association (NEMA)

    e. The Institute of Electrical and Electronic Engineers (IEEE)

    f. The Insulated Cable Engineers Association (ICEA)

    g. The American Society of Testing Materials (ASTM)

    h. The American National Standards Institute (ANSI)

    i. The requirements of the Occupational Safety Hazards Act (OSHA)

    j. The National Electrical Contractors Association (NECA) Standard of Installation

    k. National Fire Protection Association (NFPA)

    l. International Electrical Testing Association (NETA)

    m. Florida Building Code 2020 (7th Edition)

    n. All other applicable Federal, State and local laws and/or ordinances.

2. All material and equipment shall bear the inspection labels of Underwriters Laboratories, Inc., if the material and equipment is of the class inspected by said laboratories.

3. All work shall be in accordance with local codes.

B. Nonconformance

1. Any paragraph of requirements in these Specifications, or Drawings, deviating from the rules, requirements and Specifications of the above organizations shall be invalid and their (the above organizations) requirements shall hold precedent thereto. The Contractor shall be held responsible for adherence to all rules, requirements and specifications as set forth above. Any additional work or material necessary for adherence will not be allowed as an extra, but shall be included in the Bid. Ignorance of any rule, requirement, or Specification shall not be allowed as an excuse for nonconformity. Acceptance by the Engineer does not relieve the Contractor from

the expense involved for the correction of any errors which may exist in the drawings submitted or in the satisfactory operation of any equipment.

C. Certification

1. Upon completion of the work, the Contractor shall obtain certificate(s) of inspection and approval from the National Board of Fire Underwriters or similar inspection organization having jurisdiction and shall deliver same to the Engineer and Owner.

1.07 PERMITS AND INSPECTIONS

A. The Contractor shall refer to the individual specifications.

1.08 TEMPORARY LIGHTING AND POWER

A. The Contractor shall refer to the individual specifications.

1.09 TESTS

A. Upon completion of the installation, the Contractor shall perform tests for operation, load (Phase) balance overloads, and short circuits. Tests shall be made with and to the satisfaction of Owner and Engineer.

B. The Contractor shall perform all field tests and shall provide all labor, equipment, and incidentals required for testing and shall pay for electric power required for the tests. All defective material and workmanship disclosed shall be corrected by the Contractor at no cost to Owner. The Contractor shall show by demonstration in service that all circuits and devices are in good operating condition. Test shall be such that each item of control equipment will function not less than five (5) times.

C. The grounding system shall be tested to assure continuity and compliance with the requirement that ground resistances do not exceed five (5) ohms when measured by a megohmeter or equivalent device. Due to soil conditions and/or other unforeseen field conditions, ground resistances greater than five (5) ohms may be acceptable if approved by the Engineer. Ground resistance measurements of each grounding electrode shall be taken and certified by the Contractor. Upon completion of the Project, the Contractor shall submit to the Engineer the measured ground resistance of each ground rod and grounding system, indicating the location of the rod and grounding system as well as the resistance and soil conditions at the time the measurements were made. Ground resistance measurements shall be made in normally dry weather not less than 48 hours after rainfall and with the ground under test isolated from other grounds. Ground resistance shall also be measured from each piece of equipment to the grounding electrode. Reference Section 16170 - Grounding and Bonding, for additional requirements.

D. Each lighting and power distribution panelboard shall be tested with main circuit breaker disconnected from the feeder, branches connected, branch circuit breakers closed, all fixtures in place and permanently connected, lamps removed or omitted from the fixtures, and all wall switches closed.

E. Insulation resistance testing of all incoming and outgoing cables for switchgear, motor control centers, lighting and power distribution panelboards, and similar equipment shall

be done after the cables are in place and just prior to final terminations. All data shall be recorded, as per Exhibit "A", attached to the end of Part 1 of this Section.

F. Feeder circuits shall be tested with the feeder conductors disconnected from the supplied equipment. Each individual power circuit shall be tested at the panel or motor control center with the power equipment connected for proper operation.

G. Megohmmeter tests of the insulation resistance of rotating machines and power feeders shall be conducted. The results will be accepted when the megger shows the insulation resistance to be not less than one megohm per 100 volts at 10°C using a 1,000-volt megger.

H. All transformers shall be Megohmmeter tested in accordance with the manufacturer's recommendations.

I. The Contractor shall furnish all equipment and personnel as required for testing.

J. Refer to each individual specification section for detailed test requirements.

K. The Contractor shall complete the installation and field testing of the electrical installation at least two (2) weeks prior to the start-up and testing of all other equipment. During the period between the completion of electrical installation and the start-up and testing of all other equipment, the Contractor shall make all components of the Work available as it is completed for their use in performing Preliminary and Final Field Tests.

L. Before each test commences, the Contractor shall submit a detailed test procedure, and also provide test engineer resume, manpower and scheduling information for the approval by the Engineer. In addition, the Contractor shall furnish detailed test procedures for any of his equipment required as part of the field tests of other systems.

M. Just prior to the final acceptance of a piece of equipment, the Contractor shall perform an infrared inspection to locate and correct all heating problems associated with electrical equipment. The infrared inspection shall apply to all new equipment and existing equipment that is in any way modified under this Contract. All heating problems detected with new equipment furnished and installed under the Scope of this Contract shall be corrected by the Contractor. All problems detected with portions of existing equipment modified under this Contract shall also be corrected by the Contractor. Any issues detected with portions of existing equipment that were not modified under this Contract are not the responsibility of the Contractor. Despite the Contractor not being held responsible for these problems, the Contractor shall report them to Owner and Engineer immediately for resolution. The infrared inspection report shall include both digital and IR pictures positioned side by side. Both the digital and IR pictures shall be clear and high quality. Fuzzy, grainy, or poorly illuminated pictures are not acceptable. The IR picture shall be provided with a temperature scale beside it, and an indication of the hot spot temperature in each picture. Reports shall be furnished in a 3-ring binder, with all pages printed in full color, with equipment assemblies separated by tabs.

1.10 DOCUMENTATION

A. The work requirements of this Section are in addition to and do not supersede testing and adjusting specified in other portions of the Contract Documents. The Contractor shall submit to the Engineer test records and reports for all testing.

1.11 FIELD TEST OF EQUIPMENT

A. The equipment to be tested shall include, but not be limited to, the following:

1. Dry Type Distribution Transformers
2. Panelboards
3. Individual Motor Controllers
4. Lighting Systems
5. Variable Frequency Drives and Related Motor Control Equipment
6. Conduit System
7. Cable and Wire
8. Grounding System
9. Fire Alarm System

B. Refer to each specific specification section for detailed field tests.

1.12 FINAL FIELD TEST OF SYSTEM

A. The Contractor shall complete the installation and testing of the electrical installation at least two (2) months prior to the start-up and testing of all other equipment. During the period between the completion of electrical installation and the start-up and testing of all other equipment, the Contractor shall make all components of the Work available as it is completed for their use in performing Preliminary and Final Field Tests.

B. Before each test commences, the Contractor shall submit a detailed test procedure, and also provide test engineer resume, manpower and scheduling information for the approval by the Engineer. In addition, the Contractor shall furnish detailed test procedures for any of his equipment required as part of the field tests of other systems.

C. The Contractor shall perform an infrared inspection to locate and correct all heating problems associated with electrical equipment. The infrared inspection shall apply to all new equipment and existing equipment that is in any way modified under this Contract.

1.13 PROTECTIVE DEVICE SETTING AND TESTING

A. The Contractor shall provide the services of a qualified, independent, third party testing company using N.E.T.A. certified technicians to adjust, set, calibrate and test all protective devices in the electrical system. The company shall not be a subsidiary of the electrical equipment manufacturer. The qualifications of the testing company and resumes of the technicians as well as all data forms to be used for the field testing shall be submitted.

B. All protective devices in the electrical equipment shall be set, adjusted, calibrated and tested in accordance with the manufacturers' recommendations, the coordination study, and best industry practice.

C. Proper operation of all equipment associated with the device under test and its compartment shall be verified, as well as complete resistance, continuity and polarity tests of power, protective and metering circuits. Any minor adjustments, repairs and/or lubrication necessary to achieve proper operation shall be considered part of this Contract.

D. All solid state trip devices shall be checked and tested for setting and operation using manufacturers recommended test devices and procedures.

E. Circuit breakers and/or contactors associated with the above devices shall be tested for trip and close functions with their protective device.

F. When completed, the Contractor shall provide a comprehensive report for all equipment tested indicating condition, readings, faults and/or deficiencies in same. Inoperative or defective equipment shall be brought immediately to the attention of the Engineer.

G. Prior to placing any equipment in service, correct operation of all protective devices associated with this equipment shall be demonstrated by field testing under simulated load conditions.

1.14 POWER SYSTEM STUDIES

A. General

1. The Contractor shall provide Power System studies, performed by a professional Engineer registered with the state of Florida, to the firm providing the protective device setting and testing services.

2. The studies shall include protective devices from all affected areas of the power distribution system.

B. Data Collection for the Studies

1. The Contractor shall provide the required data for preparation of the studies.

2. The Contractor shall expedite collection of the data to assure completion of the studies as required for final approval of the distribution equipment shop drawings and/or prior to release of the equipment for manufacture.

C. Short Circuit Study and Protective Device Evaluation Study

1. A protective device evaluation study shall be performed to determine the adequacy of circuit breakers, molded case switches, automatic transfer switches, and fuses by tabulating and comparing the short circuit ratings of these devices with the calculated fault currents. Appropriate multiplying factors based on system X/R ratios and protective device rating standards shall be applied. Any problem areas or inadequacies in the equipment due to short circuit currents shall be promptly brought to the attention of the Engineer.

2. All equipment furnished shall meet the requirements of this study.

D. Protective Device Coordination Study

1. A protective device coordination study shall be performed to provide the necessary calculations and logic decisions required to select or to check the selection of power fuse ratings, protective relay characteristics and settings, ratios and characteristics of associated current transformers, and low voltage circuit breaker trip characteristics and settings.

2. The coordination study shall include circuit breakers of motor control center. The phase and ground overcurrent protection shall be included as well as settings of all other adjustable protective devices.

3. The time-current characteristics of the specified protective devices shall be drawn on log-log paper. The plots shall include complete titles, representative one-line diagram and legends, significant motor starting characteristics, complete parameters of transformers, complete operating bands of low voltage circuit breaker trip curves and fuses. The coordination plots shall indicate the types of protective devices selected, proposed relay taps, time dial and instantaneous trip settings, transformer magnetizing inrush and ANSI transformer withstand parameters, cable thermal overcurrent withstand limits and significant symmetrical and asymmetrical fault currents. All restrictions of the National Electrical Code shall be adhered to and proper coordination intervals and separation of characteristic curves shall be maintained. The coordination plots for phase and ground protective devices shall be provided on a system basis. A sufficient number of separate curves shall be used to clearly indicate the coordination achieved.

4. The selection and settings of the protective devices shall be provided separately in a tabulated form listing circuit identification, IEEE device number, current transformer ratios and connections, manufacturer and type, range of adjustment and recommended settings. A tabulation of the recommended power fuse selection shall be provided for the medium voltage fuses where applied in the system. Any discrepancies, problem areas, or inadequacies shall be promptly brought to the attention of the Engineer.

E. Arc Flash Hazard Analysis

1. An Arc Flash Hazard Analysis shall be performed with the aid of a digital computer program in accordance with IEEE Std. 1584, “IEEE Guide For Performing Arc Flash Hazard Calculations”, NFPA 70E, and OSHA 29-CFR, Part 1910 Subpart S.

2. Arc Flash Warning Labels and Bus Detail Sheets shall be produced for each bus. Labels shall be printed in color on adhesive backed labels. Labels shall be attached to the doors of the equipment. Each label and detail sheet shall list the following:

a. Bus name

b. System operating voltage

c. Date of issue

d. Flash hazard protection boundary

e. Limited approach boundary

f. Restricted boundary

g. Prohibited boundary

h. Incident energy level

i. Required personal protective equipment class

In addition, each Bus Detail Sheet shall list the following:

- Upstream Protective Devices Names, Type and Settings

3. Arc Flash Evaluation Summary Sheets shall be produced. Summary sheets shall list the following:

a. Bus name

b. Upstream protective device name, type and settings

c. Bus line-to-line voltage

d. Bus bolted fault

e. Protective device bolted fault current

f. Arcing fault current

g. Protective device trip / delay time

h. Breaker opening time

i. Solidly grounded column

j. Equipment type

k. Gap

l. Arc flash boundary

m. Working distance

n. Incident energy

o. Required personal protective equipment class

4. Analyze the short circuit, protective device coordination, and arc flash calculations and highlight any equipment that is determined to be underrated or causes an abnormally high incident energy calculation. Propose approaches to reduce the

energy levels. Proposed major corrective modifications will be taken under advisement by the Engineer and the Contractor will be given further instructions.

F. Study Report

1. The results of the power system studies shall be summarized in a report. The report shall be submitted to the Engineer. The report shall be submitted for review and acceptance prior to submittals motor control centers, variable frequency drives, panelboards, and similar electrical equipment.

2. The report shall include the following sections:

   a. Description, purpose, basis and scope of the study and a detailed single line diagram with "nodes" cross-referenced to the calculated values tabulated in the study report of that portion of the power system which is included within the scope of the study.

   b. Tabulations of circuit breaker, fuse and other protective device ratings versus calculated short circuit duties and commentary regarding same.

   c. Protective device time versus current coordination curves, tabulations of relay and circuit breaker trip settings, fuse selection, and commentary regarding same.

   d. Fault current calculations including a definition of terms and guide for interpretation of computer printout.

3. Prior to commencing the work, the preparer the studies shall meet with the testing firm that will do the relay field testing and Owner's representative at the site for a walk through of the facility to ensure that existing conditions are taken into account.

4. The study shall include a detailed explanation of all software programs and procedures used to arrive at the calculated values, settings, and drawings (e.g. single line diagrams) showing fault valves at all busses.

1.15 SCHEDULES AND FACILITY OPERATIONS

A. Since the testing required in Article 1.12 above shall require that certain pieces of equipment be taken out of service, all testing procedures and schedules must be submitted to the Engineer for review and approval one (1) month prior to any work beginning. When testing has been scheduled, the Engineer must be notified 48 hours prior to any work to allow time for load switching and/or alternation of equipment. In addition, all testing that requires temporary shutdown of equipment must be coordinated with Owner so as not to affect proper operations.

B. At the end of the workday, all equipment shall be back in place and ready for immediate use should an emergency arise. In addition, should an emergency condition occur during testing, at the request of Owner, the equipment shall be placed back in service immediately and turned over to Owner personnel.

C. In the event of accidental shutdown of equipment, the Contractor shall notify Owner personnel immediately to allow for an orderly restart of affected equipment.

1.16 MATERIALS HANDLING

A. Materials arriving on the job site shall be stored in such a manner as to keep material free of rust and dirt and so as to keep material properly aligned and true to shape. Rusty, dirty, or misaligned material shall be rejected. Electrical conduit shall be stored to provide protection from the weather and accidental damage. Rigid non-metallic conduit shall be stored on even supports and in locations not subject to direct sun rays or excessive heat. Cables shall be sealed, stored, and handled carefully to avoid damage to the outer covering or insulation and damage from moisture and weather. Adequate protection shall be required at all times for electrical equipment and accessories until installed and accepted. Materials damaged during shipment, storage, installation, or testing shall be replaced or repaired in a manner meeting with the approval of the Engineer. The Contractor shall store equipment and materials in accordance with Section 01660 - Product Storage and Protection Requirements.

(Continued on Next Page)

(EXHIBIT A) TEST DATA - MEGOHMS TEST NO. ____							
Date:			Company:				
Time:			Location:				
Circuit:	Circuit Length:	Aerial:	Duct:	Buried:	No. of Conduc-tors	Size:	AMG MCM Shld:
Insulation Material:			Insulation Thickness:		Voltage Rating:		Age:
Type: _____Pothead _____Terminal					Location: Indoors_____ Outdoors_____		
Number and Type of Joints:							
Recent Operating History:							
Manufacturer:							
State if Potheads or Terminals were grounded during test:							
List associated equipment included in test:							
Miscellaneous Information:							

(EXHIBIT A)
TEST DATA - MEGOHMS
TEST NO. ____

Part Tested: Test Made:_____
Hours/Days:_____
After Shutdown:_____

Grounding Time: Dry Bulb Temperature:_____
Wet Bulb Temperature:_____

Test Voltage:	Equipment Temperature: _____ How Obtained: _____ Relative Humidity: _____ Absolute Humidity: _____ Dew Point: _____

Megohmmeter: Serial Number: _____ Range: _____
Voltage: _____ Calibration Date_____

Test Connections	To Line To Earth To Ground	To Line To Earth To Ground	To Line To Earth To Ground	Test Connections	To Line To Earth To Ground	To Line To Earth To Ground	To Line To Earth To Ground
□ Minute				5 Minutes			
□ Minute				6 Minutes			
3/4 Minute				7 Minutes			
1 Minute				8 Minutes			
2 Minutes				9 Minutes			
3 Minutes				10 Minutes			
4 Minutes				10/1 Minutes			
				Ratio			

Remarks:

PART 2 - PRODUCTS

2.01 PRODUCT REQUIREMENTS

A. Unless otherwise indicated, the materials to be provided under this Specification shall be the products of manufacturers regularly engaged in the production of all such items and shall be the manufacturer's latest design. The products shall conform to the applicable standards of UL and NEMA, unless specified otherwise. International Electrotechnical Commission (IEC) standards are not recognized. Equipment designed, manufactured, and labeled in compliance with IEC standards is not acceptable.

B. All items of the same type or ratings shall be identical. This shall be further understood to include products with the accessories indicated.

C. All equipment and materials shall be new, unless indicated or specified otherwise.

D. The Contractor shall submit proof if requested by the Engineer that the materials, appliances, equipment, or devices that are provided under this Contract meet the requirements of Underwriters Laboratories, Inc., in regard to fire and casualty hazards. The label of or listing by the Underwriters Laboratories, Inc., will be accepted as conforming with this requirement.

2.02 SUBSTITUTIONS

A. Any reference in the Specifications or on the Drawings to any article, service, product, material, fixture, or item of equipment by name, make, or catalog number shall be interpreted as establishing the type, function, and standard of quality and shall not be construed as limiting competition.

2.03 CONCRETE

A. The Contractor shall furnish all concrete required for the installation of all electrical Work, Concrete shall be as specified. Concrete and reinforcing steel shall meet the appropriate requirements as indicated on the Contract Drawings.

B. The Contractor shall provide concrete equipment pads for all freestanding electrical apparatus and equipment located on floors or slabs that exist or provided by others. The Contractor shall provide all necessary anchor bolts, channel iron sills, and other materials as required. The exact location and dimensions shall be coordinated for each piece of equipment well in advance of the scheduled placing of these pads. Equipment pads shall be 4 inches high unless otherwise indicated on the Drawings and shall conform to standard detail for equipment pads shown on the Contract Drawings. Equipment pads shall not have more than 3” excess concrete beyond the edges of the equipment.

C. The Contractor shall provide concrete foundations for all free standing electrical apparatus and equipment located outdoors or where floors or slabs do not exist or provided by others. The Contractor shall provide all necessary anchor bolts, channel iron sills, and other materials as required. The location and dimensions shall be coordinated for each piece of equipment well in advance of the scheduled placing of the foundations. Equipment foundations shall be constructed as detailed on the Drawings or if not detailed on the Drawings shall be 6 inches thick minimum reinforced with #4 bars at 12-inch centers each

way placed mid-depth. Concrete shall extend 6 inches minimum beyond the extreme of the equipment base and be placed on a compacted stone bed (#57 stone) 6 inches thick minimum.

2.04 RUBBER MATS

A. A three-foot-wide rubber mat shall be furnished and installed on the floor and in front of each piece of electrical equipment that is installed indoors. Rubber mats shall not be installed outdoors. The mat shall be long enough to cover the full length of the equipment. The mat shall be 1/4 inch thick with beveled edges, canvas back, solid-type with corrugations running the entire length of the mat. The mat shall be guaranteed extra quality, free from cracks, blow holes, or other defects detrimental to their mechanical or electrical strength. The mat shall meet OSHA requirements and the requirements of ANSI/ASTM D-178 J6-7 for Type 2, Class 2 insulating matting.

B. Mats shall be provided for the following equipment:

1. PLC/RTU Enclosures
2. Main Circuit Breaker
3. Automatic Transfer Switch
4. Variable Frequency Drives
5. Panelboards
6. Transformers

PART 3 - EXECUTION

3.01 CUTTING AND PATCHING

A. Coordination

1. All cutting and patching shall be in completed in accordance with the applicable requirements of Section 01045 – Execution of Work.

2. The Work shall be coordinated between all trades to avoid delays and unnecessary cutting, channeling and drilling. Sleeves shall be placed in concrete for passage of conduit wherever possible.

B. Damage

1. The Contractor shall perform all chasing, channeling, drilling and patching necessary to the proper execution of his Contract. Any damage to the building, structure, or any equipment shall be repaired by qualified mechanics of the trades involved at the Contractor's expense. If, in the Engineer's judgment, the repair of damaged equipment would not be satisfactory, then the Contractor shall replace damaged equipment at his own expense.

3.02 EXCAVATION AND BACKFILLING

A. The Contractor shall perform all excavation and backfill required for the installation of all electrical work. All excavation and backfilling shall be in complete accordance with the applicable requirements of Division 02.

3.03 CORROSION PROTECTION

A. Wherever dissimilar metals, except conduit and conduit fittings, come into contact, the Contractor shall isolate these metals as required with neoprene washers, nine (9) mil polyethylene tape, or gaskets.

[END OF SECTION]

SECTION 16111

CONDUIT

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish and install conduits and conduit fittings to complete the installation of all electrically operated equipment as specified herein, indicated on the Drawings, and as required.

B. Requirements for conduit clamps, support systems, and anchoring are not included in this Section. Reference Section 16190 - Supporting Devices, for these requirements.

C. Reference Section 16000 - Basic Electrical Requirements.

1.02 CODES AND STANDARDS

A. Conduits and conduit fittings shall be designed, manufactured, and/or listed to the following standards as applicable:

1. American National Standards Institute (ANSI)

    a. ANSI B1.20.1 – Pipe Threads, General Purpose

    b. ANSI C80.1 – Electrical Rigid Steel Conduit

    c. ANSI C80.3 – Steel Electrical Metallic Tubing

    d. ANSI C80.5 – Electrical Rigid Aluminum Conduit

    e. ANSI FB 1 – Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable

2. Underwriters Laboratories (UL)

    a. UL 1 – Standard for Flexible Metal Conduit

    b. UL 6 - Electrical Rigid Metal Conduit-Steel

    c. UL 6A – Electrical Rigid Metal Conduit-Aluminum, Red Brass, and Stainless Steel

    d. UL 360 – Standard for Liquid-tight Flexible Metal Conduit

    e. UL 467 – Grounding and Bonding Equipment

    f. UL 514B – Conduit, Tubing, and Cable Fittings

g. UL 651 – Standard for Schedule 40 and 80 Conduit and Fittings

h. UL 797 – Electrical Metallic Tubing-Steel

i. UL 1203 - Standard for Explosion-proof and Dust-ignition-proof Electrical Equipment for use in Hazardous (Classified) Locations

j. UL 1479 – Standard for Fire Tests of Penetration Fire Stops

k. UL 1660 – Liquid-tight Flexible Nonmetallic Conduit

3. National Electrical Manufacturer's Association (NEMA)

a. NEMA RN 1 – PVC Externally Coated Galvanized Rigid Steel Conduit

b. NEMA TC-2 – Electrical PVC Conduit

c. NEMA TC-3 – PVC Fittings for Use with Rigid PVC Conduit and Tubing

B. Others

1. ACI-318 – Building Code Requirements for Structural Concrete

1.03 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the General Conditions, the Contractor shall obtain from the equipment manufacturer and submit the following:

1. Shop Drawings

B. Each submittal shall be identified by the applicable specification section.

1.04 SHOP DRAWINGS

A. Each submittal shall be complete in all respects, incorporating all information and data listed herein and all additional information required for evaluation of the proposed equipment's compliance with the Contract Documents.

B. Partial, incomplete, or illegible submittals will be returned to the Contractor without review for resubmittal.

C. Shop drawings shall include but not be limited to:

1. Product data sheets for conduits and fittings.

2. Conduit identification methods and materials.

3. Evidence of training for all personnel that will install PVC coated rigid metal conduit.

1.05 DEFINITIONS

A. Conduits are categorized by the circuit type of the wiring to be installed inside. Conduits are defined as follows:

1. Power Conduits – Conduits that carry AC or DC power wiring from a source to a load. Conduits that carry lighting and receptacle wiring.

2. Control Conduits – Conduits that carry AC or DC discrete control wiring between devices and/or equipment. Conduits that carry fiber optic cables between devices and/or equipment.

3. Instrumentation Conduits – Conduits that carry AC or DC analog signal wiring between devices and/or equipment.

B. Conduit categories are indicated on the Drawings by the leading letter of the conduit tag. Conduit tag leading letters are defined as follows:

1. P – Power Conduit

2. C – Control Conduit

3. I – Instrumentation Conduit

PART 2 – PRODUCTS

2.01 GENERAL

A. Conduit and conduit fitting products are specified in the text that follows this article. Reference Part 3 herein for the application, uses and installation requirements of these conduits and conduit fittings.

B. All metallic conduit fittings shall be UL 514B and UL 467 Listed, and constructed in accordance with ANSI FB 1. All metallic conduit fittings for use in Class I Division I hazardous areas shall be UL 1203 Listed. All non-metallic fittings shall be UL 651 Listed and constructed in accordance with NEMA TC-3.

C. Flexible conduit couplings for use in Class I Division I hazardous areas shall have threaded stainless steel end fittings and a flexible braided core. Flexible braid shall be constructed of stainless steel where available in the conduit trade size required for the application. Where stainless steel braid is not available, the braid shall be provided with a PVC coating. No other braid types or materials are acceptable.

D. Where threading is specified herein for conduit fitting connections, the fittings shall be manufactured to accept conduit that is threaded to ANSI B1.20.1 requirements.

E. Conduit expansion fittings for all conduit materials of construction shall be capable of 4 inches of movement along the axis of the conduit for trade sizes 2 inches or less. Expansion fittings shall be capable of 8 inches of movement along the axis of the conduit for trade sizes greater than 2 inches.

F. Conduit deflection fittings for all conduit materials of construction shall be provided with a flexible neoprene outer jacket that permits up to ¾ inch of expansion/contraction along the axis of the conduit as well as up to ¾ inch of parallel misalignment between the conduit axes. Outer jacket shall be secured to the conduit hubs by stainless steel clamps.

G. Conduit seals shall either be Listed and labeled for 40% fill, or conduit reducing fittings and a trade size larger conduit seal shall be provided to achieve 25% or less fill within the seal. Percentage fill calculation shall be based on the conductors to be installed. Conduit seals shall be provided with breathers and/or drains where required by the NEC.

H. Conduit insulating bushings shall be constructed of plastic and shall have internal threading.

I. Additional conduit and conduit fitting requirements are specified in the articles that follow based on the specific conduit material of construction to be used.

2.02 PVC COATED RIGID ALUMINUM CONDUIT AND ASSOCIATED FITTINGS

A. General

1. Where an external coating of polyvinyl chloride (PVC) is specified for conduit and fittings, the coating shall be 40 mil (minimum) thickness. Where an internal coating of urethane is specified for conduit and fittings, the coating shall be 2 mil (minimum) thickness.

2. All conduit fittings shall have a sealing sleeve constructed of PVC which covers all connections to conduit. Sleeves shall be appropriately sized so that no conduit threads will be exposed after assembly.

B. Conduit

1. Conduit shall be hot dip galvanized on the inside and outside, and made of heavy wall high strength ductile steel. Conduit shall be manufactured in accordance with ANSI C80.1, and shall be UL 6 Listed.

2. Conduit shall be provided with factory-cut 3/4 inch per foot tapered threads at each end in accordance with ANSI B1.20.1. Threads shall be cut prior to galvanizing to ensure corrosion protection adequately protects the threads. Conduit shall be provided with a matching coupling on one end and a color-coded thread protector on the other.

3. Conduit shall be coated on the exterior with a PVC jacket and coated on the interior with a layer of urethane. Conduit shall be manufactured in accordance with NEMA RN-1.

C. Conduit Bodies for use with PVC Coated Rigid Galvanized Steel Conduit

1. Conduit bodies shall be constructed of an electro-galvanized malleable iron alloy which is coated on the exterior with a PVC jacket and coated on the interior with a layer of urethane. Conduit bodies shall have integral threaded conduit hubs.

2. Conduit bodies for Class I Division I hazardous areas shall be provided with integrally threaded covers constructed of an electro-galvanized malleable iron alloy which is coated on the exterior with a PVC jacket and coated on the interior with a layer of urethane.

3. Conduit bodies for all other areas shall be constructed of an electro-galvanized malleable iron alloy which is coated on the exterior with a PVC jacket and coated on the interior with a layer of urethane. Covers shall be affixed in place by stainless steel screws which thread directly into the conduit body and have a plastic encapsulated head. Covers that utilize wedge nuts or any other method of attachment to the conduit body are not acceptable. Covers shall be provided with matching gasket.

D. Conduit Couplings, Nipples, and Unions for use with PVC Coated Rigid Galvanized Steel Conduit

1. Couplings and nipples shall be threaded and shall be constructed of hot dipped galvanized steel which is coated on the exterior with a PVC jacket and coated on the interior with a layer of urethane. Split-type couplings that use compression to connect conduits are not acceptable.

2. Unions shall be threaded, rain-tight, and constructed of an electro-galvanized malleable iron alloy which is coated on the exterior with a PVC jacket and coated on the interior with a layer of urethane.

E. Conduit Expansion and Deflection Fittings for use with PVC Coated Rigid Galvanized Steel Conduit

1. Conduit expansion fittings and conduit deflection fittings shall be constructed of an electro-galvanized malleable iron alloy which is coated on the exterior with a PVC jacket and coated on the interior with a layer of urethane. Expansion and deflection fittings shall have threaded conduit connections.

2. Expansion fittings shall have an integral bonding jumper and deflection fittings shall have an external bonding jumper.

F. Conduit Seals for use with PVC Coated Rigid Galvanized Steel Conduit

1. Conduit seals shall be constructed of an electro-galvanized malleable iron alloy which is coated on the exterior with a PVC jacket and coated on the interior with a layer of urethane. Conduit seals shall have threaded conduit connections.

G. Conduit Termination Fittings for Use with PVC Coated Rigid Galvanized Steel Conduit

1. Conduit hubs shall be constructed of an electro-galvanized malleable iron alloy which is coated on the exterior with a PVC jacket and coated on the interior with a layer of urethane. Hubs shall have threaded connections to the conduit and enclosure. Hubs shall have a plastic insulated throat and shall be watertight when assembled to an enclosure.

2. Conduit bonding bushings shall be constructed of zinc plated malleable iron which is coated on the exterior with a PVC jacket and coated on the interior with a layer of urethane. Bonding bushings shall have a threaded conduit connection. Bonding bushing shall be provided with properly sized set screw for connecting bonding conductor and an integral plastic insulator rated for 150 degrees C located in the throat.

2.03 RIGID ALUMINUM CONDUIT AND ASSOCIATED FITTINGS

A. Conduit

1. Conduit shall be made of heavy wall high strength 6063 alloy aluminum with temper designation T1. Conduit shall be manufactured in accordance with ANSI C80.5, and shall be UL 6A Listed.

2. Conduit shall be provided with factory-cut 3/4 inch per foot tapered threads at each end in accordance with ANSI B1.20.1. Threads shall be cut prior to galvanizing to ensure corrosion protection adequately protects the threads. Conduit shall be provided with a matching coupling on one end and a color-coded thread protector on the other.

B. Conduit Bodies for use with Rigid Aluminum Conduit

1. Conduit bodies shall be constructed of copper-free aluminum which is coated with an aluminum enamel finish. Conduit bodies shall have integral threaded conduit hubs.

2. Conduit bodies for Class I Division I hazardous areas shall be provided with integrally threaded covers constructed of copper-free aluminum which is coated with an aluminum enamel finish.

3. Conduit bodies for all other areas shall be provided with stamped copper-free aluminum covers that are affixed in place by stainless steel screws which thread directly into the conduit body. Covers that utilize wedge nuts or any other method of attachment to the conduit body are not acceptable. Covers shall be provided with matching gasket.

C. Conduit Couplings, Nipples, and Unions for use with Rigid Aluminum Conduit

1. Couplings and nipples shall be threaded and shall be constructed of heavy wall high strength 6063 alloy aluminum with temper designation T1. Split-type couplings that use compression to connect conduits are not acceptable.

2. Unions shall be threaded, rain-tight, and constructed of copper-free aluminum which is coated with an aluminum enamel finish.

D. Conduit Expansion and Deflection Fittings for use with Rigid Aluminum Conduit

1. Conduit expansion fittings and conduit deflection fittings shall be constructed of copper-free aluminum which is coated with an aluminum enamel finish. Expansion and deflection fittings shall have threaded conduit connections.

2. Expansion fittings shall have an integral bonding jumper and deflection fittings shall have an external bonding jumper.

E. Conduit Seals for use with Rigid Aluminum Conduit

1. Conduit seals shall be constructed of copper-free aluminum which is coated with an aluminum enamel finish. Conduit seals shall have threaded conduit connections.

F. Conduit Termination Fittings for use with Rigid Aluminum Conduit

1. Conduit hubs shall be constructed of copper-free aluminum and shall have threaded connections to the conduit and enclosure. Hubs shall have a plastic insulated throat and shall be watertight when assembled to an enclosure.

2. Conduit locknuts shall be constructed of copper-free aluminum. Locknuts shall have internal threading. Locknuts with integral gasket or seal are not acceptable. Locknuts shall have integral bonding screw where required for proper bonding.

3. Conduit bonding bushings shall be constructed of copper-free aluminum. Bonding bushings shall have a threaded conduit connection. Bonding bushing shall be provided with properly sized set screw for connecting bonding conductor and an integral plastic insulator rated for 150 degrees C located in the throat.

2.04 LIQUID TIGHT FLEXIBLE METAL CONDUIT (LFMC) AND ASSOCIATED FITTINGS

A. Conduit

1. Conduit shall be manufactured using a single strip of hot dip galvanized high strength steel alloy, helically formed into a continuously interlocked flexible metal conduit. Trade size 1-1/4 inch and smaller conduits shall be provided with an integrally woven copper bonding strip.

2. Conduit shall be covered with an outside PVC jacket that is UV resistant, moisture-proof, and oil-proof. Conduit shall be UL 360 Listed.

B. Conduit Termination Fittings for use with LFMC

1. Conduit termination fittings shall be constructed of either 304 stainless steel or an electro-galvanized malleable iron alloy which is coated on the exterior with a 40 mil (minimum) PVC jacket and coated on the interior with a 2 mil (minimum) layer of urethane. PVC coated fittings shall have a sealing sleeve constructed of PVC which covers the connection to conduit.

2. Termination fittings shall have a threaded end with matching locknut and sealing ring for termination to equipment, and shall have an integral external bonding lug where required for proper bonding. Termination fittings shall have a plastic insulated throat and shall be watertight when assembled to the conduit and equipment.

2.05 LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT (LFNC) AND ASSOCIATED FITTINGS

A. Conduit

1. Conduit shall be constructed of rigid polyvinyl chloride (PVC), fabricated to provide flexibility. Conduit shall be covered with an outside PVC jacket that is UV resistant, moisture-proof, and oil-proof. Conduit shall be UL 1660 Listed.

B. Conduit Termination Fittings for use with LFNC

1. Conduit termination fittings shall be constructed PVC and shall have a threaded end with matching locknut and sealing ring for termination to equipment. Termination fittings shall be watertight when assembled to the conduit and equipment.

2.06 FLEXIBLE METAL CONDUIT (FMC) AND ASSOCIATED FITTINGS

A. Conduit

1. Conduit shall be manufactured using a single strip of hot dip galvanized high strength steel alloy, helically formed into a continuously interlocked flexible metal conduit. Conduit shall be UL 1 Listed.

B. Conduit Termination Fittings for use with FMC

1. Conduit termination fittings shall be constructed of an electro-galvanized malleable iron alloy. Fittings shall have a threaded end with matching locknut for termination to equipment, and a compression-style connection to the associated conduit.

2.07 ELECTRICAL METALLIC TUBING (EMT) AND ASSOCIATED FITTINGS

A. Conduit

1. Conduit shall be hot dipped galvanized on the inside and outside, and made of cold-rolled steel tubing. Conduit shall be manufactured in accordance with C80.3 and shall be UL 797 listed.

B. Conduit Bodies for use with EMT

1. Conduit bodies shall be constructed of an electro-galvanized malleable iron alloy which is coated with an acrylic paint finish. Conduit bodies shall have integral threaded conduit hubs.

2. Conduit bodies shall be provided with galvanized sheet steel covers that are affixed in place by stainless steel screws which thread directly into the conduit body. Covers that utilize wedge nuts or any other method of attachment to the conduit body are not acceptable. Covers shall be provided with matching gasket.

C. Conduit Couplings and Nipples for use with EMT

1. Couplings and nipples shall have threaded compression connectors with associated gland and shall be constructed of electro-galvanized steel. Fittings utilizing a set screw or indenter tool to secure the associated conduit to the fitting are not acceptable. Couplings and nipples shall be rain-tight and have a plastic insulated throat.

D. Conduit Expansion and Deflection Fittings for use with EMT

1. Conduit expansion fittings and conduit deflection fittings shall be constructed of an electro-galvanized malleable iron alloy which is coated with an acrylic paint finish. Expansion and deflection fittings shall have threaded conduit connections.

2. Expansion fittings shall have an integral bonding jumper and deflection fittings shall have an external bonding jumper.

E. Conduit Termination Fittings for use with EMT

1. Conduit termination fittings shall be constructed of electro-galvanized steel and have a plastic insulated throat. Termination fittings shall have a threaded compression connector with associated gland on one end and external threads on the other end. Termination fittings utilizing a set screw or indenter tool to secure the associated conduit to the fitting are not acceptable.

2. Conduit locknuts shall be constructed of zinc plated steel. Locknuts shall have internal threading. Locknuts shall have integral bonding screw where required for proper bonding.

2.08 CONDUIT BENDS

A. Rigid conduit bends, both factory fabricated and field fabricated, shall meet the same requirements listed in the articles above for the respective conduit type and material of construction.

B. Conduit bend radii for standard radius bends shall be no less than as follows:

TRADE SIZE (inches)	3/4	1	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4	5	6
MIN. RADIUS (inches)	4-1/2	5-3/4	7-1/4	8-1/4	9-1/2	10-1/2	13	15	16	24	30

C. Conduit bend radii for long radius bends shall be no less than as follows:

TRADE SIZE (inches)	3/4	1	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4	5	6
MIN. RADIUS (inches)	N/A	12	18	24	30	30	36	36	48	48	60

2.09 MISCELLANEOUS

A. Conduit Periphery Sealing

1. The sealing of the exterior surface of conduits to prevent water and/or air from passing around the conduit periphery from one space to another (where required) shall be through the use of one of the following:

a. A conduit sleeve and pressure bushing sealing system. Acceptable products are FSK by OZ-GEDNEY, Link-Seal by Crouse-Hinds, or Engineer approved equal.

b. A conduit sleeve that is two trade sizes larger than the conduit being sealed, with 2-hour fire rated UL 1479 Listed caulk filling the entire void between the conduit and sleeve. This method is only suitable for penetrations in non-fire rated walls and floors between spaces within buildings. This method shall not be used for the sealing of conduits leaving a building and/or structure.

2. Conduit penetrations through fire-rated walls and floors shall be made with an approved UL 1479 Listed product specifically intended for the trade size of the conduit.

B. Primer and Cement

1. Nonmetallic conduit shall be cleaned with primer and connected to fittings with the manufacturer's recommended cement that is labeled Low VOC.

C. Galvanizing Compounds

1. Galvanizing compounds for field application shall be the cold-applied type, containing no less than 93% pure zinc.

D. Conduit Interior Sealing

1. The sealing of the inside of conduits against water ingress shall be achieved through the use of one of the following:

a. Two-part expanding polyurethane foam sealing compound, dispensed from a single tube which mixes the two parts as it is injected into the conduit. Expanding foam shall be compatible with the conduit material of construction as well as the outer jacket of the cables in the conduit. Acceptable products are Q-Pak 2000 by Chemque, FST by American Polywater Corporation, or Hydra-seal S-60 by Duraline.

b. Inflatable bag that provides seal around cables and around inside diameter of conduit. Provide appropriate quantity of additional fittings for applications with three or more cables in the conduit to be sealed. Acceptable products are Rayflate by Raychem, or Engineer approved

equal. This sealing method is only applicable to conduits trade size 2 inch and larger.

c. Neoprene sealing ring provided with the required quantity and diameter of holes to accommodate the cables in each conduit. Sealing ring shall be compressed by two stainless steel pressure plates. Acceptable products are type CSB by OZ-GEDNEY, or Engineer approved equal. This sealing method is only applicable to metallic conduits containing 4 or less cables.

2. The use of aerosol-based expanding foam sealants or any other method of sealing against water ingress not listed above is not acceptable.

E. Pull Rope

1. Pull ropes for empty and/or spare conduits shall be woven polyester, 1/2 inch wide, with a minimum tensile strength of 1250 lbs.

2. Pull ropes for the Contractor's use in installing conductors shall be the size and strength required for the pull, and shall be made of a non-metallic material.

PART 3 – EXECUTION

3.01 GENERAL

A. Minimum trade size for all rigid conduits shall be 3/4 inch in exposed applications and 1 inch in embedded applications. Conduits installed within ductbanks shall be allowed to be increased in size to trade size 2 inch, at the Contractor's option, to accommodate the saddle size of the ductbank spacers. However, no combining of circuits shall be allowed in the larger conduits.

B. Minimum trade size for flexible conduits (where specifically allowed herein) shall be 1/2 inch in all applications.

C. Conduit routing and/or homeruns within structures is not shown on the Drawings. Conduits shall be installed concealed wherever practical and within the limitations specified herein. All other conduits not capable of being installed concealed shall be installed exposed.

D. Empty and/or spare conduits shall be provided with pull ropes which have no less than 12 inches of slack at each end.

E. Nonmetallic conduits for installations requiring less than a factory length of conduit shall be field cut to the required length. The cut shall be made square, cleaned of debris, and primer shall be applied to ready each joint for fusing. Conduits shall then be fused together with the conduit manufacturer's approved cement compound.

F. Metallic conduits for installations requiring less than a factory length of conduit shall be field cut to the required length. The cut shall be made square, be cleaned of all debris

and be de-burred, then threaded. Conduit threading performed in the field shall be ¾ inch per foot tapered threads in accordance with ANSI B1.20.1.

G. Conduits shall be protected from moisture, corrosion, and physical damage during construction. Install dust-tight and water-tight conduit fittings on the ends of all conduits immediately after installation and do not remove until conductors are installed.

H. Conduits shall be installed to provide no less than 12 inches clearance from pipes that have the potential to impart heat upon the conduit. Such pipes include, but are not limited to, hot water pipes, steam pipes, exhaust pipes, and blower air pipes. Clearance shall be maintained whether conduit is installed in parallel or in crossing of pipes.

I. Where non-metallic instrumentation conduits are installed exposed, the following clearances to other conduit types shall be maintained:

1. Instrumentation conduits installed parallel to conduits with conductors energized at 480V or above shall be 18 inches.

2. Instrumentation conduits installed parallel to conduits with conductors energized at 240V and below shall be 12 inches.

3. Instrumentation conduits installed at right angles to conductors energized at 480V and below shall be 6 inches.

4. Instrumentation conduits installed at right angles to conductors energized at voltages above 480V shall be 12 inches.

J. Where conduit fittings do not include an integral insulated bushing, an insulated bushing shall be installed at all conduit termination points.

K. Conduits which serve multi-section equipment shall be terminated in the section where wiring terminations will be made.

L. Conduits shall not penetrate the floors or walls inside liquid containment areas without specific written authorization from the Engineer. Liquid containment areas are indicated on the Drawings.

M. In no case shall conduit be supported or fastened to another pipe or be installed in a manner that would prevent the removal of other pipes for repairs. Spring steel fasteners may only be used to affix conduits containing lighting branch circuits within EMT conduits to structural steel members.

N. All field fabricated threads for rigid galvanized steel conduit shall be thoroughly coated with two coats of galvanizing compound, allowing at least two minutes to elapse between coats for proper drying.

O. The appropriate specialized tools shall be used for the installation of PVC coated conduit and conduit fittings. No damage to the PVC coating shall occur during installation. Conduit and conduit fittings with damaged PVC coating shall be replaced at the Contractor's cost. The use of PVC coating touch-up compounds is not permitted.

P. Conduits which emerge from within or below concrete encasement shall be PVC coated rigid galvanized steel where the conduit is not protected by an equipment enclosure that surrounds the conduit on all sides at the point where it emerges from the encasement.

Q. Aluminum conduits shall not be installed in direct contact with concrete surfaces. Where aluminum conduits are routed along concrete surfaces, they shall be installed with one-hole electro-galvanized malleable iron alloy straps with matching clamp-backs to space the conduit ¼ inch away from concrete surface. Where aluminum conduit passes through concrete, CMU or brick walls, the penetration shall be made such that the aluminum conduit does not come in contact with concrete, CMU, brick or mortar.

3.02 CONCEALED AND EMBEDDED CONDUITS

A. Conduits are permitted to be installed concealed and/or embedded with the following requirements:

1. Conduits shall not be installed horizontally when concealed within CMU walls, only vertical installation is acceptable.

2. Conduits installed embedded within concrete floors or walls shall be located so as not to affect the designed structural strength of the floor or wall. Embedded conduits shall be installed in accordance with ACI-318.

3. Where conduit bends emerge from concrete embedment, none of the curved portion of the bend shall be visible. Only the straight portion of the bend shall be visible.

4. Where multiple conduits emerge from concrete embedment or from concealment below a concrete floor, ample clear space shall be provided between conduits to allow for the appropriate and required conduit termination fittings to be installed.

5. Conduits installed embedded within concrete encasement of any kind shall be installed such that conduit couplings for parallel conduits are staggered so that they are not side by side.

B. Conduits are not permitted to be installed concealed and/or embedded for the following situations:

1. Conduits shall not be installed embedded within any water-bearing floors or walls. Conduits shall not be installed embedded within any liquid containment area floors or walls.

2. Conduits shall not be installed concealed within CMU walls or gypsum walls that are adjacent to Class I and II hazardous areas (Division I and Division II).

3. Conduits shall not be installed concealed within CMU walls or gypsum walls that are adjacent to indoor Type 1 or Type 2 chemical storage/transfer areas.

3.03 CONDUIT USES AND APPLICATIONS

A. Rigid Conduit

1. Rigid conduit for non-hazardous areas shall be furnished and installed in the materials of construction as follows:

RIGID CONDUIT FOR NON-HAZARDOUS AREAS		
	CONDUIT CATEGORY BY WIRING/CIRCUIT TYPE	
INSTALLATION AREA DESIGNATION/ SCENARIO	Power and Control	Instrumentation
Exposed in indoor wet process areas	Rigid aluminum conduit	Same as Power and Control
Exposed in indoor dry process areas	Rigid aluminum conduit	Same as Power and Control
Exposed in indoor dry non-process areas	Rigid aluminum conduit	Same as Power and Control
Exposed in indoor Type 1 chemical storage/transfer areas	Schedule 80 rigid non-metallic PVC conduit	Same as Power and Control
Exposed in indoor Type 2 chemical storage/transfer areas	PVC coated rigid galvanized steel conduit	Same as Power and Control
Exposed in outdoor areas	Rigid aluminum conduit	Same as Power and Control
Exposed within pre-fabricated electrical equipment center buildings	Electrical Metallic Tubing	Same as Power and Control
Concealed within underground direct-bury or concrete-encased ductbanks	Schedule 40 rigid non-metallic PVC conduit	PVC coated rigid galvanized steel conduit
Concealed within non-elevated (i.e. "slab-on-grade" construction) concrete slabs	Schedule 40 rigid non-metallic PVC conduit	Rigid galvanized steel conduit
Concealed within elevated concrete slabs	Rigid galvanized steel conduit	Same as Power and Control
Concealed below concrete slabs (within earth or fill material)	Schedule 40 rigid non-metallic PVC conduit	Rigid galvanized steel conduit
Concealed within concrete walls	Schedule 40 rigid non-metallic PVC conduit	Rigid galvanized steel conduit
Concealed within CMU walls	Schedule 40 rigid non-metallic PVC conduit or Electrical Metallic Tubing	Rigid galvanized steel conduit or Electrical Metallic Tubing
Concealed above suspended ceilings	Electrical Metallic Tubing	Same as Power and Control
Concealed within interior walls constructed of metal studs and gypsum wall board	Electrical Metallic Tubing	Same as Power and Control
Emerging from concealment within or below a concrete floor and transitioning to exposed conduit	PVC coated rigid aluminum conduit	Same as Power and Control

2. Rigid conduit for hazardous areas shall be furnished and installed in the materials of construction as follows:

RIGID CONDUIT FOR HAZARDOUS AREAS		
	CONDUIT CATEGORY BY WIRING/CIRCUIT TYPE	
INSTALLATION AREA HAZARD/SCENARIO	Power and Control	Instrumentation
Exposed in Class I and II areas (Division I and Division II)	Rigid aluminum conduit	Same as Power and Control
Concealed within concrete slabs in Class I and II areas (Division I and Division II)	Rigid galvanized steel conduit	Same as Power and Control
Concealed below concrete slabs (within earth or fill material) in Class I and II areas (Division I and Division II)	Rigid galvanized steel conduit	Same as Power and Control
Concealed within concrete walls in Class I and II areas (Division I and Division II)	Rigid galvanized steel conduit	Same as Power and Control
Concealed below concrete slabs encased in at least two inches of concrete and buried 24 inches below top of slab in Class I Division I areas	Schedule 40 rigid non-metallic PVC conduit	Rigid galvanized steel conduit
Concealed above suspended ceilings in Class I and II areas (Division I and Division II)	Rigid aluminum conduit	Same as Power and Control

3. The tables for the materials of construction for rigid conduits are intended to exhaustively cover all possible scenarios and installation areas under this Contract. However, if a scenario or installation area is found that is not explicitly governed by these tables, it shall be assumed for bid purposes that the conduit material of construction is to be rigid galvanized steel. This discrepancy shall be brought to the attention of the Engineer (in writing) immediately for resolution.

B. Conduit Bends

1. All conduit bends shall be the same material of construction as the rigid conduit listed in the tables above, with the following exceptions:

   a. All 90 degree bends or combinations of adjacent bends that form a 90 degree bend where concealed within concrete or below a concrete slab shall be rigid galvanized steel.

2. Field fabricated bends of metallic conduit shall be made with a bending machine and shall have no kinks. Field fabricated standard radius and long radius bends shall have minimum bending radii in accordance with the associated tables in Part 2 herein.

3. Field bending of non-metallic conduits is not acceptable, factory fabricated bends shall be used.

4. Long radius bends shall be furnished and installed for the following specific applications, all other bends shall be standard radius:

    a. All conduits containing medium voltage cable.

    b. All conduits containing fiber optic cable.

    c. All conduits containing shielded VFD cable.

    d. Where specifically indicated on the Drawings.

C. Flexible Conduit

1. Flexible conduit shall only be installed for the limited applications specified herein. Flexible conduit shall not be installed in any other application without written authorization from the Engineer. Acceptable applications are as follows:

    a. Connections to motors and engine-generator sets (and similar vibrating equipment)

    b. Connections to solenoid valves and limit switches

    c. Connections to lighting fixtures installed in suspended ceilings

    d. Connections to lighting transformers

    e. Connections to pre-fabricated equipment skids

    f. Connections to HVAC equipment

    g. Connections to instrument transmitters and elements

    h. Where specifically indicated in the Standard Details

2. Flexible conduit length shall be limited to three (3) feet, maximum. Flexible conduit shall not be installed buried or embedded within any material.

3. Flexible conduit for non-hazardous areas shall be furnished and installed in the materials of construction as follows:

FLEXIBLE CONDUIT FOR NON-HAZARDOUS AREAS		
INSTALLATION AREA DESIGNATION/SCENARIO	**CONDUIT CATEGORY BY WIRING/CIRCUIT TYPE**	
	Power and Control	**Instrumentation**
Exposed in indoor wet process areas	Liquid-tight flexible metal conduit	Same as Power and Control
Exposed in indoor dry process areas	Flexible metal conduit	Same as Power and Control
Exposed in indoor dry non-process areas	Flexible metal conduit	Same as Power and Control
Exposed in indoor Type 1 chemical storage/transfer areas	Liquid-tight flexible non-metallic conduit	Same as Power and Control
Exposed in indoor Type 2 chemical storage/transfer areas	Liquid-tight flexible metal conduit	Same as Power and Control
Exposed in outdoor areas	Liquid-tight flexible metal conduit	Same as Power and Control
Concealed above suspended ceilings (all indoor areas)	Same material as exposed conduit in same area	Same as Power and Control

4. For Class I Division I hazardous areas, the NEC does not permit the installation of flexible conduit. In lieu of flexible conduit in these areas, flexible conduit couplings shall be installed as specified in Part 2 herein. Flexible conduit for all other hazardous areas shall be furnished and installed in the materials of construction as follows:

FLEXIBLE CONDUIT FOR HAZARDOUS AREAS		
INSTALLATION AREA HAZARD/SCENARIO	**CONDUIT CATEGORY BY WIRING/CIRCUIT TYPE**	
	Power and Control	**Instrumentation**
Exposed in Class I Division II areas	Liquid-tight flexible metal conduit	Same as Power and Control
Exposed in Class II (Division I and Division II) areas	Liquid-tight flexible metal conduit	Same as Power and Control
Concealed above suspended ceilings in Class I and II (Division I and Division II) areas	Same material as exposed conduit in same area	Same as Power and Control

3.04 CONDUIT FITTING USES AND APPLICATIONS

A. General

1. Conduit fittings shall be furnished and installed in the materials of construction as indicated in Part 2, herein. Conduit fitting materials of construction are dependent on the material of construction used for the associated conduit.

2. Conduit fittings shall be provided in the trade size and configuration required to suit the application.

B. Conduit Bodies

1. Conduit bodies shall be installed where wire pulling points are desired or required, or where changes in conduit direction or breaking around beams is required.

2. Where conduit bodies larger than trade size 2 inches are intended to be used as a pull-through fitting during wire installation, oversized or elongated conduit bodies shall be used. Oversized or elongated conduit bodies shall not be required if the conduit body is intended to be used as a pull-out point during wire installation.

C. Conduit Nipples and Unions

1. Conduits with running threads shall not be used in place of 3-piece couplings (unions) or close nipples. After installation of a conduit fitting of any kind, there shall be no more than ¼ inch of exposed threads visible. Factory fabricated all-thread nipples may be used between adjacent enclosures, however, the same restriction applies regarding the length of exposed threads that are visible.

D. Conduit Expansion and Deflection Fittings

1. Conduit expansion fittings shall be installed where required by the NEC and where indicated on the Drawings. Expansion fittings shall also be installed for exposed straight metallic conduit runs of more than 75 feet, in both indoor and outdoor locations. Expansion fittings for runs of non-metallic conduit shall be installed in accordance with the NEC.

2. Conduit deflection fittings shall be installed where required by the NEC and where conduits are installed (exposed and concealed) across structural expansion joints.

E. Conduit Seals

1. Conduit seals shall be installed for conduits installed within or associated with hazardous areas and other areas as required by the NEC. In addition, conduit seals shall also be furnished and installed as follows:

a. All conduits entering or leaving enclosed areas which store or distribute chlorine gas.

b. All conduits entering or leaving enclosed areas which store or distribute sulfur dioxide gas.

F. Conduit Termination Fittings

1. Where conduits terminate at enclosures with a NEMA 4, 4X, or 3R rating and the enclosure does not have integral conduit hubs, an appropriately sized watertight conduit hub shall be installed to maintain the integrity of the enclosure. The use of locknuts with integral gasket in lieu of watertight conduit hubs is not acceptable.

2. Where conduits terminate at enclosures that do not require conduit hubs, a two-locknut system shall be used to secure the conduit to the enclosure. One locknut shall be installed on the outside of the enclosure, and the other inside, drawn tight against the enclosure wall. The locknut on the interior of the enclosure shall be the type with integral bonding lug, or a conduit bonding bushing may be used in place of the locknut.

3. Conduits shall not be installed such that conduit fittings penetrate the top of any enclosure located outdoors, except in cases where specifically required by the serving electric utility. Conduits which serve outdoor equipment or an enclosure from above shall instead be routed into the side of the enclosure at the bottom. The conduit termination fitting shall be provided with a conduit drain to divert moisture from the raceway away from the enclosure.

3.05 MISCELLANEOUS

A. Conduit Periphery Sealing

1. All conduit penetrations through exterior walls shall be sealed around the periphery using the appropriate products specified in Part 2 herein to prevent air and/or water entry into the structure.

2. All conduit penetrations through interior walls and floors shall be sealed through the use of with conduit sleeves and caulk as specified in Part 2 herein. Alternatively, mortar may be used to seal around the conduit periphery.

3. Conduit penetrations through fire-rated walls as floors shall be made with the appropriate fire rated penetration product.

B. Conduit Interior Sealing

1. All conduits (including spares) entering a structure below grade shall be sealed on the interior of the conduit against water ingress. Sealing shall be at an accessible location in the conduit system located within the building structure and shall be via one of the methods specified in Part 2 herein. If conduit sealing cannot be achieved at an accessible location within the building structure, sealing shall be placed in the conduits in the nearest manhole or handhole outside the structure.

3.06 CONDUIT IDENTIFICATION

A. The identification system for the conduits furnished and installed under this Contract shall match the existing identification system used at the project location.

B. Exposed conduits shall be identified at the source, load, and all intermediate components of the raceway system. Examples of intermediate components include but are not limited to junction boxes, pull boxes, and disconnect switches. Identification shall be by means of an adhesive label with the following requirements:

1. Labels shall consist of an orange background with black text. Text for the label shall be the conduit number as indicated in the conduit and wire schedules.

2. In addition, at the source end of the conduit, a second line of text shall be included to indicate the load equipment name. This second line shall consist of the word "TO:" and the text in the 'TO' column of the conduit and wire schedule (e.g. TO: Pump No. 1). At the load end of the conduit, a second line of text shall be included to indicate the source equipment name. This second line shall consist of the word "FROM:" and the text in the 'FROM' column of the conduit and wire schedule (e.g. FROM: MCC-SPS). This requirement applies only to the source and load ends of the conduit, and not anywhere in between.

3. For conduits trade sizes 3/4 inch through 1-1/2 inch, the text shall be a minimum 18 point font. For conduits trade size 2 inch and larger, the text shall be a minimum 24 point font.

4. Label height shall be 3/4 inch minimum, and length shall be as required to fit required text. The label shall be installed such that the text is parallel with the axis of the conduit. The label shall be oriented such that the text can be read without the use of any special tools or removal of equipment.

5. Labels shall be installed after each conduit is installed and, if applicable, after painting. Labels shall be printed in the field via the use of a portable label printing system. Handwritten labels are not acceptable.

6. Labels shall be made of permanent vinyl with adhesive backing. Labels made of any other material are not acceptable.

C. Conduits that are not exposed but installed beneath free standing equipment enclosures shall be identified by means of a plastic tag with the following requirements:

1. The tag shall be made of white Tyvek material, and have an orange label with black text, as described above, adhered to it. Text for the label shall be the conduit number as indicated in the conduit and wire schedules.

2. The tag shall be affixed to the conduit by means of a nylon cable tie. The tag shall be of suitable dimensions to achieve a minimum text size of 18 points.

D. Conduits for lighting and receptacle circuits shall not require identification.

E. Any problems or conflicts with meeting the requirements above shall immediately be brought to the attention of the Engineer for a decision.

3.07 TESTING

A. All tests shall be performed in accordance with the requirements of the General Conditions and Division 1. The following tests are required:

1. All conduit installed below grade or concrete encased shall be tested to ensure continuity and the absence of obstructions by pulling through each conduit a swab followed by a mandrel 85% of the conduit inside diameter. After testing, all conduits shall be capped after installation of a suitable pulling rope.

3.08 TRAINING OF INSTALLATION PERSONNEL

A. All Contractor personnel that install PVC coated RGS conduit shall be trained by the PVC coated RGS conduit manufacturer. Training shall include proper conduit system assembly techniques, use of tools appropriate for coated conduit systems, and field bending/cutting/threading of coated conduit. Training shall have been completed within the past 24 months prior to the Notice to Proceed on this Contract to be considered valid. Contractor personnel not trained within this timeframe shall not be allowed to install coated conduit, or shall be trained/re-trained as required prior to commencement of conduit installation.

[END OF SECTION]

SECTION 16123

WIRE AND CABLE

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish, install, connect, test, and place in satisfactory operating condition, ready for service, all cables and wires indicated on the Drawings and as specified herein or required for proper operation of the installation, with the exception of internal wiring provided by electrical equipment manufacturers. The work of connecting cables to equipment, machinery, and devices shall be considered a part of this Section. All hardware, junction boxes, bolts, clamps, insulators, and fittings required for the installation of cable and wire systems shall be furnished and installed by the Contractor.

B. The wire and cable to be furnished and installed for this project shall be the product of manufacturers who have been in the business of manufacturing wire and cable for a minimum of ten (10) years.

C. Reference Section 16000 - Basic Electrical Requirements.

1.02 TESTING

A. All testing shall be performed in accordance with the requirements of the General Conditions, Division 01, and Section 16000 – Basic Electrical Requirements. The following tests are required:

1. Witness Shop Tests

    a. Not required.

2. Shop Test

    a. Cable and wiring shall be tested in accordance with the applicable ICEA Standards. Wire and cable shall be physically and electrically tested in accordance with the manufacturer's standards.

3. Field Tests

    a. Field testing shall be done in accordance with the requirements specified in the General Conditions, Division 01, and NETA acceptance testing specifications referenced in Section 16000 - Basic Electrical Requirements.

    b. After installation, all wires and cables shall be tested for continuity. Testing for continuity shall be "test light" or "buzzer" style.

    c. After installation, all wires and cables shall be tested for insulation levels. Insulation resistance between conductors of the same circuit and between

conductor and ground shall be tested. Testing for insulation levels shall be as follows:

i. For 600V power and control cable, apply 1,000 VDC from a Megaohmeter for one (1) minute for all 600V wires and cables installed in lighting, control, power, indication, alarm and motor feeder circuits. Resistance shall be no less than 100 Megaohms.

ii. 600V instrumentation signal cable shall be tested from conductor to conductor, conductor to shield, and conductor to ground using a Simpson No. 260 volt-ohmmeter, or approved equal. The resistance value shall be 200 Megaohms or greater.

B. Low voltage wires and cables shall be tested before being connected to motors, devices or terminal blocks.

C. Voltage tests shall be made successively between each conductor of a circuit and all other conductors of the circuit grounded.

D. If tests reveal defects or deficiencies, the Contractor shall make the necessary repairs or shall replace the cable as directed by the Engineer, without additional cost to Owner.

E. All tests shall be made by and at the expense of the Contractor who shall supply all testing equipment. Test reports shall be submitted to the Engineer.

1.03 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the General Conditions, the Contractor shall obtain from the wire and cable manufacturer and submit the following:

1. Shop Drawings

2. Reports of Field Tests

3. Wiring Identification Methods

B. Each submittal shall be identified by the applicable specification section.

1.04 SHOP DRAWINGS

A. Each submittal shall be complete in all respects, incorporating all information and data listed herein and all additional information required for evaluation of the proposed material's compliance with the Contract Documents.

B. Partial, incomplete, or illegible Submittals will be returned to the Contractor without review for resubmittal.

C. Shop drawings shall include but not be limited to:

1. Product data sheets.

2. Cable pulling calculations (if required).

3. Wiring identification methods and materials.

1.05 IDENTIFICATION

A. Each cable shall be identified as specified in Part 3, Execution, of this Specification.

1.06 CABLE PULLING CALCULATIONS

A. The Contractor shall submit cable pulling calculations. These calculations, to be performed by a currently registered professional engineer in the State of Florida, shall define pulling tension and sidewall loading (sidewall bearing pressure values) for all installations of 600VAC, #1/0 conductors and larger greater than 200 feet in length. Calculations for straight horizontal installations of 600VAC, #1/0 conductors and larger greater than 200 feet are not required.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The wire and cable covered by this Specification is intended to be standard equipment of proven performance. Wire and cable shall be designed, constructed and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as specified herein and indicated on the Drawings. Only one (1) manufacturer for each wire and cable type shall be permitted.

B. The wire and cable manufacturer shall be ISO 9000 registered.

2.02 600 VOLT POWER WIRE AND CABLE

A. 600 volt cable and wire shall consist of stranded, copper conductor with insulation rated THHN, 90°C for dry locations and THWN, 75°C for wet locations.

B. Conductors shall be stranded copper per ASTM-B8 and B-33, and Class B or C stranding contingent on the size unless otherwise specified. Minimum size wire shall be No. 12 AWG.

C. 600 volt individual power wire and cable shall be Okoseal-N as manufactured by the Okonite Company, Cerro Wire and Cable equivalent, Southwire Company equivalent with SIMPull jacket, or equal. Multi-conductor power cables shall be Okoseal-N Type TC Cable as manufactured by the Okonite Company, Cerro Wire and Cable equivalent, Southwire Company equivalent, or equal.

D. For a motor controlled by a Variable Frequency Drives (VFD) provide VFD power cables. The cable shall be shielded, flexible motor supplied cable for variable speed drives, subject to non-linear power distortion. The VFD cable shall be used to interconnect the AC VFD to the AC motor. The VFD cable shall be 1000V rated UL flexible motor supply cable, with 3 stranded tinned copper conductors with XLPE insulation, 1 stranded tinned copper ground wire with PVC insulation, overall combination tinned copper braid shield

and foil shield, and black PVC jacket. The cable shall be Belden VFD cable, or approved equal.

2.03 600 VOLT CONTROL CABLE

A. 600 volt control cable shall consist of stranded, copper conductor with insulation rated THHN, 90°C for dry locations and XHHW, 75°C for below grade and wet locations. The individual conductors of the multiple conductor cable shall be color coded for proper identification. Color coding shall be equal to ICEA S-68-514, Method 1, E2. Cables shall meet requirements of IEEE-383.

B. Conductors shall be stranded copper per ASTM B-8 and B-33, and Class B or C stranding contingent on the size unless otherwise specified. Minimum wire size shall be No. 14 AWG.

C. 600 volt individual conductor control wire shall be Okoseal-N as manufactured by the Okonite Company, Cerro Wire and Cable equivalent, Southwire Company equivalent with SIMPull jacket, or equal. Multi-conductor control cable shall be Okoseal-N Type TC Cable as manufactured by the Okonite Company, Cerro Wire and Cable equivalent, Southwire Company equivalent, or equal.

2.04 LIGHTING AND RECEPTACLE WIRE AND CABLE

A. The lighting and receptacle branch circuit wire shall consist of solid, copper conductors with insulation rated THHN, 90°C for dry locations and THWN, 75°C for wet locations.

B. Conductors shall be solid copper per ASTM- B-33. Minimum size wire shall be No. 12 AWG.

C. Lighting and receptacle cables and wire shall be Okoseal-N as manufactured by the Okonite Company, Cerro Wire and Cable equivalent, Southwire Company equivalent with SIMPull jacket, or equal.

2.05 INSTRUMENTATION CABLE

A. Single Twisted Pair Instrument Cable

1. The cable shall be single, shielded, twisted pairs or triads with 600 volt insulation and shall have a 90°C insulation rating.

2. Conductors shall be tin or alloy coated (if available), soft, annealed copper, stranded per ASTM-B8, Class B stranding unless otherwise specified. Minimum size wire shall be No. 16 AWG.

3. Conductors shall be with foil and braided shield.

B. Multi-conductor Twisted Pair Instrument Cable

1. The cable shall be insulated stranded conductors, twisted pairs or triads with foil shield over each pair, a common overall foil and braided shield, 600 volt insulation, and 90°C insulation rating.

2. Conductors shall be tin or alloy coated (if available), soft, annealed copper, stranded per ASTM-B8, Class B stranding unless otherwise specified. Minimum size wire shall be No. 20 AWG.

C. The instrumentation cable for analog signals shall be Okoseal-N Type P-OS for single pair or triad applications and Okoseal-N Type SP-OS for multiple pair or triad applications as manufactured by the Okonite Company, Cerro Wire and Cable equivalent, Southwire Company equivalent, or equal.

2.06 CABLE PULLING LUBRICANTS

A. Cable pulling lubricants shall be non-hardening type and approved for use on the type of cable installed. Lubricant shall be Yellow #77 by Ideal, Cable Gel by Greenlee, Poly-Gel by Gardner Bender, or equal.

PART 3 - EXECUTION

3.01 600V CABLE INSTALLATION

A. The cable and wires shall be installed as specified herein and indicated on the Drawings.

B. The cables shall be terminated in accordance with the cable and/or termination product manufacturer's instructions for the particular type of cable.

C. To minimize oxidation and corrosion, wire and cable shall be terminated using an oxide-inhibiting joint compound recommended for "copper-to-copper" connections. The compound shall be Penetrox E as manufactured by Burndy Electrical, or equal.

D. Splices shall not be allowed in the underground manhole and handhole systems. If splices are required, the Contractor shall obtain approval in writing from the Engineer prior to splicing. Splicing materials shall be barrel type butt splice connectors and heat shrink tubing as manufactured by 3M, Ideal, or equal. No splicing of instrumentation cable is allowed. The use of screw-on wire connectors (wire nuts) shall only be permitted for lighting and receptacle circuits. Reference Section 16130 - Boxes for additional requirements regarding control wiring.

E. Wire and Cable Sizes

1. The sizes of wire and cable shall be as indicated on the Drawings, or if not shown, as approved by the Engineer. If required due to field routing, the size of conductors and respective conduit shall be increased so that the voltage drop measured at the load does not exceed 2-1/2%.

2. Minimum wire size within control panels, motor control centers, switchboards and similar equipment shall be No. 12 AWG for power and No. 14 AWG for control.

F. Number of Wires

1. The number of wires indicated on the Drawings for the various control, indication, and metering circuits were determined for general schemes of control and for particular indication and metering systems.

2. The actual number of wires installed for each circuit shall, in no case, be less than the number required; however, the Contractor shall add as many wires as may be required for control and indication of the actual equipment selected for installation at no additional cost to Owner. The addition of conductors shall be coordinated with and approved by the Engineer to avoid violations of the NEC regarding conduit fill.

3. All spare conductors shall be terminated on the terminal blocks mounted within the equipment.

G. Wiring Identification

1. In addition to color coding, all wiring shall be identified at each point of termination. This includes but is not limited to identification at the source, load, and in any intermediate junction boxes where a termination is made. The Contractor shall meet with Owner and Engineer to come to an agreement regarding a wire identification system prior to installation of any wiring. Wire numbers shall not be duplicated.

2. Wire identification shall be by means of a heat shrinkable sleeve. Sleeves shall have a white background with black text. Wire sizes #14 AWG through #10 AWG shall have a minimum text size of 7 points. Wire sizes #8 AWG and larger shall have a minimum text size of 10 points. Sleeves shall be of appropriate length to fit the required text. The use of handwritten text for wire identification shall not be permitted.

3. Sleeves shall be suitable for the size of wire on which they are installed. When installation is complete, sleeves shall be tightly affixed to the wire and shall not move. Sleeves shall be heat shrunk onto wiring with a heat gun approved for the application. Sleeves shall not be heated by any means which employs the use of an open flame. The Contractor shall take special care to ensure that the wiring insulation is not damaged during the heating process.

4. Sleeves shall be installed prior to the completion of the wiring terminations and shall be oriented so that they can be easily read.

5. Sleeves shall be white polyolefin as manufactured by Brady, Seton equivalent, Panduit equivalent, or equal.

6. Where sleeves are not available in the size required for the wire, the Contractor shall use an adhesive label with a white background and black text. Text size shall be in accordance with the requirements listed above.

7. Adhesive labels, for the case when sleeves are not suitable for the wire size, shall be white permanent vinyl as manufactured by Brady, Seton equivalent, Panduit equivalent, or equal.

8. Wire identification in manholes, handholes, pull boxes, and other accessible components in the raceway system where the wiring is continuous shall be accomplished by means of a tag installed around the bundled group of conductors.

Identification shall utilize a FROM-TO system. Each group of conductors shall consist of all of the individual conductors in a single conduit or duct. The tag shall have text that identifies the bundle in accordance with the 'FROM' and 'TO' column for that particular conduit number in the conduit and wire schedule. Minimum text size shall be 10 point. The tag shall be affixed to the wire bundle by the use of nylon wire ties, and shall be made of polyethylene as manufactured by Brady, Seton equivalent, Panduit equivalent, or equal.

H. Cable Installation

1. All interior cable not protected by a compartment enclosure shall be installed in conduit.

I. Wiring Supplies

1. Only electrical wiring supplies manufactured under high standards of production and meeting the approval of the Engineer shall be used.

2. Rubber insulating tape shall be in accordance with ASTM Des. D119. Friction tape shall be in accordance with ASTM Des. D69.

J. Training of Cable

1. The Contractor shall furnish all labor and material required to train cables around cable vaults within buildings and in manholes and handholes in the outdoor underground duct system. Sufficient length of cable shall be provided in each handhole, manhole, and vault so that the cable can be trained and racked in an approved manner. Instrumentation cable shall be racked separate from all other AC and DC wiring to maintain the required separation specified herein. In training or racking, the radius of bend of any cable shall be not less than the manufacturer's recommendation. The training shall be done in such a manner as to minimize chaffing.

K. Connections at Control Panels, Limit Switches, and Similar Devices

1. Where stranded wires are terminated at panels, and/or devices, connections shall be made by solderless lug, crimp type ferrule, or solder dipped.

2. Where enclosure sizes and sizes of terminals at limit switches, solenoid valves, float switches, pressure switches, temperature switches, and other devices make 7-strand, No. 12 AWG, wire terminations impractical, the Contractor shall terminate external circuits in an adjacent junction box of proper size complete with terminal strips and shall install No. 14 AWG stranded wires from the device to the junction box in a conduit. The #12 AWG field wiring shall also be terminated in the same junction box to complete the circuit.

L. Pulling Temperature

1. Cable shall not be flexed or pulled when the temperature of the jacket is such that damage will occur due to low temperature embrittlement. When cable will be pulled with an ambient temperature of 40°F or less within a three (3) day period prior to

pulling the cable reels shall be stored three (3) days prior to pulling in a protected storage area with an ambient temperature of 55°F or more. Cable pulling shall be completed during the work day for which the cable is removed from the protected storage. Any remaining cable reels shall be returned to storage at the completion of the workday.

M. Color Coding

1. Conductor insulation shall be color coded as follows:

a. 480/277V AC Power

Phase A - BROWN
Phase B - ORANGE
Phase C - YELLOW
Neutral WHITE

b. 120/208V or 120/240V AC Power

Phase A - BLACK
Phase B - RED
Phase C ORANGE
Neutral - WHITE

c. DC Power

Positive Lead - RED
Negative Lead - BLACK

d. DC Control

All wiring - BLUE

e. 120VAC Control

Single conductor 120 VAC control wire shall be RED except for a wire entering a motor control center compartment or control panel which is an interlock. This conductor shall be color coded YELLOW.

f. 24VAC Control

All wiring – ORANGE

g. Equipment Grounding Conductor

All wiring - GREEN

2. Conductors No. 2 AWG and smaller shall be factory color coded with a separate color for each phase and neutral, which shall be used consistently throughout the

system. Larger cables shall be coded by the use of colored tape in accordance with the requirements listed above.

3. Low voltage feeder and branch circuit conductors shall be identified in accordance with the NEC. The method utilized for conductor identification for each nominal voltage system shall be permanently posted at each feeder or branch circuit distribution equipment assembly. Reference Articles 200, 210, and 215 of the NEC.

3.02 INSTRUMENTATION CABLE INSTALLATION

A. The Contractor shall install all cable or conductors used for instrumentation wiring (4-20 mA DC, etc.) in rigid galvanized steel or PVC coated rigid galvanized steel conduit. The use of asbestos cement or PVC conduit shall not be permitted. Analog signal wires shall exclusively occupy these conduits. No other wiring for AC or discrete DC circuits shall be installed in these conduits.

B. All shielding shall be continuous and shall be grounded at one point only, or in accordance with the instrumentation equipment manufacturer's recommendations.

C. Where instrumentation cables are installed in panels, manholes, handholes, and other locations, the Contractor shall arrange wiring to provide maximum clearance between these cables and other conductors. Instrumentation cables shall not be installed in same bundle with conductors of other circuits.

D. Additional pullboxes shall be furnished and installed for ease of cable pulling and the cable manufacturer's recommended conduit fill factor shall be followed. Where required or specifically directed by the Engineer, the Contractor shall moisture seal the cables at all connections with OZ Gedney Type "CSB", or equal, sealing bushings.

E. Special instrument cable shall be as specified or recommended by the manufacturer of the equipment or instruments requiring such wiring. Installation, storage, terminations, etc., shall be per manufacturer's recommendations.

F. All cable insulation and jackets shall have adequate strength for it to be pulled through the conduit systems. All conductors shall be color coded and all wires shall be suitably tagged with permanent markers as specified herein.

[END OF SECTION]

SECTION 16130

BOXES

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The scope of work under this Section includes furnishing and installing all pull boxes, junction boxes, and outlet boxes.

B. Requirements for other boxes and enclosures are not included in this Section. Reference each specific Division 16 equipment Section for requirements related to that equipment's respective enclosure.

C. Reference Section 16000 - Basic Electrical Requirements, and Section 161111 - Conduit.

1.02 CODES AND STANDARDS

A. Boxes shall be designed, manufactured, and/or listed to the following standards as applicable:

1. UL 514A - Metallic Outlet Boxes

2. UL 514C - Standard for Non-metallic Outlet Boxes, Flush Device Boxes, and Covers

3. UL 50 – Enclosures for Electrical Equipment, Non-environmental Considerations

4. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations

5. UL 1203 - Standard for Explosion-proof and Dust-ignition-proof Electrical Equipment for use in Hazardous (Classified) Locations.

6. NEMA 250 – Enclosures for Electrical Equipment

1.03 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the General Conditions, the Contractor shall obtain from the equipment manufacturer(s) and submit the following:

1. Shop Drawings

B. Each submittal shall be identified by the applicable specification section.

1.04 SHOP DRAWINGS

A. Each submittal shall be complete in all respects, incorporating all information and data listed herein and all additional information required for evaluation of the proposed equipment's compliance with the Contract Documents.

B. Partial, incomplete or illegible Submittals will be returned to the Contractor without review for resubmittal.

C. Shop drawings shall include but not be limited to:

1. Product data sheets for boxes, terminal strips, and all accessories

1.05 OPERATION AND MAINTENANCE MANUALS

A. The Contractor shall submit operation and maintenance manuals in accordance with the procedures and requirements set forth in the General Conditions and Division 01.

B. As-built drawings showing dimensions, internal box layout, terminal strip information, and terminal strip identification information shall be provided for all junction boxes. As-built drawings are not required for pull boxes or outlet boxes.

1.06 IDENTIFICATION

A. Each pull and junction box shall be identified with the box name as indicated on the Contract Drawings (e.g. PPB-XXX, CJB-YYY) or as directed by the Engineer. A nameplate shall be securely affixed in a conspicuous place on each box. Nameplates shall be as specified in Section 16195 - Electrical Identification.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The equipment covered by this Specification is intended to be standard equipment of proven performance as manufactured by reputable concerns. Equipment shall be designed, constructed, and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown on the Drawings.

2.02 PULL AND JUNCTION BOXES

A. General

1. All pull and junction boxes shall be UL listed and labeled.

2. Pull and junction boxes shall not be provided with eccentric or concentric knockouts.

3. Pull and junction boxes mounted embedded in concrete shall be UL listed for embedment.

4. Where metallic boxes are used they shall be of cast type or all welded construction as specified herein. Tack welded boxes are not acceptable.

B. Pull Boxes

1. All pull boxes shall be provided with a matching gasketed cover. For covers with dimensions of 24 inches by 24 inches or less, the cover shall be held in place by

machine screws. Other screw types are not acceptable. For covers with dimensions greater than 24 inches by 24 inches, the cover shall be hinged and held in place by screw-operated clamp mechanisms. Hinge pins shall be removable. Clamp mechanism material of construction shall match that of the associated box.

2. Pull boxes shall not have any wire terminations inside, other than those for grounding/bonding. A ground bar shall be provided with the necessary number of screw type terminals. Twenty (20) percent of the total amount of terminals otherwise required for the pull box (minimum of two) shall be provided as spare terminations. Boxes requiring any other wire terminations shall be furnished and installed in accordance with the requirements for junction boxes herein.

3. Pull boxes shall be 6 inches wide by 6 inches tall by 4 inches deep, minimum. For applications requiring larger boxes, the box shall be sized in accordance with the fill requirements and dimensional requirements of the NEC.

4. Barriers shall be provided in pull boxes to isolate conductors of different voltages, types, and functions. Barrier material of construction shall match that of the box. Isolation shall be provided between the following groups:

    a. Power wiring

    b. AC control wiring

    c. DC control wiring

    d. Instrumentation wiring

C. Junction Boxes

1. Junction boxes used for lighting and receptacle circuits only shall be provided with a matching gasketed cover held in place by machine screws. Other screw types are not acceptable.

2. Junction boxes for all uses other than lighting and receptacle circuits shall be provided with a hinged, gasketed cover. Hinge pins shall be removable. Cover shall be held in place by screw-operated clamp mechanisms. Clamp mechanism material of construction shall match that of the associated box.

3. Barriers shall be provided in junction boxes to isolate conductors and terminal blocks of different voltages, types, and functions. Barrier material of construction shall match that of the box. Isolation shall be provided between the following groups:

    a. Power wiring

    b. AC control wiring

    c. DC control wiring

    d. Instrumentation wiring

4. Junction boxes used for lighting and receptacle circuits only shall be allowed to have screw-on (wire nut) type connectors for wire terminations/junctions.

5. Junction boxes for all uses other than lighting and receptacle circuits shall be provided with terminal strips, consisting the necessary number of screw type terminals. Current carrying parts of the terminal blocks shall be of ample capacity to carry the full load current of the circuits connected, with a 10A minimum capacity. Terminal strips shall be rated for the voltage of the circuits connected. A separate ground bar shall be provided with the necessary number of screw type terminals. Twenty (20) percent of the total amount of terminals otherwise required for the junction box (minimum of two) shall be provided as spare terminations. When barriers are provided within the box, separate terminal strips shall be provided in each barrier area. Terminals shall be lettered and/or numbered to conform to the wiring labeling scheme in place on the project.

6. Junction boxes shall be 6 inches wide by 6 inches tall by 4 inches deep, minimum. For applications requiring larger boxes, the box shall be sized in accordance with the fill requirements and dimensional requirements of the NEC. Terminal blocks (including spare terminals) shall be considered when sizing the junction box.

D. Enclosure Types and Materials

1. In non-hazardous locations, pull and junction boxes shall be furnished with the following enclosure type and material of construction, dependent upon the designation of the area in which they are to be installed. Area designations are indicated on the Drawings.

AREA DESIGNATION	**ENCLOSURE TYPE AND MATERIAL**
Indoor Wet Process Area	NEMA 4X, Aluminum Construction
Indoor Dry Process Area	NEMA 12, Galvanized Steel
Indoor Dry Non-process Area	NEMA 1, Galvanized Steel
Indoor Type 1 Chemical Storage/Transfer Area	NEMA 4X, Fiberglass or PVC
Indoor Type 2 Chemical Storage/Transfer Area	NEMA 4X, Type 316 Stainless Steel
All Outdoor Areas	NEMA 4X, UV-resistant, Sch.80 PVC

2. In hazardous locations, pull and junction boxes shall be furnished with the following enclosure type and material of construction, dependent upon the classification of the area in which they are to be installed. Area classifications are indicated on the Drawings.

AREA CLASSIFICATION	**ENCLOSURE TYPE AND MATERIAL**
Class 1, Division 1, Group D	NEMA 7, Die Cast Aluminum
Class 1, Division 2, Group D	NEMA 4X, Cast Aluminum
Class 2, Division 1, Group F	NEMA 9, Die Cast Aluminum
Class 2, Division 2, Group F	NEMA 4X, Cast Aluminum

3. Non-metallic enclosures, NEMA 7 enclosures, and NEMA 9 enclosures shall be provided with threaded integral conduit hubs.

2.03 OUTLET BOXES

A. General

1. Outlet boxes shall be provided with a trim appropriate for the wiring device installed inside. Reference Section 16141, Wiring Devices, for outlet box trim requirements. An appropriate outlet box trim is required to achieve the NEMA rating of the outlet boxes as specified herein.

B. Surface Mount Outlet Boxes

1. Outlet boxes shall be the deep type, no less than 2.5 inches deep.

2. Outlet boxes shall be provided in single or multi-gang configuration as required, sized in accordance with the requirements of the NEC.

3. In non-hazardous locations, outlet boxes shall be furnished with the following enclosure type and material of construction, dependent upon the designation of the area in which they are to be installed. Area designations are indicated on the Drawings.

AREA DESIGNATION	ENCLOSURE TYPE AND MATERIAL
Indoor Wet Process Area	NEMA 4X, Cast Aluminum
Indoor Dry Process Area	NEMA 1, Cast Aluminum
Indoor Dry Non-process Area	NEMA 1, Cast Aluminum
Indoor Type 1 Chemical Storage/Transfer Area	NEMA 4X, PVC
Indoor Type 2 Chemical Storage/Transfer Area	NEMA 4X, Cast Aluminum
All Outdoor Areas	NEMA 4X, Cast Aluminum

4. In hazardous locations, outlet boxes shall be furnished with the following enclosure type and material of construction, dependent upon the classification of the area in which they are to be installed. Area classifications are indicated on the Drawings.

AREA CLASSIFICATION	ENCLOSURE TYPE AND MATERIAL
Class 1, Division 1, Group D	NEMA 7, Die Cast Aluminum
Class 1, Division 2, Group D	NEMA 4X, Cast Aluminum
Class 2, Division 1, Group F	NEMA 9, Die Cast Aluminum
Class 2, Division 2, Group F	NEMA 4X, Cast Aluminum

5. Outlet boxes shall be provided with integral threaded conduit hubs mounted external to the box. Boxes with threaded conduit hubs mounted internal to the box or as a part of the box wall are not acceptable.

C. Flush Mount Outlet Boxes

1. Outlet boxes shall be no less than 2-1/8 inches deep, and 4-11/16 inches square. Boxes shall be UL listed and labeled. Pre-punched single diameter conduit knockouts are acceptable, however, concentric and eccentric knockouts are not acceptable.

2. Outlet boxes mounted flush in CMU walls shall be made of galvanized, tack welded steel, and suitable for installation in masonry walls. Sectional type boxes are not acceptable for this application.

3. Outlet boxes mounted flush in gypsum walls shall be made of galvanized pressed steel. Tack welded boxes are not acceptable for this application. Sectional type boxes are not acceptable for this application.

4. Outlet boxes mounted cast into concrete shall be concrete tight, and shall be made of galvanized steel or PVC.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Pull and Junction Boxes

1. Pull boxes and junction boxes shall be solidly attached to structural members prior to installation of conduit and set true and plumb. Boxes shall not be supported by their associated conduits.

2. Wooden plugs are not permitted for securing boxes to concrete. Appropriately rated anchors specifically suited for use in concrete shall be used.

3. Box penetrations for conduits shall be made with a punch tool, and penetrations shall be of the size required for the conduit entry and/or hub. Oversized penetrations in boxes are not acceptable.

4. Watertight conduit hubs shall be provided for boxes where a NEMA 4X enclosure rating is specified. Reference Section 16111 - Conduit, for conduit hub requirements.

5. Pull and junction boxes may be installed flush mounted in gypsum, concrete or CMU walls where appropriate provided that covers are easily removed or opened.

6. Pull and junction boxes shall be provided in the enclosure type and material of construction required for the area in which it is installed. Reference the requirements in Part 2 herein, and the area designations indicated on the Drawings.

B. Outlet Boxes

1. Outlet boxes shall be solidly attached to structural members prior to installation of conduit and set true and plumb. Boxes shall not be supported by their associated conduits.

2. Wooden plugs are not permitted for securing boxes to concrete. Appropriately rated anchors specifically suited for use in concrete shall be used.

3. Flush mounted outlet boxes shall be arranged and located so that tile and grout lines fit closely around the boxes, and so placed that the cover or device plate shall fit flush to the finished wall surface.

4. Outlet boxes shall be flush mounted in finished areas and other areas where practical. Flush mounted outlet boxes shall not be installed in hazardous areas and type 1 or 2 chemical storage/transfer areas.

5. For the below-named items, mounting heights from finished floor, or finished grade to top is applicable, depending on the type of wiring device to be installed in the outlet box. Mounting heights for outlet boxes shall be as follows, unless otherwise specified herein, indicated on the Drawings, or required by the Americans with Disability Act (ADA):

    a. Light switches and wall mounted occupancy sensors, 48 inches

    b. Receptacles in indoor dry process/non-process areas, 16 inches

    c. Receptacles in indoor wet process areas and all indoor chemical storage/ transfer areas, 48 inches

    d. Receptacles in outdoor locations, 24 inches

6. Outlet boxes shall be provided in the material of construction required for the area in which it is installed. Reference the requirements in Part 2 herein, and the area designations indicated on the Drawings.

[END OF SECTION]

SECTION 16141

WIRING DEVICES

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish and install all switches and receptacles for lighting and miscellaneous power applications of the type and at the locations as specified herein and as shown on the Drawings.

B. All switches and receptacles shall be furnished and installed in outlet boxes as specified in Section 16130 - Boxes.

C. Reference Section 16000 - Basic Electrical Requirements.

1.02 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the General Conditions, the Contractor shall obtain from the equipment manufacturer and submit shop drawings. Each submittal shall be identified by the applicable specification section.

1.03 SHOP DRAWINGS

A. Each submittal shall be complete in all respects, incorporating all information and data listed herein and all additional information required for evaluation of the proposed equipment's compliance with the Contract Documents.

B. Partial, incomplete, or illegible submittals will be returned to the Contractor without review for resubmittal.

C. Shop drawings shall include, but not be limited to:

1. Product data sheets.

1.04 SUPPLIES AND SPARE PARTS

A. The Contractor shall furnish 10% (minimum of 1) spare of each receptacle, switch, and plug furnished and installed for this project.

B. Spare parts lists, included with the shop drawing submittal, shall indicate specific sizes, quantities, and part numbers of the items to be furnished. Terms such as "1 lot of packing material" are not acceptable.

C. Parts shall be completely identified with a numerical system to facilitate parts inventory control and stocking. Each part shall be properly identified by a separate number. Those parts which are identical for more than one size shall have the same parts number.

1.05 IDENTIFICATION

A. Each switch and receptacle shall be identified with the equipment item number, manufacturer's name or trademark, and such other information as the manufacturer may consider necessary, or as specified, for complete identification.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The equipment covered by these Specifications is intended to be standard equipment of proven performance as manufactured by reputable concerns. Equipment shall be designed, constructed and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown on the Drawings.

B. The Contractor shall use the products of a single manufacturer for each type of wiring device.

C. The Contractor shall use the products of a single manufacturer for all device plates. Plate variations are allowed for the following devices:

1. Where the selected plate manufacturer does not manufacture a suitable finish plate.

2. For heavy-duty receptacles rated at more than 30A.

3. Where non-standard plates are required, specified, or shown.

D. The Contractor shall furnish and install all wiring devices and device plates. Wiring devices as listed herein are intended to indicate type, function, and quality of the products.

E. The receptacles, switches, device plates, and other appurtenances shall comply with the requirements of these Specifications. Receptacles installed in toilet, locker, and bathrooms shall be of ground fault interrupter type to meet the minimum NEC requirements. Ground fault circuit interrupter receptacles shall also be furnished and installed as specified herein, indicated on the Drawings, and required by the NEC.

F. Wiring devices shall be approved for use with stranded conductors, if stranded conductors are to be used with the device. Reference Section 16123 - Wire and Cable.

G. The Contractor shall provide specification grade devices which shall be as manufactured by Appleton, Crouse-Hinds, Leviton, Harvey Hubbell Co., Bryant Electric Company, Pass & Seymour, or equal.

2.02 WIRING DEVICES

A. Wiring devices shall be in accordance with the following for nonhazardous areas:

1. Wall Switches, Single Pole, 20 A, 120-277V equivalent to Hubbell No. 1221, Pass & Seymour No. 20AC1, Leviton equivalent, or equal. Switches rated 30 A, 120-277V shall be Leviton 3031, Hubbell equivalent, Pass & Seymour equivalent, or equal.

2. Wall Switches, Double Pole, 20 A, 120-277V equivalent to Hubbell No. 1222, Pass & Seymour No. 20AC2, Leviton equivalent, or equal. Switches rated 30 A, 120-277V shall be Leviton 3032, Hubbell equivalent, Pass & Seymour equivalent, or equal.

3. Wall Switches, Three-Way, 20 A, 120-277V equivalent to Hubbell No. 1223, Pass & Seymour No. 20AC3, Leviton equivalent, or equal. Switches rated 30 A, 120-277V shall be Leviton 3033, Hubbell equivalent, Pass & Seymour equivalent, or equal.

4. Wall Switches, Four-Way, 20 A, 120-277V equivalent to Hubbell No. 1224, Pass & Seymour No. 20AC4, Leviton equivalent, or equal.

5. Convenience Receptacles 20 A, 125V, duplex polarized with grounding connection equivalent to Hubbell No. 5362, Pass & Seymour equivalent, Leviton equivalent, or equal.

6. Hubbell Cat. No. GF-5362, Pass & Seymour equivalent, Leviton equivalent, or equal, for 20A, 120V, duplex, ground fault circuit interrupting type.

B. Special Purpose Receptacles shall be rated to carry, at least where required the full load amperes and voltage of the unit connected thereto. These receptacles shall be provided with grounding poles and shall be equivalent to the following:

1. Hubbell Cat. No. HBL-5661, Pass & Seymour No. 5871, Leviton equivalent, or equal, for 20A, 250VAC, 1-phase service.

2. Hubbell Cat. No. HBL-9330, Pass & Seymour No.3801, Leviton equivalent, or equal, for 30A, 250VAC, 1-phase service.

3. Hubbell Cat. No. 9430, Pass & Seymour No. 5740, Leviton equivalent, or equal, for 30A, 208/120V, 3-phase service.

4. Hubbell Cat. No. 9450, Pass & Seymour No. 5750, Leviton equivalent, or equal, for 50A, 208/120V, 3-phase service.

5. Hubbell Cat. No. 9460, Pass & Seymour No. 5760, Leviton equivalent, or equal, for 60A, 208/120V, 3-phase service.

6. Hubbell Cat. No. 9330, Pass & Seymour No. 5930, Leviton equivalent, or equal, for 30A, 208V, single-phase service.

7. Hubbell Cat. No. 9315, Pass & Seymour equivalent, Leviton equivalent, or equal, for 30A, 277V, single-phase service.

8. Hubbell Cat. No. 23CM10, Pass & Seymour equivalent, Leviton equivalent, or equal, for 20A, single, 125V, polarized with grounding connection, twist lock type. Matching plug shall be Hubbell Cat. No. 23CM11, Pass & Seymour equivalent, Leviton equivalent, or equal.

9. Crouse-Hinds "Arktite" Series, Appleton equivalent, Killark equivalent, or equal, 30A, 3P, 600 Volt, twist lock, weatherproof, power receptacle and box with matching plug.

C. For hazardous areas the following shall be provided:

1. Wall Switches, single pole, 20 A, 120 V equivalent to Crouse Hinds Cat. No. EFD3591 or EFDC3591 (as required); Appleton No. EDS175F1 or EDSC175F1, Killark equivalent, or equal.

2. Convenience Receptacles 20 A, 120-250 VAC, 2 wire, 3 pole equivalent to Crouse Hinds Cat. No. CPS152-201, Appleton No. CPE1-2375, Killark equivalent, or equal.

D. Plugs for hazardous and non-hazardous receptacles shall be provided:

1. Plugs and respective cable shall be provided for equipment furnished under other Divisions (steam cleaners, welders, etc.) as necessary.

2.03 DEVICE PLATES

A. Wall plates with gaskets for flush-mounted receptacles and switches shall be made of Type 304 stainless steel, not less than 0.032 of an inch thick, with beveled edges and milled on the rear so as to lie flat against the wall. Wall plates shall be equivalent to Hubbell Series 9600, Pass & Seymour series 93000, Leviton equivalent, or equal.

B. Device plates for outdoor installations and indoor wet process area installations shall be Appleton Type FSK, Crouse-Hinds #DS185, or equal for wall switches. Device plates for receptacles shall be “in-use” style. “In-use” weatherproof covers shall be rugged, minimum 3 ¼” depth, die-cast aluminum as manufactured by Thomas & Betts "Red Dot," Intermatic International, Inc., or equal.

C. Device plates for indoor dry process areas with surface mounted boxes shall be Crouse-Hinds DS32, or equal for switches, and Crouse-Hinds DS23 or equal for receptacles.

2.04 PLUGS

A. The Contractor shall furnish suitable plugs with equipment furnished under the respective Contract. Plugs shall be black rubber or plastic. For waterproof receptacles, the plugs shall be similar in construction to the receptacles and shall be encased in corrosion resistant yellow housing provided with clamping nuts and stuffing gland cable outlets.

2.05 PROCESS INSTRUMENTS

A. The Contractor shall furnish and install a local disconnect switch at each process instrument (e.g., level transmitter, flow transmitter, analytical instrument etc.,) to disconnect the 120VAC power supply to the instrument. The device shall be a NSSC series manual motor starting switch without overload protection as manufactured by Crouse-Hinds, Appleton equivalent, or equal. For hazardous locations, the device shall be a front operated general use snap switch mounted in an EFS enclosure as manufactured by Crouse-Hinds, Appleton equivalent, or equal.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Switch boxes shall be of unit construction and of sizes as required to adequately house the number of switches required. No sectional type switch boxes shall be permitted.

B. Where more than one (1) switch occurs at one (1) point, gang plates shall be used.

C. All device plates shall be set true and plumb, and shall fit tightly against the finished wall surfaces and outlet boxes.

D. All devices shall be flush-mounted in finished areas, unless otherwise noted. The Contractor shall determine the proper position of every outlet, and relocate any outlet without additional cost to Owner if same is incorrectly or improperly located. The Engineer reserves the right to change the location of any outlet or connecting equipment up to the time of roughing in without additional cost to Owner, provided conduit runs are not increased by more than ten (10) feet.

E. In all areas where thermal or acoustic insulation is applied to the ceiling or walls, outlet boxes shall be set to finish flush with the finished surface of the insulation.

F. When indicated height would place any of the equipment at an unsuitable location such as at a molding or break in wall finish, the contractor shall bring it to the attention of the Engineer for a decision.

G. For the below-named items, mounting heights from finish floor, or finish grade to top is applicable. Mounting heights shall be as follows, unless otherwise specified herein, indicated on the Drawings, or required by the Americans with Disability Act (ADA):

1. Single-pole light switches, 48 inches.

2. Duplex receptacles in dry areas, 16 inches

3. Duplex receptacles in pump rooms, 48 inches

H. The Contractor shall furnish and install switches as indicated on the Drawings. Switches shall be single pole, double pole, 3-way, or 4-way as indicated on the Drawings and as required. Switches located outdoors or in wet indoor locations shall be installed in cast boxes complete with yellow, fiberglass weatherproof covers. Reference Section 16141 - Wiring Devices.

I. All receptacles shall have a self-adhesive label installed on the top at the respective device plate that indicates which panel and which circuit number the receptacle is supplied from. Labels shall have a white background and black lettering in 14 point font.

3.02 CIRCUITING

A. Convenience receptacles shall be grouped on circuits separate from the lighting circuits. A maximum of eight (8) convenience receptacles are permitted per 20A, 120V circuit.

[END OF SECTION]

SECTION 16170

GROUNDING AND BONDING

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish and install grounding systems complete in accordance with the minimum requirements established by Article 250 of the NEC. Article 250 of the NEC shall be considered a minimum requirement for compliance with this Specification.

B. Grounding of all instrumentation and control systems shall be furnished and installed in accordance with the manufacturer/system requirements and IEEE 1100-92, Powering and Grounding of Sensitive Electronic Equipment. Conflicts shall be promptly brought to the attention of the Engineer.

C. In addition to the NEC requirements, building structural steel columns shall be permanently and effectively grounded:

D. Reference Section 16000 - Basic Electrical Requirements.

1.02 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the General Conditions, the Contractor shall obtain from the equipment manufacturer and submit the following:

1. Shop Drawings

2. Reports of certified field tests.

B. Each submittal shall be identified by the applicable specification section.

1.03 SHOP DRAWINGS

A. Each submittal shall be complete in all respects, incorporating all information and data listed herein and all additional information required for evaluation of the proposed equipment's compliance with the Contract Documents.

B. Partial, incomplete, or illegible submittals will be returned to the Contractor without review for resubmittal.

C. Shop drawings shall include but not be limited to:

1. Product data sheets.

2. Drawings and written description of how the Contractor intends to furnish and install the grounding system.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The equipment covered by these specifications shall be standard equipment of proven performance as manufactured by reputable concerns. Equipment shall be designed, constructed, and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown on the Drawings.

2.02 GROUND RODS AND GRID

A. Ground rods shall be rolled to a commercially round shape from a welded copper-clad steel manufactured by the molten-welding process or by the electro-formed process (molecularly bonded). They shall have an ultimate tensile strength of 75,000 pounds per square inch (psi) and an elastic limit of 49,000 psi. The rods shall be not less than 3/4 inch in diameter by 10 feet in length; and the proportion of copper shall be uniform throughout the length of the rod. The copper shall have a minimum wall thickness of 0.010 inch at any point on the rod. Ground rods shall be UL 467 listed. The ground rods shall be manufactured by Erico Products, Blackburn, or equal.

B. Except where specifically indicated otherwise, all exposed non current-carrying metallic parts of electrical equipment, metallic raceway systems, grounding conductors in nonmetallic raceways and neutral conductors of wiring systems shall be grounded.

C. The ground connection shall be made at the main service equipment and shall be extended to the ground grid surrounding the structure. The ground grid shall also be connected to the point of entrance of the metallic water service. Connection to the water pipe shall be made by a suitable ground clamp or lug connection to a plugged tee. If flanged pipes are encountered, connection shall be made with the lug bolted to the street side of the flanged connection.

D. Where ground fault protection is employed, care shall be taken so that the connection of the ground and neutral does not interfere with the correct operation of the ground fault protection system.

2.03 FITTINGS

A. Grounding connections to equipment shall be bolted. Cable end connections shall be made by hydraulic crimp or exothermically welded. Split bolt type connectors are not acceptable. Fittings shall be UL 467 listed.

2.04 BARE GROUND CABLE

A. Bare ground cable shall be soft-drawn, bare copper stranded cable complying with ASTM B8. No. 4/0 AWG minimum size unless otherwise shown or indicated on the Drawings.

2.05 EQUIPMENT GROUNDING CONDUCTORS

A. An insulated equipment grounding conductor, which shall be separate from the electrical system neutral conductor, shall be furnished and installed for all circuits. Insulation shall be of the same type as the underground conductors in the raceway and shall be green in color.

Equipment grounding conductors shall be furnished and installed in all conduits. Use of conduits as the NEC required equipment grounding conductor is not acceptable.

2.06 EQUIPMENT GROUNDS

A. Equipment grounds shall be solid and continuous from a connection at earth to all distribution panel boards. Ground connections at panelboards, outlets, equipment, and apparatus shall be made in an approved and permanent manner.

2.07 EXOTHERMIC WELDS

A. All exothermic welding shall be completed per welding kit manufacturer's instructions. Exothermic welds shall be CadWeld by Erico or ThermoWeld.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Metal surfaces where grounding connections are to be made shall be clean and dry. Steel surfaces shall be ground or filed to remove all scale, rust, grease, and dirt. Copper and galvanized steel shall be cleaned with emery cloth to remove oxide before making connections.

B. Ground Grid

1. A main ground grid shall be provided for each structure and interconnecting structure grids consisting of driven ground rods as shown on the Drawings. The ground rods shall be interconnected by the use of copper cable exothermically welded to the rods. The grounding cables shall be installed after the excavations for the building have been completed and prior to the pouring of concrete for the footings, mats, etc. Copper "pigtails" shall be exothermically welded to the ground grid and shall enter the buildings and structure from the outside and shall be connected to steel structures, and equipment as described in this Section and as required to provide a complete grounding system.

2. Grounding conductors shall be continuous between points of connection; splices shall not be permitted.

3. Where conductors are exposed and subject to damage from personnel, traffic, etc., conductors shall be installed in metal raceway. The raceway shall be bonded to the grounding system.

4. Where subsurface conditions do not permit use of driven ground rods to obtain proper ground resistance, rods shall be installed in a trench or plate electrodes shall be provided, as applicable and necessary to obtain proper values of resistance.

5. Buried exothermic welds and ground ring shall not be backfilled until inspected by Engineer.

C. Raceways

1. Conduit which enters equipment such as switchgear, motor control centers, transformers, panelboards, variable frequency drives, instrument and control panels, and similar equipment shall be bonded to the ground bus or ground lug, where provided, and as otherwise required by the NEC.

3.02 TESTING

A. All tests shall be performed in accordance with the requirements of the General Conditions and Division 01. The following tests are required:

1. Witnessed Shop Tests

a. None required.

2. Field Tests

a. Field testing shall be done in accordance with the requirements specified in the General Conditions, Division 01, and NETA acceptance testing specifications referenced in Section 16000 - Basic Electrical Requirements.

b. Fall of potential tests shall be performed on the ground grid per IEEE81 recommendations by a third party, independent testing firm. A fall of potential plot shall be submitted at the conclusion of testing for Engineer review. Documentation indicating the location of the rod and grounding system as well as the resistance and soil conditions at the time the measurements were made shall be submitted. Testing shall show that the ground grid has 5 ohms resistance or less. Due to soil conditions and/or unforeseen field conditions, ground resistances greater than 5 ohms may be acceptable if specifically approved in writing by the Engineer. Ground resistance measurements shall be made in normally dry weather not less than 48 hours after rainfall and with the ground grid under test isolated from other grounds.

c. Continuity tests for the grounding electrode conductor shall also be performed. Test will be accepted when a resistance of less than 1 ohm is shown for this conductor.

[END OF SECTION]

SECTION 16190

SUPPORTING DEVICES

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish and install structural supports for mounting and installing all conduit, electrical equipment, lighting, alarm systems, instrumentation, and communications equipment furnished under this Contract.

B. Equipment shall be installed strictly in accordance with recommendations of the manufacturer and best practices of the trade resulting in a complete, operable, and safe installation. The Contractor shall obtain written installation manuals from the equipment manufacturer prior to installation.

C. Reference Section 16000 - Basic Electrical Requirements.

1.02 CODES AND STANDARDS

A. Equipment and materials covered under this Section shall be designed, manufactured, and/or listed to the following standards as applicable:

1. ASTM A123 – Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.

2. ASTM A153 – Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware.

3. ASTM A240 – Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

4. ASTM A276 – Standard Specification for Steel Bars and Shapes

5. ASTM B783 – Standard Specification for Materials for Ferrous Powder Metallurgy Structural Parts

1.03 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the General Conditions, the Contractor shall obtain from the equipment manufacturer and submit the following:

1. Shop drawings

2. Structural support calculations (if required)

B. Each submittal shall be identified by the applicable Specification section.

1.04 SHOP DRAWINGS

A. Each submittal shall be complete in all respects, incorporating all information and data listed herein and all additional information required for evaluation of the proposed equipment's compliance with the Contract Documents.

B. Partial, incomplete, or illegible submittals will be returned to the Contractor without review for resubmittal.

C. Shop drawings shall include but not be limited to:

1. Product data sheets.

2. Complete assembly, layout, installation, and foundation drawings with clearly marked dimensions.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The equipment covered by this Specification is intended to be standard equipment of proven performance as manufactured by reputable concerns. Equipment shall be designed, constructed, and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown on the Drawings.

2.02 MATERIALS

A. Support channel shall be 1-5/8” by 1-5/8” minimum, with 12 gage material thickness.

B. Support channel, support channel fittings, and threaded rod shall be furnished with the following material of construction, dependent upon the designation of the area in which they are to be installed. Area designations are indicated on the Drawings.

AREA DESIGNATION	MATERIAL OF CONSTRUCTION
Indoor Wet Process Area	Type 316 Stainless Steel
Indoor Dry Process Area	Aluminum
Indoor Dry Non-process Area	Aluminum
All Outdoor Areas	Type 316 Stainless Steel
All Hazardous Areas	Type 316 Stainless Steel

C. Fastening hardware (bolts, nuts, washers, and screws) shall be furnished with the following material of construction, dependent upon the designation of the area in which they are to be installed. Area designations are indicated on the Drawings.

AREA DESIGNATION	MATERIAL OF CONSTRUCTION
Indoor Wet Process Area	Type 316 Stainless Steel
Indoor Dry Process Area	Type 316 Stainless Steel
Indoor Dry Non-process Area	Type 316 Stainless Steel
All Outdoor Areas	Type 316 Stainless Steel
All Hazardous Areas	Type 316 Stainless Steel

PART 3 - EXECUTION

3.01 INSTALLATION

A. Concrete or Masonry Inserts

1. The Contractor shall be responsible for the furnishing and installation of all anchor bolts, masonry inserts, and similar devices required for installation of equipment furnished under this Contract.

2. If a time delay for the arrival of any special inserts or equipment drawings, etc. occurs, the Contractor may, if permitted by the Engineer, make arrangements for providing approved recesses and openings in the concrete or masonry and, upon subsequent installation, the Contractor shall be responsible for filling in such recesses and openings. Any additional costs that may be incurred by this procedure shall be borne by the Contractor.

3. The Contractor shall furnish leveling channels for all switchgear, switchboards, motor control centers, and similar floor mounted equipment. The leveling channels shall be provided for embedment in the equipment housekeeping pads. Coordination of the installation of these channels with the concrete pad is essential and required. Pad height shall be as required to maintain concrete coverage of the reinforcement bars while not causing associated equipment to exceed the maximum mounting height requirements of the NEC.

B. Support Fastening and Locations

1. All equipment fastenings to columns, steel beams, and trusses shall be by beam clamps or welded. No holes shall be drilled in the steel.

2. Unless otherwise indicated on the Drawings or in the Specifications, handrails/guardrails shall not be utilized as supports for electrical equipment, devices, or appurtenances. Handrails/guardrails shall not be cut, drilled, or otherwise modified in order to accommodate electrical supports without written approval from the Engineer.

3. All holes made in reflected ceilings for support rods, conduits, and other equipment shall be made adjacent to ceiling grid bars where possible, to facilitate removal of ceiling panels.

4. Support channel shall be provided wherever required for the support of starters, switches, panels, and miscellaneous equipment.

5. All equipment, devices, and raceways that are installed on the dry side of a water bearing wall shall not be installed directly onto the wall. Support channel shall be used to allow ventilation air to pass behind the equipment, devices, or raceway.

6. All supports shall be rigidly bolted together and braced to make a substantial supporting framework. Where possible, control equipment shall be grouped together and mounted on a single framework.

7. Aluminum support members shall not be installed in direct contact with concrete. Stainless steel or non-metallic "spacers" shall be used to prevent contact of aluminum with concrete.

8. Actual designs for supporting framework should take the nature of a picture frame of support channels and bracket with a plate for mounting the components. The Contractor is responsible for the design of supporting structure; Contractor shall submit design details to the Engineer for acceptance before proceeding with the fabrication.

9. Wherever dissimilar metals come into contact, the Contractor shall isolate these metals as required with neoprene washers, nine (9) mil polyethylene tape, or gaskets.

10. For all installations where fiberglass supporting materials are required, the Contractor shall submit structural calculations and the details of the proposed system of support. Structural calculations shall be signed and sealed by a registered professional engineer in the state in which the project is located.

11. For the following installations where conduits are provided with a support system suspended from the above or attached to a vertical structure, the Contractor shall submit structural calculations and details of the proposed system of support. Structural calculations shall be signed and sealed by a registered professional engineer in the state in which the project is located.

    a. A quantity of twelve (12) or more conduits trade size 1” and smaller are proposed for a conduit support rack.

    b. A quantity of eight (8) or more conduits trade sizes 1 ½” to 2 1/2” are proposed for a conduit support rack.

    c. A quantity of four (4) or more conduits trade sizes 3” and larger are proposed for a conduit support rack.

12. Single conduits installed exposed along walls and ceilings shall be secured to the wall or ceiling with a one-hole conduit clamp and clamp-back. Where multiple conduits are installed exposed together, support channel and conduit clamps shall be used.

C. Equipment, boxes, and enclosures which are factory-constructed with integral mounting provisions (such as brackets, mounting feet, bolt holes, etc.) shall be installed/supported utilizing those mounting provisions. Equipment, boxes and enclosures shall not be field

modified to enable mounting by any other means. Equipment, boxes, and enclosures that are field-modified by any means which compromises the UL Listing or NEMA rating of the enclosure/assembly shall be removed and replaced by the Contractor at no additional cost to Owner.

[END OF SECTION]

SECTION 16195

ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. All electrical equipment shall be properly identified in accordance with these Specifications and the Contract Drawings. All switchgear, switchboards, motor control centers, variable frequency drives, lighting and distribution panelboards, combination starters, control panels, pull and junction boxes, enclosures, disconnect switches, control stations, and similar equipment shall be identified in the manner described, or in an equally approved manner.

B. The types of electrical identification specified in this section include, but are not limited to, the following:

1. Operational instructions and warnings.

2. Danger signs.

3. Equipment/system identification signs.

4. Nameplates.

1.02 SIGNS

A. "DANGER-HIGH-VOLTAGE" signs shall be securely mounted on the entry doors of all electrical rooms.

1.03 LETTERING AND GRAPHICS

A. The Contractor shall coordinate names, abbreviations, and other designations used in the electrical identification work with the corresponding designations shown, specified or scheduled. Provide numbers, lettering, and wording as indicated or, if not otherwise indicated, as recommended by manufacturers or as required for proper identification and operation/maintenance of the electrical systems and equipment.

1.04 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the General Conditions, the Contractor shall obtain from the equipment manufacturer and submit shop drawings. Each submittal shall be identified by the applicable specification section.

1.05 SHOP DRAWINGS

A. Each submittal shall be complete in all respects, incorporating all information and data listed herein and all additional information required for evaluation of the proposed equipment's compliance with the Contract Documents.

B. Partial, incomplete, or illegible submittals will be returned to the Contractor without review for resubmittal.

C. Shop drawings shall include but not be limited to:

1. Product data sheets.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The material covered by these Specifications is intended to be standard material of proven performance as manufactured by reputable concerns. Material shall be fabricated, constructed, and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as specified herein and shown on the Drawings.

2.02 NAMEPLATES

A. Nameplates shall be engraved, high pressure plastic laminate, white with black lettering.

B. Nameplates shall be attached to NEMA 4X enclosures utilizing UL-recognized mounting kits designed to maintain the overall UL Type rating of the enclosure. Mounting kit fasteners shall be stainless steel Type AHK10324X as manufactured by Hoffman, or equal.

2.03 HIGH VOLTAGE SIGNS

A. Standard "DANGER" signs shall be of baked enamel finish on 20 gage steel; of standard red, black and white graphics; 14 inches by 10 inches size except where 10 inches by 7 inches is the largest size which can be applied where needed, and except where a larger size is needed for adequate identification.

2.04 CONDUIT IDENTIFICATION

A. Conduit identification shall be as specified in Section 16111 - Conduit.

2.05 WIRE AND CABLE IDENTIFICATION

A. Field installed wire and cable identification shall be as specified in Section 16123 - Wire and Cable.

B. A plastic laminate nameplate shall be provided at each panelboard, motor control center, switchgear assembly, and switchboard assembly. This nameplate shall be used to clearly convey the conductor identification means used at that piece of equipment (i.e., Phase A=Brown, Phase B=Orange, C = Yellow).

C. Wiring identification for factory installed wiring in equipment enclosures shall be as specified in the respective section.

2.06 BOX IDENTIFICATION

A. Pull, junction and device box identification shall be as specified in Section 16130 – Boxes.

PART 3 - EXECUTION

3.01 NAMEPLATES

A. Nameplates shall be attached to the equipment enclosures with (2) two stainless steel sheet metal screws for nameplates up to 2-inches wide. For nameplates over 2-inches wide, four (4) stainless steel sheet metal screws shall be used, one (1) in each corner of the nameplate. The utilization of adhesives is not permitted.

3.02 OPERATIONAL IDENTIFICATION AND WARNINGS

A. Wherever reasonably required to ensure safe and efficient operation and maintenance of the electrical systems and electrically connected mechanical systems and general systems and equipment, including prevention of misuse of electrical facilities by unauthorized personnel, install plastic signs or similar equivalent identification, instruction, or warnings on switches, outlets, and other controls, devices, and covers or electrical enclosures. Where detailed instructions or explanations are needed, provide plasticized tags with clearly written messages adequate for the intended purposes. Signs shall be attached as specified above for nameplates.

3.03 POWER SOURCE IDENTIFICATION

A. After installation of all field equipment (i.e. valves, motors, fans, unit heaters, instruments, etc) install nameplates at each power termination for the field equipment. Nameplate data shall include equipment designation (tag number), power source (MCC number, panelboard, etc), circuit number, conduit number from schedule and voltage/phase.

B. Contractor to coordinate with the Engineer and Owner regarding exact nameplate placement during construction.

C. Nameplates shall be as specified herein.

[END OF SECTION]

SECTION 16440

DISCONNECT SWITCHES

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish and install separately mounted, individual disconnect switches as specified herein and indicated on the Drawings.

B. Disconnect switches for process instruments are not included in the scope of this Section and shall be as specified in Section 16141 – Wiring Devices.

1.02 CODES AND STANDARDS

A. Disconnect switches shall be designed, manufactured, and/or listed to the following standards as applicable:

1. UL 98 – Enclosed and Dead-Front Switches

2. UL 1203 – Standard for Explosion-proof and Dust-ignition-proof Electrical Equipment for use in Hazardous (Classified) Locations.

3. NEMA 250 – Enclosures for Electrical Equipment

4. NEMA KS 1 – Heavy Duty Enclosed and Dead-Front Switches

1.03 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the General Conditions, the Contractor shall obtain from the equipment manufacturer and submit the following:

1. Shop Drawings

2. Spare Parts List

B. Each submittal shall be identified by the applicable specification section.

1.04 SHOP DRAWINGS

A. Each submittal shall be complete in all respects, incorporating all information and data listed herein and all additional information required for evaluation of the proposed equipment's compliance with the Contract Documents.

B. Partial, incomplete or illegible submittals will be returned to the Contractor without review for resubmittal.

C. Shop drawings shall include but not be limited to:

1. Product data sheets.

2. Complete layout and installation drawings with clearly marked dimensions for each type/size/rating of disconnect switch.

3. Assembled weight of each unit.

D. The shop drawing information shall be complete and organized in such a way that the Engineer can determine if the requirements of these Specifications are being met. Copies of technical bulletins, technical data sheets from "soft-cover" catalogs, and similar information which is "highlighted" or somehow identifies the specific equipment items that the Contractor intends to provide are acceptable and shall be submitted.

1.05 SPARE PARTS

A. The equipment shall be furnished with all spare parts as recommended by the equipment manufacturer.

B. One (1) complete set of spare fuses for each ampere rating installed shall be furnished and delivered to Owner at the time of final inspection.

C. Spare parts lists, included with the shop drawing submittal, shall indicate specific sizes, quantities, and part numbers of the items to be furnished. Terms such as "1 lot of packing material" are not acceptable.

D. Parts shall be completely identified with a numerical system to facilitate parts inventory control and stocking. Each part shall be properly identified by a separate number. Those parts which are identical for more than one size, shall have the same parts number.

1.05 IDENTIFICATION

A. Each equipment item shall be identified with a nameplate. The nameplate shall be engraved indicating the circuit number and equipment name with which it is associated. Equipment identification shall be in accordance with Section 16195 - Electrical Identification.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The equipment covered by this Specification is intended to be standard equipment of proven performance as manufactured by reputable concerns. Equipment shall be designed, constructed and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown on the Drawings.

B. Switches shall be manufactured by the Square D Company, Eaton, the General Electric Company,Siemens Energy and Automation, Inc or approved equal.

2.02 DISCONNECT SWITCHES

A. Disconnect switches shall be heavy-duty type and/or as specified in these Specifications. Switches shall be furnished and installed as shown on the Drawings and as required by the NEC. Handles shall be lockable.

B. Disconnect switches for non-hazardous areas shall be UL 98 Listed. Disconnect switches for hazardous areas shall be UL 1203 Listed.

C. Switches shall meet NEMA Standard KS 1 type HD requirements, be, single-throw, be externally operated, and be fused or non-fused as indicated on the Drawings. Switches shall have the number of the poles, voltage, and ampere ratings as shown on the Drawings.

D. In non-hazardous locations, disconnect switches shall be furnished with the following enclosure type and material of construction, dependent upon the designation of the area in which they are to be installed. Area designations are indicated on the Drawings.

AREA DESIGNATION	ENCLOSURE TYPE AND MATERIAL
Indoor Wet Process Area	NEMA 4X, Type 316 Stainless Steel
Indoor Dry Process Area	NEMA 12, Painted Steel
Indoor Dry Non-process Area	NEMA 1, Painted Steel
Indoor Type 1 Chemical Storage/Transfer Area	NEMA 4X, Fiberglass
Indoor Type 2 Chemical Storage/Transfer Area	NEMA 4X, Type 316 Stainless Steel
All Outdoor Areas	NEMA 4X, Type 316Stainless Steel

E. In hazardous locations, disconnect switches shall be furnished with the following enclosure type and material of construction, dependent upon the classification of the area in which they are to be installed. Area classifications are indicated on the Drawings.

AREA CLASSIFICATION	ENCLOSURE TYPE AND MATERIAL
Class 1, Division 1, Group D	NEMA 7, Die Cast Aluminum
Class 1, Division 2, Group D	NEMA 7, Die Cast Aluminum
Class 2, Division 1, Group F	NEMA 9, Die Cast Aluminum
Class 2, Division 2, Group F	NEMA 9, Die Cast Aluminum

F. Disconnect switches shall be quick-make, quick-break and with an interlocked cover which cannot be opened when switch is in the "ON" position and capable of being locked in the "OPEN" position.

G. A complete set of fuses for all switches shall be furnished and installed as required. Time-current characteristic curves of fuses serving motors or connected in series with circuit breakers shall be coordinated for proper operation. Fuses shall have voltage rating not less than the circuit voltage.

H. Disconnect switches shall be furnished with a factory installed internal barrier kit that helps prevent accidental contact with live parts and provides “finger-safe” protection when the door of the enclosed switch is open.

I. Disconnect switches shall be furnished with a manufacturer-supplied ground lug kit for termination of equipment grounding conductors. Where a grounded (neutral) conductor is shown on the Drawings in the conduits connected to the disconnect switch, a manufacturer-supplied neutral bar shall be furnished for termination of the grounded conductors. Third party ground lug and neutral lug kits not supplied by the disconnect switch manufacturer are not acceptable.

J. Fused disconnect switches shall be furnished for motor operated valve and gate actuators where shown on the Drawings. The Contractor shall coordinate the supply of these fused switches with the specific requirements of the actuator. Fuses with fast fault clearing times may be required for modulating valve actuators.

K. Disconnect switches for all motors connected to variable frequency drives (VFDs) and other pump starters, where indicated on drawings, shall be furnished with a factory installed electrical interlock kit that includes one (1) early-break auxiliary contact rated for 5A (minimum) at 120 VAC to be used to open the control circuit before the main switch blades break.

PART 3 - EXECUTION

3.01 INSTALLATION

A. All disconnect switches shall be mounted five (5) feet above the floor or finished grade, at the equipment height where appropriate, or where shown otherwise.

B. Disconnect switches shall be provided in the enclosure type and material of construction required for the area in which it is installed. Reference the requirements in Part 2 herein, and the area designations indicated on the Drawings.

3.02 TESTING

A. All tests shall be performed in accordance with the requirements of the General Conditions and Division 01. The following tests are required:

1. Field Tests

a. Field testing shall be done in accordance with the requirements specified in the General Conditions, Division 01, and NETA Acceptance Testing Specifications, latest edition.

[END OF SECTION]

SECTION 16500

LIGHTING

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish and install all lighting fixtures, labor, and material, in accordance with the preceding Specifications, the requirements of this Section, and as shown on the Drawings.

B. Lighting shall be in accordance with the latest requirements of the Illuminating Engineering Society, and all lighting fixtures shall have the Underwriters Laboratories, Inc. label of approval.

C. All wiring shall be placed in conduit and shall comply with the Specifications for conduit, outlet boxes, pull and junction boxes, wires and cables, grounding, and other Sections as set forth in these Specifications and as noted herein.

D. Reference Section 16000 - Basic Electrical Requirements, and Section 16170 - Grounding and Bonding.

1.02 CODES AND STANDARDS

A. The equipment specified herein shall comply with the following codes and standards, where applicable.

1. Underwriter's Laboratories, Inc. (UL):
    a. UL 924 – Emergency Lighting and Power Equipment
    b. UL 935 – Fluorescent Lamp Ballasts
    c. UL 844 – Luminaires for Use in Hazardous (Classified) Locations
    d. UL 1029 – High Intensity Discharge Lamp Ballasts
    e. UL 1598 – Luminaires
2. American National Standards Institute (ANSI):
    a. ANSI C82.11 – High Frequency Fluorescent Lamp Ballasts
    b. ANSI C62.41 – Guide for Surge Voltages in Low-Voltage AC Power Circuits
3. National Electrical Code (NEC), latest edition.

1.03 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the General Conditions, the Contractor shall obtain from the equipment manufacturer and submit the following:

1. Shop Drawings

2. Operation and Maintenance Manuals

3. Spare Parts Lists

B. Each submittal shall be identified by the applicable specification section.

1.04 SHOP DRAWINGS

A. Each submittal shall be complete in all respects, incorporating all information and data listed herein and all additional information required for evaluation of the proposed equipment's compliance with the Contract Documents.

B. Partial, incomplete or illegible submittals will be returned to the Contractor for resubmittal without review.

C. Shop drawings shall include but not be limited to:

1. Product data sheets.

2. Catalog cuts for each fixture type showing performance and construction details of standard fixtures, and complete working drawings showing all proposed construction details of special or modified standard fixtures.

3. Photometric curves.

4. Lamp and LED data including efficiency (Efficacy lumens/watt) information.

5. LED Driver information.

6. Catalog data including applicable coefficients of utilization tables, isolux chart of illumination on a horizontal plane, beam efficiency, horizontal and vertical beam spread, and beam lumens.

7. System (entire fixture assembly) efficiency data.

8. Pole calculations.

D. Shop drawings shall be submitted to the Engineer for review and acceptance for all fixtures before fixtures and poles are manufactured. Substitutions will be permitted only if acceptable to the Engineer.

E. Manufacturer's catalog number and description in the fixture schedule on the Contract Documents establishes a level of quality, style, finish, etc. The use of a catalog number describing the various types of fixtures shall be used as a guide only, and does not exclude all the required accessories or hardware that may be required for a complete installation.

1.05 OPERATION AND MAINTENANCE MANUALS

A. The Contractor shall submit Operation and Maintenance Manuals in accordance with the procedures and requirements set forth in the General Conditions and Division 01.

1.06 SPARE PARTS

A. All spare parts as recommended by the equipment manufacturer shall be furnished to Owner by the Contractor. The following minimum spare parts shall be furnished:

1. One (1) spare bulb.

2. One (1) spare LED driver.

B. The spare parts shall be packed in labeled containers suitable for long term storage, bearing labels clearly designating the contents and the pieces of equipment for which they are intended.

C. Spare parts shall be delivered at the same time as the equipment to which they pertain. The Contractor shall properly store and safeguard such spare parts until completion of the work, at which time they shall be delivered to Owner.

1.07 LIGHTING CONTROLS

A. The lighting systems shall be controlled as specified under control panels in Division 17 interfacing with integral photocells.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The equipment covered by this Specification is intended to be standard equipment of proven performance as manufactured by reputable concerns. Equipment shall be designed, constructed, and installed in accordance with the best practices of the trade, and shall operate satisfactorily when installed as shown on the Drawings.

2.02 FIXTURES

A. Each fixture shall bear the Underwriters Laboratories, Inc. label. All lighting fixtures shall be furnished complete with lamps of the size and type as indicated on the Drawings and all fittings and hardware necessary for a complete installation. Lighting fixtures shall have all parts and fittings necessary to completely and properly install the fixtures.

B. Fixture leads shall be as required by NEC and shall be grounded by the equipment grounding conductor in the conduit.

C. All glassware shall be high quality, homogeneous in texture, uniform in quality, free from defects, of uniform thickness throughout, and properly annealed. Edges shall be well rounded and free from chips or rough edges.

D. Fixtures shall be 115W, Pole-mounted, 120-277 VAC, LED light fixture, color temperature of 4000K, 20LEDs, IESNA roadway Type 4 distribution, gray die cast aluminum housing,

1050mA driver 6250 lumen minimum, full-cutoff optics, integral photocell, wet location listed. Pole shall be round gray, base mounted, tapered, 12ft. anodized aluminum pole. Fixture shall be AEL Autobahn ATB0 Series, GE Evolve LED EASC, or Gardco Radiant RL Series.

2.03 LED DRIVERS

A. Drivers shall have a voltage range of (120-277) +/- 10% at a frequency 60Hz.

B. All drivers shall be designed to a power factor >90% with a total harmonic distortion THD <20% at full load.

C. Case temperature shall be rated for -40°C through +80°C.

D. Drivers shall have overheat protection, self-limited short circuit protection and overload protected.

E. Drivers shall be furnished with a fused primary.

F. Drivers shall have an output current ripple <30%

G. Drivers shall have a five year (100,000 hour) warranty.

H. Drivers shall be manufactured by Advance, Universal or equal.

I. Drivers shall be UL Listed for damp location, UL1012, UL935, ROHS.

J. Drivers shall meet FCC 47 Sub Part 15.

K. All drivers shall be provided with ANSI/IEEE C62.41 Category C (10kV/5kA) surge protection.

2.04 LEDs

A. Luminaires provided with LED technology shall utilize high brightness LEDs with a group binning code of P and/or Q.

B. Color Temperature: as specified in fixture schedule.

C. Junction point shall be designed and manufactured to allow adequate heat dissipation.

D. LEDs shall be rated for 100,000 hours of life, minimum (based on IESNA L70).

2.05 POLES

A. Poles shall be designed to withstand calculated wind force based on wind velocity in accordance with the provisions of the Florida Building Code.

B. Pole mounted fixtures shall be mounted on poles as designated in the fixture schedule or as indicated on the Drawings. Poles shall have adequate handholes and weatherproof receptacles where indicated. All anchor bolts and nuts shall be stainless steel.

C. The Contractor shall furnish and install a concrete foundation for the pole mounted fixtures located in the yard (i.e. site lighting) as indicated on the Drawings and as required, and shall provide anchorage to new and existing structures for pole mounted fixtures located on structures.

D. Foundation shall be designed and approved by a professional structural engineer currently registered in the State of Florida. The wind design shall be in accordance with the Florida Building Code and local requirements. Pole structure/foundation shall be designed for the most critical load combinations as defined by the Building Code.

E. Signed and sealed calculations and drawings of lighting foundations and structural anchorage shall be submitted to the Engineer for the purpose of verifying the design criteria and to verify compatibility of anchorage forces with supporting structures not designed by the Contractor's Engineer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The Contractor shall protect all fixtures at all times from damage, dirt, dust, and the like. Before final acceptance, all fixtures and devices shall be cleaned of all dust, dirt or other material to the satisfaction of the Engineer.

B. Relamping access of fixtures shall require no special tools. All optical control surfaces such as lenses and reflectors shall be safely and securely attached to fixtures and shall be easily and quickly removed and replaced for cleaning without the use of special tools. No fixture part that may be removed, for maintenance, shall be held in place by metal tabs that must be bent to remove said part.

C. The Contractor shall furnish and install a concrete foundation for the pole mounted fixtures as indicated on the Drawings and as required. Foundation shall be designed and approved by a professional structural engineer currently registered in the State of Florida. The wind design shall be in accordance with ASCE 7 and the Florida Building Code. Pole structure/foundation shall be able to handle fixture/pole weight and withstand design wind velocity and gust factor. Provide calculations signed and sealed by a Professional Structural Engineer for review.

D. One (1), 3/4" diameter, 10'-0" long ground rod, furnish in accordance with Section 16170 – Grounding and Bonding, shall be driven adjacent to each pole. The pole, anchor bolts, steel reinforcement bar in the base, and equipment grounding conductor shall all be bonded to the ground rod as indicated in the standard details. Top of pole shall be fitted with a lightning dissipating aerial.

[END OF SECTION]

SECTION 17000

INSTRUMENTATION AND CONTROL - GENERAL

PART 1 – GENERAL

1.01 SCOPE

A. The Contractor shall provide, through the services of the Instrumentation and Control System Subcontractor, all components, system installation services, as well as all required and specified ancillary services in connection with the Instrumentation, Control and Information System. The System includes all materials, labor, tools, fees, charges and documentation required to furnish, install, test and place in operation a complete and operable instrumentation, control and information system as shown and/or specified. The system shall include all measuring elements, signal converters, transmitters, control panels, cabinets, digital hardware, signal and data transmission systems, interconnecting wiring, brackets, supports, piping, tubing, valves, mounting hardware, and such accessories as shown, specified, and/or required to provide the functions indicated.

B. The Contractor shall take note of any specific construction sequencing restrictions that may impact the performance of the Work. The Contractor shall coordinate sequence requirements between its various Project subcontractors as necessary to meet all requirements as specified in the contract documents.

C. The general scope of work to be performed under this Division includes, but is not limited to, the following:

1. The Contractor shall retain overall responsibility for the instrumentation and control system as specified herein.

2. Furnish and install control equipment, operator interfaces, field panels, and associated cabinets and control panels as shown on the Drawings and specified in this Division.

3. Provide basic software configuration, network equipment configuration, factory testing, and field testing for all control panels furnished by instrumentation and controls subcontractor under this Contract. Basic configuration of the PLCs shall consist of assigning PLC tags to the physical IOs, setting up communications protocol links where required, and assigning IP addresses in accordance the Owner’s standards.

4. Coordinate with Owners operations, Environmental Services, and IT departments.

5. Furnish and install process instrumentation, and associated taps, nipples, valves, tubing, pipe stands, sunshields, and supports as scheduled or shown on the Drawings, unless otherwise noted or supplied by equipment vendors.

6. Perform termination and testing of all Instrumentation and Control System signal wiring and power supply wiring at equipment furnished under this Division.

7. Final termination and testing of all Instrumentation and Control System signal wiring and power supply wiring at equipment furnished under this Division.

8. Furnish and install transient voltage surge suppression systems for all digital equipment, data communications equipment, local control panels, and field instruments provided under this Division, including connections to grounding system(s) provided under Division 16.

9. Coordinate grounding requirements with the electrical subcontractor for all digital equipment, local control panels, and field instrumentation provided under this Division. Terminate grounding system cables at all equipment provided under this Division.

10. Provide system factory acceptance testing, field testing, calibration, operator/maintenance personnel training, and startup services as specified herein and as required to make all systems fully operational.

11. The Contractor shall furnish and install embedded supports, instrument stands, brackets, mounting hardware, piping, tubing, isolation valves and related items required for instrumentation and equipment furnished under Division 17.

D. The Contractor shall coordinate all work specified herein with related work specified in other Divisions, and shall schedule the work to minimize downtime of equipment and controls. The Contractor shall provide temporary equipment and interconnecting cables as described herein and as shown on the Drawings.

E. It is the intent of the Contract Documents to construct a complete and working installation. Items of equipment or materials that may reasonably be assumed as necessary to accomplish this end shall be supplied whether or not they are specifically stated herein.

1.02 RELATED ITEMS

A. Field mounted switches, limit switches, valve and gate operator position transmitters, sump pump controls, and other instrumentation and controls furnished with mechanical or electrical equipment not listed in the instrument schedule shall be furnished, installed, tested, and calibrated as specified under other Divisions and contract drawings.

B. Additional and related work performed under Division 16 includes the following:

1. Conduit and raceways for all instrumentation and control system signal wiring, grounding systems, copper and fiber optic communication cables, and special cables.

2. Instrumentation and control system signal wiring.

3. Installation of (pull in conduit system) copper and fiber optic data communications cables.

4. Grounding systems for all digital equipment, local control panels, and field instrumentation provided under Division 17. Grounding systems shall be complete to the equipment provided under Division 17, ready for termination by the instrumentation and controls subcontractor.

5. Termination of all instrumentation and control system grounding, signal and data communications cables, wiring and surge suppression devices at the equipment end of all equipment furnished under other Divisions of the Specifications. Wiring systems shall be installed complete to the equipment provided under Division 17, ready for termination by the instrumentation and controls subcontractor.

1.03 GENERAL INFORMATION AND DESCRIPTION

A. Where manufacturers are named for a particular item of equipment, it is intended as a guide to acceptable quality and performance and does not exempt such equipment from the requirements of these Specifications or Drawings.

B. In order to centralize responsibility, it is required that all equipment (including field instrumentation and control system hardware) offered under this Division shall be furnished and installed by the instrumentation and controls subcontractor, or under the supervision of the instrumentation and controls subcontractor, who shall assume complete responsibility for proper operation of the instrumentation and control system equipment, including that of coordinating all signals, and furnishing all appurtenant equipment.

C. The Contractor shall retain total responsibility for the proper detailed design, fabrication, inspection, test, delivery, assembly, installation, activation, checkout, adjustment, and operation of the entire instrumentation and control system as well as equipment and controls furnished under other Divisions of the Specifications. The Contractor shall be responsible for the delivery of all detailed drawings, manuals, and other documentation required for the complete coordination, installation, activation, and operation of mechanical equipment, equipment control panels, local control panels, field instrumentation, control systems, and related equipment and/or systems and shall provide for the services of a qualified installation engineer to supervise all activities required to place the completed facility in stable operation under full digital control.

D. The instrumentation and control system shall be capable of simultaneously implementing all real-time control and information system functions, and servicing all operator service requests as specified, without degrading the data handling and processing capability of any system component.

E. The Drawings indicate the approximate locations of field instruments, control panels, systems, and equipment as well as field-mounted equipment provided by others. The instrumentation subcontractor shall examine the Drawings to determine actual size and locations of process connections and wiring requirements for instrumentation and controls furnished under this Contract. The instrumentation and controls subcontractor shall inspect all equipment, panels, instrumentation, controls, and appurtenances either existing or furnished under other Divisions of the Specifications to determine all requirements to interface with the control and information system. The Contractor shall coordinate the completion of any required modifications with the associated supplier of the item furnished.

F. The instrumentation and controls subcontractor shall review and approve the size and routing of all instrumentation and control cable and conduit systems furnished by the electrical subcontractor for suitability for use with the associated cable system.

G. The Contractor shall coordinate the efforts of each supplier to aid in interfacing all systems. This effort shall include, but shall not be limited to, the distribution of approved shop drawings to the electrical subcontractor and to the instrumentation and controls subcontractor furnishing the equipment under this Division.

H. The Contractor shall be responsible for providing a signal transmission system free from electrical interference that would be detrimental to the proper functioning of the instrumentation and control system equipment.

I. The Owner shall have the right of access to the instrumentation and controls subcontractor's facility and the facilities of its equipment suppliers to inspect materials and parts; witness inspections, tests, and work in progress; and examine applicable design documents, records, and certifications during any stage of design, fabrication, and tests. The instrumentation subcontractor and its equipment suppliers shall furnish office space, supplies, and services required for these surveillance activities.

J. The terms "Instrumentation", "Instrumentation and Control System", and "Instrumentation, Control, and Information System" shall hereinafter be defined as all equipment, labor, services and documents necessary to meet the intent of the Specifications.

1.04 INSTRUMENTATION AND CONTROL SYSTEM SUBCONTRACTOR QUALIFICATIONS

A. Instrumentation and control system subcontractor shall be regularly engaged in the detailed design, fabrication, installation, and startup of instrumentation and control systems for municipal facilities. Instrumentation and control system subcontractor shall have a minimum of five years of such experience, and shall have completed a minimum of three projects of similar type and size as that specified herein. As used herein, the term “completed” shall mean that a project has been brought to final completion and final payment has been made.

B. The instrumentation and controls subcontractor’s staff shall meet the following requirements:

1. Programmers:

    a. As a minimum, all programmers shall have a minimum of 5 years of experience in industrial PLC and HMI programming.

2. Field Service Technicians:

    a. All service technicians shall have a minimum of five years of experience in PLC systems and HMIs.

    b. All service technicians shall be capable of programming minor edits in the project PLC’s and uploading or downloading PLC applications.

    c. All service technicians shall have experience troubleshooting: motor starters, PLC’s, computers, HMI systems, and basic electrical controls.

    d. Service technicians shall show proficiency in using the following equipment: volt meters, PLC programming software, HMI configuration tools.

1.05 DEFINITIONS

A. Solid State: Wherever the term solid state is used to describe circuitry or components in the Specifications, it is intended that the circuitry or components shall be of the type that convey electrons by means of solid materials such as crystals or that work on magnetic principles such as ferrite cores. Vacuum tubes, gas tubes, slide wires, mechanical relays, stepping motors or other devices will not be considered as satisfying the requirements for solid state components of circuitry.

B. Bit or Data Bit: Whenever the terms bit or data bit are used in the Specification, it is intended that one bit shall be equivalent to one binary digit of information. In specifying data transmission rate, the bit rate or data bit rate shall be the number of binary digits transmitted per second and shall not necessarily be equal to either the maximum pulse rate or average pulse rate.

C. Integrated Circuit: Integrated circuit shall mean the physical realization of a number of circuit elements inseparably associated on or within a continuous body to perform the function of a circuit.

D. Mean Time Between Failures (MTBF): The MTBF shall be calculated by taking the number of system operating hours logged during an arbitrary period of not less than six months and dividing by the number of failures experienced during this period plus one.

E. Mean Time to Repair (MTTR): The MTTR shall be calculated by taking the total system down time for repair over an arbitrary period of not less than six months coinciding with that used for calculation of MTBF and dividing by the number of failures causing down time during the period.

F. Availability: The availability of a non-redundant device or system shall be related to its MTBF and MTTR by the following formula:

A=100 x (MTBF/(MTBF + MTTR)) Percent

The availability of a device or system provided with an automatically switched backup device or system shall be determined by the following formula:

A=A2 + 1 ((1 A1) x (1 A1))

where:

A1=availability of non-redundant device or system

A2=availability of device or system provided with an automatically switched backup device or system

G. Abbreviations: Specification abbreviations include the following:

A	Availability
ADC	Analog to Digital Converter
AVAIL	Available
ATA	Advanced Technology Attachment
BCD	Binary Coded Decimal
CSMA/CD	Carrier Sense Multiple Access/Collision Detect
CPU	Central Processing Unit
CRC	Cyclic Redundancy Check
CRT	Cathode Ray Tube
CS	Control Strategy
DAC	Digital to Analog Converter
DBMS	Data Base Management System
DDR	Double Data Rate
DIMM	Dual In-line Memory Module
DMA	Direct Memory Access
DPDT	Double Pole, Double Throw
DVD	Digital Video Disc
DVE	Digital to Video Electronics
ECC	Error Correction Coding
EPROM	Erasable Programmable Read Only Memory
FDM	Frequency Division Multiplexing
FSK	Frequency Shift Keyed
GB	Gigabyte
Gbps	Gigabits per second
HMI	Human Machine Interface
I/O	Input/Output
LAN	Local Area Network

LCD	Liquid Crystal Display
LED	Light Emitting Diode
MB	Megabyte
Mbps	Megabits per second
MCC	Motor Control Center
MTBF	Mean Time Between Failures
MTTR	Mean Time To Repair
OS	Operating System
OIT	Operator Interface Terminal
PCB	Printed Circuit Board
PLC	Programmable Logic Controller
RAID	Redundant Array of Inexpensive Discs
PROM	Programmable Read Only Memory
RAM	Random Access Memory
RMSS	Root Mean Square Summation
ROM	Read Only Memory
RTU	Remote Telemetry Unit
SATA	Serial ATA
SCADA	Supervisory Control and Data Acquisition
SDRAM	Synchronous Dynamic Random-Access Memory
SIMM	Single In-line Memory Module
SPDT	Single Pole, Double Throw
TB	Terabyte
TDM	Time Division Multiplexing
TFT	Thin Film Transistor
USB	Universal Serial Bus
UPS	Uninterruptible Power Supply
WAN	Wide Area Network

H. To minimize the number of characters in words used in textual descriptions on displays, printouts, and nameplates, abbreviations may be used subject to Engineer approval. If a specified abbreviation does not exist for a particular word, an abbreviation may be generated using the principles of masking and or vowel deletion. Masking involves retaining the first and last letters in a word and deleting one or more characters (usually vowels) from the interior of the word.

1.06 ENVIRONMENTAL CONDITIONS

A. Instrumentation equipment and enclosures shall be suitable for ambient conditions specified. All system elements shall operate properly in the presence of telephone lines, power lines, and electrical equipment.

B. Inside control rooms and climate-controlled electrical rooms, the temperature will normally be 20 to 25 degrees Celsius; relative humidity 40 to 80 percent without condensation and the air will be essentially free of corrosive contaminants and moisture. Appropriate air filtering shall be provided to meet environmental conditions (i.e., dust).

C. Other indoor areas may not be air conditioned/heated; temperatures may range between 0 and 40 degrees Celsius with relative humidity between 40 and 95 percent.

D. Outdoor equipment including instrumentation and panels may be subjected to wind, rain, lightning, and corrosives in the environment, with ambient temperatures from 0 to 48 degrees Celsius and relative humidity from 10 to 100 percent. All supports, brackets and interconnecting hardware shall be aluminum or Type 316 stainless steel as shown on the Drawings or indicated by the individual specifications.

1.07 INSTRUMENT AND HARDWARE SUBMITTALS

A. Submit in accordance with submittal requirements of the Contract Documents.

B. Submit information for all new hardware including, but not limited to, the following:
1. Product (item) name and tag number.
2. Catalog cut sheets.
3. Manufacturer's complete model number.
4. Location of the device.
5. Input - output characteristics.
6. Range, size, and graduations.
7. Physical size with dimensions, NEMA enclosure classification and mounting details.
8. Materials of construction of all enclosures, wetted parts, and major components.
9. Instrument or control device sizing calculations where applicable.
10. Certified calibration data on all flow metering devices.
11. Environmental requirements during storage and operation.
12. Associated surge protection devices.
13. Mounting requirements.
14. Environmental requirements during storage and operation.
15. Complete panel fabrication shop drawings including panel layouts and wiring diagrams.
16. Complete network diagram showing all network communications to PLCs, UPSs, network switches, and communication cables and protocols used between all connected devices.

1.08 SOFTWARE SUBMITTALS

A. Submit in accordance with submittal requirements of the Contract Documents.

B. Software submittals shall include the following as a minimum:
1. PLC input/output schedules for interface with values being sent to and received from the existing and new field I/O and internal data registers. List complete addresses and tagnames for each data register.

2. Written control strategy documentation to describe the proposed control logic interface with the I/O.

4. Upon approval of PLC input/output schedules and written control strategy documentation, submit a complete hard copy of fully commented PLC ladder logic programming and a complete hard copy of proposed display screen modifications.

1.09 OPERATION AND MAINTENANCE MANUALS

A. Submit in accordance with submittal requirements of the Contract Documents.

B. Provide equipment operation and maintenance manuals for new instruments. The manuals shall contain all illustrations, detailed drawings, wiring diagrams, and instructions necessary for installing, operating, and maintaining the equipment. The illustrated parts shall be numbered for identification. All modifications to manufacturer standard equipment and/or components shall be clearly identified and shown on the drawings and schematics. All information contained therein shall apply specifically to the equipment furnished and shall only include instructions that are applicable. All such illustrations shall be incorporated within the printing of the page to form a durable and permanent reference book.

C. The manuals shall be prepared specifically for this installation and shall include all required cuts, drawings, equipment lists, descriptions, etc. that are required to instruct operation and maintenance personnel unfamiliar with such equipment. The maintenance instructions shall include trouble shooting data and full preventive maintenance schedules. The instructions shall be bound in locking 3-D-ring binders with bindings no larger than 3.5 inches and external hard drives with PDF files shall be provided. The manuals shall include 15% spare space for the addition of future material. The instructions shall include Drawings reduced or folded and shall provide at least the following as a minimum.

1.10 FINAL SYSTEM DOCUMENTATION

A. Provide two copies on external hard drive/flash drive for all software (actual program files and pdf copies). PLC files shall include all comments. Provide complete control panel as-installed panel fabrication and wiring diagrams for new panels in .dwg and .pdf format on flash drive.

1.11 SHIPPING, HANDLING, AND STORAGE

A. In addition to shipping, handling, and storage requirements specified under Division 01, air conditioning/heating shall be provided for storage of all new field instrumentation and ancillary devices to maintain temperatures between 20 and 25 degrees C and relative humidity between 40 to 60 percent without condensation. The air shall be filtered and free of corrosive contaminants and moisture.

1.12 GUARANTEE

A. The instrumentation and control system subcontractor through the Contractor shall install, maintain, and guarantee the Instrumentation, Control and Information System as specified under the General Conditions and Division 01 of the Specifications.

B. Maintenance personnel provided by the instrumentation and control system subcontractor shall instruct the Owner's personnel in the operation, adjustment, calibration, and repair of the equipment being serviced. All preventive and corrective activities shall be documented with

service reports, which shall identify the equipment being serviced, state the condition of the equipment, describe all work performed, and list materials used. A copy of all service reports shall be delivered to the Owner on the day the work is performed.

C. The instrumentation and control system subcontractor shall provide the services of factory-trained service technician(s) at least twice during the guarantee period, for the purpose of performing preventive hardware maintenance.

D. Corrective hardware and software maintenance during the guarantee period shall be performed in accordance with the requirements of Division 01 and, in addition, shall meet the following requirements:

1. Corrective hardware maintenance shall be performed by factory-trained service technician(s) specifically trained to service the digital equipment provided. Technicians possessing suitable training and experience shall be provided to perform corrective maintenance on all other equipment. The hardware service technician(s) shall be available on-site within 24 working hours after notification by the Owner.

2. Corrective software maintenance shall be performed for software provided by the instrumentation subcontractor and incorporated into the system prior to the completion of system commissioning. Software service programmer(s) shall be available for consultation within four business hours and, if required, on-site within 16 business hours after notification by the Owner. Corrective software maintenance shall include the supply, installation and startup of all application software upgrades released during the guarantee period.

3. Corrective hardware and software maintenance performed during the guarantee period shall be performed at no cost to the Owner.

4. As used herein, the term "working hours" shall be defined as those of the treatment facility (seven days per week, 24 hours per day). The term "business hours" shall be defined as the hours between 8:00 a.m. and 5:00 p.m., local time, Monday through Friday; excluding holidays.

5. The guarantee period shall commence upon final acceptance of the completed treatment facility in accordance with the provisions of the Contract Documents.

PART 2 – PRODUCTS

2.01 NAMEPLATES

A. All instruments, control panels, and all items of digital hardware shall be identified with nameplates. Each nameplate shall be located so that it is legible from the normal observation position and is clearly associated with the device or devices it identifies. Nameplates shall be positioned so that removal of the device for maintenance and repair shall not disturb the nameplate. Nameplates shall include the equipment identification number and description. Abbreviations of the description shall be subject to Engineer approval.

B. Nameplates shall be made of 1/16-inch thick machine engraved laminated phenolic plastic having white numbers and letters not less than 3/16-inch high on a black background.

C. Nameplates shall be attached to metal equipment by stainless steel screws and to other surfaces by an epoxy-based adhesive that is resistant to oil and moisture. In cases where the label cannot be attached by the above methods, it shall be drilled and attached to the associated device by means of stainless steel wire.

PART 3 – EXECUTION

3.01 CLEANING

A. The Contractor shall thoroughly clean all soiled surfaces of installed equipment and materials.

B. Upon completion of the instrumentation and control work, the Contractor shall remove all surplus materials, rubbish, and debris that has accumulated during the construction work. The entire area shall be left neat, clean, and acceptable to the Owner.

3.02 TESTING REQUIREMENTS

A. The Contractor shall provide the services of experienced factory trained technicians, tools, and equipment to field calibrate, test, inspect, and adjust all equipment in accordance with manufacturer's specifications and instructions.

B. The proper control of all final control elements shall be verified by tests conducted in accordance with the requirements specified herein.

C. All modulating final control elements shall be tested for appropriate speed or position response by applying power and input demand signals, and observing the equipment for proper direction and level of reaction. Each final control element shall be tested at 0, 25, 50, 75, and 100 percent of signal input level and the results checked against specified accuracy tolerances. Final control elements which require turndown limits such as VFD's shall be initially set during this test.

D. Prior to control system startup and testing, each monitoring and control loop shall be tested on an individual basis from the primary element to the final element, including the operator work station or loop controller level, for continuity and for proper operation and calibration.

E. Signals from transducers, sensors, and transmitters shall be utilized to verify control responses. Simulated input data signals may be used subject to prior written approval by the Engineer. All modes of control shall be exercised and checked for proper operation.

F. Control system startup and testing shall be performed to demonstrate complete compliance with all specified functional and operational requirements. Testing activities shall include the simulation of both normal and abnormal operating conditions.

G. Each loop and control strategy test shall be witnessed and signed off by both the Contractor (or designee) and the Engineer upon satisfactory completion.

H. Upon completion of the startup tests and prior to final system acceptance, the new controls shall be tested under normal operating conditions, initiated either automatically or manually, over a 30-day test period to demonstrate continuous reliable operation as intended.

I. If the system fails the 30-day availability test, unless the failure is related to programming, the 30-day test period shall be restarted after the failed component is repaired / replaced and full operation is restored.

3.03 FINAL ACCEPTANCE

A. Final acceptance of the Instrumentation, Control and Information System will be determined as complete by the Engineer, and shall be based upon the following:

1. Receipt and acceptance of all control panel completion reports, control panel test reports, and other documentation as required by the Contract Documents.

2. Completion of the Final Acceptance Test (FAT). Final sign off of the FAT shall include endorsement of test results from Owner.

3. Completion of all punch-list items that are significant in the opinion of the Engineer.

4. Completion of all specified control system training requirements.

B. Final acceptance of the Control and Information System in its entirety shall be required to achieve Substantial Completion. Substantial Completion establishes the commencement date of the warranty period and all warranty period services.

C. All equipment in service, operational, and in use by the Owner prior to the commencement of the one (1) year warranty period shall be warranted and maintained by the Contractor at no additional cost to the Owner.

D. Refer to the General Conditions for additional project closeout requirements.

[END OF SECTION]

SECTION 17500

CONTROL PANEL

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish, test, install, and place into satisfactory operation the control panel(s), with all spare parts, accessories, and appurtenances as specified herein and as shown on the Drawings.

B. Control panel shall be assembled, wired, and tested in the instrumentation and control system subcontractor's own facilities, unless specified otherwise. All components and all necessary accessories such as power supplies, conditioning equipment, mounting hardware, signal input and output terminal blocks, and plug strips that may be required to complete the system shall be provided.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 17000 – Instrumentation and Control, General

B. Section 17650 – Pressure Gauges

C. Section 17701 – Electromagnetic Flow Meters

D. Section 17749 – Submersible Level (Pressure) Sensors

E. Division 16 sections.

1.03 GENERAL INFORMATION AND DESCRIPTION

A. The panel itself and all interior and exterior equipment shall be identified with nameplates. The equipment shall be mounted such that service can occur without removal of other equipment. Face mounted equipment shall be flush or semi-flush mounted with flat black escutcheons. All equipment shall be accessible such that adjustments can be made while the equipment is in service and operating. All enclosures shall fit within the allocated space as shown on the Drawings.

1.04 TOOLS, SUPPLIES AND SPARE PARTS

A. Tools, supplies and spare parts shall be provided as specified in Section 17000 – Instrumentation and Control, General.

B. Provide 10 percent spare fuses of each type furnished, but not less than two of each type.

C. Provide 10 percent spare terminal blocks (pre-installed).

D. Provide 10 percent spare bulbs for indicators furnished, but not less than four.

PART 2 - PRODUCTS

2.01 CONTROL PANEL

A. General: The control panel electrical service shall be as indicated on the Drawings. The specifically panel shall be designed for the equipment supplied. The panel shall perform the following functions:

1. Power to and control of the pumping equipment.

2. Interface with emergency generator through a panel mounted receptacle.

3. Interface with a local audible and visual alarm for critical alarms.

4. Provide level indication and historical digital recording.

5. Provide phase fail and surge protection for incoming power and input/outputs.

6. Provide power distribution to pumping equipment, station lighting, and instruments, as shown on the Drawings.

B. Control Panel Construction

1. Panel enclosure shall be rack-mounted, constructed in accordance with UL 508 requirements for enclosed industrial control panels and shall bear the serialized UL label.

2. Enclosures shall be NEMA 4X Type 316 stainless steel enclosures, minimum 14 gauge, suitable for enclosures mounted outdoors in corrosive environments, including hinges, pins, latches, and fasteners.

3. Exterior of the outdoor panels shall be coated with a UV-resistant, white laminate baked enamel powder coating to reduce temperature inside the panel.

4. The enclosures shall have a continuous hinged outer door with suitable, single handle locakable, 3-point latching mechanism that maintains the NEMA rating and continuous gaskets to keep ambient corrosive gasses from entering the panel when closed.

5. The enclosures shall have a 12-ga steel, formed, removable subpanel and an aluminum dead-front panel door behind the main panel door.

6. The subpanel shall be degreased, cleaned, treated with a phosphatizing process, then primed and painted with white industrial grade baked enamel.

7. The enclosures and mounting systems shall be designed to withstand wind loads as required by applicable building codes.

8. Enclosures shall be of formed or welded construction, reinforced with slotted channels, or equal, to facilitate mounting of internal components or equipment.

9. Panels shall be prefabricated enclosures as manufactured by Hoffman, Saginaw Control and Engineering (SCE), or approved equal.

C. Control Panel Mounting

1. The Contractor shall fabricate and install a suitable mounting rack for the control panel as indicated on the Drawings. Support shall be adequate to provide a rigid support for the supplied panel and be designed to withstand structure wind loadings.

D. Panel Fabrication:

1. Enclosures shall provide mounting for power supplies, control equipment, input/output subsystems, panel mounted equipment, and appurtenances. Ample space shall be provided between equipment to facilitate servicing and cooling.

2. Enclosures shall be constructed so that no screws or bolt heads are visible when viewed from the front. Penetrations for instruments and other devices shall be clean and smoothly finished with rounded edges.

3. The temperature inside the enclosure shall be continuously monitored and shall generate an alarm to the PLC if the temperature rises to an adjustable, preset high temperature.

4. Ventilation of Heat: Panels shall be equipped with internal ventilation and heat sink components to adequately dissipate heat generated by equipment mounted inside the panel while maintaining the NEMA 4X rating.

5. Intrusion alarm switches, wired fail-safe, shall be provided on all enclosures containing digital hardware and shall generate an alarm to the panel PLC when enclosure door is opened.

6. All wiring shall be bundled with nylon cable ties when exposed (leaving in conduits, at bends, etc.) but otherwise shall be routed and enclosed in vented plastic wireway as required. Wireways shall be oversized by a minimum of 10%; overfilled wireways shall not be acceptable. DC power, analog signal and discrete signals shall be run in separate wireways from AC signal and power wiring.

7. Spare field wiring shall be bundled, tied, and labeled as specified above, and shall be neatly coiled in the bottom of the cabinet.

8. All installed spare I/O hardware shall be wired along with live I/O wiring to the field wiring terminal blocks within the cabinet. Where space for spare I/O modules has been provided with the PLC backplane or DIN-rail mounting system, corresponding space for wiring, surge protection, and terminations shall be furnished within the cabinet.

9. A copper ground bus shall be installed in each cabinet and shall be connected to the station's power ground.

10. Interior panel wiring shall be tagged at all terminations with machine-printed self-laminating labels. Labeling system shall be Brady TLS 2200 Printer with TLS

2200®/TLS PC Link™ labels, or equivalent system by Seton or Panduit. The wire numbering system and identification tags shall be coordinated with field wire numbering system used by the electrician under Division 16.

11. Main breaker and branch breaker sizes shall be coordinated such that an overload in a branch circuit will trip only the branch breaker but not the main breaker.

12. Enclosure shall be provided with a 120-volt, 20A duplex receptacle and LED service lights. Power to these devices shall be independent from the PLC power supply and its associated uninterruptible power system. Panel light shall be manually activated by an ON/OFF switch on the light as well as automatically come on when the panel is opened if left in the ON position.

E. Control Panel Components:

1. Manual main breaker handle mounted on the panel dead-front door to disconnect power to the panel and prevent the door from being opened when in the ON position unless manually bypassed. Main breaker shall be Allen Bradley 1489-M1C200, or approved equal.

2. NEMA Rated Motor Starters: The panel shall include motor starters for each pump motor for constant speed pump stations, if noted on the contract drawings. The motor starters shall be FVNR (full voltage non-reversing), with overload relays and reset buttons. The contactors shall feature double break silver cadmium oxide contacts, pressure type terminals, arc barriers, free floating armature magnet frame, molded continuous duty coil and stainless steel springs. Starter overload heater coils shall be sized to protect installed motor at full load AMP rating. The motor starters shall be Square D, or approved equal.

3. Branch Circuit Breakers: Circuit breakers shall be quick-make, quick-brake and trip free. The thermal and magnetic elements shall operate independently and be designed with a common trip bar breaking all poles when a fault is received on any pole. The circuit breakers shall be as manufactured by Allen Bradley for 120V and 460V (if required per the contract drawings) service, or approved equals. Provide breakers for the following:

   a. Breakers for each motor power circuit.

   b. 2-Pole breaker for the panel control power step-down transformer.

   c. 120V breaker for the panel lighting and receptacle.

   d. 120V breaker for the panel control circuit to the panel UPS.

   e. Branch circuit breakers off of the UPS output power for the panel's 24Vdc power supply and for each PLC input/output module.

13. Programmable Controller (PLC): The panel shall include a PLC for all control logic. The PLC shall be Allen-Bradley MicroLogix 1400, or as noted on the contract drawings.

a. PLC hardware and software shall be provided to allow operators to make changes to setpoints and control settings within the PLC. Software ladder programming shall be set up to allow modifications to the programming through direct laptop connection at the PLC.

b. Provide input/output modules in sufficient quantities specified herein and as required to meet functional requirements of the Specification. PLC hardware and power supplies shall be provided with all necessary cabling, mounting hardware, racks, and connectors for a fully functional system. I/O terminal strips shall be removable without disturbing field wiring.

c. Provide a minimum of 20% spare slot capacity in the card rack for future expansion and 15% spare I/O capacity for each type of input (rounded up to the next whole number of required points or channels). Provide 25% spare memory on the PLC CPU after the PLC has been programmed for full operation.

d. Input/Output Circuit Arrangement: Signal and control circuitry to individual input/output modules shall be arranged such that board failure shall not disable both pumps.

14. Operator Interface: An operator interface shall be provided that gives operators full control parameter and monitoring capabilities for the station. The interface shall be a minimum 7-inch display screen. Graphics are to be color display, primarily in tabular format. Operator input is to be available through touch screen interface. Operator Interface shall be 24Vdc powered, mounted on the panel front door, and shall be Panelview 800 series, or approved equal.

15. Uninterrupted Power Supply (UPS): The PLC shall operate on 24 VDC input power from a UPS securely mounted on a din rail inside the panel (loose installation at bottom of panel not acceptable). The UPS shall be as manufactured by Phoenix Contact or approved equal, with outputs to the PLC to indicate battery life low, running on battery status, UPS fault. UPS shall be sized, and panel shall be wired, to power all PLC components, telemetry communications equipment, and station control functions within the panel. Panel shall be sized to dissipate the heat generated by the UPS when running on battery, full load.

16. Telemetry Interface: The panel PLC shall communicate with the City's SCADA network via telemetry communications using a cellular modem. Model shall be Prosoft, or approved equal.

17. Surge Suppression: Provide a surge arrestor installed on the line side of the main breaker in accordance with manufacturer's instructions. Provide surge suppression devices on all signal and power leads on all circuits that have any part of the control or power circuit that extends past the limits of the control panel. Surge devices shall be as manufactured by Phoenix Contact, or approved equal:

a. for 120VAC Power use Phoenix Contact 2859479

b. for 2-channel 2 wire 24 VDC Signal use Phoenix Contact 2800980

c. for 4-channel 24 VDC signals use Phoenix Contact 2800983

d. for Ethernet use Phoenix Contact 2881007

e. for Coaxial Antenna use Phoenix Contact 2800021

18. As-built Drawings: A laminated “As Built” copy of the panel wiring diagrams shall be provided and placed in the panel print pocket for all panels that include PLCs. All panel drawings shall be developed using AutoCad®. The drawings shall have a complete Bill of Materials, panel exterior and interior layouts, and show all electrical wiring. As-built drawings shall be submitted with the O&M materials on a CD in both AutoCad® (.dwg) and Adobe Acrobat® (.pdf).

19. Panel shall be provided with a drawing pocket for as-built panel drawings. One laminated copy of the appropriate panel as-built drawings shall be furnished and left in the pocket.

20. Panel shall be provided with a folding laptop programmer shelf on the inside of the door. When deployed, the laptop shelf shall not be greater than 48 inches above finished floor. Laptop shelf shall be fitted to door with factory applied weld-studs. Weld discoloration and enclosure penetrations will not be accepted.

21. Terminals: Terminal blocks shall be as follows:

    a. Terminal blocks shall be assembled on non-current carrying galvanized steel DIN mounting rails securely bolted to the cabinet subpanel. Terminals shall be of the screw down pressure plate type as manufactured by Phoenix Contact, or approved equal.

    b. Power terminal blocks for both 120 VAC and 24 VDC power shall be single tier with a minimum rating of 600 volts, 30 amps.

    c. Discrete signal terminal blocks shall be 2-tier with a minimum rating of 600 volts, 20 amps. One terminal block shall be used for each signal. The positive wire shall be installed on the top or left-most terminal.

    d. Analog signal terminal blocks shall be 3-tier with a minimum rating of 600 volts, 20 amps. One terminal block shall be used for each signal. The positive wire shall be installed on the top or left-most terminal and the shield/drain wire shall be installed on the bottom or right-most terminal.

    e. Only one wire shall be terminated under a single wire clamp or screw.

    f. Terminal blocks for field wire connections shall be added as needed in 10-pole increments. Terminal blocks shall be mounted with a minimum of 2” from both enclosure sides and from the bottom of the enclosure for easy access to terminal screws.

    g. Terminals shall be marked with a permanent, continuous marking strip. One side of each terminal shall be reserved exclusively for field incoming conductors. Common connections and jumpers required for internal wiring shall not be made on the field side of the terminal.

h. Separate terminal strips shall be provided for each type of power and signal used within each cabinet. Where applicable, terminal strips for different voltages of discrete signal wiring shall also be separated. Terminal strips shall be labeled as to voltage and function.

22. Wiring: All wiring shall be color-coded using tinned copper MTW #14 AWG minimum for power and control wiring and #16 twisted pair for analog signal wiring. Wiring and cables shall be numbered at each end. Wire numbers shall be printed on non-removable heat-shrink tags. Wires shall be color coded as follows:

    Equipment Ground - GREEN

    480V Power - BLACK

    120 VAC Power - BLACK

    120 VAC Power Neutral - WHITE

    120 VAC Control (Internally Powered) - RED

    120 VAC Control (Externally Powered) - YELLOW

    24 VAC Control - ORANGE

    DC Power/analog – BLUE for (+) and BLUE/WHITE for (-)

23. Component Labels: All interior panel components shall be individually labeled on the back plate with a custom engraved plastic tag with adhesive back (see Section 17000 for nameplates). The tags shall be white with black letters and match the nomenclature indicated on the as-built wiring diagrams.

24. Mounting Hardware: All mounting hardware such as screws or bolts used in the manufacturing of the control panel shall be Type 316 stainless steel. All holes in the back plate and dead front shall be drilled and tapped. No self-tapping screws, adhesive tapes, or Velcro will be accepted for the mounting of any hardware.

25. Interposing relays shall be provided on all discrete outputs on the PLC and shall be DIN rail mounting type, DPDT, minimum 10 amp, 120 VAC contact rating. Relay coils shall be 120 VAC or 24 VDC as required. Relays shall have a flag indicator to show relay status, a pushbutton to allow manual operation of the relay, and an internal pilot light to indicate power to the coil. Relays shall be as manufactured by Phoenix Contact.

26. Corrosion Protection: Panel interior components shall be treated with a corrosion inhibiting spray on all exposed metallic surfaces, particularly terminations, contacts, and wire ends. After installation, furnish corrosion inhibiting capsules that emit molecular level coating on metallic surfaces throughout the panel that provide specific corrosion barrier toward hydrogen sulfide and/or subsequent formation of sulfuric acid when combined with ambient moisture.

27. Panel Conduit Seals: All conduits entering the panel shall be sealed at the conduit entry point with a removable, expandable conduit seal material to prohibit outside air from entering the panel. Provide seal-off fittings below the panel with permanent epoxy seal material for all conduits from the wet well. Provide a NEMA 4X Type 316

stainless steel terminal junction box between the seal offs and the wet well to terminate all cables and wires with conduits to the wet wells sealed using the removable, expandable conduit seal material.

F. System Operation Controls – The station equipment shall be controlled by the panel PLC. The PLC shall control all components of the system through a combination of direct wires to field devices, remote I/O interface to field devices, and through control and setpoint registers adjustable at the panel operator interface. Controls shall be as follows:

1. Lift Station Control:

a. Provide HAND/OFF/AUTO switches, one for each pump. In HAND, power is applied directly to the pump motor with no interlocks. In OFF, power is removed from the pump motor. In AUTO, the pump is controlled by the PLC and pump protection circuits.

b. For constant speed lift stations, in AUTO, the pumps shall be controlled by adjustable level control LEAD ON, LAG ON, and PUMPS OFF setpoints based on the level signal input from the level transmitter. The LEAD pump shall start when the level rises above the LEAD ON setpoint and stops when the level falls below the PUMPS OFF setpoint. If the level continues to rise above the LAG ON setpoint, the LAG pump shall start and both pumps shall remain on until the level falls below the PUMPS OFF setpoint.

c. For variable speed pump stations, provide similar lead/lag level setpoints but once running, the pump VFD(s) shall vary the speed of the pump to maintain an adjustable level setpoint. Outputs to pumps running at the same time shall match.

d. Provide a 1-ALT-2, PUMP SELECT selector switch for duty selection of the pumps. In position "1", pump 1 shall be LEAD each time the system calls for a pump and pump 2 shall be the LAG. In position "2", pump 2 shall be LEAD each time the system calls for a pump and pump 1 shall be the LAG. In ALT, the pumps shall alternate LEAD/LAG duty when the LEAD pump is called to run.

e. Provide an auxiliary switch on each pump motor starter to activate a RUNNING indicator light and advance an Elapsed Time Meter for each pump whenever the pump is running (AUTO or HAND). PLC internal register counters shall also keep a record of each pump's runtime on a continuous basis and on a daily basis that resets at midnight.

f. In AUTO, the pumps shall be disabled if an adjustable Low Level Lockout Alarm conditions exists in the wet well.

g. In AUTO, provide an adjustable Delay Power On Timer (initially set at 30 seconds) to assure that only one pump starts at any point, particularly while the system first starts powering up.

2. Panel Power: Provide a CONTROL POWER ON/OFF selector switch on the 120V control power input to the UPS. Provide a POWER ON indicator light to indicate that control power has been applied to the UPS input.

3. Pump Protection Relay: The enclosure shall provide space for mounting the temperature/moisture monitoring relay provided by the pump manufacturer (referred to by Flygt as the “MiniCAS” relay). Mounting, wiring, and interface with the pump manufacturer’s relay shall be furnished by the panel manufacturer and be in accordance with the pump manufacturer’s recommendations. Relay shall interface with local control devices as noted herein for motor high temperature and moisture seal leak. Power and signal wiring to and from the relay shall be verified and approved by the pump manufacturer as to the correct voltage, wire size and type, and circuit design. If the pump manufacturer recommends a relay other than the specified MiniCAS relay, all required cabling and connections shall be provided at no additional cost to the Owner.

4. Motor Protection Circuits – Each pump motor shall have motor temperature switches. In HAND or AUTO, if a motor temperature rises above setpoint, the motor shall stop and require manual reset before restarting in any mode. The motor temperature circuit shall be a hard-wired circuit to the starter. Manual reset shall be through the reset pushbutton on the panel front door and through a reset output from the PLC that can be sent remotely. Provide an indicator light on the front panel door and a SCADA alarm for this condition.

5. Moisture Seal Alarm – Each pump motor shall have motor moisture leak sensors. If either sensor in a motor detects moisture, a latched alarm shall be generated to alert operators to this condition (requires manual reset). Provide an indicator light on the front panel door for this condition.

6. Motor Fault – A motor fault shall register if the any starter overload is tripped, a load monitor detects a high load, or the motor starter run contact is not received within a preset time after the motor is called to run. For any of these conditions, the fault shall latch until manually reset, an alarm shall be sent to alert operators, and the pump shall stop. Upon reset, all settings shall be re-initiated so that the pump can resume normal operation. Manual reset shall be through the reset pushbutton on the panel front door. Provide an indicator light on the front panel door and a SCADA alarm for this condition.

7. System Alarms – Provide adjustable setpoints and an indicator light on the dead-front panel door as well as a SCADA alarm for each of the following conditions:

    a. LOW LOW LEVEL ALARM - Indicates that wet well level has dropped below setpoint and pumps have been shut off.

    b. HIGH WARNING LEVEL ALARM - Indicates that the wet well level has reached an adjustable high warning level condition.

    c. HIGH LEVEL ALARM - Indicates that the wet well level has reached a maximum high level condition as determined by the level transducer starting both pumps. Condition shall latch as alarm requiring manual reset (locally or from SCADA) and automatically reset after an adjustable time delay once the high level alarm input goes away.

8. Exterior Alarm/Beacon

a. Provide an exterior mounted alarm horn and beacon assembly on the panel exterior to be activated (horn sounds and beacon lights) upon High Level Alarm.

b. If required and shown on the contract drawings, Provide SILENCE, TEST, and RESET pushbuttons on the panel front door. The SILENCE pushbutton acknowledges the alarm (input to PLC) and stops the horn but the beacon remains lit if the condition remains. The TEST button activates both the horn and the beacon (no input to PLC). The RESET button stops the horn and turns off the latched beacon if the condition has cleared.

c. Provide a remote silence output from the PLC.

d. Alarm horn shall rated NEMA4X, with a pitch at 2900HZ and 80-95dB at a fast pulse, 24VAC powered. Horn shall be a Federal Signal 450E-24-31 W/WB or approved equal.

e. Alarm beacon shall be a red LED signal device, strobe type and shall be 24VAC powered and be a Federal Signal 1412T-24R or approved equal.

9. Alarm Reset: If required and shown on the contract drawings, provide an alarm reset pushbutton on the panel dead-front door to reset any latched alarm.

10. Station Intrusion: Provide a Square D 9007 or approved equal, proximity type door switch mounted on the station's entrance door (active leaf) to indicate the door has been opened. Switch shall be rated NEMA4X.

G. SCADA Control Interface – SCADA control interface shall be via communications between the panel PLC and the City's SCADA network over the telemetry link. Provide interface signals as follows:

1. Run status signal for each motor

2. Alarm condition signals for each individual alarm condition
   - Starter overload for each constant speed motor
   - High current load for each motor
   - Failed to start for each pump
   - High motor temperature for each pump
   - Moisture seal leak for each pump
   - Low Level shutoff
   - High warning level
   - High level alarm
   - UPS fault
   - Power Loss, UPS running on battery
   - Station intrusion
   - Phase monitor alarm

3. Alarm RESET output from SCADA

4. In AUTO status for each motor

5. Continuous and Daily Runtime calculation value (in hours and tenths of hours) for each motor

6. Daily Runtime calculation value for the duration of time both pumps are running at the same time.

7. Daily Starts value for each motor

8. Delay Power On Timer setpoint from SCADA

9. Pump LEAD ON, LAG ON, and PUMPS OFF setpoints from SCADA

10. Low level, High warning level, and High level alarm setpoints from SCADA

11. Station flow signal

12. Wet well level signal

13. Station communication loss signal

H. Panel Control and Power Interface: Provide terminals to interface with local control devices, instruments, motors, and other devices located outside the control panel. Separate 480V power terminals from 120V terminals and separate 24Vdc signal terminals from other power terminals.

PART 3 - EXECUTION

3.01 CONTROL PANEL PROGRAMMING

A. Programing shall be furnished to perform all functions described, making use of the various IEC languages as appropriate to the specific task and shall be performed in a modular style making extensive use of program blocks (subroutines) and program variables to be passed to the program blocks for specific equipment. It is the intent of this requirement to allow for enhanced readability and ease of modification of the program code through the elimination of multiple instances of repeated code for the same function in a “hard-coded” style.

B. Extensive, clear and concise program documentation comments shall be placed in the program code to describe the functions of all elements of the program code. PLC code that does not contain comments shall be rejected.

C. Programming shall adhere to minimum PLC standards, including:

1. Discrete data corresponding to a single digital I/O point as either a hardwired I/O point or an internal bit in the PLC data memory file.

2. Analog values registered in PLC memory in a binary data format either as a floating-point register or an integer register

3. PLC programs shall be configured to provide bump less output control when transitioning from PLC auto to PLC manual control. Process control of equipment shall be performed in the PLC not from SCADA or field devices

4. All PLC registers shall be identified with an appropriate address symbol that corresponds to the adopted tagging and naming conventions. All PLC logic and subroutines shall include ladder-rung descriptions/comments that explains the control logic and identifies its purpose in an English descriptive format. Rung comments will be provided for each set of controls. At the beginning of each process routine a process description explaining the entire process will be provided. At each rung that performs a crucial code a rung description will be provided to explain the PLC code.

5. IO Faults for Local Modules and Ethernet connected devices shall not cause a major fault on the PLC processor. A processor fault shall provide an alarm to SCADA.

6. PLC communications shall be monitored in the PLC code and mapped to SCADA I/O database to indicate communications status. Status indication in SCADA shall report OK for a valid communications path or FAULTED for an invalid path.

[END OF SECTION]

SECTION 17650

PRESSURE GAUGES

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish, test, install, and place in satisfactory operation the pressure gauges, with all spare parts, accessories, and appurtenances as herein specified, and as shown on the Drawings.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 17000 – Instrumentation and Control, General

PART 2 - PRODUCTS

2.01 PRESSURE GAUGES

A. All gauges shall be designed in accordance with the ASME B40.1 entitled, "Gauges, Pressure, Indicating Dial Type - Elastic Element".

B. All gauges shall be direct reading type. Snubbers shall be provided on all gauges. Gauge full-scale pressure range shall be selected such that the maximum operating pressure shall not exceed the approximately 75% of the full-scale range.

C. Gauge increments shall not exceed 2 psi, unless approved by Engineer.

D. Features

1. Mounting: ½" NPT, lower stem mount type.
2. Accuracy: 0.5% full scale.
3. Case: Solid front, black phenolic material.
4. Dial: White background and black letters.
5. Glass: Shatterproof.
6. Blow-out protection: Back.
7. Pressure element: stainless steel bourdon tube.
8. Movement: Stainless steel, Teflon coated pinion gear and segment.
9. Gaskets: Buna-N.

E. Liquid-filled or equivalent mechanically-damped gauges shall be used if the gauges are installed with pumps, or where gauges are subjected to vibrations or pulsation. Filling fluid shall be silicone unless oxidizing agents such as sodium hypochlorite are present, where halocarbon shall be used.

F. Gauge size shall be 2" for line sizes up to 3" and 4½" for line sizes of 4" or greater.

G. Diaphragm seals and isolating ring seals shall be furnished for each pressure gauge.

H. The complete gauge assembly and appurtenances shall be fully assembled and tested prior to field mounting. A ½" isolation stainless steel ball valve shall be provided for each gauge assembly.

I. Pressure and vacuum gauges shall be Ashcroft Duragauge Model 1279, Ametek-U.S. Gauge Division, H.O. Trerice Co., WIKA Instrument Corporation, Rosemount or equal.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's recommendations.

[END OF SECTION]

SECTION 17701

ELECTROMAGNETIC FLOW METERS

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish, test, install and place in satisfactory operation the magnetic flow meters, with all spare parts, accessories, and appurtenances as herein specified and as shown on the Drawings.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 17000 – Instrumentation and Control, General.

PART 2 - PRODUCTS

2.01 ELECTROMAGNETIC FLOW METER

A. Electromagnetic flow meter systems shall include a electromagnetic flow tube and a microprocessor-based "smart" transmitter that is capable of converting and transmitting a signal from the flow tube for wastewater-liftstation applications and environment. Electromagnetic flow meters shall utilize the characterized field principle of electromagnetic induction and shall produce DC signals directly proportional to the liquid flow rate.

B. Each meter shall be furnished with a stainless steel metering tube and carbon steel flanges with a hard rubber (NBR or ebonite) liner as required by the application and/or as specified herein. Liner shall have a minimum thickness of 0.125 inches. The inside diameter of the liner shall be within 0.125 inches of the inside diameter of the adjoining pipe. Liner protectors shall be provided on all flow tubes.

C. The flow tube shall be provided with bullet nose electrodes.

D. The sensor shall house two measuring electrodes, a grounding electrode, and one for physical empty pipe detection. The electrodes shall be made of 316L stainless steel.

E. Grounding rings shall be minimum 316 stainless steel, and shall be compatible with the process fluid.

F. All materials of construction for metallic wetted parts (electrodes, grounding rings, etc.) shall be minimum 316 stainless steel, but shall be compatible with the process fluid for each meter in accordance with the recommendations of the manufacturer. Verify with the manufacturer that the selected electrode material for the electromagnetic flow meters is the least likely material to be affected by either corrosion or erosion.

G. Flow tube shall be rated for pressures up to 2.0 times the flange rating of adjacent piping. System shall be rated for ambient temperatures of -30 to +65°C.

H. Unless otherwise required by the Contract Documents, transmitter shall be remote, not integral to, the flow meter body.

I. Meter and transmitter housings shall meet NEMA 4X requirements as a minimum. Non-metallic transmitter housings shall not be acceptable.

J. The transmitter shall provide pulsed DC coil drive current to the flow tube and shall convert the returning signal to a linear, isolated 4-20 mA DC signal. The transmitter shall utilize "smart" electronics and shall contain automatic, continuous zero correction, signal processing routines for noise rejection, and an integral LCD readout capable of displaying flow rate and totalized flow. The transmitter shall continuously run self-diagnostic routines and report errors via English language messages.

K. Transmitter shall be capable of generating an electronic flow meter calibration verification (E+H Heartbeat Verification or equal) document.

L. The transmitter shall be equipped with an RJ45 port capable of communicating with the PLC via Profinet. A password-based security lockout feature shall be provided to prevent unauthorized modification of configuration parameters.

M. The transmitter's preamplifier input impedance shall be a minimum of 10^9-10^{11} ohms which shall make the system suited for the amplification of low-level input signals and capable of operation with a material build up on the electrodes.

N. The transmitter shall provide an automatic low flow cutoff below a user configurable low flow condition (0-10%). The transmitter's outputs shall also be capable of being forced to zero by an external contact operation.

O. Each flow tube shall be factory calibrated and assigned a calibration constant or factor to be entered into the associated transmitter as part of the meter configuration parameters. Manual calibration of the flow meter shall not be required. Meter configuration parameters shall be stored in non-volatile memory in the transmitter. An output hold feature shall be provided to maintain a constant output during configuration changes.

P. Accuracy shall be a minimum of 0.20% of rate over the flow velocity range of 1.0 to 33.0 fps. Repeatability shall be 0.1% of rate; minimum turndown shall be 100:1. Maximum response time shall be adjustable between 5 and 200 milliseconds as a minimum. Transmitter ambient temperature operating limits shall be -40 to +60°C.

Q. Power supply shall be 24 V DC OR 120 VAC if required by manufacturer

R. Flow tubes shall be 150-lb flange mounted unless otherwise noted. The cables for interconnecting the meter and transmitter shall be furnished by the manufacturer. Transmitter shall be a remote wall mounted display/transmitter.

S. The display/transmitter shall be protected from the sun by a pipe stand mounted 316 stainless steel or aluminum sunshield.

T. Magnetic flow meter systems shall be Endress + Hauser Proline Promag W 500 or approved equal.

PART 3 - EXECUTION

3.01 REQUIREMENTS

A. Install instruments in accordance with Section 17000, Instrumentation – General.

B. Ground electromagnetic flow meter flow tubes and grounding rings in strict accordance with the manufacturer's recommendations.

[END OF SECTION]

SECTION 17749

SUBMERSIBLE LEVEL (PRESSURE) SENSORS

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish, test, install, and place in satisfactory operation the submersible level (pressure) sensors, with all spare parts, accessories, and appurtenances as herein specified and as shown on the Drawings.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 17000 – Instrumentation - General.

PART 2 - PRODUCTS

2.01 SUBMERSIBLE LEVEL (PRESSURE) SENSORS

A. Submersible level (pressure) sensors shall consist of a pressure-sensing probe assembly with a depth cable molded directly to the probe body. Sensing probe housing shall be fabricated of type 316 stainless steel. The depth support cable shall be polyethylene (PE), polyurethane (PUR), or fluorinated ethylene propylene (FEP) and shall contain a strength relief member constructed of high-strength PE fibers, a vent tube, and conductors for electrical power and signal.

B. The sensor shall contain an encapsulated pressure sensing element which is electrically and physically isolated from the media via a ceramic isolation diaphragm. The pressure sensing connection shall be protected from damage by a removable acetal nose cone or equivalent guard.

C. Each submersible level transducer shall be provided with a NEMA 4X termination/junction box and PTFE filter to prevent moisture from entering the vent tube.

D. Sensor specifications shall be as follows:

1.	Sensor Rating:	NEMA 7, loop-powered
2.	Output Signal:	4-20 mA HART, 2-wire design
3.	Accuracy:	± 0.20%, F.S. (full scale)
4.	Long Term Stability:	± 0.1% F.S./year
5.	Zero Offset and Span Setting:	± 0.25% F.S., max.
6.	Operating Temperature:	-10 to +70 degrees C
7.	Compensated Temperature:	0 to +70 degrees C
8.	Overpressure Limits:	At least 2x full scale range
9.	Cable Length:	As required
10.	Electrical Area Classification:	Class 1, Division 1

E. Submersible level (pressure) sensors shall be WaterPilot Model FMX 21 by Endress & Hauser, equivalent by Druck, KPSI, or approved equal.

PART 3 - EXECUTION

3.01 REQUIREMENTS

A. Install in accordance with manufacturer's recommendations and Section 17000, Instrumentation – General.

[END OF SECTION]

SECTION 17760

PRESSURE INDICATING TRANSMITTERS

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall furnish, test, install, and place in satisfactory operation the pressure indicating transmitters, with all spare parts, accessories, and appurtenances as herein specified and as shown on the Drawings.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 17000, Instrumentation - General.

PART 2 - PRODUCTS

2.01 PRESSURE INDICATING TRANSMITTERS, GENERAL

A. Pressure indicating transmitters shall consist of a piezoresistive silicon pressure transducer with a process-isolated diaphragm, silicone oil fill, and microprocessor-based electronics. The pressure transducer shall be mechanically, electrically, and thermally isolated from the process and the environment, and shall have an integral temperature compensation sensor. Factory set correction coefficients and diagnostic data shall be stored in the transmitter's non-volatile memory, for correction and linearization of the output. Span and zero shall be continuously adjustable, externally, over the entire range. Span and zero adjustments shall be capable of being disabled internally. The maximum zero elevation and maximum zero suppression shall be adjustable to anywhere within sensor limits.

B. Provide a wall, pipe, or strut mounted 316 stainless steel (or aluminum) sunshield to protect the pressure indicating transmitter from direct sunlight.

C. Each transmitter shall be furnished with an integral LCD indicator capable of displaying engineering units and/or milliamps, and mounting hardware as required. Each transmitter shall have a stainless steel tag with calibration data attached to body. Transmitters shall satisfy the performance criteria in Table 1, below.

Table 1. Pressure Indicating Transmitter Performance Criteria	
Accuracy(1)	± 0.06% of calibrated span, zero-based

Table 1. Pressure Indicating Transmitter Performance Criteria	
Calibration Stability	± 0.15% of upper range limit (URL) over fifteen years
Field-Adjustable Rangeability	200:1 input range
Enclosure Type	NEMA 4X, Weather and Corrosion-Resistant
Enclosure Materials	Low-Copper Aluminum, with epoxy or powder coating
Process Wetted Materials	316 Stainless Steel, or better as scheduled or required for process compatibility
Ambient Environment Limits	-40 to 85 degrees Celsius at 0-100% relative humidity
Hazardous Environment Approval	Factory Mutual (FM) Approved for Class I, Division 1, Groups C and D
Overload Capacity	25 MPa (3,600 psi), or higher
Power Supply	24 VDC, two-wire design
Output	Linear isolated 4-20 mA 24 VDC with HART
Output Damping	Adjustable, 0-36 seconds

Notes:
(1) Including nonlinearity, hysteresis, and repeatability errors

2.02 GAUGE PRESSURE INDICATING TRANSMITTERS

A. Gauge pressure indicating transmitters shall satisfy all requirements of Article 2.01.

B. Where scheduled, gauge pressure indicating transmitters shall be calibrated in feet of liquid for liquid level service.

C. Where scheduled, gauge pressure indicating transmitters with ranges in inches water column (in. w.c.) shall achieve the scheduled range with a turndown ratio not to exceed 1:5. As an example, a gauge pressure indicating transmitter scheduled for 0-20” w.c. shall have an uncalibrated range of -50 to +50” w.c. or 0 to 100” w.c., or less.

D. Gauge pressure indicating transmitters shall be Emerson Process Management (Rosemount) Model 3051S1TG, or approved equal.

2.03 VALVE MANIFOLDS

A. Gauge and differential pressure indicating transmitters shall be furnished and installed with a valve manifold. Valve manifolds shall satisfy the criteria in Table 2, below.

Table 2. Valve Manifold Criteria	
Materials	316L Stainless Steel, or better to match transmitter wetted parts
Construction Type	Milled
Valve Type	Needle Valve with non-rotating plug, T-bar handle
Packing Material	Polytetrafluoroethylene (PTFE) (1)
Rated Pressure	4,000 psi at 200 degrees Celsius

Notes:
(1) Alternative packing materials shall be furnished as scheduled herein, shown on the drawings, and for applications where temperature may exceed 200 degrees Celsius

B. Dust caps shall be installed on all manifold connections during shipping, and remain installed until connection of the transmitter and process piping. Dust caps on vent and purge connections shall be 316 stainless steel, minimum.

C. All manifolds shall be configured to allow isolation, venting, removal, and calibration of the transmitter without disassembly of process piping.

D. Gauge pressure indicating transmitters shall be furnished with a two-valve manifold. Valve functions shall be isolate and vent. Two-valve manifolds shall be Ashcroft V02 Series, Hoke GP Series, or approved equal.

2.04 FLANGE MOUNTED LEVEL INDICATING TRANSMITTERS

A. Flange-mounted tank liquid level indicating transmitters shall satisfy all requirements of Article 2.01.

B. The flange-mounted sensor shall consist of a special non-corrosive isolating diaphragm with fill fluid in a sealed capillary system to transmit liquid pressure to the sensing element. A second isolating diaphragm shall transmit pressure through the fill fluid to the sensing diaphragm in the center of the capacitance cell. An isolating diaphragm and fluid fill shall also be provided on the opposite side of the sensing diaphragm to convey atmospheric or reference pressure.

C. All mounting flanges, diaphragms, O-rings and materials used in construction shall be non-corroding, compatible with each other, and compatible with the liquid being measured.

D. Flange-mounted liquid level transmitters shall be Emerson Process Management (Rosemount) Model 3051L, or approved equal.

2.05 REMOTE DISPLAYS

A. Where specified or indicated on the Drawings remote display units shall be furnished to display the pressure or level signal received from the pressure indicating transmitter 4-20mA output. Remote displays shall be powered from the same loop at the pressure transmitter.

B. Remote display units shall be wall mounted or mounted on a pipe stand fastened to a concrete base provided by the Contractor. Remote display units located outdoors in direct shall be protected with a sunshield.

C. Remote displays shall be Emerson Process Management (Rosemount) Model 751 Field Signal Indicator, or approved equal.

2.06 REMOTE SEALS

A. Remote seals shall be furnished with pressure indicating transmitters as shown on the Drawings. Remote seals shall be furnished and installed complete with capillary tubes, link kits, and fill fluid as required for a complete and functional installation.

B. Remote seals, link kits, and other appurtenances shall be manufactured by the pressure indicating transmitter manufacturer, and installed pursuant to all manufacturer's recommendations.

2.07 SURGE SUPRESSION

A. A dedicated 4-20mA signal surge suppression device shall be provided for and each pressure transmitter or remote display.

PART 3 - EXECUTION

3.01 REQUIREMENTS

A. Gauge pressure indicating transmitters shall be factory calibrated and a copy of the calibration report shall be in the O&M manual.

B. Install instruments in accordance with Section 17000, Instrumentation and Control – General.

C. Install instruments in strict accordance with the manufacturer's recommendations.

[END OF SECTION]

AGENDA ITEM NO. 6.m

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Kim Clayback, Public Works & Utilities

ITEM TYPE: Agreement

AGENDA SECTION: CONSENT AGENDA

SUBJECT: Water Tank Lease Agreement Amendment

SUGGESTED ACTION: Requesting Council Approval for the lease amendment and authorizing the Mayor to sign on behalf of the City of Bradenton.

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
T-Mobile is working through a storm hardening program; the additional lease space is for at grade improvements to the generator and associated infrastructure. The address is 209 6th Ave West, Bradenton, FL 34205.

FINANCIAL IMPACT:
None

ATTORNEY REVIEW/RECOMMENDATION:
No objections - place on consent agenda

SUGGESTED MOTION:
Motion to approve the Water Tank Lease Agreement Amendment.

ATTACHMENTS:
Water Tank Lease Agreement Amendment

DocuSign Envelope ID: 9C44F21F-61D7-42BD-818F-594ADE37152F

T-Mobile South LLC Site #: A2F3002A
Market: Tampa/Orlando
Metro PCS Site ID: SAR310

Site Owner: City of Bradenton
Site Name: Elevated Water Tank No. 1
Site Address: 209 6th Ave W, Bradenton, 34205
County Parcel ID; 325 530 0000

FIRST AMENDMENT TO WATERTANK LEASE AGREEMENT

THIS FIRST AMENDMENT TO WATERTANK LEASE AGREEMENT ("Amendment") is made and entered into by and between City of Bradenton, a political body of the State of Florida ("Lessor"), and Metro PCS California/Florida Inc., a Delaware Corporation, predecessors in interest to T-Mobile South LLC ("Lessee").

Recitals

The parties hereto recite, declare and agree as follows:

A. Lessor and Lessee (or as applicable, their respective predecessors in interest) entered into a Watertank Lease Agreement dated May 25, 2005 (including any prior amendments, the "Lease"), with respect to Premises located at 209 6th Ave W, Bradenton, FL 34205.

B. Lessor and Lessee desire to enter into this Amendment in order to modify and amend certain provisions of the Lease.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Lessor and Lessee covenant and agree as follows:

1. Effective as of June 1, 2022, Lessee will have the right to modify its Demised Premises as described and depicted on Exhibit A, which is attached hereto and by this reference incorporated herein, and Lessor hereby consents to and approves of the modifications described and depicted on Exhibit A in all respects.

2. The terms and conditions of the Lease are incorporated herein by this reference, and capitalized terms used in this Amendment shall have the same meanings such terms are given in the Lease. Except as specifically set forth herein, this Amendment shall in no way modify, alter or amend the remaining terms of the Lease, all of which are ratified by the parties and shall remain in full force and effect. To the extent there is any conflict between the terms and conditions of the Lease and this Amendment, the terms and conditions of this Amendment will govern and control.

3. Lessor represents and warrants to Lessee that the consent or approval of no third party, including, without limitation, a lender, is required with respect to the execution of this Amendment, or if any such third-party consent or approval is required, Lessor has obtained any and all such consents or approvals.

4. This Amendment may be executed in any number of counterparts, each of which shall be deemed an original, but all of which together shall constitute a single instrument. Signed facsimile and electronic copies of this Amendment shall legally bind the parties to the same extent as original documents.

5. For consistency, all references in the Watertank Lease Agreement documents to the site location or real property shall be updated to reflect City of Bradenton Elevated Water Tank No. 1 at 209 6th Ave W, Bradenton, 34205.

6. Paragraph 21. of the Watertank Lease Agreement shall updated to reflect current points of contact for the Lessor and Lessee:

DocuSign Envelope ID: 9C44F21F-61D7-42BD-818F-594ADE37152F

LESSOR:
City of Bradenton
City Hall, 101 12th Street West, Bradenton, FL 34205-7865
Attn: City Administrator
Telephone: 941-932-9400

City of Bradenton City Attorney
Mr. Scott E. Rudacille
Blalock Walters, 802 11th Street West, Bradenton, FL 34205
Telephone: 941-748-0100
srudacille@blalockwaters.com

City of Bradenton Public Works and Utilities Department
Public Works Annex, 1411 9th Street West, Bradenton, FL 34205
Attn: Public Works and Utilities Director
Telephone: 941-708-6300

LESSEE:
T-Mobile USA, Inc.
12920 SE 38th Street
Bellevue, WA 98006
Attn: Lease Compliance, Site ID A2F3002A
Telephone: 877-373-0093
propertymanagement@t-mobile.com

7. In Watertank Lease Agreement, paragraph 3.(c) Extended Term Annual Rent shall be increased for the 3rd Extended Term and the 4th Extended Term. The current 3rd Extended Term amount is $31,159.35, and the current 4th Extended Term amount is $36,122.22. Upon full execution of First Amendment, 3rd Extended Term Annual Rental shall be increased to $36,144.85 for the remaining years 2022 through 2025; and 4th Extended Term Annual Rental shall be increased to $41,901.78 for 2026 through 2030.

T-Mobile South LLC Site #: A2F3002A
Market: Tampa/Orlando
Metro PCS Site ID: SAR310

Site Owner: City of Bradenton
Site Name: Elevated Water Tank No. 1
Site Address: 209 6th Ave W, Bradenton, 34205
County Parcel ID; 325 530 0000

IN WITNESS WHEREOF, the parties have executed this Amendment effective as of the date of execution by the last party to sign.

T-MOBILE SOUTH LLC

DocuSigned by:
By: Jess Louk
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Name: Jess Louk
Title: Director, E&O
Date: 10/18/2022

TMO Legal Digitally signed by TMO Legal Date: 2022.09.13 11:36:24 -04'00'

NATIONAL LEASE GOVERNANCE Approved T-MOBILE 2022

TMO Signatory Level: L06

CITY OF BRADENTON

By:_____
Name:_____
Title:_____
Date:_____

DocuSigned by:
Garret Onusko
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DocuSigned by:
Beth Fassler
FD1CDE198BBD40D...

DocuSigned by:
Carole Bradley
BC786C54354E476...

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Approved
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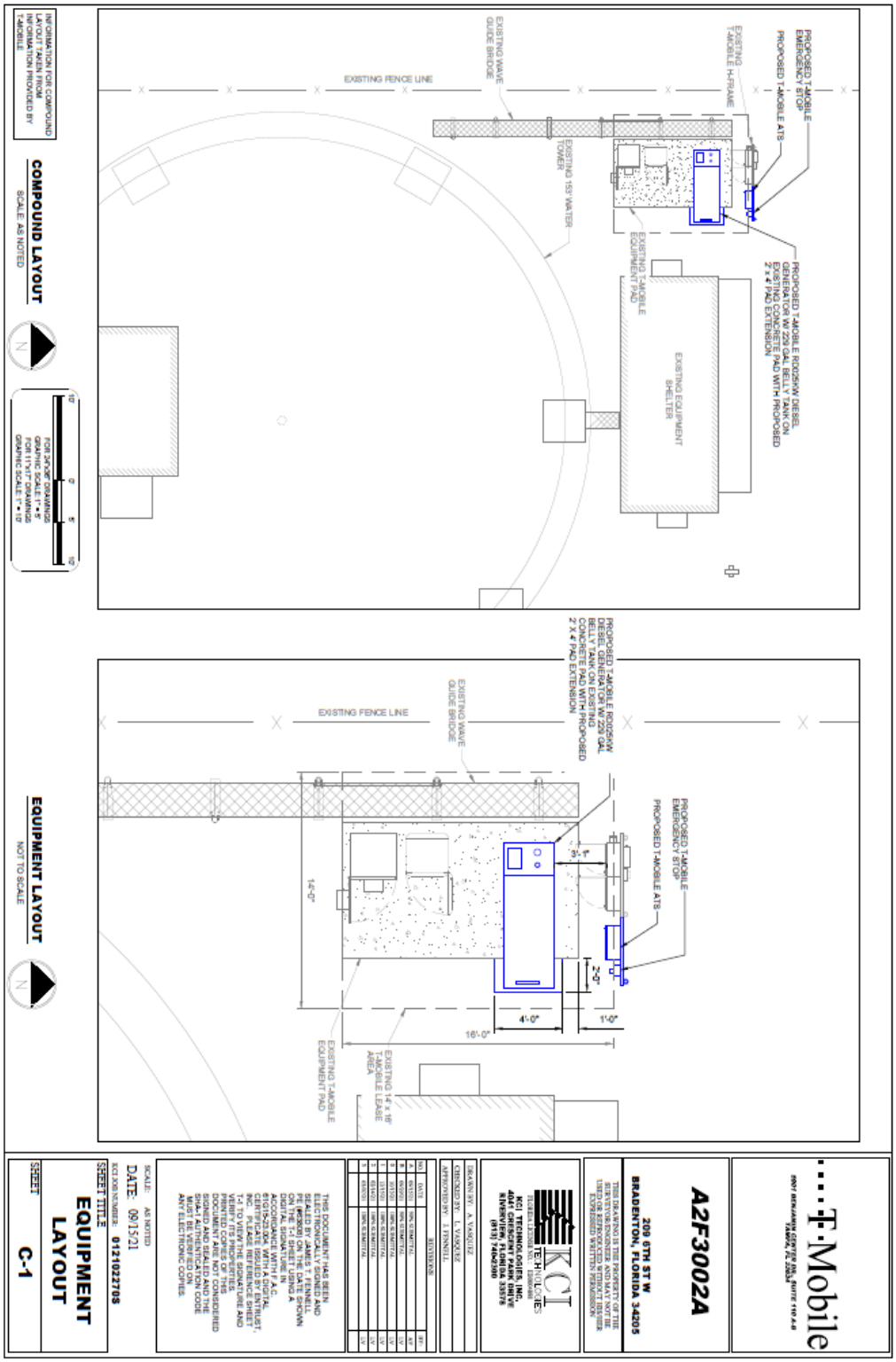
T-Mobile South LLC Site #: A2F3002A
Market: Tampa/Orlando
Metro PCS Site ID: SAR310

Site Owner: City of Bradenton
Site Name: Elevated Water Tank No. 1
Site Address: 209 6th Ave W, Bradenton, 34205
County Parcel ID; 325 530 0000

EXHIBIT A



AGENDA ITEM NO. 7.a

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Greg DeLong, Planning & Community Development

ITEM TYPE: Resolution

AGENDA SECTION: BUSINESS/ADVERTISING, PETITIONS, HEARINGS & COMMUNICATIONS

SUBJECT: Resolution 23-13 - SECOND READING AND PUBLIC HEARING

A RESOLUTION OF THE CITY COUNCIL FOR THE CITY OF BRADENTON, FLORIDA DESIGNATING A BROWNFIELD AREA TO BE CALLED THE RIVERVIEW6 GREEN REUSE AREA WITHIN THE CITY FOR PROPERTY LOCATED AT 813 6TH AVENUE WEST, FOLIO NUMBERS 3269800003, 3269900001, 3270000007, 3270100005, 3270200003, 3270300001, 3270400009, 3270500006, AND 3270600004 OF APPROXIMATELY 1.466 ACRES (THE "BROWNFIELD AREA") FOR THE PURPOSE OF ENVIRONMENTAL SITE REHABILITATION AND ECONOMIC REDEVELOPMENT; AND PROVIDING FOR AN EFFECTIVE DATE.

SUGGESTED ACTION: Approval of Resolution 23-13

Is this item Quasijudicial?
Yes

Does this item require a public hearing?
Yes

EXPLANATION:
The Housing Trust Group (HTG) is requesting city's approval of an application for a brownfield designation for a planned redevelopment project (Riverview6) that will consist of an 85,233 sq. ft. mixed-use, 5-story building with ground floor retail and 80 affordable rental housing units. The proposed brownfield designation will be called the "Riverview6 Green Reuse Area". Building plans and Form Based Code

reviews and approvals were completed by city staff in December 2022. The purpose for the designation is to assist the developer with any possible remediation that may need to be completed on the property along with opportunities for tax breaks on the purchase of construction materials. City Council's decision will be forwarded onto the State for their consideration on the request.

FINANCIAL IMPACT:
Please see the attached "Green Reuse Area Designation Eligibility Statement" for details on the financial impact of the redevelopment project.

ATTORNEY REVIEW/RECOMMENDATION:
Attorney Rudacille reviewed.

SUGGESTED MOTION:
Motion to approve Resolution 23-13.

ATTACHMENTS:
Resolution 23-13
Green Reuse Area Designation Eligibility Statement
Community Meeting Information

RESOLUTION NO. 23-13

A RESOLUTION OF THE CITY COUNCIL FOR THE CITY OF BRADENTON, FLORIDA DESIGNATING A BROWNFIELD AREA TO BE CALLED THE RIVERVIEW6 GREEN REUSE AREA WITHIN THE CITY FOR PROPERTY LOCATED AT 813 6TH AVENUE WEST, FOLIO NUMBERS 3269800003, 3269900001, 3270000007, 3270100005, 3270200003, 3270300001, 3270400009, 3270500006, AND 3270600004 OF APPROXIMATELY 1.466 ACRES (THE "BROWNFIELD AREA") FOR THE PURPOSE OF ENVIRONMENTAL SITE REHABILITATION AND ECONOMIC REDEVELOPMENT; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the Legislature of the State of Florida, in Sections 376.77 – 376.85, Florida Statutes, adopted the Brownfields Redevelopment Act, the purpose of which is to encourage the redevelopment and the voluntary cleanup of real property where the expansion, redevelopment or reuse of which may be complicated by actual or perceived environmental contamination; and

WHEREAS, the Brownfields Redevelopment Act created a process whereby a local government with jurisdiction over the Brownfield Area must notify the Florida Department of Environmental Protection of its decision to designate a Brownfield area including a resolution approving and evidencing the designation; and

WHEREAS, the real property which is the subject of this Resolution is within a Community Redevelopment Area; and

WHEREAS, the City of Bradenton has conducted the necessary public hearings for designation of a Brownfield Area; and

WHEREAS, the owner of the Brownfield Area has proposed to redevelop the property as an affordable multifamily residential development; and

WHEREAS, the City of Bradenton has considered the following criteria pursuant to Florida Statutes Section 376.80(2)(c):

1. whether the applicant controls the property and has agreed to rehabilitate and redevelop the Brownfield area;

2. whether the rehabilitation and redevelopment of the property will result in economic productivity of the area;

3. whether the project is consistent with the local comprehensive plan and is a permittable use under the City of Bradenton's land development regulations;

4. whether the applicant has complied with the procedures outlined in Florida's Brownfields Redevelopment Act and has provided notice as required by law, Florida Statutes Sections 376.80(2)(c)(4) and 376.80(1)(c)(4)(b); and

5. whether the applicant has provided reasonable assurance that it has sufficient financial resources to implement and complete the rehabilitation agreement and redevelopment plan.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, THAT:

Section 1. The City Council for the City of Bradenton has considered each of the factors set forth above and has determined that each factor is met and hereby designates the property generally located at 813 6th Avenue West consisting of 1.446 acres, and described with more particularity in the legal description attached hereto as Exhibit "A" and as depicted by the map attached hereto as Exhibit "B", as the Riverview6 Green Reuse Area for the purposes of Sections 376.77 - 376.85, Florida Statutes. Such designation shall not, however, render the City of Bradenton liable for the cost of site rehabilitation or source removal, as those terms are defined in Section 376.79, Florida Statutes.

Section 2. The Mayor, City Clerk and City Attorney are hereby authorized to do all things necessary and proper to make effective the provisions of this Resolution.

Section 3. This Resolution shall take effect immediately upon its adoption.

ORDERED ON BEHALF OF THE CITY OF BRADENTON THIS 8TH DAY OF FEBRUARY, 2023.

THE CITY OF BRADENTON, BY AND THROUGH THE CITY COUNCIL OF THE CITY OF BRADENTON

ATTEST:

Tamara Melton CITY CLERK	Gene Brown MAYOR

APPROVED AS TO FORM:

Scott Rudacille
CITY ATTORNEY

EXHIBIT "A"
LEGAL DESCRIPTION

LEGAL DESCRIPTION:

LOTS 1 THROUGH 13, BLOCK 23, ADAM'S ANNEX, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 1, PAGE 228, OF THE PUBLIC RECORDS OF MANATEE COUNTY, FLORIDA.

LESS EXISTING RIGHTS OF WAY;

AND

LESS AND EXCEPT LAND DEDICATED FOR RIGHT-OF-WAY IN OFFICIAL RECORDS BOOK 1064, PAGE 3498, OF THE PUBLIC RECORDS OF MANATEE COUNTY, FLORIDA.

EXHIBIT "B"
MAP



Riverview6 Green Reuse Area
813 6th Avenue West
PIDs: 3269800003, 3269900001, 3270000007, 3270100005, 3270200003, 3270300001, 3270400009, 3270500006, and 3270600004

Green Reuse Area Designation Eligibility Statement

Riverview6 Green Reuse Area
813 6th Avenue West, Bradenton, FL 34205
Folio Nos. 3269800003, 3269900001, 3270000007, 3270100005, 3270200003, 3270300001, 3270400009, 3270500006, and 3270600004

HTG Riverview6, Ltd. ("Riverview6") proposes to redevelop and rehabilitate nine parcels of land located at 813 6th Avenue West, Bradenton, FL 34205, Folio Nos. 3269800003, 3269900001, 3270000007, 3270100005, 3270200003, 3270300001, 3270400009, 3270500006, and 3270600004 (the "Subject Property"), as an affordable multifamily residential rental community consisting of a single, five-story building with 80 residential units; community amenities will include a clubhouse room/lounge, activity room, state-of-the-art fitness center, rooftop deck, secure entry, 24-hour security, and lighted pathways along all accessible routes (the "Project"). As demonstrated herein, the Project meets all five of the applicable designation criteria set forth at § 376.80(2)(c), Florida Statutes.[1] In addition, the Subject Property meets the definition of a "brownfield site" pursuant to § 376.79(4), Florida Statutes.

I. Subject Property Satisfies the Statutory Criteria for Designation

1. Agreement to Redevelop the Brownfield Site. As the first requirement for designation, Florida Statutes § 376.80(2)(c)(1) provides that "[a] person who owns or controls a potential brownfield site is requesting the designation and has agreed to rehabilitate and redevelop the brownfield site."

Riverview6 satisfies this criterion in that it owns or controls the Subject Property by virtue of two deeds and three Purchase and Sale Agreements ("PSAs"). The first deed, dated March 28, 2022, is with respect to the parcel identified by folio number 3270600004.[2] The second deed, dated March 23, 2022, is with respect to the parcel identified by folio number 3269900001.[3] The first PSA, dated October 29, 2020, and assigned to Riverview6 on November 2, 2020, is with respect to the parcels identified by folio numbers 3270400009, 3270300001, 3270200003, 3270100005, and 3269800003.[4] The second PSA, dated October 29, 2020, is with respect to the parcel identified by folio number 3270000007.[5] The third PSA, dated April 14, 2021, is with respect to the parcel identified by folio number 3270500006.[6] Riverview6 further satisfies this criterion in that it has agreed to redevelop and rehabilitate the Subject Property. Accordingly, Riverview6 meets this first criterion.

2. Economic Productivity. As the second requirement for designation, Florida Statutes § 376.80(2)(c)(2) provides that "[t]he rehabilitation and redevelopment of the proposed brownfield site will result in economic productivity of the area, along with the creation of at least 5 new permanent jobs at the brownfield site that are full-time equivalent positions not associated with the implementation of the rehabilitation agreement and that are not associated with redevelopment project demolition or construction activities pursuant to the

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[1] A copy of § 376.80, Florida Statutes, can be found at Attachment A to this Eligibility Statement.

[2] See Attachment B for the General Warranty Deed with respect to folio number 3270600004.

[3] See Attachment C for the General Warranty Deed with respect to folio number 3269900001.

[4] See Attachment D for the PSA. See also Letter of Consent signed by Ernest S. Marshall and Patricia K. Marshal at Attachment E with respect to folio numbers 3270400009, 3270300001, 3270200003, 3270100005, and 3269800003.

[5] See Attachment F for the PSA. See also Letter of Consent signed by Richard Lewis West and Heather R. West at Attachment G with respect to folio number 3270000007.

[6] See Attachment H for the PSA. See also Letter of Consent signed by Daniel G. Anderson at Attachment I with respect to folio number 3270500006.

redevelopment of the proposed brownfield site or area. However, the job creation requirement shall not apply to the rehabilitation and redevelopment of a brownfield site that will provide affordable housing as defined in s. 420.0004 or the creation of recreational areas, conservation areas, or parks."

Riverview6 satisfies this criterion in that, first, the Project will result in significant economic productivity of the area. The budget for rehabilitation and redevelopment of the Project is approximately $22.9 million, which will be spent in part on local labor, contractors, consultants, construction materials, furnishings, infrastructure improvements, and impact fees. This work will support numerous temporary construction jobs over the period of development. The construction workers will spend a percentage of their salaries with local merchants who, in turn, will reinvest locally in their respective businesses, as well as the businesses of other local merchants.

Additionally, the recognized literature regarding the local benefits produced by the construction of affordable housing developments shows that this type of development substantially contributes to the economic productivity of an area in the form of stimulation of the local economy by residents and transformation of vacant land into economically productive communities. For example, in The National Association of Home Builders' ("NAHB") landmark study, The Local Economic Impact of Typical Housing Tax Credit Developments,[7] NAHB published models that estimate the local economic benefits of family tax credit developments and elderly tax credit developments. These models capture the effect of the construction activity itself, the positive economic ripple effect that occurs when income earned from construction activity is spent and recycled in the local economy, and the ongoing beneficial impacts that result from the new apartments becoming occupied by residents. On a quantitative basis, the results are even more impressive.

According to the NAHB report, the estimated one-year impacts of building 100 affordable residential rental apartments include the following:

- *$7.9 million in local income*
- *122 local jobs*

According to the report, these one-year impacts include both the direct and indirect impact of the construction activity itself, and the impact of local residents who earn money from the construction activity spending part of it within the local area's economy. Moreover, on a recurring basis, the economic impacts of building 100 affordable residential rental apartments include the following:

- *$2.4 million in local income*
- *30 local jobs*

Extrapolating the NAHB model economic data to the redevelopment planned for the Subject Property, the "year of construction" and "annual recurring" impacts based on the 80 units planned for the Project would be as follows:

Economic Productivity for Riverview6 Development – Year of Construction

$6.3 million in local income
98 local jobs

Economic Productivity for Riverview6 Development – Annually Recurring

$1.9 million in local income
24 local jobs

[7] A complete copy of the NAHB report may be accessed here: https://www.novoco.com/sites/default/files/atoms/files/nahb_jobs-report_2010.pdf

Riverview6 further satisfies this criterion in that all of the units at the Subject Property will be rented to Income Eligible Households under the Low Income Housing Tax Credit Program, and rehabilitation and redevelopment of the Subject Property will "provide affordable housing as defined in s. 420.0004."[8] *Accordingly, the employment creation threshold of at least five new permanent jobs is not applicable to the Project. For all the reasons discussed herein, Riverview6 meets this second criterion.*

3. Consistency with Local Comprehensive Plan and Permittable Use under Local Land Development Regulations. As the third requirement for designation, Florida Statutes § 376.80(2)(c)(3) provides that "[t]he redevelopment of the proposed brownfield site is consistent with the local comprehensive plan and is a permittable use under the applicable local land development regulations."

Riverview6 satisfies this criterion in that the Subject Property is located within the T5 zoning district and has a Future Land Use designation of Urban Core. Both the T5 zoning district and the Urban Core future land use designation permit the Subject Property's redevelopment as described above at the planned density of 80 residential units.[9] *Accordingly, Riverview6 meets this third criterion.*

4. Public Notice and Comment. Florida Statutes § 376.80(2)(c)(4) stipulates that "[n]otice of the proposed rehabilitation of the brownfield area has been provided to neighbors and nearby residents of the proposed area to be designated, and the person proposing the area for designation has afforded to those receiving notice the opportunity for comments and suggestions about rehabilitation. Notice pursuant to this subsection must be posted in the affected area." Additional notice requirements pertaining to applicants other than a governmental entity can be found at Florida Statutes § 376.80(1)(c)(4)(b) and consist of publication in a newspaper of general circulation in the area, publication in ethnic newspapers or local community bulletins, and announcement at a scheduled meeting of the local governing body before the actual public hearing.

Provided the requested designation is made pursuant to Florida Statutes §376.80(2)(c) rather than §376.80(2)(b), Riverview6 will satisfy all applicable notice and opportunity to comment requirements established by Florida Statutes §376.80(2)(c)(4) and § 376.80(1)(c)(4)(b) as follows:

(i) notice will be posted at the Subject Property;
(ii) notice will be published in the Bradenton Herald;
(iii) notice will be published in the Bradenton community bulletin section of Craig's List; and
(iv) a virtual community meeting will be held, date to be announced, using a free video and teleconferencing platform.

All notices will contain substantially the following narrative:

> *Representatives for HTG Riverview 6, Ltd. will hold a community meeting, date and location to be announced, at 5:30 p.m. until not later than 7:00 p.m. for the purpose of affording interested parties the opportunity to provide comments and suggestions about the potential designation of land located at 813 6th Ave West, Bradenton, FL 34205, Folio Nos. 3269800003, 3269900001, 3270000007, 3270100005, 3270200003, 3270300001, 3270400009, 3270500006, and 3270600004, as a Green Reuse Area. The designation is being made pursuant to Section 376.80, Florida Statutes, of Florida's Brownfield Redevelopment Act, and will involve two public hearings before the Bradenton City Council, dates to be announced.*

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[8] See Attachment J for the Florida Housing Finance Corporation's Invitation to Credit Underwriting evidencing that the Project will create affordable housing.

[9] See Attachment K for a Zoning Verification Letter from the City of Bradenton confirming the zoning and future land use designations for the parcels constituting the Project and stating that, assuming compliance with applicable land use and zoning regulations, the proposed density and uses are consistent with the current zoning and land use regulations.

The community meeting, which will also address future development and rehabilitation activities planned for the site, is free and open to all members of the public. For additional information, to provide comments and suggestions regarding designation, development, or rehabilitation at any time before or after the meeting date, or to learn the dates of the two public hearings please contact the applicant's representatives, Michael R. Goldstein or Brett C. Brumund, who can be reached by phone at (305) 640-5300, by email at bbrumund@goldsteinenvlaw.com, and/or U.S. Mail at The Goldstein Environmental Law Firm, P.A., 2100 Ponce de Leon Blvd., Suite 710, Coral Gables, FL 33134.

Proof of publication or posting will be provided to the City.

5. Reasonable Financial Assurance. As the fifth requirement for designation, Florida Statutes § 376.80(2)(c)(5) provides that "[t]he person proposing the area for designation has provided reasonable assurance that he or she has sufficient financial resources to implement and complete the rehabilitation agreement and redevelopment plan."

The total capital budget of approximately $22.9 million for the Project is fully funded through a combination of equity and debt. Specifically, the Project will be funded by tax credit equity from Raymond James Tax Credit Funds, Inc. ("Raymond James") in the amount of $15.6 million, a $5.6 million permanent mortgage, a $460,000 loan from the City, a $600,000 grant from the Community Redevelopment Agency, and a $619,654 deferred developer fee.[10]

In addition, Riverview6's affiliate, Housing Trust Group, LLC ("HTG"), is a sophisticated, experienced, and credentialed developer of housing communities, with over 40 years of experience in Florida and throughout the United States, and an impressive portfolio of affordable housing developments, including in the City of Bradenton. HTG has a proven history of procuring funding through state and local housing finance authorities, as well as international financial institutions. Based on the current financial position of Riverview6, its affiliate, a proven history of leveraging assets with other capital sources, an impressive track record of success, and a staff of highly experienced and sophisticated development officials, Riverview6 has provided reasonable assurance that it has sufficient financial resources to implement and complete the rehabilitation agreement and redevelopment plan.[11] *Accordingly, Riverview6 therefore satisfies this fifth criterion*

II. Subject Property Meets the Definition of Brownfield Site

Section 376.79(4), Florida Statutes, defines "brownfield site" to mean ". . . real property, the expansion, redevelopment, or reuse of which may be complicated by actual or perceived environmental contamination." The facts here evidence that the Subject Property falls within the definition of the term "brownfield site" in that a perception of contamination exists due to an historical petroleum discharge from a former gas station that operated at the Subject Property and its subsequent use for automotive repair. This perception of contamination is furthered by historical petroleum discharges from a gas station and automotive repair facility on both the northern and southern adjoining properties. The historical use of the Subject Property and surrounding properties has complicated redevelopment and reuse of the Subject Property for Riverview6.

Specifically, from approximately 1948 to 1988, a gas station operated at the Subject Property. In 1992, underground storage tanks ("USTs") were removed from the from the former gas station and during the removal process, contamination from petroleum products was documented in both soil and groundwater. A total of 35 cubic yards of contaminated soil was removed from the Subject Property and disposed of offsite. After nearly 24 years of groundwater monitoring, the Florida Department of Environmental Protection issued a Site Rehabilitation Completion Order for the 1992 petroleum discharge. The subsequent use of a portion of the Subject Property for automotive repair also contributes to the perception of contamination by increasing

[10] See Sources and Uses Attachment L; see also Raymond James equity letter at Attachment M.

[11] See Attachment N for a resume of HTG's past and current projects.

the risk that improperly abandoned in-ground hydraulic lifts may be discovered as redevelopment progresses. Similarly, remnant offsite groundwater contamination related to a petroleum discharge from an UST on the northern adjoining property, reported in 1992, and a petroleum discharge from a suspected oil/water separator on the southern adjoining property, reported in 2004, may still exist. Recent site assessment activities conducted on the northern adjoining property identified a groundwater cleanup target level exceedance for a single contaminant while contaminated groundwater remains on the southern adjoining property subject to groundwater use restrictions memorialized in a Declaration of Restrictive Covenant.

The historical presence of actual contamination at the Subject Property, the continued presence of actual contamination at surrounding properties, and several land uses commonly perceived as sources of contamination both on and adjacent to the Subject Property complicates redevelopment for Riverview6 by raising the possibility that undiscovered contamination exists but which would not be discovered until redevelopment commences. This has complicated redevelopment efforts by potentially imposing design and construction changes on the Project that would not be required but for the presence of a contaminated site near the Subject Property. Due to these complicating factors, Riverview6's exposure to environmental and regulatory liability with respect to the Project is increased, making it materially more expensive and time consuming to move forward. The historical presence of contamination on the Subject Property and in proximity has already required that Riverview6 engage environmental professionals to assess and evaluate the environmental risk. If contamination is found to have migrated onto the Subject Property from offsite, the continued investigation and remediation of contamination itself adds one last major level of complexity as it will require close and constant oversight by the Florida Department of Environmental Protection. The regulatory process associated with remediation can be lengthy, complicated, uncertain, and without guaranteed end points. Accordingly, Riverview6 has no assurance that as it moves forward with the Project the total cost of cleanup, if contamination is discovered, will not in fact ultimately exceed what is currently projected. Such uncertainty constitutes an *acute* form of redevelopment complexity that goes to the heart of the Florida Brownfields Program and underscores why incentives are so important for sites and projects exactly like this one. Assessment, remediation, and closure can be an expensive and lengthy process that would require Riverview6 to carefully manage the contamination during redevelopment, imposing great legal and financial risk.

Accordingly, this designation, if granted, will allow for Riverview6 to access limited but important state-based economic incentives to help underwrite the unanticipated and unbudgeted costs associated with managing the environmental risk as well as, generally, to put the Project on a more certain financial ground. In this sense, the designation will not only play a critical role in the successful redevelopment of the Subject Property, but also in the larger revitalization efforts for this area of the City of Bradenton.

Based on all the foregoing, the Subject Property clearly falls within the definition of "brownfield site" as set forth in § 376.79(4), Florida Statutes.

III. Conclusion

Riverview6 has demonstrated that the Subject Property meets the definition of a "brownfield site" and that it satisfies the five statutory criteria for designation. Accordingly, designation of the Subject Property as a Green Reuse Area pursuant to § 376.80(2)(c), Florida Statutes, of Florida's Brownfield Redevelopment Act is appropriate.

THE GOLDSTEIN ENVIRONMENTAL LAW FIRM, P.A.

Brownfields, Transactions, Due Diligence, Development, Permitting, Cleanups & Compliance

2100 Ponce de Leon Boulevard, Suite 710
Coral Gables, Florida 33134
Telephone: (305) 777-1680
www.goldsteinenvlaw.com

Brett C. Brumund, Esq.
Direct Dial: (305) 640-5300
Email: bbrumund@goldsteinenvlaw.com

MEMORANDUM

On behalf of HTG Riverview6, Ltd. ("HTG"), The Goldstein Environmental Law Firm, P.A. conducted a community meeting on December 14, 2022, at 5:30 p.m. for the potential designation of the property located at 813 6th Ave. W, Bradenton, FL 34205 (the "Subject Property") as a Brownfield Area pursuant to Section 376.80(2)(c), Florida Statues.[1] Brett C. Brumund, Esq., was present to host and moderate the community meeting.

HTG held the meeting at the Addison Apartments, located at 702 6th Ave. E, Bradenton, FL 34208, for the purpose of affording interested parties the opportunity to provide comments and suggestions regarding the designation and HTG's proposed redevelopment. In accordance with Section 376.80(1)(c)(4)(b), Florida Statutes, the meeting was advertised through: a sign posted at the Subject Property on December 6, 2022; notice published in the *Bradenton Herald* newspaper on December 7, 2022; and notice published in community bulletin section of Craigslist on December 7, 2022.[2] All posted and published notices included a description of the meeting purpose, the meeting date and location, contact information for additional questions, and notice that two public hearings will be held before the Bradenton City Council, dates to be announced.

Mr. Brumund opened the meeting at 5:30 p.m. with City of Bradenton representatives, Greg DeLong, Jamie Schindewolf, and Chris Munyon present. No community members requested meeting information by phone or email prior to or during the meeting and no community members attended the meeting. Mr. Brumund closed the meeting at approximately 6:45 p.m. after receiving no attendees or meeting inquiries. Additional opportunities for the public to comment on and ask questions about the proposed designation will be available at the two public hearings to be held before the Bradenton City Council.

/bcb

[1] The community meeting agenda is enclosed at Exhibit A.

[2] Proof of meeting notice posting and publication is enclosed at Exhibit B.

Exhibit A

THE GOLDSTEIN ENVIRONMENTAL LAW FIRM, P.A.
Brownfields, Transactions, Due Diligence, Development, Permitting, Cleanups & Compliance

December 14, 2022, at 5:30 p.m.

Community Meeting Agenda
HTG Riverview6, Ltd

Meeting Location: The Addison Apartments, 702 6th Ave. East, Bradenton, FL 34208
Property Location: 813 6th Ave. West, Bradenton, FL 34205
Folio Numbers: 3269800003, 3269900001, 3270000007, 3270100005, 3270200003, 3270300001, 3270400009, 3270500006, and 3270600004

I. **Introduction**

II. **Overview of Project Environmental Matters and Redevelopment Plans**

III. **Florida's Brownfields Redevelopment Program**

IV. **Designation Process**

V. **Questions**

Exhibit B

Bonds, Clemens Hall of Fame bids now on even shakier ground



AP file photo

San Francisco's Barry Bonds hits a single against the Chicago Cubs during a game in 2007 in Chicago. Bonds, Roger Clemens and Curt Schilling were passed over by a Baseball Hall of Fame committee.

BY JAY COHEN
Associated Press

SAN DIEGO

Barry Bonds and Roger Clemens were rejected by baseball writers in their bids for the Baseball Hall of Fame 10 times. On Sunday, the duo chased by steroid suspicions got another rebuke from a panel that included many of their peers.

The door hasn't formally shut on their Cooperstown chances. But the latest letdown means the pair — with eight MVPs and seven Cy Young Awards between them — may never be celebrated with the sport's greatest individual honor.

Fred McGriff was the only player elected Sunday to the Hall of Fame by a 16-member contemporary era committee, one of several groups credentialed to seal a player's enshrinement. McGriff was chosen unanimously, while neither Bonds or Clemens received more than three votes.

When it comes to the Baseball Hall of Fame, there are several potential avenues to induction, but it can be a very bumpy road for all but the most straightforward cases.

HOW CAN PLAYERS BE ELECTED TO THE BASEBALL HALL OF FAME?

Players are first considered by the Baseball Writers' Association of America no sooner than five calendar years after their big league career ends. A BBWAA screening committee creates the annual ballot, and members who have been active baseball writers for at least 10 years are eligible to vote.

Players on Major League Baseball's ineligible list cannot appear on BBWAA ballots, the mechanism by which Pete Rose has been excluded from consideration. Voters are instructed to base their decisions on "the player's record, playing ability, integrity, sportsmanship, character, and contributions to the team(s) on which the player played."

The result of this year's writers' vote — which requires 75% for induction — will be announced Jan. 24.

Players are removed from the BBWAA ballot if they receive less than 5% of the vote. They also are taken off after 10 appearances. Bonds (66%), Clemens (65%) and Curt Schilling (58.6%) fell well short in their final chances on the BBWAA ballot last January.

Once a player is no longer being considered by the BBWAA, his case shifts to the Hall's committee system — divided into the contemporary and classic eras. The contemporary era committee considers candidates whose careers were primarily from 1980 on. The classic panel examines players who had their most significant impact on the game prior to 1980.

The committees rotate yearly. The contemporary committee approved McGriff on Sunday at baseball's winter meetings in San Diego. Another contemporary committee meets next year to consider managers, executives and umpires. The classic committee votes in December 2024.

The ballot for each panel consists of eight candidates selected by a BBWAA-appointed historical overview committee. There is no limit when it comes to how often a candidate can appear on an era ballot.

Rose also is ineligible for era ballots because of his inclusion on MLB's ineligible list.

The 16 members of each era committee — comprised of Hall of Famers, executives and writers — are appointed by the Hall's Board of Directors. Voters can select as many as three candidates, and the support of 75% of ballots cast are required for induction.

WHAT NOW FOR BONDS, CLEMENS AND SCHILLING?

The next time Bonds, Clemens and Schilling could be considered would be by a contemporary committee for the 2026 Hall of Fame class.

Bonds and Clemens look like no-doubt Hall members on the backs of their baseball cards, and Schilling has a strong case, as well.

A seven-time NL MVP, Bonds set the career home run record with 762 and the season record with 73 in 2001. A seven-time Cy Young Award winner, Clemens went 354-184 with a 3.12 ERA and 4,672 strikeouts. Schilling went 216-146 with a 3.46 ERA in 20 seasons, winning the World Series with Arizona in 2001 and Boston in 2004 and 2007.

But Bonds and Clemens have been accused of using performance-enhancing drugs, and support for Schilling dropped after he made hateful remarks toward Muslims, transgender people, reporters and others. Bonds has denied knowingly using performance-enhancing drugs, and Clemens maintains he never used PEDs.

Schilling got seven votes Sunday, and it's possible a future committee may swing in his favor. For Bonds and Clemens, that now seems unlikely.

There was a thought that maybe Bonds and Clemens would get more sympathy from their peers than writers for their suspected steroid use during an era tarnished by the stain of PEDs. That clearly wasn't the case.

This year's contemporary committee included Hall of Famers Greg Maddux, Jack Morris, Ryne Sandberg, Lee Smith, Frank Thomas and Alan Trammell, plus executives Paul Beeston, Arte Moreno, Kim Ng, Theo Epstein, Dave St. Peter, Derrick Hall and Ken Williams; and media members Steve Hirdt, LaVelle Neal and Susan Slusser. Chipper Jones was supposed to be on the committee but missed Sunday's vote due to COVID-19. He was replaced by Hall.

The Hall of Fame did not reveal all down-ballot totals, saying only that Bonds and Clemens received fewer than four votes — a strong indication that unless new evidence exonerates them from PED charges, they might never get their day in Cooperstown.

MAJOR LEAGUE BASEBALL

Mets: Justin Verlander agreed to an $86.7 million, two-year contract with the New York Mets on Monday, reuniting the AL Cy Young Award winner with Max Scherzer and giving the team a high-profile replacement for Jacob deGrom. The contract is worth $43,333,333 per season and includes a vesting player option for 2025 at $35 million, according to a person familiar with the negotiations who spoke on condition of anonymity because there was no immediate announcement.

Angels: Pitcher Carlos Estévez has agreed to a two-year, $13.5 million contract with the Los Angeles Angels. The 29-year old right-hander appeared in 62 games for Colorado last season with a 4-4 record, 3.47 ERA and 54 strikeouts.

Orioles: Right-hander Kyle Gibson and the Baltimore Orioles finalized a $10 million, one-year contract on Monday. The 35-year-old would receive a $150,000 assignment bonus if traded, payable by the receiving team. He also can earn a $25,000 bonus if he is elected or selected for the All-Star team. Gibson was an All-Star in 2021.

Yankees: Brian Cashman has signed a four-year contract to remain the New York Yankees Senior Vice President and General Manager. Cashman, New York's GM since 1998, had been working on a handshake agreement since early November, when his five-year contract expired.

Cardinals: Cardinals television announcer Dan McLaughlin was charged Monday as a persistent offender of driving while intoxicated, a day after he was arrested in suburban St. Louis. Bond was set at $25,000, the Creve Coeur Police Department said.

Fishel Award: Philadelphia Phillies executive Kevin Gregg has won the Robert O. Fishel Award for Public Relations Excellence. Gregg, son of late National League umpire Eric Gregg, is the vice president of baseball communications for the Phillies. Gregg has worked full-time in MLB for 16 seasons.

— ASSOCIATED PRESS



NATHAN RAY SEEBECK USA TODAY Sports

MLB American League MVP Aaron Judge looks on before a Monday Night NFL game between the New Orleans Saints and Tampa Bay Buccaneers at Raymond James Stadium in Tampa, Fla.

FROM PAGE 1B

BASEBALL

said he spoke with one of Judge's agents on Monday.

"We are in active conversations," Cashman said. "Certainly we'd love to land the plane favorably here in New York in the Bronx. But we're not flying the plane. And so we'll wait, we'll wait for this process to play out."

Judge, a Northern California native, also visited with the San Francisco Giants last month, and there likely are more teams monitoring the market for the 6-foot-7 outfielder who turns 31 in April.

"I feel good about what we've done but some of it is out of our control. I think we've put ourselves in position," said Farhan Zaidi, the president of baseball operations for the Giants.

Judge was drafted by New York in 2013 and spent his first seven big league seasons with the Yankees. But Cashman said he hasn't received any indication from Judge's camp that the team will have any last chance to match any offers to the slugger.

"I'm not putting a timeframe on him as of today, basically, and we've not put any timeframe on him that way because out of respect for the position he's earned himself in free agency," Cashman said. "And now you've seen in the last 48 hours, people are starting to make decisions. So it's not like we've missed time, in my opinion.

"But I understand that the longer things go, the more at risk you are."

Verlander made his decision Monday, agreeing to a contract with the Mets that is worth $43,333,333 per year and includes a vesting player option for 2025 at $35 million, according to a person familiar with the negotiations who spoke to The Associated Press on condition of anonymity because there was no immediate announcement.

Verlander departs Houston to step in for Jacob deGrom, who left New York after nine seasons when he agreed to a $185 million, five-year contract with Texas last week. It also puts Verlander on the same team as Max Scherzer after they played together with the Detroit Tigers from 2010-14.

Mets general manager Billy Eppler declined to confirm the Verlander move, but he said the team was working on its pitching plans.

"If we are able to add an impact pitcher or a couple of impact pitchers, that would be helpful," he said. "We continue to try to stay mindful of is creating that run differential. That can be done by scoring a lot more runs. However that manifests itself we will have to be open-minded to."

Turner's deal includes a no-trade clause, according to another person familiar with the negotiations who spoke to the AP on condition of anonymity because there was no immediate announcement.

Turner joins a Philadelphia team that made it to the World Series this year before losing to Verlander and the Astros. He also reunites with slugger Bryce Harper after the two played together with the Washington Nationals from 2015-18.

Phillies President Dave Dombrowski declined to confirm the move, but acknowledged the importance of adding a shortstop.

"Not that we're not already focused on starting pitching and bullpen, too," he said. "But at least that would complete our major situation from a positional player perspective."

Turner rejected a $19.65 million qualifying offer from the Dodgers in November, joining a stellar group of free agent shortstops that also included Carlos Correa, Xander Bogaerts and Dansby Swanson.

With Turner gone, there could be a run on shortstops for the rest of the winter meetings, especially with restrictions on defensive positioning coming to the game next year. Rodón, who had a 2.88 ERA in 31 starts with the Giants last season, also is attracting more attention with Verlander and deGrom off the market.

"I think that sometimes having some big deals happen, I think can kind break the ice and allow some deals," said Jed Hoyer, the president of baseball operations for the Chicago Cubs. "It's clear now that that's going to happen."

Notice of Community Meeting and Public Hearings for Proposed Green Reuse Area Designation Pursuant to Florida's Brownfields Redevelopment Act

A Community Meeting and Public Hearing shall be conducted on December 14, 2022, from 5:30 p.m. to 7:00 p.m., for the purpose of affording interested parties the opportunity to provide comments and suggestions about the potential designation of property located at 813 6th Avenue W, Bradenton, FL 34205, Folio Nos. 3269800003, 3269900001, 3270000007, 3270100005,3270200003,3270300001,3270400009, 3270500006, and 3270600004, as a Brownfield Area pursuant to Section 376.80(2)(c), Florida Statutes. This Community Meeting and Public Hearing, to be held at the Addison Apartments, located at 702 6th Avenue E, Bradenton, Manatee County, FL 34208, will also address future development and rehabilitation activities planned for the site by the designation applicant, HTG Riverview6, Ltd.

Two additional public hearings, dates to be announced, will be held at the Bradenton City Hall, Bradenton City Council Chambers, located at 101 Old Main Street, Bradenton, FL 34205. For more information regarding the community meeting and/or the public hearings, including dates for the public hearings, or to provide comments and suggestions regarding designation, development, or rehabilitation at any time before or after the community meeting and/or public hearings, please contact the applicant's representative, Brett C. Brumund, who can be reached by telephone at (305) 640-5300, U.S. Mail at The Goldstein Environmental Law Firm, P.A., 2100 Ponce de Leon Boulevard, Suite 710, Coral Gables, FL 33134, and/or email at bbrumund@goldsteinenvlaw.com.

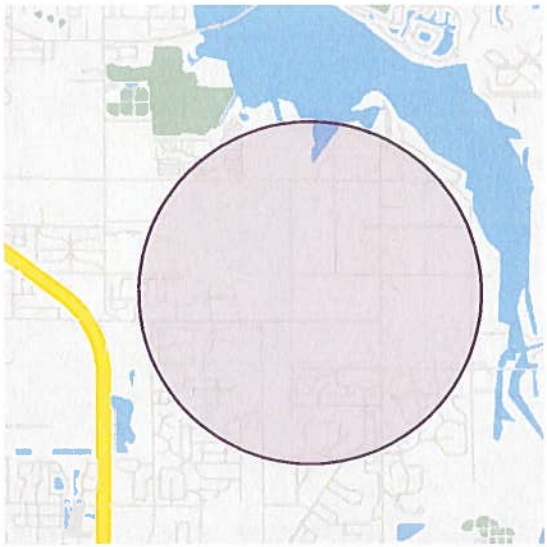
Posted less than a minute ago on: 2022-12-07 14:41

Contact Information:

Notice of Community Meeting and Public Hearings for Proposed Green Reu

(Bradenton)

813 near 6th Avenue W



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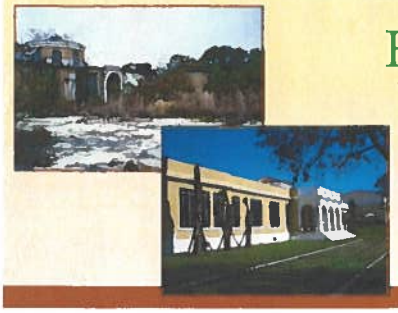
Posted Notice





FLORIDA BROWNFIELDS REDEVELOPMENT PROGRAM

TRANSFORMING COMMUNITIES

Brownfield site means real property, the expansion, redevelopment or reuse of which may be complicated by actual or perceived environmental contamination. 376.79(4), F.S.

Brownfield area means a contiguous area of one or more brownfield sites, some of which may not be contaminated, and which has been designated by a local government by resolution. Such areas may include all or portions of community redevelopment areas, enterprise zones, empowerment zones, other such designated economically deprived communities and areas, and Environmental Protection Agency-designated brownfield pilot projects. 376.79(5), F.S.

Brownfields Program Process

BROWNFIELD AREA DESIGNATION
By Local Government

↓

IDENTIFICATION OF RESPONSIBLE PERSON

↓

EXECUTION OF CLEANUP AGREEMENT

↓

IMPLEMENTATION OF CONTAMINATED SITE CLEANUP

↓

"NFA" LETTER FROM DEP

BROWNFIELD PROGRAM TERMS

Responsible Person—Person Responsible for Brownfield Site Rehabilitation or PRFBSR

Agreement—Brownfield Site Rehabilitation Agreement or BSRA

NFA—No Further Action (i.e., Site Rehabilitation Completion Order or SRCO)

BROWNFIELDS PROGRAM BENEFITS

Brownfield Area Designation

- Bonus refund for job creation—up to $2,500 per job
- Sales tax credit on building materials
- Brownfield area benefits administered by Enterprise Florida, Inc.

Brownfield Site Rehabilitation Agreement

- All benefits of Brownfield Area
- Regulatory framework for cleanup (Chapter 62-785, F.A.C.)
- Dedicated staff—expedited technical review
- Liability protection
- Tax credits
  - Florida corporate income tax
  - Credits may be transferred one time
- Brownfield Site Rehabilitation Agreement benefits administered by DEP

Summary of Available Tax Credits

Tax Credit Type	Application Frequency	Maximum Credit for Costs Incurred after 6/30/06	
Site Rehabilitation	Annually	50%	$500,000
No Further Action (i.e. SRCO)	Once	25%	$500,000
Affordable Housing, health care facility or health care provider	Once	25%	$500,000
Solid Waste (Removal, Transport, and Disposal)	Once	50%	$500,000



Community Meeting for Riverview6 Green Reuse Area Designation

December 14, 2022

GOLDSTEIN

1

AGENDA

I. Introductions

II. Overview of Project Environmental Matters
   a) Historical Use
   b) Perceived Contamination
   c) Property Reuse Plans

III. Brownfield Area Designation Process

IV. Closing and Open Discussion/Questions

2

INTRODUCTION - PROPERTY LOCATION

813 6th Ave. West, Bradenton, FL 34205



Folio Numbers:
3269800003, 3269900001, 3270000007, 3270100005, 3270200003, 3270300001, 3270400009, 3270500006, and 3270600004

3

INTRODUCTION – KEY DEFINITIONS

- "Brownfield sites" - real property, the expansion, redevelopment, or *reuse of which may be complicated by actual or perceived environmental contamination*. § 376.79(4), Florida Statutes ("F.S.")
- "Brownfield area" means a contiguous area of one or more brownfield sites, some of which may not be contaminated, and which has been designated by a local government by resolution. Such areas may include all or portions of community redevelopment areas, enterprise zones, empowerment zones, other such designated economically deprived communities and areas, and Environmental Protection Agency-designated brownfield pilot projects. § 376.79(5), F.S.

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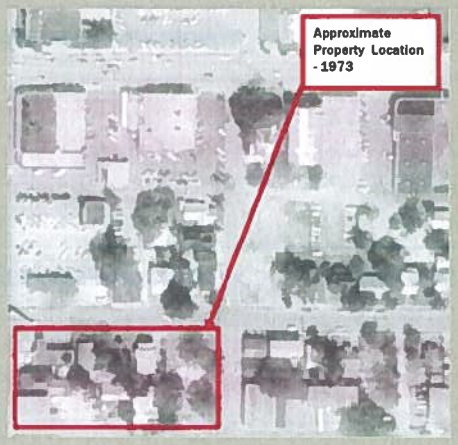
OVERVIEW OF PROJECT ENVIRONMENTAL MATTERS – HISTORICAL USE

- Historical auto repair and gas station uses from at least 1945 to present that has complicated redevelopment.
- Historical Recognized Environmental Conditions ("HRECs")
  - Petroleum product discharge in reported in 1992
  - 35 cubic yards of contaminated soil removed
  - Groundwater contamination monitored until site closure in 2016.
- HREC remains a concern leading up to redevelopment



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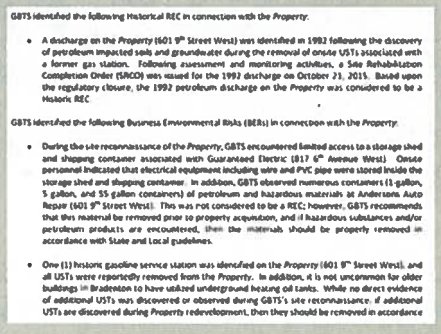
OVERVIEW OF PROJECT ENVIRONMENTAL MATTERS – CURRENT CONDITIONS

- Business Environmental Risks ("BERs")
  - Containers with petroleum products and hazardous materials
  - Potential presence of petroleum product Underground Storage Tanks ("USTs") and heating oil USTs
  - Potential presence of septic tanks
  - Several abandoned in-ground hydraulic lifts
- BERs continue to remain relevant regarding future redevelopment
- A combination of historical and current uses have complicated redevelopment by creating the risk that environmental contamination may exist.



GBTS identified the following Historical REC in connection with the *Property*:

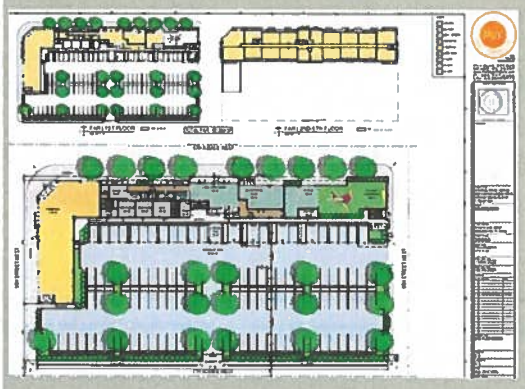
- A discharge on the *Property* (601 9th Street West) was identified in 1992 following the discovery of petroleum impacted soils and groundwater during the removal of onsite USTs associated with a former gas station. Following assessment and monitoring activities, a Site Rehabilitation Completion Order (SRCO) was issued for the 1992 discharge on October 21, 2015. Based upon the regulatory closure, the 1992 petroleum discharge on the *Property* was considered to be a Historic REC

GBTS identified the following Business Environmental Risks (BERs) in connection with the *Property*:

- During the site reconnaissance of the *Property*, GBTS encountered limited access to a storage shed and shipping container associated with Guaranteed Electric (817 6th Avenue West). Onsite personnel indicated that electrical equipment including wire and PVC pipe were stored inside the storage shed and shipping container. In addition, GBTS observed numerous containers (1-gallon, 5 gallon, and 55 gallon containers) of petroleum and hazardous materials at Andersons Auto Repair (601 9th Street West). This was not considered to be a REC; however, GBTS recommends that this material be removed prior to property acquisition, and if hazardous substances and/or petroleum products are encountered, then the materials should be properly removed in accordance with State and Local guidelines.
- One (1) historic gasoline service station was identified on the *Property* (601 9th Street West), and all USTs were reportedly removed from the *Property*. In addition, it is not uncommon for older buildings in Bradenton to have utilized underground heating oil tanks. While no direct evidence of additional USTs was discovered or observed during GBTS's site reconnaissance, if additional USTs are discovered during *Property* redevelopment, then they should be removed in accordance

6

PROPERTY REUSE PLANS



- 80-unit affordable housing development serving working families earning between 30% and 70% Area Median Income
- Single, 5-story building
- Community Amenities:
  - Clubroom
  - Fitness center
  - Rooftop deck
  - 24-hour security
  - Activity room
- Timeline:
  - Construction start – Early 2023
  - Completion – Early 2024

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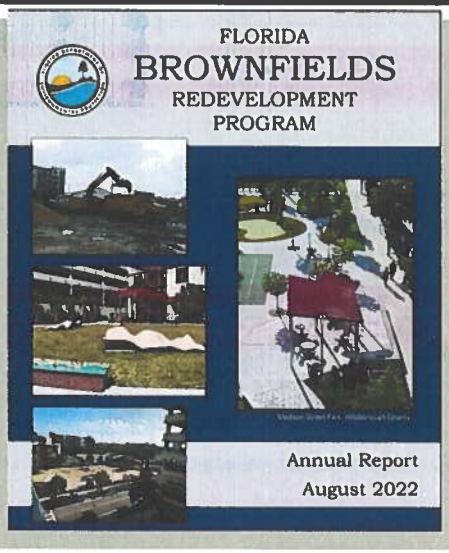
FLORIDA'S BROWNFIELDS REDEVELOPMENT PROGRAM



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FLORIDA BROWNFIELD PROGRAM
- METRICS -

- 550 Designated Brownfield Areas (06/30/22)
  - Total: 292,099.10 acres
  - Largest: 14,190.37 acres (Hamilton County EZ Area)
  - Smallest 0.26 acres (Land South, North Miami, FL)
- $3.463 Billion in Projected Capital Investment (06/30/22)
- 89,567 Confirmed and Projected New Direct/Indirect Jobs (06/30/22)

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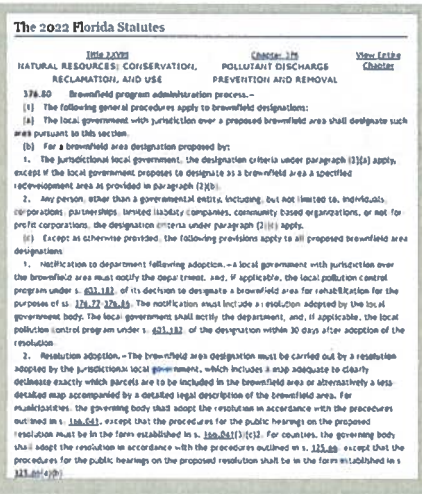
BROWNFIELD AREA DESIGNATION PROCESS

- Brownfield Area designations are governed by the provisions of § 376.80, Florida Statutes ("F.S.") of Florida's Brownfields Redevelopment Act
- For a designation proposed by a private party, § 376.80(2)(C), F.S., applies
- Process:
  - Provide notice
  - Hold community meeting
  - Conduct two public hearings
  - Adopt a resolution following consideration of five criteria



The 2022 Florida Statutes

Title XXVIII NATURAL RESOURCES; CONSERVATION, RECLAMATION, AND USE | Chapter 376 POLLUTANT DISCHARGE PREVENTION AND REMOVAL | View Entire Chapter

376.80 Brownfield program administration process.—

(1) The following general procedures apply to brownfield designations:

(a) The local government with jurisdiction over a proposed brownfield area shall designate such area pursuant to this section.

(b) For a brownfield area designation proposed by:

1. The jurisdictional local government, the designation criteria under paragraph (2)(a) apply, except if the local government proposes to designate as a brownfield area a specified redevelopment area as provided in paragraph (2)(b).

2. Any person, other than a governmental entity, including, but not limited to, individuals, corporations, partnerships, limited liability companies, community based organizations, or not for profit corporations, the designation criteria under paragraph (2)(c) apply.

(c) Except as otherwise provided, the following provisions apply to all proposed brownfield area designations.

1. Notification to department following adoption.—A local government with jurisdiction over the brownfield area must notify the department, and, if applicable, the local pollution control program under s. 403.182, of its decision to designate a brownfield area for rehabilitation for the purposes of ss. 376.77-376.86. The notification must include a resolution adopted by the local governmental body. The local government shall notify the department, and, if applicable, the local pollution control program under s. 403.182, of the designation within 30 days after adoption of the resolution.

2. Resolution adoption.—The brownfield area designation must be carried out by a resolution adopted by the jurisdictional local government, which includes a map adequate to clearly delineate exactly which parcels are to be included in the brownfield area or alternatively a less detailed map accompanied by a detailed legal description of the brownfield area. For municipalities, the governing body shall adopt the resolution in accordance with the procedures outlined in s. 166.041, except that the procedures for the public hearings on the proposed resolution must be in the form established in s. 166.041(3)(c)2. For counties, the governing body shall adopt the resolution in accordance with the procedures outlined in s. 125.66, except that the procedures for the public hearings on the proposed resolution shall be in the form established in s. 125.66(4)(b).

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GREEN REUSE AREA DESIGNATION PROCESS

- **Five Criteria for Designation:**

1. requested by person who owns or controls the brownfield site and who has agreed to redevelop and rehabilitate it;
2. the rehabilitation and redevelopment will result in economic productivity and will create at least 5 jobs;
3. the redevelopment is consistent with the local comprehensive plan and is permittable under local land development regulations;
4. notice has been provided to neighbors and nearby residents and the applicant has afforded those receiving notice an opportunity for comments and suggestions about rehabilitation; and
5. the applicant has provided reasonable assurance that they have sufficient financial resources to complete rehabilitation and redevelopment.

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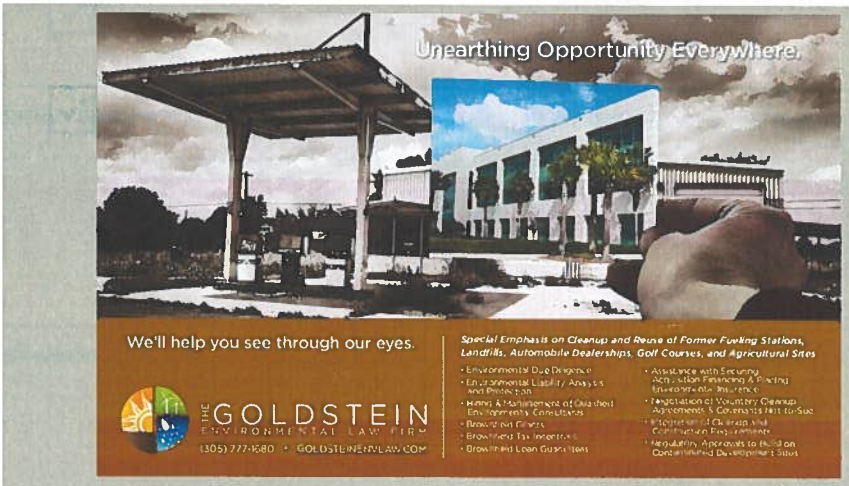
QUESTIONS/ANSWERS



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Select Year: 2022 Go

The 2022 Florida Statutes

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2. Resolution adoption.—The brownfield area designation must be carried out by a resolution adopted by the jurisdictional local government, which includes a map adequate to clearly delineate exactly which parcels are to be included in the brownfield area or alternatively a less-detailed map accompanied by a detailed legal description of the brownfield area. For municipalities, the governing body shall adopt the resolution in accordance with the procedures outlined in s. 166.041, except that the procedures for the public hearings on the proposed resolution must be in the form established in s. 166.041(3)(c)2. For counties, the governing body shall adopt the resolution in accordance with the procedures outlined in s. 125.66, except that the procedures for the public hearings on the proposed resolution shall be in the form established in s. 125.66(4)(b).

3. Right to be removed from proposed brownfield area.—If a property owner within the area proposed for designation by the local government requests in writing to have his or her property removed from the proposed designation, the local government shall grant the request.

4. Notice and public hearing requirements for designation of a proposed brownfield area outside a redevelopment area or by a nongovernmental entity. Compliance with the following provisions is required before designation of a proposed brownfield area under paragraph (2)(a) or paragraph (2)(c):

a. At least one of the required public hearings shall be conducted as closely as is reasonably practicable to the area to be designated to provide an opportunity for public input on the size of the area, the objectives for rehabilitation, job opportunities and economic developments anticipated, neighborhood residents' considerations, and other relevant local concerns.

b. Notice of a public hearing must be made in a newspaper of general circulation in the area, must be made in ethnic newspapers or local community bulletins, must be posted in the affected area, and must be announced at a scheduled meeting of the local governing body before the actual public hearing.

(2)(a) *Local government-proposed brownfield area designation outside specified redevelopment areas.*—If a local government proposes to designate a brownfield area that is outside a community redevelopment area, enterprise zone, empowerment zone, closed military base, or designated brownfield pilot project area, the local government shall provide notice, adopt the resolution, and conduct public hearings pursuant to paragraph (1)(c). At a public hearing to designate the proposed brownfield area, the local government must consider:

1. Whether the brownfield area warrants economic development and has a reasonable potential for such activities;

2. Whether the proposed area to be designated represents a reasonably focused approach and is not overly large in geographic coverage;

3. Whether the area has potential to interest the private sector in participating in rehabilitation; and

4. Whether the area contains sites or parts of sites suitable for limited recreational open space, cultural, or historical preservation purposes.

(b) *Local government-proposed brownfield area designation within specified redevelopment areas.*—Paragraph (a) does not apply to a proposed brownfield area if the local government proposes to designate the brownfield area inside a community redevelopment area, enterprise zone, empowerment zone, closed military base, or designated brownfield pilot project area and the local government complies with paragraph (1)(c).

(c) *Brownfield area designation proposed by persons other than a governmental entity.*—For designation of a brownfield area that is proposed by a person other than the local government, the local government with jurisdiction over the proposed brownfield area shall provide notice and adopt a resolution to designate the brownfield area pursuant to paragraph (1)(c) if, at the public hearing to adopt the resolution, the person establishes all of the following:

1. A person who owns or controls a potential brownfield site is requesting the designation and has agreed to rehabilitate and redevelop the brownfield site.

2. The rehabilitation and redevelopment of the proposed brownfield site will result in economic productivity of the area, along with the creation of at least 5 new permanent jobs at the brownfield site that are full-time equivalent positions not associated with the implementation of the brownfield site rehabilitation agreement and that are not associated with redevelopment project demolition or construction activities pursuant to the redevelopment of the proposed brownfield site or area. However, the job creation requirement does not apply to the rehabilitation and redevelopment of a brownfield site that will provide affordable housing as defined in s. 420.0004 or the creation of recreational areas, conservation areas, or parks.

3. The redevelopment of the proposed brownfield site is consistent with the local comprehensive plan and is a permittable use under the applicable local land development regulations.

4. Notice of the proposed rehabilitation of the brownfield area has been provided to neighbors and nearby residents of the proposed area to be designated pursuant to paragraph (1)(c), and the person proposing the area for designation has afforded to those receiving notice the opportunity for comments and suggestions about rehabilitation. Notice pursuant to this subparagraph must be posted in the affected area.

5. The person proposing the area for designation has provided reasonable assurance that he or she has sufficient financial resources to implement and complete the rehabilitation agreement and redevelopment of the brownfield site.

(d) *Negotiation of brownfield site rehabilitation agreement.*—The designation of a brownfield area and the identification of a person responsible for brownfield site rehabilitation simply entitles the identified person to negotiate a brownfield site rehabilitation agreement with the department or approved local pollution control program.

(3) When there is a person responsible for brownfield site rehabilitation, the local government must notify the department of the identity of that person. If the agency or person who will be responsible for the coordination

changes during the approval process specified in subsections (4), (5), and (6), the department or the affected approved local pollution control program must notify the affected local government when the change occurs.

(4) Local governments or persons responsible for rehabilitation and redevelopment of brownfield areas must establish an advisory committee or use an existing advisory committee that has formally expressed its intent to address redevelopment of the specific brownfield area for the purpose of improving public participation and receiving public comments on rehabilitation and redevelopment of the brownfield area, future land use, local employment opportunities, community safety, and environmental justice. Such advisory committee should include residents within or adjacent to the brownfield area, businesses operating within the brownfield area, and others deemed appropriate. The person responsible for brownfield site rehabilitation must notify the advisory committee of the intent to rehabilitate and redevelop the site before executing the brownfield site rehabilitation agreement, and provide the committee with a copy of the draft plan for site rehabilitation which addresses elements required by subsection (5). This includes disclosing potential reuse of the property as well as site rehabilitation activities, if any, to be performed. The advisory committee shall review any proposed redevelopment agreements prepared pursuant to paragraph (5)(i) and provide comments, if appropriate, to the board of the local government with jurisdiction over the brownfield area. The advisory committee must receive a copy of the executed brownfield site rehabilitation agreement. When the person responsible for brownfield site rehabilitation submits a site assessment report or the technical document containing the proposed course of action following site assessment to the department or the local pollution control program for review, the person responsible for brownfield site rehabilitation must hold a meeting or attend a regularly scheduled meeting to inform the advisory committee of the findings and recommendations in the site assessment report or the technical document containing the proposed course of action following site assessment.

(5) The person responsible for brownfield site rehabilitation must enter into a brownfield site rehabilitation agreement with the department or an approved local pollution control program if actual contamination exists at the brownfield site. The brownfield site rehabilitation agreement must include:

(a) A brownfield site rehabilitation schedule, including milestones for completion of site rehabilitation tasks and submittal of technical reports and rehabilitation plans as agreed upon by the parties to the agreement.

(b) A commitment to conduct site rehabilitation activities under the observation of professional engineers or geologists who are registered in accordance with the requirements of chapter 471 or chapter 492, respectively. Submittals provided by the person responsible for brownfield site rehabilitation must be signed and sealed by a professional engineer registered under chapter 471, or a professional geologist registered under chapter 492, certifying that the submittal and associated work comply with the law and rules of the department and those governing the profession. In addition, upon completion of the approved remedial action, the department shall require a professional engineer registered under chapter 471 or a professional geologist registered under chapter 492 to certify that the corrective action was, to the best of his or her knowledge, completed in substantial conformance with the plans and specifications approved by the department.

(c) A commitment to conduct site rehabilitation in accordance with department quality assurance rules.

(d) A commitment to conduct site rehabilitation consistent with state, federal, and local laws and consistent with the brownfield site contamination cleanup criteria in s. 376.81, including any applicable requirements for risk-based corrective action.

(e) Timeframes for the department's review of technical reports and plans submitted in accordance with the agreement. The department shall make every effort to adhere to established agency goals for reasonable timeframes for review of such documents.

(f) A commitment to secure site access for the department or approved local pollution control program to all brownfield sites within the eligible brownfield area for activities associated with site rehabilitation.

(g) Other provisions that the person responsible for brownfield site rehabilitation and the department agree upon, that are consistent with ss. 376.77-376.86, and that will improve or enhance the brownfield site rehabilitation process.

(h) A commitment to consider appropriate pollution prevention measures and to implement those that the person responsible for brownfield site rehabilitation determines are reasonable and cost-effective, taking into

account the ultimate use or uses of the brownfield site. Such measures may include improved inventory or production controls and procedures for preventing loss, spills, and leaks of hazardous waste and materials, and include goals for the reduction of releases of toxic materials.

(i) Certification that the person responsible for brownfield site rehabilitation has consulted with the local government with jurisdiction over the brownfield area about the proposed redevelopment of the brownfield site, that the local government is in agreement with or approves the proposed redevelopment, and that the proposed redevelopment complies with applicable laws and requirements for such redevelopment. Certification shall be accomplished by referencing or providing a legally recorded or officially approved land use or site plan, a development order or approval, a building permit, or a similar official document issued by the local government that reflects the local government's approval of proposed redevelopment of the brownfield site; providing a copy of the local government resolution designating the brownfield area that contains the proposed redevelopment of the brownfield site; or providing a letter from the local government that describes the proposed redevelopment of the brownfield site and expresses the local government's agreement with or approval of the proposed redevelopment.

(6) Any contractor performing site rehabilitation program tasks must demonstrate to the department that the contractor:

(a) Meets all certification and license requirements imposed by law; and

(b) Will conduct sample collection and analyses pursuant to department rules.

(7) During the cleanup process, if the department or local program fails to complete review of a technical document within the timeframe specified in the brownfield site rehabilitation agreement, the person responsible for brownfield site rehabilitation may proceed to the next site rehabilitation task. However, the person responsible for brownfield site rehabilitation does so at its own risk and may be required by the department or local program to complete additional work on a previous task. Exceptions to this subsection include requests for "no further action," "monitoring only proposals," and feasibility studies, which must be approved prior to implementation.

(8) If the person responsible for brownfield site rehabilitation fails to comply with the brownfield site rehabilitation agreement, the department shall allow 90 days for the person responsible for brownfield site rehabilitation to return to compliance with the provision at issue or to negotiate a modification to the brownfield site rehabilitation agreement with the department for good cause shown. If an imminent hazard exists, the 90-day grace period shall not apply. If the project is not returned to compliance with the brownfield site rehabilitation agreement and a modification cannot be negotiated, the immunity provisions of s. 376.82 are revoked.

(9) The department is specifically authorized and encouraged to enter into delegation agreements with local pollution control programs approved under s. 403.182 to administer the brownfield program within their jurisdictions, thereby maximizing the integration of this process with the other local development processes needed to facilitate redevelopment of a brownfield area. When determining whether a delegation pursuant to this subsection of all or part of the brownfield program to a local pollution control program is appropriate, the department shall consider the following. The local pollution control program must:

(a) Have and maintain the administrative organization, staff, and financial and other resources to effectively and efficiently implement and enforce the statutory requirements of the delegated brownfield program; and

(b) Provide for the enforcement of the requirements of the delegated brownfield program, and for notice and a right to challenge governmental action, by appropriate administrative and judicial process, which shall be specified in the delegation.

The local pollution control program shall not be delegated authority to take action on or to make decisions regarding any brownfield site on land owned by the local government. Any delegation agreement entered into pursuant to this subsection shall contain such terms and conditions necessary to ensure the effective and efficient administration and enforcement of the statutory requirements of the brownfield program as established by the act and the relevant rules and other criteria of the department.

(10) Local governments are encouraged to use the full range of economic and tax incentives available to facilitate and promote the rehabilitation of brownfield areas, to help eliminate the public health and

environmental hazards, and to promote the creation of jobs and economic development in these previously run-down, blighted, and underutilized areas.

(11)(a) The Legislature finds and declares that:

1. Brownfield site rehabilitation and redevelopment can improve the overall health of a community and the quality of life for communities, including for individuals living in such communities.

2. The community health benefits of brownfield site rehabilitation and redevelopment should be better measured in order to achieve the legislative intent as expressed in s. 376.78.

3. There is a need in this state to define and better measure the community health benefits of brownfield site rehabilitation and redevelopment.

4. Funding sources should be established to support efforts by the state and local governments, in collaboration with local health departments, community health providers, and nonprofit organizations, to evaluate the community health benefits of brownfield site rehabilitation and redevelopment.

(b) Local governments may and are encouraged to evaluate the community health benefits and effects of brownfield site rehabilitation and redevelopment in connection with brownfield areas located within their jurisdictions. Factors that may be evaluated and monitored before and after brownfield site rehabilitation and redevelopment include, but are not limited to:

1. Health status, disease distribution, and quality of life measures regarding populations living in or around brownfield sites that have been rehabilitated and redeveloped.

2. Access to primary and other health care or health services for persons living in or around brownfield sites that have been rehabilitated and redeveloped.

3. Any new or increased access to open, green, park, or other recreational spaces that provide recreational opportunities for individuals living in or around brownfield sites that have been rehabilitated and redeveloped.

4. Other factors described in rules adopted by the Department of Environmental Protection or the Department of Health, as applicable.

(c) The Department of Health may and is encouraged to assist local governments, in collaboration with local health departments, community health providers, and nonprofit organizations, in evaluating the community health benefits of brownfield site rehabilitation and redevelopment.

(12) A local government that designates a brownfield area pursuant to this section is not required to use the term "brownfield area" within the name of the brownfield area designated by the local government.

History.—s. 4, ch. 97-277; s. 3, ch. 98-75; s. 11, ch. 2000-317; s. 2, ch. 2004-40; s. 44, ch. 2005-2; s. 7, ch. 2006-291; s. 5, ch. 2008-239; s. 2, ch. 2014-114.

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AGENDA ITEM NO. 7.b

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Corey Fortin, City Administration

ITEM TYPE: Ordinance

AGENDA SECTION: BUSINESS/ADVERTISING, PETITIONS, HEARINGS & COMMUNICATIONS

SUBJECT: Ordinance 3097 - SECOND READING AND PUBLIC HEARING

AN ORDINANCE OF THE CITY OF BRADENTON, FLORIDA, AMENDING CHAPTER 2, ARTICLE V, SECTION 2-236 OF THE CODE OF ORDINANCES OF THE CITY OF BRADENTON, FLORIDA RELATING TO EXECUTION OF CONTRACTS AND DEEDS OF CONVEYANCE; AMENDING CHAPTER 2, ARTICLE V, SECTION 2-237 OF THE CODE OF ORDINANCES OF THE CITY OF BRADENTON, FLORIDA, RELATING TO REQUIREMENTS FOR COMPETITIVE BIDDING; PROVIDING FOR CODIFICATION; PROVIDING FOR SEVERABILITY; PROVIDING FOR REPEAL OF ORDINANCES IN CONFLICT; AND PROVIDING FOR AN EFFECTIVE DATE.

SUGGESTED ACTION: Approval

Is this item Quasijudicial?
No

Does this item require a public hearing?
Yes

EXPLANATION:
The Code of Ordinances Section 2-236 is being revised to state that the City Administrator, or his designee, shall sign all contracts and deeds of conveyance authorized by City Council.

Also, Section 2-237 governs competitive bidding requirements. The City of Bradenton should update this section of the Code of Ordinances to increase the monetary thresholds in order to remain agile, procure items in a timely manner and to reduce the costs associated with processing procurement requests.

The proposed Ordinance will allow future changes in threshold amounts to be done by Resolution rather than a revision to the Code. The increased threshold amounts will take into account the rising costs of commodities and contractual services since the last time Section 2-237 was revised by Ordinance #2858 in February of 2007, and will come before Council upon the adoption of Ordinance 3097.

FINANCIAL IMPACT:
N/A

ATTORNEY REVIEW/RECOMMENDATION:
Approved

SUGGESTED MOTION:
Motion to approve and adopt Ordinance 3097.

ATTACHMENTS:
Ordinance 3097 and Supporting Documentation

CITY OF BRADENTON

ORDINANCE NUMBER 3097

AN ORDINANCE OF THE CITY OF BRADENTON, FLORIDA, AMENDING CHAPTER 2, ARTICLE V, SECTION 2-236 OF THE CODE OF ORDINANCES OF THE CITY OF BRADENTON, FLORIDA RELATING TO EXECUTION OF CONTRACTS AND DEEDS OF CONVEYANCE; AMENDING CHAPTER 2, ARTICLE V, SECTION 2-237 OF THE CODE OF ORDINANCES OF THE CITY OF BRADENTON, FLORIDA, RELATING TO REQUIREMENTS FOR COMPETITIVE BIDDING; PROVIDING FOR CODIFICATION; PROVIDING FOR SEVERABILITY; PROVIDING FOR REPEAL OF ORDINANCES IN CONFLICT; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Chapter 2, Article V, Section 2-236 of the City's Code of Ordinances governs execution of contracts and deeds of conveyance; and

WHEREAS, the City Council wishes to amend the Code of Ordinances to authorize the City Administrator, or his designee, to execute contracts and deeds of conveyance on behalf of the City when authorized by the City Council; and

WHEREAS, the City Council for the City of Bradenton wishes to establish, by resolution, monetary thresholds and parameters for the City Administrator to make purchases and execute contracts on behalf of the City; and

WHEREAS, Chapter 2, Article V, Section 2-237 of the City's Code of Ordinances governs competitive bidding requirements; and

WHEREAS, the monetary thresholds for competitive bidding in the Code of Ordinances have not been updated since 2007; and

WHEREAS, the City Council desires to increase the monetary threshold for competitive bidding in keeping with increases of all costs and to streamline the competitive process; and

WHEREAS, for efficiency purposes, the City Council desires to authorize future increases in the monetary threshold for competitive bidding requirements by Resolution; and

WHEREAS, the City Council for the City of Bradenton believes it is in the City's best interests to make these revisions to its Code of Ordinances.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, THAT:

Section 1. Findings of Fact. The foregoing whereas clauses are hereby adopted as findings of fact.

Section 2. Amended Code Language:

A. Chapter 2, Article V, Section 2-236 shall be revised as follows:

The Mayor or vice-mayor in the absence or disability of the mayor, shall sign all contracts and deeds of conveyance authorized by the City Council and made by and in the name of the city, which signature shall be attested to by the city clerk. In the absence of the city clerk, any deputy city clerk may attest the mayor's or vice-mayor's signature on any instruments requiring such signature. The City Council may, by resolution, authorize the City Administrator or designee to make purchases or execute contracts within certain monetary thresholds and subject to such other limitations as may be provided therein.

B. Chapter 2, Article V, Section 2-237 shall be revised as follows:

Contracts for the purchase of supplies, materials, equipment and for public works projects, in excess of ~~$25,000.00~~ the monetary threshold set by resolution of the City Council and maintained on file in the City Clerk's Office, shall be made after competitive bidding, except as provided elsewhere in this section. After such bidding is complete the City may contract with the lowest responsible bidder. Nothing contained in this section, however, shall be construed to require that the city must award a contract after advertisements for bids or receipt of responses; the City Council shall have the right to reject all bids or award to a bidder other than lowest bidder. The City Council may at its option allow deviation from specifications contained in advertisements for bids if it deems it to be in the best interests of the City. Bidding requirements are for the benefit of the City and not for the benefit of any third party or contracting party. No property rights or vested rights shall inure to any bidder until a contract is signed or purchase order made and a bid is deemed to be only an offer to provide such supplies, materials, equipment and public works under the terms as set forth in the invitation to bid and related documents.

(1) In determining the lowest responsible bidders, in addition to price the City may consider the following:

a. The ability, capacity and skill of the bidder to perform the contract or provide the service required;

b. Whether the bidder can perform the contract or provide the service promptly, or within the time specified, without delay or interference;
c. The character, integrity, reputation, judgment, experience and efficiency of the bidder;
d. The quality of performance of previous contracts or services;
e. The previous and existing compliance by the bidder with laws and ordinances relating to the contract or services;
f. The sufficiency of the financial resources and ability of the bidder to perform the contract or provide the service;
g. The quality, availability and adaptability of the supplies or contractual services to the particular use required;
h. The ability of the bidder to provide future maintenance and service;
i. The number and scope of conditions attached to the bid;
j. The record of, type of, and frequency of litigation of the bidder.

(2) If a situation arises where there is a potential risk to the public's health, safety or welfare and the competitive bidding process would be detrimental to the interests of the City, the City Administrator may declare the existence of an emergency procurement condition, suspend the competitive bidding requirements, and authorize the purchase of goods or services required as a result of the emergency condition. All emergency procurements will be reported to the City Council at the next regularly scheduled meeting. ~~If the head of any department shall maintain that an emergency exists in regard to the purchase of any supplies, materials, equipment or public works project, so that the delay incident to giving opportunity for competitive bidding would be detrimental to the interest of the City, then the head of such department making the request shall make a statement to the City Council stating the conditions and circumstances and requesting that competitive bidding be waived. Upon determination by the City Council that an emergency does exist, then the purchase or the contract may be made without such bidding.~~

(3) Supplies, materials, equipment or public work available only from a single source may be excepted from the bid requirements upon the filing by the department head of the

department requesting the supplies, materials, equipment or public work in a statement of conditions and circumstances showing that the supplies, materials, equipment or public work is available only from a single source and provide the City Council shall authorize the exception.

Sole source procurements shall be posted on the City's procurement website for seven (7) business days, along with a Sole Source Justification Form from the requesting Department stating that the contractor, or their sole distributor, are the only provider of the commodity or contractual service. The purpose of the posting of said Notice of Intent to Award is to verify the sole source nature of the procurement.

(4) If the City has the opportunity to purchase supplies, materials, equipment or public work which have been previously used, the City may dispense with any bid procedures or advertisement for bids and negotiate directly with the owners of such used supplies, materials or equipment. Any purchase of used supplies, materials or equipment or public works involving more than $10,000.00 must, however, first be approved by the City Council.

(5) After the City has received all bids and selected the lowest responsible bidder, prior to or after entering into a contract and provided it does not choose to reject all bids, the City may for any reasons within its discretion, including, but not limited to, budgetary reasons, technological reasons, time constraints and any other reasons for the benefit of the City, have the right to negotiate any changes in the specifications and contract terms with such bidder without having to rebid the purchase or contract.

(6) The City may waive any non-substantial deviation from any bid specifications in the responses to the advertisement for bids or request for proposals.

(7) Procurement for professional services shall be governed by applicable state law including that known as the Consultants Competitive Negotiations Act, as amended, and as set forth in F.S. § 287.055 and such other procedures as the City Council may from time to time adopt.

(8) In the event of a tie bid, the City may reject all bids or award the contract to either bidder as the City in its sole discretion deems proper and under any procedures it may adopt, including, but limited to, rebidding by the bidders, negotiation with the tie bidders or by lot or coin toss.

(9) In lieu of issuing requests for bids of proposals, the city may utilize previous bidding procedures and bid lists for any other political subdivision of the State of Florida, the State of Florida itself, its agencies, counties, independent special districts, any municipality and any list of the United States Government and United States Federal Agencies. The utilization of such bid lists and procedures shall not require the City to contract with the lowest bidder but with the best bidder as per the provisions of its bidding requirements.

Section 3. Codification. The City Clerk shall ensure that this Ordinance be submitted for codification of the language herein upon taking effect.

Section 4. Repeal of Ordinances in Conflict. This ordinance hereby repeals all ordinances, or parts thereof, in conflict herewith to the extent of such conflict.

Section 5. Severability. If any provision of this Ordinance or the application thereof is held invalid, the invalidity shall not affect other provisions or applications of the Ordinance which can be given effect without the invalid provision or application, and to this end, the provisions of this Ordinance are declared severable.

Section 6. Effective Date. This Ordinance shall take effect immediately.

PASSED AND DULY ADOPTED BY THE CITY COUNCIL FOR THE CITY OF BRADENTON, FLORIDA, WITH A QUORUM PRESENT AND VOTING ON THIS DAY OF , 2023.

ATTEST:

Tamara Melton	Gene Brown
CITY CLERK	MAYOR

3585929v1

First Reading: January 18, 2023

Advertised: January 25, 2023

Second Reading and Public Hearing: February 8, 2023.

APPROVED AS TO FORM:

_____

Scott Rudacille

CITY ATTORNEY

3585929v1

AGENDA ITEM NO. 7.c

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Corey Fortin, City Administration

ITEM TYPE: Resolution

AGENDA SECTION: BUSINESS/ADVERTISING, PETITIONS, HEARINGS & COMMUNICATIONS

SUBJECT: Resolution 23-3

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, MEMORIALIZING THE PURPOSE, PROCEDURES AND RESPONSIBILITIES UNDER THE CITY OF BRADENTON PURCHASING POLICY; PROVIDING FOR THE REPEAL OF RESOLUTIONS IN CONFLICT; AND PROVIDING AN EFFECTIVE DATE.

SUGGESTED ACTION: Approval

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
The Purchasing Policy for the City of Bradenton has not been modified since January 1, 2009. The procurement of items is necessary for the operation of each department. Flexibility in obtaining items is needed in order for departments to procure goods and services in a timely manner while adhering to the purchasing requirements. The proposed Policy sets forth the increased thresholds and requirements for each purchase category, taking into consideration the increase in the cost of all commodities and services since the thresholds were put in place in 2007, in an effort to streamline the process. The proposed Policy has been reviewed and approved by the Purchasing Manager, City Administrator, Finance Director and City Attorney.

FINANCIAL IMPACT:
N/A

ATTORNEY REVIEW/RECOMMENDATION:
Approved

SUGGESTED MOTION:
Motion to approve and adopt Resolution 23-3.

ATTACHMENTS:
Resolution 23-3 and Policy

CITY OF BRADENTON

RESOLUTION NUMBER 23-3

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, MEMORIALIZING THE PURPOSE, PROCEDURES AND RESPONSIBILITIES UNDER THE CITY OF BRADENTON PURCHASING POLICY; PROVIDING FOR THE REPEAL OF RESOLUTIONS IN CONFLICT; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Bradenton has an existing Purchasing Policy which became effective January 1, 2009; and

WHEREAS, the City Council for the City of Bradenton wishes to amend the existing Policy in order to update and memorialize the procedures to be followed when purchasing supplies, materials and equipment on behalf of the City.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL FOR THE CITY OF BRADENTON, FLORIDA:

1. The City of Bradenton City Council hereby adopts the amended Purchasing Policy & Procedures;
2. Said Policy consists of 12 pages and is attached to and part of this Resolution.
3. This Resolution shall take effect immediately upon its adoption and shall repeal and replace all prior resolutions in conflict herewith.

PASSED AND DULY ADOPTED BY THE CITY COUNCIL FOR THE CITY OF BRADENTON, FLORIDA, WITH A QUORUM PRESENT AND VOTING ON THIS 8TH DAY OF FEBRUARY, 2023.

ATTEST:

_____
Tamara Melton
CITY CLERK

_____
Gene Brown
MAYOR

APPROVED AS TO FORM:

_____
Scott Rudacille
CITY ATTORNEY

PURCHASING POLICY & PROCEDURES

Approved by City Council – Resolution 23-3 dated February 8, 2023

PURPOSE: To establish spending authority and a uniform set of rules and procedures governing the purchase of goods and services by the City of Bradenton and to provide guidance to all personnel regarding the best practices.

OVERVIEW: Purchasing is a division of the Bradenton Administrative Services Department. Its purpose and objectives are to:

- Provide guidance, oversight and purchasing problem resolution to all Departments within the City and to ensure compliance with all purchasing policies and procedures as well as the requirements set forth in Section 2-237 of the Code of Ordinances of the City of Bradenton.
- Simplify, clarify, and streamline the procurement process of the City to be as consistent as possible.
- To create a central procurement system which ensures fair and equitable treatment of all vendors and potential vendors who do business with, or seek to do business with, the City of Bradenton.
- Work within the Administrative Services Department and Finance Department to ensure that all City Departments involved in the purchasing process are provided the proper directions with which to operate effectively and in the best interests of the City of Bradenton.
- Establish a schematic from which all future purchasing policies and procedures will be updated as required.

ETHICAL CONDUCT: Pursuant to F.S. Ch. 112, clear ethical standards shall govern all procurement transactions by all City employees and elected officials. City personnel shall not solicit any gift or accept any gift from a supplier or prospective supplier. (Employee Handbook Section 9.7) A gift is defined as any item, service, favor, monies, credits or discounts not available to others and/or which could influence sound purchasing decisions. The City of Bradenton values its suppliers and makes the assumption that said supplier's value the City's business. No token or display of this appreciation is necessary or encouraged. All vendors are asked to comply with City standards by not offering incentives, gifts, or other services to individual personnel. A business entity in which an employee has an economic interest represents a conflict of interest if the employee has any involvement in the selection of that entity as a City vendor.

Any employee of the City of Bradenton who violates the ethical standards described in this section or any statute, law or ordinance shall be subject to disciplinary action, up to and including termination of employment.

PURCHASING POLICY & PROCEDURES

AUTHORITY & RESPONSIBILITY: Authority has been granted by the Bradenton City Council to enforce this Policy's administration as it relates to the City's purchasing processes.

The City has determined that the majority of purchasing and contracting decisions are made more effective when made by those individuals who are end users of the materials, supplies, equipment or services. The responsibility for these purchases rest with individuals throughout the City. Using this approach requires that employees involved at any stage of the purchasing process take the responsibility for understanding the City's Policies and Procedures relative to purchasing and vendor relationships and City Code of Ordinances, Section 2-237.

Employees must have authorization to commit City resources to any purchase for materials, supplies, equipment or services. All phases of the purchasing process require implicit checks and balances. Approval authority monetary threshold levels are part of the electronic (Enterprise ERP) purchasing module utilized by the City. As the value of the purchase increases, more supporting documentation will be required.

For purchases of $5,000.00 or less, a purchase order **may** be issued for the tracking of a purchase, if a vendor requires it or does not accept purchasing card payment methods. Otherwise a purchasing card (P-Card) is recommended for the purchase, with supporting documentation required at the time of monthly P-card reconciliation as set forth in the City of Bradenton P-Card policy and procedures. Recurring expenses must have a blanket purchase order assigned at the beginning of each fiscal year (October 1st), where the recurring expenses will be applied towards the blanket purchase order as they occur throughout the fiscal year ensuring budget adherence and accuracy.

A City of Bradenton Purchase Order (PO) is the only acceptable authorization to expend funds over $5,000.00 and is required ***in advance of all purchases***, whether or not it is an approved budgeted line item or is a recurring expense. Purchases shall be made following the guidelines set forth in the City of Bradenton Purchasing Procedures Checklist which is attached to this Policy as Exhibit A. For any purchase that exceeds the amount approved in the budget, a budget adjustment is required to accompany the purchase order and **prior** approval by the Department Director and Finance Director is required. If the amount of the increase in the purchase exceeds the threshold amount contained in the Budget Adjustment Policy in existence at the time (currently $10,000), then prior approval by City Council is required.

After the fact requisitions/purchase orders are those in which requisitions and the corresponding purchase orders are issued after the goods or services have been ordered by the client department and have not been previously authorized as an emergency purchase or otherwise approved by the Purchasing Manager or Finance Director. After the fact requisitions/purchase orders are **highly** discouraged and may be a

violation of Section 2-237 of the Code. These types of purchases may result in disciplinary action against the employee(s) involved in the procurement violation. Multiple violations may result in suspension or revocation of the employee(s) authority to make purchases on behalf of the City, followed by additional disciplinary action, up to and including, termination.

Every City of Bradenton employee is bound by the provisions of the Code, and the Purchasing Policy & Procedures. Violations shall be handled as provided by Statute or the City of Bradenton Employee Handbook. The City of Bradenton shall not be bound by any order or contract made contrary to the provisions herein.

The City Administrator, or the City Administrator's Designee, is authorized to make purchases and execute purchase contracts for goods and services within Monetary Threshold Categories 1, 2 and 3, as defined herein. All purchases and contracts for goods and services meeting or exceeding the monetary threshold for Category 4 shall require City Council approval prior to execution by the City Administrator, as required by Section 2-236 of the Code of Ordinances of the City of Bradenton. All contracts should be reviewed by the City Attorney prior to execution.

AUTHORITY OF THE PURCHASING MANAGER:

The Purchasing Manager shall serve as the principal public purchasing official for the City and shall be responsible for ensuring compliance with the procedures set forth herein. Subject to the approval of the City Administrator, the purchasing manager may delegate his/her procurement authority to a designee.

The purchasing manager shall have the following specific duties and be authorized to make the following decisions, subject to approval by the City Administrator;

a) The procurement and disposition of all goods and services in accordance with the Code of Ordinances;
b) In cooperation with other City departments, establishing and maintaining programs to administer contracts and for the inspection and acceptance of goods and services;
c) Approval or disapproval of purchase orders;
d) Adoption of internal procedures to implement or supplement the Code of Ordinances as to Purchases including, but not limited to, procedures governing the use of purchase orders, purchasing cards, expenditure vouchers, travel vouchers and petty cash purchases;
e) To accept, reject and cancel solicitations, including, but not limited to, invitation for bids (IFB), requests for proposal (RFP), requests for invitation (RFI), and requests for quotations (RFQ);

f) To determine the lowest responsive and responsible bidder;
g) To determine if a procurement is exempt from the Code;
h) To require competitive solicitation for goods and services costing less than $75,000;
i) To determine when solicitations may be corrected or withdrawn;
j) To determine whether to issue a solicitation and the type of solicitation to use; however, the purchasing manager may defer to the City Council on which type of solicitation to use when options are available.

DEFINITIONS:

- *Sole Source (Non-competitive Purchases)*: Means a material or service is acquired without competition when only a single source for the material or service exists, or no reasonable alternative source exists.

- *Cooperative Procurement:* Is the combining of requirements of two or more public procurement entities to leverage the benefits of volume purchases, delivery and supply chain advantages, best practices, and the reduction of administrative time and expenses. Cooperative procurement efforts may result in contracts that other entities may "piggyback".

- *"Piggy Back" (Piggyback Cooperatives)*: This is a form of intergovernmental cooperative purchasing in which an entity will be extended the same pricing and terms of a contract entered into by another entity. Generally, the originating entity will competitively award a contract that will include language allowing for other entities to utilize the contract, which may be to their advantage in terms of pricing, thereby gaining the economies of scale that they would not otherwise receive if competed on their own. Example: GSA Contracts, Florida State Contracts, Florida Sheriff's Contracts, other state entities, counties and cities. Piggybacks from state entities, counties/cities/school district, require the due diligence of the Purchasing Department to ensure that all required documents are obtained, reviewed and kept in the file.

PROCEDURES:

A. Designated Department Staff Responsibilities

- Determine needs
- Research vendors
- Conduct price or cost analysis
- Selection of vendor

- Generate an electronic purchase order through the Enterprise ERP purchasing module **prior to any purchase or vendor commitment over $5,000.00**
- Maintain tracking documentation and paperwork flow
- Implement proper receipt of ordered goods and services
- Enter electronic receiving documents in the Enterprise ERP purchasing module
- Ensure that adequate budgeted funds are available. **If adequate funds are not available in budgeted line item (org and object code) for categories 2, 3 and 4, complete and attach budget adjustment form.**

B. Authorized Approvers Responsibilities

- The approval of purchases electronically based on monetary threshold levels
- Review purchases for accuracy
- Determine that adequate budgeted funds are available. If funds are not available, review for accuracy, and attach budget adjustment form, approved by Department Director, and ensure budget adjustment form is delivered to Finance Department for final approval and Enterprise ERP entry.
- Determine that all orders comply with Purchasing Policies & Procedures and the City of Bradenton, Code of Ordinances Section 2-237

C. Source Selection and Bidding

RFI's are not required to obtain a demonstration of a product or service.

- It is considered prudent to determine, prior to the execution of a purchase order, that a good faith effort was undertaken to ensure that the order being placed is in the best interests of the City of Bradenton.

Sole Source procurements require posting on the City's procurement website for seven (7) business days, a Notice of Intent to Award a Single/Sole Source Procurement, along with a Sole Source Justification Form (attached as Exhibit B) from the requesting department, stating that the contractor, or their sole distributor, is the only provider of the commodity or contractual service. The purpose of the posting of said Notice of Intent to Award is to verify the Sole Source.

D. Purchase Authorization

Purchase and contract award authority is delegated as follows:

Category	Monetary Threshold	Method of Solicitation	Authority to Approve
Category One	Purchases of amounts less than $10,000	One written or verbal quote	Department Director or designee
Category Two	Purchases from $10,000 not to exceed $24,999	Two written quotes	Department Director or designee
Category Three	Purchases from $25,000 not to exceed $74,999	Three written quotes, or Piggyback or Sole Source Contract	City Administrator or Designee
Category Four	Purchase of $75,000 or more	ITB/RFP/RFQ or Sole Source	City Council

1. **Category One Purchases:** Purchases of amounts less than $10,000

   - One written or verbal quote should be made a part of purchase order documentation.
   - Written documentation after review could include:

     a) Internet quotes or documentation as to verbal quote.

2. **Category Two Purchases**: Purchases in amounts from $10,000, not to exceed $24,999

   - Two written price quotations are required. This documentation may be found in any source from which a hard copy can be retained, including but not limited to:

     a) Price lists
     b) Advertisements
     c) Internet web pages
     d) Original, fax or email communications
     e) Other documentation acceptable to the City Administrator

- After conducting a good faith review of available sources, it is determined:

  a) There is only one available source (see "sole source" definition) for required item or service
  b) The purchase is based on "piggy back" (see definition) purchases, other governmental agencies or associations providing existing competitive pricing based on previous competitive bidding.

  EXAMPLES INCLUDE:
  i) www.myflorida.com
  ii) www.flsheriffs.org
  iii) Choice Partners National Purchasing Cooperative
  iv) National Cooperative Purchasing Alliance (NCPA)
  v) NPPGov
  vi) Purchasing Cooperative of America
  vii) Sourcewell
  viii) Southeast Florida Governmental Purchasing Cooperative

3. **Category Three Purchases:** Purchases in amounts from $25,000, not to exceed $74,999. At this monetary level, the following is required:

   - Approval by City Administrator or his Designee; and
   - Three written quotes; or
   - Piggyback contract; or
   - Sole Source

4. **Category Four Purchases:** Purchases in an amount of $75,000 or greater. Purchases in Category Four require the following:

   - **Purchases in this Category require approval by City Council prior to execution by City Administrator or City Administrator's Designee.**

   - Purchases in Category Four shall be solicited by written Invitation for Bids (IFB) or Request for Proposals (RFP), unless the solicitation meets one of the exemptions provided under Section 2-237 or herein.

- The preparation for any required bidding specifications is the responsibility of requesting departments, in conjunction with the Purchasing Division. The Purchasing Division may, after review, recommend modifications of bidding specifications to accommodate competitive bidding. The requesting department shall review and either approve or explain in writing why recommended changes should not be incorporated.

- Supplier selection may be made with limited competition or sole source justification after a good faith review when:

  a) Award may be made after negotiation with the one responding vendor.

  b) There is only one available source for the commodity or service required.

  c) The purchase may be made based on cooperative contracts utilizing other governmental agencies, organizations or associations which provide reasonable competition.

  d)

Exception:

The above thresholds do not apply to work authorizations under continuing services contracts that have been previously approved through the competitive solicitation and award process. Such work authorizations may be approved by the Finance Director and/or City Administrator after confirming that such expenditures are within approved budget categories.

Procurements shall not be divided in order to meet monetary thresholds. For contracts which provide for extensions or renewals, the monetary value will be calculated by the cumulative total of the contract including any potential extensions or renewals.

PURSUANT TO SECTION 2-237 OF THE CODE, WHEN DETERMINING THE LOWEST RESPONSIBLE BIDDER, IN ADDITION TO PRICE, THE FOLLOWING WILL BE CONSIDERED; AND THE CONSIDERATIONS NEED TO BE SUBMITTED TO PURCHASING MANAGER IN WRITING:

a) The ability, capacity and skill of the bidder to perform the contract or provide the service required.

b) Whether the bidder can perform the contract or provide the service promptly, or within the time specified, without delay.

c) The character, integrity, reputation, judgment, experience and efficiency of the bidder.

d) The quality of performance of previous contracts and services.

e) The previous and existing compliance by the bidder with laws and/or ordinances relating to the contract or service.

f) The sufficiency of the financial resources and ability of the bidder to perform the contract or provide the service.

g) The quality, availability and adaptability of the supplies or contractual services to the particular use required.

h) The ability of the bidder to provide future maintenance and service.

i) The number and scope of conditions attached to the bid.

j) The record of, type of, and frequency of litigation of the bidder.

k) Total cost of purchase, goods/services.

Note: the evaluation of all criteria determines Total Cost

a) Emergency Purchases

Pursuant to Section 2-237(2) of the Code, if a situation arises where there is a potential risk to the public's health, safety or welfare and the competitive bidding process would be detrimental to the interests of the City, the City Administrator may declare the existence of an emergency procurement condition, suspend the competitive bidding requirements, and authorize the purchase of goods or services required as a result of the emergency condition. All emergency procurements will be reported to the City Council at the next regularly scheduled meeting.

b) Emergency Disaster Procurement

Once a disaster declaration has been made by City Council, the City Administrator may suspend competitive selection and authorize the purchase of goods or services required as a result of the emergency condition, which is defined as a situation in which the public's health, safety or welfare is at risk.

The Procedures for procurement after declaration of an emergency are set forth in the City of Bradenton's Emergency Management Plan (EMP) and Continuity of Operations Plan (COOP).

PURCHASING POLICY & PROCEDURES

EXHIBIT A
PROCEDURE CHECKLIST TO OBTAIN A PO

Purchases	Policy	Procedures
Less than $10,000	1 Written or verbal Quote	1. Enter requisition in MUNIS 2. Upload and attach support as appropriate to requisition in MUNIS at time of entry: • 1 written or verbal quote **3.** Submit requisition for approval.
Purchases of $10,000 to $24,999	Written Quotes	1. Enter requisition in MUNIS 2. Upload and attach support as appropriate to requisition in MUNIS at time of entry: • 2 written quotes; or • Piggyback contract; or • Supporting documentation for sole source 3. Submit requisition for approval
Purchases of $24,999 to $74,999	Written quotes; or Sole Source or Piggyback as well as Finance/Accounting Approval	1. Enter requisition in MUNIS 2. Upload and attach support as appropriate to requisition in MUNIS at time of entry: • 3 written quotes; or • Piggyback contract; or • Supporting documentation for sole source 3. Submit requisition for approval.
Purchases of $75,000 or more	ITB/RFP/Sole Source and Council Approval	1. The Purchasing Division will solicit bids/proposals using a written Invitation to Bid (IFB) or Request for Proposal (RFP). The Department will be required to assist in the creation of scope of work or specification. 2. Enter requisition in MUNIS 3. Upload and attach support as appropriate to the requisition in MUNIS at time of entry: • Bid number; or • Supporting documentation for sole source 4. Submit requisition for approval

Sole Source (Non-Competitive Purchases): Means a material or service is required without competition when only a single source for the material or service exists, or no reasonable alternative source exists.

Cooperative Procurement: Is the combining of requirements of two or more public procurement entities to leverage the benefits of volume purchases, delivery and supply chain advantages, best practices, and the reduction of administrative time and expenses. Cooperative procurement efforts may result in contracts that other entities may "piggyback".

***"Piggy Back" (Cooperatives)*:** This is a form of intergovernmental cooperative purchasing in which an entity will be extended the same pricing and terms of a contract entered into by another entity. Generally, the originating entity will competitively award a contract that will include language allowing for other entities to utilize the contract, which may be to their advantage in terms of pricing, thereby gaining the economies of scale that they would not otherwise receive if competed on their own. (i.e.: GSA Contracts, Florida State Contracts, Florida Sheriff's Contracts, other state entities, counties and cities.

EXHIBIT B
Sole/Single Source Justification Form

The Purchasing Division requests that you complete this form as supporting documentation to justify a sole/single source purchase. Completion of this form does not constitute approval.

NOTE: GRANTS – When specific goods or services are required from a designated manufacturer or supplier and are authorized via a Grant, documentation from the cover page and budget plan of that grant should be attached to this form.

1. Please provide a description and documentation of the method used to choose this supplier. Include copies of all responses you obtained from written or verbal inquiries, including the name and phone number of the person supply the price:

2. Describe the uniqueness and characteristics that limit the availability to only one supplier.

3. Provide documentation demonstrating why the source selected is the only supplier that can provide the supplies and/or services.

4. Document or provide documentation of your efforts to find qualified suppliers. Include a list of all suppliers that were contacted in your search.

5. How will your work be adversely affected if your sole/single source request is not approved and you must proceed with competitive bidding.

Requestor's Signature: _____ Date: _____

Purchasing Manager's Signature: _____ Date: _____

AGENDA ITEM NO. 7.d

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Corey Fortin, City Administration

ITEM TYPE: Ordinance

AGENDA SECTION: BUSINESS/ADVERTISING, PETITIONS, HEARINGS & COMMUNICATIONS

SUBJECT: Ordinance 4003 - SECOND READING AND PUBLIC HEARING

AN ORDINANCE OF THE CITY OF BRADENTON, FLORIDA, AMENDING CHAPTER 22, ARTICLE III, OF THE CODE OF ORDINANCES, ENTITLED "VACATION RENTALS;" AMENDING SECTION 22-51, TO AMEND THE DEFINITION OF "VACATION RENTAL;" AMENDING SECTION 22-52(a) TO EXTEND THE DEADLINE FOR OBTAINING A CERTIFICATE OF REGISTRATION; PROVIDING FOR CODIFICATION; PROVIDING FOR SEVERABILITY; PROVIDING FOR REPEAL OF ORDINANCES IN CONFLICT; AND PROVIDING FOR AN EFFECTIVE DATE.

SUGGESTED ACTION: Approval

Is this item Quasijudicial?
No

Does this item require a public hearing?
Yes

EXPLANATION:
On February 9, 2022 Ordinance No. 3093 was passed by City Council regulating Short Term Vacation Rentals operating within the City of Bradenton. On July 20, 2022 Ordinance No. 4001 was adopted to clarify and streamline the registration process. Due to delays in the implementation of the Host Compliance registration system, short term vacation rental owners have been unable to comply with the registration deadline of January 1, 2023. Additionally, it has been determined that

it is in the best interests of the City that the exclusion of condominiums be removed in order to ensure the safety of renters of said short term vacation condominium units, as well as to cover the operating costs of the Host Compliance registration system and personnel time required to operate this program.

FINANCIAL IMPACT:
N/A

ATTORNEY REVIEW/RECOMMENDATION:
Approved

SUGGESTED MOTION:
Motion to approve and adopt Ordinance 4003.

ATTACHMENTS:
Ordinance 4003 and Supporting Documents

ORDINANCE NO. 4003

AN ORDINANCE OF THE CITY OF BRADENTON, FLORIDA, AMENDING CHAPTER 22, ARTICLE III, OF THE CODE OF ORDINANCES, ENTITLED "VACATION RENTALS;" AMENDING SECTION 22-51, TO AMEND THE DEFINITION OF "VACATION RENTAL;" AMENDING SECTION 22-52(a) TO EXTEND THE DEADLINE FOR OBTAINING A CERTIFICATE OF REGISTRATION; PROVIDING FOR CODIFICATION; PROVIDING FOR SEVERABILITY; PROVIDING FOR REPEAL OF ORDINANCES IN CONFLICT; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Chapter 22, Article III, of the City's Code of Ordinances provides for regulation of vacation rentals located within Bradenton City limits; and

WHEREAS, the definition of *vacation rental* contained in Section 22-51 currently excludes condominiums with three units or more; and

WHEREAS, the City has determined that condominiums with three units or more should not be excluded from the vacation rental regulations; and

WHEREAS, Section 22-52(a) currently sets forth a deadline for vacation rental owners to obtain a certificate of registration no later than January 1, 2023; and

WHEREAS, the City wishes to extend the deadline for obtaining a certificate of registration to July 1, 2023 as there was a delay in implementation of the registration process on the part of the City of Bradenton and this extension would allow vacation rental owners adequate time to complete the registration process; and

WHEREAS, the City Council for the City of Bradenton believes it is in the City's best interests to make these revisions to its Code of Ordinances.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA:

Section 1. Legislative Findings. The above Whereas clauses are hereby adopted as legislative findings of the City Council in support of the ordinance.

Section 2. Amended Code Language.

A. Chapter 22, Article III, Section 22-51, of the Code of Ordinances shall be revised to read in its entirety as follows:

Sec. 22-51 – Definitions.

For purposes of this Article, the following terms, words and phrases shall have the meaning set forth in this Article. Whenever applicable, the singular shall include the plural.

(a) *Bedroom* means any room in a vacation rental that contains a minimum of one hundred (100) square feet; which has a bed or other place for sleeping; and which has either a separate closet that is an integral part of the permanent construction within the bedroom or an en suite bathroom. This definition does not include a bathroom, a kitchen, a dining area or any main living area. If a room has been added, altered or converted without required building permits having been issued, such room shall not be deemed a bedroom.

(b) *Certificate of Registration* means the document that is issued by the City in accordance with Sec. 22-53 to show that the vacation rental described on the certificate is currently registered with the City as required by Sec. 22-52.

(c) *Designated Responsible Party* means the owner of a vacation rental or a natural person who has been designated by the owner to be called upon to answer for the maintenance of the vacation rental property and to respond to inquiries or complaints regarding the conduct of the occupants of the vacation rental and their guests as provided in Sec. 22-64.

(d) *Guest* means any person physically within the vacation rental or on its grounds with the knowledge of an occupant.

(e) *Maximum Occupancy* means the maximum number of persons who may be occupants of a vacation rental at the same time.

(f) *Occupant* means any person who occupies a vacation rental overnight.

(g) *Owner or Vacation Rental Owner* means a natural person or legal entity holding all or a portion of the fee simple title to a vacation rental, whether an individual, partnership, corporation, limited liability company, trust, or other entity. In the event that the vacation rental owner is not an individual, each and every person who owns an equitable interest in the vacation rental shall be considered an Owner.

(h) *Owner Occupied* means a vacation rental that is the primary and permanent residence of the owner of the property.

(i) *Pre-existing Rental Agreement* means a written agreement with prospective occupants allowing them to stay in a vacation rental which agreement was fully executed as of the effective date of this Article.

(j) *Vacation Rental* shall have the meaning as defined in Chapter 509, Florida Statutes, as may be amended~~, except that for purposes of this Ordinance, condominiums with three units or more shall be excluded from the definition of *vacation rental* and, thereby, excluded from the provisions of this Ordinance.~~

B. Chapter 22, Article III, Section 22-52, of the Code of Ordinances shall be revised to read in its entirety as follows:

Sec. 22-52. - Mandatory registration.

(a) No Vacation Rental shall be rented or offered for rent without a current valid Certificate of Registration. Failure to possess a current valid Certificate of Registration while renting or occupying a Vacation Rental is a violation of this Section. Every Vacation Rental Owner, either personally, or through an agent, shall apply to the City for an initial Certificate of Registration, utilizing forms promulgated by the City by no later than August 1, 2022, and shall obtain a Certificate of Registration by no later than ~~January~~ July 1, 2023. Every Vacation Rental Owner, either personally or through an agent, shall apply to the City for a renewed Certificate of Registration, utilizing forms promulgated by the City, each successive year thereafter, and shall be filed with the City a minimum of ninety (90) days prior to the expiration of the Certificate of Registration. A separate Certificate of Registration shall be required for each Vacation Rental. The operation of a Vacation Rental without a Certificate of Registration after ~~January~~ July 1, 2023, shall be a violation of this Section. Every day of such operation without registration shall constitute a separate violation.

(b) An application for a Certificate of Registration shall contain a statement from the Vacation Rental Owner, under penalty of perjury, that the Owner represents that the information provided on the application and the information submitted with the application is true and accurate to the best of the Owner's knowledge and belief. The application shall be accompanied by the following materials and information:

(1) A completed application for Vacation Rental Certificate of Registration form supplied by the City. At a minimum, the application form shall include the street address of the Vacation Rental, the legal description of the property on which the Vacation Rental is located; the name, address, electronic mail address and telephone number of the vacation rental owner(s); and the name, address, electronic mail address and telephone number of the Designated Responsible Party if different from the owner.

(2) Proof of current ownership of the Vacation Rental property.

(3) Payment of the annual registration fee.

(4) A form supplied by the City entitled "Designation of Responsible Party" signed by the Owner of the Vacation Rental or authorized representative, naming a Designated Responsible Party who shall have the duties listed in Sec. 22-63. The Vacation Rental Owners may appoint himself or herself as the Designated Responsible Party or shall otherwise designate someone to act as the Designated Responsible Party on his or her behalf.

(5) A written acknowledgement form signed by the Designated Responsible Party acknowledging that he or she is aware of the provisions of this Article and that he or she agrees to serve in the capacity of Designated Responsible Party for the Vacation Rental being registered and that he or she agrees to discharge the duties of a Designated Responsible Party as set forth in Sec. 22-63.

(6) A copy of the business tax receipt showing payment of the City of Bradenton local business tax for the Vacation Rental for the current fiscal year or other proof of payment.

(7) Evidence that the Vacation Rental has a current and active account with the Manatee County Tax Collector for the purposes of collecting and remitting tourist development taxes and any other taxes required by law to be remitted to the Manatee County Tax Collector.

(8) A copy of a current and active license for the Vacation Rental issued by the State of Florida Department of Business and Professional Regulation showing that the Vacation Rental is licensed as a transient public lodging establishment.

(9) A copy of the current and active Certificate of Registration with the State of Florida Department of Revenue for the Vacation Rental showing that the Vacation Rental is registered for the purposes of collecting and remitting sales taxes, transient rental taxes and any other taxes required by law to be submitted to the Florida Department of Revenue.

(10) The number of Bedrooms in the Vacation Rental.

(11) The number of full bathrooms (sink, toilet, and bathtub or shower) in the Vacation Rental.

(12) The square footage of temperature-controlled living space within the Vacation Rental.

(13) An exterior site sketch of the Vacation Rental facility. The sketch shall show and identify all structures, pools, hot tubs, spas, fencing and uses, including areas provided for off street parking. For purposes of the sketch, off street parking spaces shall be delineated as to enable a fixed count of the number of spaces provided in accordance with Sec. 22-62. At the option of the Vacation Rental Owner, such sketch may be hand drawn and need not be professionally prepared, but shall be sufficient for staff to determine compliance with this Article. Photographs of the exterior of the site may be submitted in lieu of a sketch, provided such photographs shall be sufficient for staff to determine compliance with this Article.

(14) An interior building sketch for each floor in the Vacation Rental showing the floor plan layout and identifying all bedrooms, other rooms, exits, hallways and stairways and elevators as may be applicable. At the option of the Vacation Rental Owner, such sketch may be hand drawn and need not be professionally prepared, but shall be sufficient for staff to determine compliance with this Article. Photographs of the interior of the building may be submitted in lieu of a sketch, provided such photographs shall be sufficient for staff to determine compliance with this Article.

(15) A blank sample of the rental lease agreement to be used for the Vacation Rental.

(16) An affidavit executed by the Owner on a form provided by the City, representing that he or she is aware of the City of Bradenton rules regulating Vacation Rentals.

(17) If the application for registration is being submitted on behalf of the Owner of the property by his or authorized representative, a letter of authorization from the Owner representing that the representative is authorized to act on his or her behalf.

(18) A copy of all Pre-existing Rental Agreements for the Vacation Rental.

(19) Any other information which may be reasonably requested by the City to verify compliance with the terms of this Article.

(c) Submission of an incomplete application for registration or a submission not accompanied by all of the applicable requirements of this Section shall result in rejection of the application. If the submission for registration is incomplete, the applicant shall be notified of the deficiencies and shall be allowed twenty (20) calendar days to provide any missing information, to pay any unpaid registration or inspection fees, or to address code compliance

penalties. If the missing information is not provided or fees or penalties not paid within the twenty (20) day period, the application shall be deemed withdrawn. If the information is timely provided and any delinquent fees are timely paid, the application shall be processed.

Section 3. Codification. The City Clerk shall ensure that this Ordinance be submitted for codification of the language herein upon taking effect.

Section 4: Repeal of Inconsistent Ordinances. This Ordinance hereby repeals all ordinances, or parts thereof, in conflict herewith to the extent of such conflict**.**

Section 5. Severability. If any provision of this Ordinance or the application thereof is held invalid, the invalidity shall not affect other provisions or applications of the Ordinance which can be given effect without the invalid provision or application, and to this end, the provisions of this ordinance are declared severable.

Section 6. This Ordinance shall take effect as provided by Florida law.

FIRST READING	January 18, 2023
PUBLICATION DATE	January 25, 2023
SECOND READING	February 8, 2023

PASSED AND DULY ADOPTED, BY THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, with a quorum present and voting, this ____, day of _____, 2023.

CITY OF BRADENTON, FLORIDA

_____
Gene Brown, Mayor

ATTEST:

By: _____
Tamara Melton, City Clerk

APPROVED AS TO FORM:

By: _____
Scott Rudacille, City Attorney

AGENDA ITEM NO. 8.a

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Karen Kyser, Community Redevelopment Agency

ITEM TYPE: Presentation

AGENDA SECTION: NEW BUSINESS BY DEPARTMENT HEADS, CITY ATTORNEY AND COUNCIL

SUBJECT: Bloomberg Philanthropies Public Art Challenge

SUGGESTED ACTION: Support Grant Application

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
The Bloomberg Philanthropies Public Art Challenge invites mayors of U.S. cities to apply for up to $1 million in funding to create temporary public art projects that address important civic issues. Submissions for dynamic works of art across all disciplines will be evaluated by Bloomberg Philanthropies on their ability to generate public-private collaborations, celebrate creativity and urban identity, and strengthen local economies.
Local artists, including public artists, storytellers, poets, actors, and musicians from Bradenton and greater Tampa Bay area will engage the community in invigorating ways, such as sidewalk art, banners, community murals, and community events/gatherings.
The civic issue we will be addressing is reading readiness, starting with the young children that attend, or will attend the Title One Schools in the three (3) CRA Districts (Manatee Elementary, Rogers Garden Elementary, and Ballard Elementary).
The plan is to gather these families from the three schools, along with interested community members who want to help their communities thrive. For two years, all three areas will get to know one another, work and play together with the main theme centered around reading.
Collaborators will include Manatee County Schools Visual and Performing Arts,

Soar in 4, The Lean on Me Project with NAMI Sarasota Manatee, ArtCenter Manatee, and RECESS Education, the Manatee Community Foundation, and Realize Bradenton, among others. Preliminary support of this project has been very positive, and we expect to have more supporters and contributors as we move forward.
We are asking for your support as City Council since the Bloomberg Philanthropies organization wants commitment that the project, if approved, will continue even if there is a change in administration/Mayor's position. Up to 10 winners from the United States will be chosen in 2023 to execute their projects – which may include multiple installations in a single city – over 24 months. The deadline to apply for this grant is February 15, 2023.

FINANCIAL IMPACT:
Potential Grant funding up to $1,000,000. to the City of Bradenton

ATTORNEY REVIEW/RECOMMENDATION:
N/A

SUGGESTED MOTION:
Motion to support the Bloomberg Philanthropies Public Art Challenge and Authorize the Mayor and City/CRA staff to submit the grant application and take the appropriate steps for the project.

ATTACHMENTS:
Bloomberg Philanthropies Art Challenge Website

Link to the Bloomberg Public Art Challenge

https://publicartchallenge.bloomberg.org/

AGENDA ITEM NO. 8.b

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Volker Reiss, Planning & Community Development

ITEM TYPE: Miscellaneous

AGENDA SECTION: NEW BUSINESS BY DEPARTMENT HEADS, CITY ATTORNEY AND COUNCIL

SUBJECT: Exterior Hoarder Properties

SUGGESTED ACTION: City Council authorizes the City Administrator to pursue legal action.

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
Code Enforcement is requesting authorization to proceed with an alternative method to clear up properties that have an excessive accumulation of junk and debris. The Florida Constitution prohibits jurisdictions from foreclosing on code enforcement liens on homestead properties. There's a small number of properties with significant code enforcement liens stemming from exterior hoarding. Large parts of the exterior property are filled with every kind of item imaginable. Code Enforcement's best efforts, including violations and liens, have not achieved compliance. The condition of the properties has had a negative impact on surrounding properties, the resident's safety and quality of life.

After consulting with the City Attorney, Code Enforcement has determined that to achieve results and bring these properties into compliance it is necessary to take civil action against the property owners. It is recommended that the City Administrator be authorized to pursue this action on a case by case basis.

FINANCIAL IMPACT:
The City has to pay for the cleanup of the property if the owner refuses to do so. An assessment lien could be placed on the property.

ATTORNEY REVIEW/RECOMMENDATION:
Staff conferred with the City Attorney and City Administrator before bringing this request forward.

SUGGESTED MOTION:
Move to authorize the City Administrator to initiate legal action against a property owner in cases where the property has been severely out of compliance for a period of one year or more and where the statutory code enforcement process has been unsuccessful in gaining compliance.

ATTACHMENTS:

AGENDA ITEM NO. 8.c

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Jim McLellan, Public Works & Utilities

ITEM TYPE: Contract

AGENDA SECTION: NEW BUSINESS BY DEPARTMENT HEADS, CITY ATTORNEY AND COUNCIL

SUBJECT: Oyster Habitat Restoration Permitting

SUGGESTED ACTION: Approval of proposal for the permitting of additional oyster habitat restoration.

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
As part of the settlement agreement with the Waterkeepers, the City is required to perform a Supplemental Environmental Project (SEP) aimed at improving water quality. The agreed to SEP is an expansion of the oyster bed restoration work completed as part of Phase 2a of the Riverwalk Expansion. This proposal is for the permitting/design of an oyster restoration area in the Manatee River along an additional segment of the Riverwalk.

FINANCIAL IMPACT:
The financial impact is $54,139, and will be paid for by revenues from the water/sewer fund.

ATTORNEY REVIEW/RECOMMENDATION:
N/A

SUGGESTED MOTION:
Motion to approve the Kimley-Horn proposal for the permitting of additional oyster restoration beds associated with the City's Supplemental Environmental Project.

ATTACHMENTS:

Bradenton Riverwalk Phase 2 Amendment

AMENDMENT 10 TO CONTRACT #17-02RW OF THE AGREEMENT BETWEEN THE CITY OF BRADENTON AND KIMLEY-HORN AND ASSOCIATES, INC.

AMENDMENT NUMBER 10 to the Agreement between the City of Bradenton ("the City") and Kimley-Horn and Associates, Inc., ("the Consultant") dated April 21, 2017 ("the Agreement") for providing Professional Services Relative to the Bradenton Riverwalk Phase 2 Master Plan approved by the City Council on April 03, 2019 (the "Project").

The Consultant has entered into the Agreement with the City for the furnishing of professional services, and the parties now desire to amend the Agreement.

Therefore, it is mutually agreed that the Agreement is amended to include Additional Services to be performed by the Consultant and provisions for additional compensation by the City, all as set forth in Exhibit A hereto. The parties ratify the terms and conditions of the Agreement not inconsistent with this Amendment, all of which are incorporated by reference.

THE CITY:	CONSULTANT:
CITY OF BRADENTON	**KIMLEY-HORN AND ASSOCIATES, INC.**
By: _____	By: _____ James R. Pankonin, PLA
Title: _____	Title: Vice President
Date: _____	Date: January 25, 2023

PROJECT UNDERSTANDING

The City of Bradenton ("City) desires to retain Kimley-Horn and Associates, Inc. ("Consultant") to assist with oyster habitat restoration permitting through the Florida Department of Agriculture and Consumer Services (FDACS) restoration aquaculture rules as described in Florida Administrative Code Rule 18-21.020. This permitting mechanism allows use of sovereign submerged lands for the purpose of restoration aquaculture including instances where oyster habitat restoration is the primary purpose. Furthermore, under FDACS restoration aquaculture rules, approval from the United States Army Corps of Engineers (USACE) is facilitated by FDACS via Programmatic General Permit (PGP) SAJ-99, SAJ 2007-03138 for Live Rock and Marine Bivalve Aquaculture.

Based on current site assumptions and discussions during our meeting on December 29, 2022, the proposed project will meet requirements for FDACS aquaculture restoration rules. The Scope of Work below is intended to define a project area, attain necessary field data, and address the application submittal requirements for:

• FDACS Application for A State-Owned Sovereignty Submerged Land Aquaculture Lease (FDACS FORM 15102 Rev. 08/16)

• FDACS Aquaculture Certificate of Registration Application (FDACS Form 15106 Rev. 08/18)

• Execution of FDACS Restoration Management Agreement for Certain Sovereignty Submerged Lands (FDACS Form 15413 Rev. 04/22)

For the purposes of this Scope of Work, the project review area, located waterward of Riverside Drive East, shall consist of nearshore areas as shown on the map at the end of this scope (Exhibit A).

SCOPE OF SERVICES

Kimley-Horn will provide the services specifically set forth below.

TASK 1 – PROJECT MANAGEMENT

Consultant will administer the professional services described in this Scope of Services and coordinate work with the City's Project Manager to:

A. Create, monitor, and update project schedule.

B. Provide monthly invoices and progress reports.

C. Facilitate and attend up to four (4) coordination meetings with City staff associated with the project including progress reviews, presentation of information, receiving direction and recommending direction throughout the design phase. Each meeting is anticipated to be a maximum of one (1) hour each.

D. Provide project coordination with sub-consultant design team throughout the design portion of the project.

TASK 2 – OYSTER HABITAT RESTORATION PERMITTING ASSISTANCE

Kimley-Horn will utilize a subconsultant, ESA, to compete TASK 2.

A. FDACS Pre-Application Virtual Meeting:

ESA will arrange and facilitate a virtual pre-application meeting with FDACS staff to introduce project review staff to the project.

B. Submerged Resources Survey:

ESA will conduct a shore-based submerged resources survey for mapping and characterization of seagrasses, attached macroalgae, mangroves, oysters, clam beds and other natural resources found within the 13-acre review area (Exhibit A). ESA will map resources using a sub-meter accurate Differential Global Position System (DGPS). Data collected will be used for determination of the aquaculture lease area and will be included with the application to FDACS (Task 2C below).

C. FDACS Application for a State-Owned Sovereignty Submerged Land Aquaculture Lease (FDACS FORM 15102 Rev. 08/16):

ESA will complete FDACS Form 15102 and coordinate submittal on behalf of the City of Bradenton including all required maps and figures to accompany the application. The application fee ($200) is not included in the fee estimate and will be paid by the client directly to the Agency.

D. Responses to FDACS Request for Additional Information (RAI):

ESA will prepare one (1) round of written responses to comments received from the Task 2C above.

E. FDACS Field Review:

ESA will accompany FDACS staff on one (1) shore-based site inspection for in-water review of natural resources and verification of field data provided in the application to FDACS (Task 2C). An email summary of meeting results will be provided upon completion of the FDACS field review.

F. FDACS Application for Aquaculture Certificate of Registration Application (FDACS Form 15106 Rev. 08/18):

ESA will complete FDACS Form 15106 and coordinate submittal on behalf of the City of Bradenton including all required maps and figures to accompany the application. The associated application fee ($100) is not included in the fee estimate. An annual renewal fee of $100 is also required for the period while Management Agreements are active, i.e., until construction of oyster restoration is complete.

G. Oyster Bar Design and Construction Specification

ESA will review all relevant FDACS approvals and create an Oyster Bar Design and Construction Specification to specify all parameters necessary for construction of oyster bars in accordance and compliance with the FDACS approvals. This will consist of a technical memo and GIS map (with associated shapefiles) defining oyster cultch material placement areas, approved materials, and thickness of material placement. All FDACS final approvals will be attached to the memo.

H. Project Management & Administration

ESA will perform project management, coordination with client, agencies, and internal staff as appropriate to complete the project design and permitting. Necessary progress meetings, monthly invoicing and progress reporting, and scheduling will be performed in this task.

Please Note:
The fee estimate assumes site conditions will meet requirements for FDACS aquaculture restoration rules. If it is determined during field reviews or by FDACS that areas selected do not meet FDACS

setback requirements this Scope of Work will not apply to other permitting options through state or federal agencies.

Information Provided by the City

Consultant shall be entitled to rely on the completeness and accuracy of all information provided by the City or the City's consultants or representatives. The City shall provide all items and information requested by Consultant during the project, including but not limited to the following:

- Current Title Report needed to identify the deed legal description and any right-of-way takings, easements, conveyances, restrictions, and/or other matters of survey in the Public Records that may affect subject property.
- Copies of all available information pertinent to Consultant's services on the project.
- All permit fees and review fees.
- All reports related to the site, including but not limited to, Due Diligence, Historical Resource Surveys, and Site Inspection/Investigations.
- Copies of all known agreements, resolutions and ordinances pertaining to the subject property.

Additional Services

Any services not specifically provided for in the above scope will be considered an additional service and can be performed under our then current hourly rates. Additional services we can provide include, but are not limited to, the following:

- Improved street drainage infrastructure or utilities.
- Florida Department of Transportation (FDOT) plans or permitting.
- Protected species-specific surveying or permitting involvement.
- Preparation of any local, state, or federal permitting applications, except those explicitly outlined in tasks above

Fee and Expenses

Consultant will perform the services described in Tasks 1 and 2 in the Scope of Services for the lump sum fees listed below. Individual task amounts are for informational purposes only.

An amount has been included in the lump sum to cover certain reimbursable expenses such as in-house duplicating, plotting, and printing, local mileage, telephone calls, facsimiles, postage, and word processing computer time. All permitting, application, and similar project fees will be paid directly by the City.

Lump sum fees will be invoiced monthly based upon the overall percentage of services performed. Reimbursable expenses will be invoiced based upon expenses incurred. Payment will be due within 25 days of your receipt of the invoice.

TASK	DESCRIPTION	FEE
1	PROJECT MANAGEMENT	$7,850
2	OYSTER HABITAT RESTORATION PERMITTING ASSISTANCE	$46,289
TOTAL FEE FOR LUMP SUM TASKS		**$54,139**

Schedule

We will provide our services as expeditiously as practicable based on a mutually agreed upon schedule.

G:\Marketing\Propose\City of Bradenton\Riverwalk Phase 2\Oyster Habitat Restoration Permitting Assistance\Bradenton Riverwalk Phase 2 AMD 10 - Oyster Habitat.docx

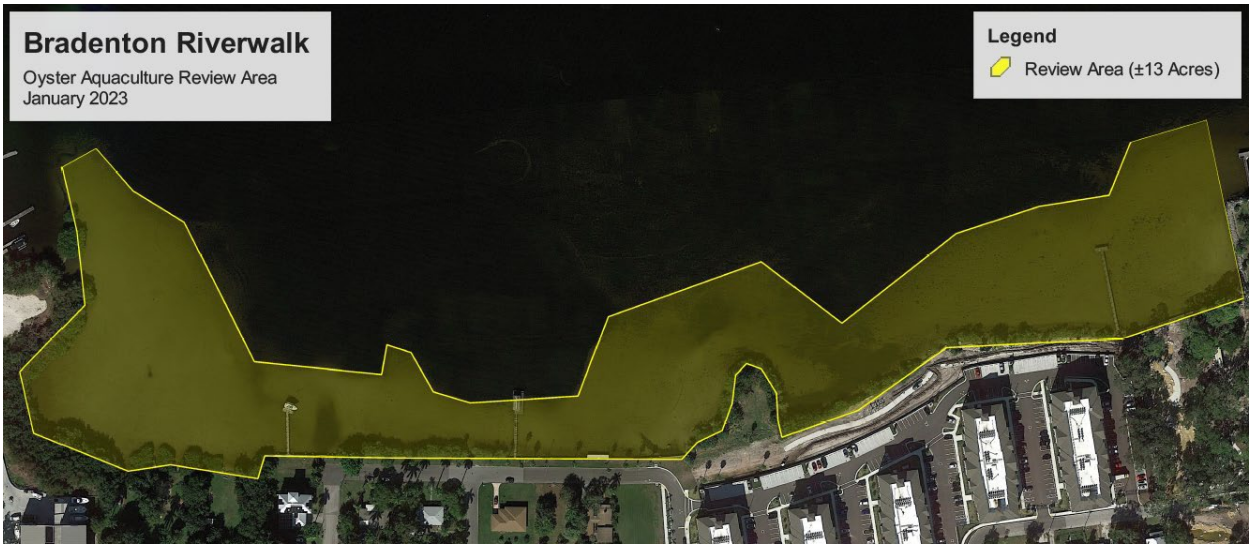

Exhibit A – Project Review Area

AGENDA ITEM NO. 8.d

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Jim McLellan, City Administration

ITEM TYPE: Agreement

AGENDA SECTION: NEW BUSINESS BY DEPARTMENT HEADS, CITY ATTORNEY AND COUNCIL

SUBJECT: Recommendation of Pre-Construction Services with H.J. High Construction

SUGGESTED ACTION: Approval

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
City Administrator Perry recommends engaging H.J. High Construction to provide pre-construction and site assessment services for the building located at 1111 3rd Avenue West (former Bradenton Herald Building). These services shall determine the viability of refurbishing the building for a possible site for the new City Hall.

FINANCIAL IMPACT:
Services not to exceed $24,417.

ATTORNEY REVIEW/RECOMMENDATION:
N/A

SUGGESTED MOTION:
Motion to approve the City Administrator to engage H.J. High Construction on behalf of the City to provide pre-construction services for the building located at 1111 3rd Avenue West.

ATTACHMENTS:
HJ High Pre-Construction Services Proposal

January 12, 2023

Jim McLellan, PE
Director of Public Works and Utilities
City of Bradenton
1411 9th St. W.
Bradenton, FL 34205

Re: City Hall – Public Works Concept

Dear Jim,

Thank you for giving us the opportunity to submit this proposal for Preconstruction Services for the City Hall – Public Works project in Bradenton, FL. Services provided and fee structures are as follows:

PRE-CONSTRUCTION SERVICES:

- Construction Budget Creation and Tracking
  - Conceptual Design Budget
    - CSI Master Format summary level in-house budget
    - Follows concept drawings and initial programmatic information discussion
    - Can be used to confirm viability of development proforma
- Scheduling and Planning
  - Concept Development
    - Provide milestone summary level construction schedule with input from H. J. HIGH Scheduling Manager, General Superintendent and other operations staff as needed
- Design Document Review
  - Provide active feedback to design team and client relating to constructability and impacts to project budget and schedule
  - Provide recommendations relating to code compliance, utility coordination, permitting and other external stakeholders.
- Site Review and Investigation
  - Visit and review of existing conditions, suitability for the project, and assist in estimate preparation.

These services will include:

- Establishing a budget estimate for the project from concept drawings and space needs and assessments or otherwise as agreed. This budget will include price/estimate options for three concept locations.

Fee Structure:

- The cost for Pre-Construction Services is $24,417.
- Pre-Construction Services will be provided for Two (2) months (through 3/31/2023). The cost of these services will not exceed $24,417 excluding expenses.

- H. J. HIGH will submit invoices to CLIENT on or about the 15th of each month for payment no later than the 10th of the following month.

Sincerely,

Digitally signed by Robert High
DN: C=US, E=rhigh@hjhigh.com, O=H. J. High Construction, OU=President, CN=Robert High
Reason: I am the author of this document
Date: 2023.01.12 15:47:02-05'00'

Robert High
President

AGENDA ITEM NO. 8.e

Item Cover Page

CITY COUNCIL AGENDA ITEM REPORT

DATE: February 8, 2023

SUBMITTED BY: Susan Hochuli, Public Works & Utilities

ITEM TYPE: Resolution

AGENDA SECTION: NEW BUSINESS BY DEPARTMENT HEADS, CITY ATTORNEY AND COUNCIL

SUBJECT: Resolution 23-14

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, ADOPTING THE 2023 CITY WASTEWATER MASTER FACILITIES PLAN; MAKING FINDINGS; AUTHORIZING THE SUBMITTAL FOR THE CITY'S FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STATE REVOLVING FUND LOAN REQUEST FOR PROJECT NUMBER CW-4103A AND THE 2023 CITY WASTEWATER MASTER FACILITIES PLAN; DESIGNATING THE CITY'S AUTHORIZED REPRESENTATIVE; AUTHORIZING THE EXECUTION OF APPLICABLE LOAN AGREEMENT AND RELATED DOCUMENTS; PROVIDING FOR THE ESTABLISHMENT OF PLEDGED REVENUES FOR THE REPAYMENT OF THE LOAN; PROVIDING ASSURANCES OF COMPLIANCE WITH LOAN PROGRAM REQUIREMENTS; PROVIDING FOR CONFLICTS, SEVERABILITY, AND EFFECTIVE DATE.

SUGGESTED ACTION: Adopt Resolution 23-14.

Is this item Quasijudicial?
No

Does this item require a public hearing?
No

EXPLANATION:
Resolution 23-14 refers to the 2023 City Wastewater Master Facility Plan which

includes a 20-year list of improvement projects for the wastewater system and prioritizes four (4) projects to be submitted to Florida Department of Environmental Protection State Revolving Fund (Department SRF) program for consideration for low-interest construction phase loans. The four (4) projects include lining of a minimum of 700 wastewater manholes and a minimum of 220,000 lineal feet (or 41 miles) of gravity pipes; emergency power and/or pump capability installed at up to twelve (12) lift stations; installing clarifier no. 4 at treatment plant; and installing an injection well at treatment plant to minimize excess reclaimed water discharge to Manatee River. Adoption and approval by City council is necessary to authorize the submittal to Department SRF office, execute applicable loan documents, and provide assurance of compliance with the loan program requirements.

FINANCIAL IMPACT:
Resolution approval also confirms the capital financing plan and related fiscal documents including the rages fees and charges for loan repayment. For each loan agreement, re-payment is over a 20-year period with payments made twice per year upon loan agreements execution by both parties.

ATTORNEY REVIEW/RECOMMENDATION:
City Attorney and City Administrator have reviewed and finds appropriate to move forward.

SUGGESTED MOTION:
Approve Resolution 23-14.

ATTACHMENTS:
Resolution 23-14 and Supporting Documents

CITY OF BRADENTON

RESOLUTION NUMBER 23-14

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, ADOPTING THE 2023 CITY WASTEWATER MASTER FACILITIES PLAN; MAKING FINDINGS; AUTHORIZING THE SUBMITTAL FOR THE CITY'S FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STATE REVOLVING FUND LOAN REQUEST FOR PROJECT NUMBER CW-4103A AND THE 2023 CITY WASTEWATER MASTER FACILITIES PLAN; DESIGNATING THE CITY'S AUTHORIZED REPRESENTATIVE; AUTHORIZING THE EXECUTION OF APPLICABLE LOAN AGREEMENT AND RELATED DOCUMENTS; PROVIDING FOR THE ESTABLISHMENT OF PLEDGED REVENUES FOR THE REPAYMENT OF THE LOAN; PROVIDING ASSURANCES OF COMPLIANCE WITH LOAN PROGRAM REQUIREMENTS; PROVIDING FOR CONFLICTS, SEVERABILITY, AND EFFECTIVE DATE.

WHEREAS, the Florida Department of Environmental Protection offers loans to local government agencies to finance the construction of wastewater treatment facilities; and

WHEREAS, Florida Administrative Code (F.A.C.) rules require authorization to apply for loans, to establish pledged revenues, to designate an authorized representative; to provide assurances of compliance with loan program requirements; and to enter into a loan agreement; and

WHEREAS, the City of Bradenton (City) is granted the authority, under section 2(b), Art. VIII of the State Constitution, to exercise any power for municipal purposes, except when expressly prohibited by law; and

WHEREAS, the City owns and operates a wastewater utility; and

WHEREAS, the City wishes to make application to the Florida Department of Environmental Protection for a Clean Water State Revolving Fund Loan for Project Number CW-4103A for construction of four (4) wastewater projects, in the amount of $48,354,900.00; and

WHEREAS, the City developed under the guidance available through the Florida Department of Environmental Protection Clean Water State Revolving Fund loan program a Wastewater Master Facilities Plan identifying the information required per Rule 62-503.700(2) and Rule 62.505.751, F.A.C., for the Florida Department of Environmental Protection Clean Water State Revolving Fund approval for project number CW-4103A for the City of Bradenton; and

WHEREAS, the 2023 City Wastewater Master Facilities Plan had been presented to the City Council after due public notice, and the City Council now desires to officially accept and adopt the 2023 City Wastewater Master Facilities Plan as a management tool for purposes of providing information to assist the City with providing reliable wastewater utility service to its residential, commercial and institutional wastewater customers; and

WHEREAS, the City Council hereby finds that this Resolution is in the best interests of the public health, safety and welfare.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, AS FOLLOWS:

Section 1. Recitals. The foregoing recitals are hereby fully incorporated herein by this reference as findings of the City Council and are deemed a material part of this Resolution.

Section 2. City Authorization. The City of Bradenton, Florida is authorized to apply for a loan in the amount of $48,354,900.00 to finance the construction projects identified in the 2023 City Wastewater Master Facilities Plan, and upon approval, to execute applicable loan agreement and related documents, and to comply with all loan program requirements.

Section 3. Repayment by City Revenues. The revenues pledged for the repayment of the anticipated loan are net water and sewer utility system revenues.

Section 4. City Authorized Representative. The Mayor is hereby designated as the authorized representative to provide the assurances and commitments required by the loan application process. The Mayor is hereby designated as the authorized representative to execute documents to secure the anticipated loan which will become a binding obligation in accordance with its terms when signed by both parties. The Mayor is authorized to represent the City in carrying out the City's responsibilities under all of the anticipated loan documents. The Mayor is authorized to delegate responsibility to appropriate City staff to carry out technical, financial, and administrative activities associated with the anticipated loan.

Section 5. Adoption of the 2023 CITY WASTEWATER PLANNING DOCUMENT. The City Council hereby officially accepts and adopts the "2023 Wastewater Master Facilities Plan for Florida Department of Environmental Protection State Revolving Fund Loan Applications for CW-4103A for the City of Bradenton". The 2023 City Wastewater Master Facilities Plan is attached hereto as **EXHIBIT "A"** and fully incorporated herein by this reference. The 2023 City Wastewater Master Facilities Plan shall be considered a management tool for purposes of providing information to assist the City with providing reliable wastewater utility service to its residential, commercial and institutional wastewater customers.

Section 6. Repeal of Prior Inconsistent Resolutions. All prior resolutions or parts of resolutions in conflict herewith are hereby repealed to the extent of the conflict.

Section 7. Severability. If any section, subsection, sentence, clause, phrase, word or portion of this Resolution is for any reason held invalid or unconstitutional by any court of competent

jurisdiction, such portion shall be deemed a separate, distinct and independent provision and such holding shall not affect the validity of the remaining portions of this Resolution.

Section 8. Effective Date. This Resolution shall become effective immediately upon adoption by the City Council of the City of Bradenton, Florida.

PASSED AND DULY ADOPTED BY THE CITY COUNCIL FOR THE CITY OF BRADENTON, FLORIDA, WITH A QUORUM PRESENT AND VOTING ON THIS DAY OF **FEBRUARY 8, 2023.**

ATTEST:

TAMARA MELTON CITY CLERK	Gene Brown MAYOR

APPROVED AS TO FORM:

Scott Rudacille
CITY ATTORNEY

Publication Date: January 23, 2023

JonesEdmunds









WASTEWATER MASTER FACILITIES PLAN

City of Bradenton | February 2023

CITY OF BRADENTON
WASTEWATER MASTER FACILITIES PLAN

Prepared for:

City of Bradenton Public Works and Utilities Department

Public Works Annex

1411 9th Street West

Bradenton, Florida 34205

Prepared by:

Jones Edmunds & Associates, Inc.

324 S. Hyde Park Avenue, Suite 250

Tampa, Florida 33606

City of Bradenton Project No.: 402 53 530 – 531 900 (January 2022)

Jones Edmunds Project No.: 07109-257-01

February 2023

Sean P. Menard, PE, CDT, ENV SP, Assoc. DBIA
Florida PE No.: 88647

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Appendix A Environmental Inventory

Appendix B Public Participation Meeting Minutes *[to be included after the meeting]* and Affidavit of Publication

Appendix C Financial Feasibility Documents *[not included in this draft document]*

1 INTRODUCTION

1.1 BACKGROUND

The area known as Bradentown was incorporated as the City of Bradentown in 1903 just after the Seaboard Air Line Railroad was extended into Manatee County and a bridge crossing the Manatee River from Palmetto to Bradenton was completed. The City became Bradenton in 1924 when the "w" was dropped from its name. Figure 1 shows that the City is in Manatee County, south of Tampa Bay on Florida's Gulf Coast. Along the north side of the City is the Manatee River, an estuary of lower Tampa Bay. The Braden River joins the Manatee River near the east boundary of the City, Wares Creek bisects the center of the City, and Palma Sola Bay lies to the west. Farther west of the City are Anna Maria Island and the Gulf of Mexico.

Figure 1 General Location Map

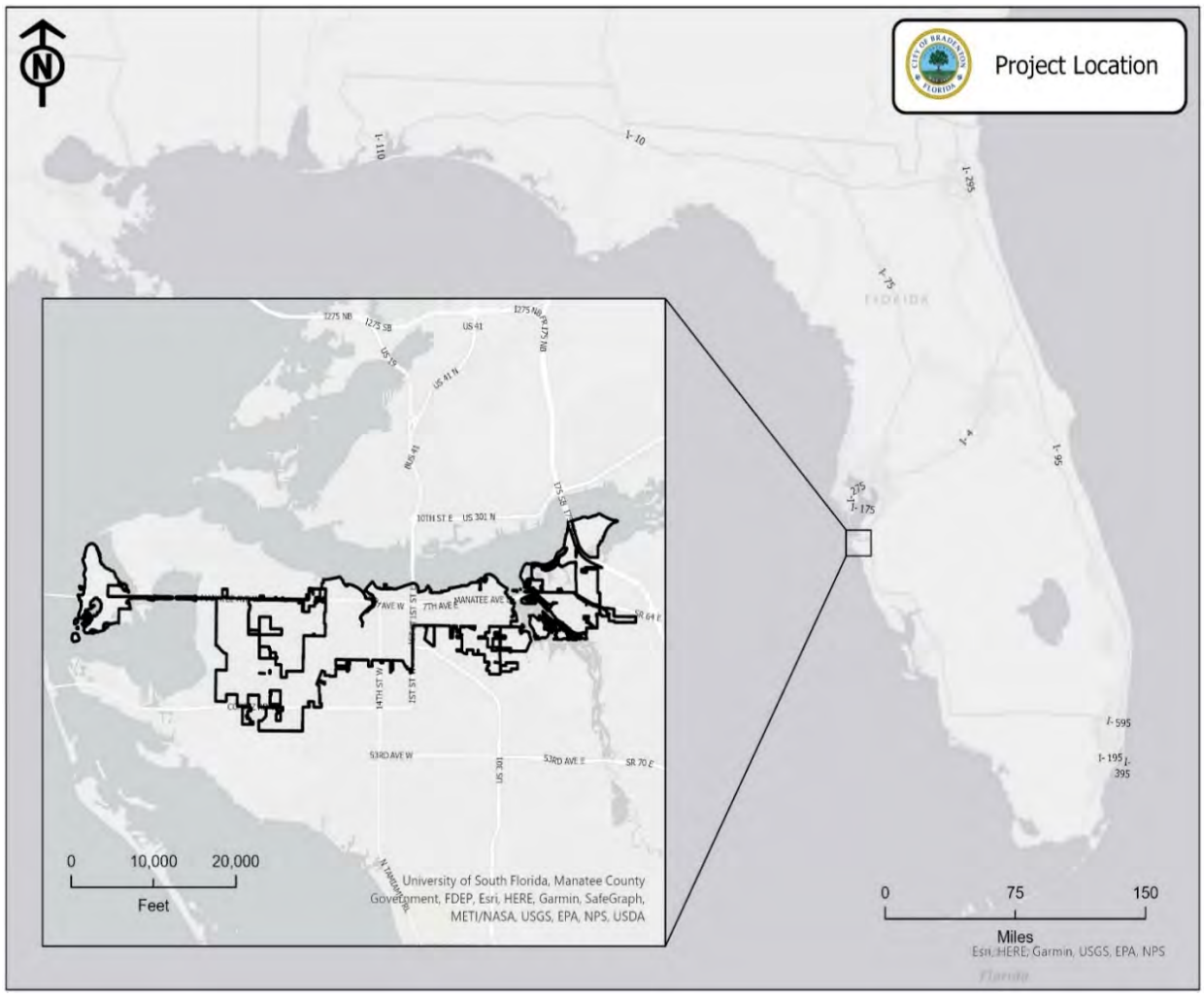


Figure 2 shows the current City limits of Bradenton. The boundaries of the incorporated area are highly irregular because the City has expanded east and west over the years through annexations at the request of individual property owners. The present boundaries extend

from Perico Island in Palma Sola Bay on the west to approximately 1 mile beyond the Braden River on the east. The south boundary is highly irregular.

The population of the City has increased from less than 3,000 in 1910 to almost 54,000 today. Over the 100-year history of the City, the population has grown at an average rate of 3.2 percent per year. The decades of high growth of the City were the 1910s, 1920s, 1950s, 1970s, and 1980s.

Major highways serving the City are Interstate 75 on the east edge and US Highway 301/41, which bisects the City. Both highways are north-south arterials. State Roads 64, 684, and 70 are the major east-west arterials serving the City.

Tourism and agriculture are the leading sources of income for the Bradenton area. Recent growth of light industry and manufacturing coupled with the existing base contribute to a stable diverse economy.

A primary goal of the City is to provide public facilities that protect investments in existing facilities; promote orderly and compact urban growth; and promote the quality of natural resources, particularly surface waters. The Public Works and Utilities Department is organized to provide these community services. Functions of the Public Works and Utilities Department include planning, construction, and operation of the City's wastewater collection, treatment, and disposal systems; water supply, treatment, and distribution systems; stormwater drainage system; streets; and park and recreation facilities. In addition, the Department provides solid waste collection services, garage services, and engineering services for the City.

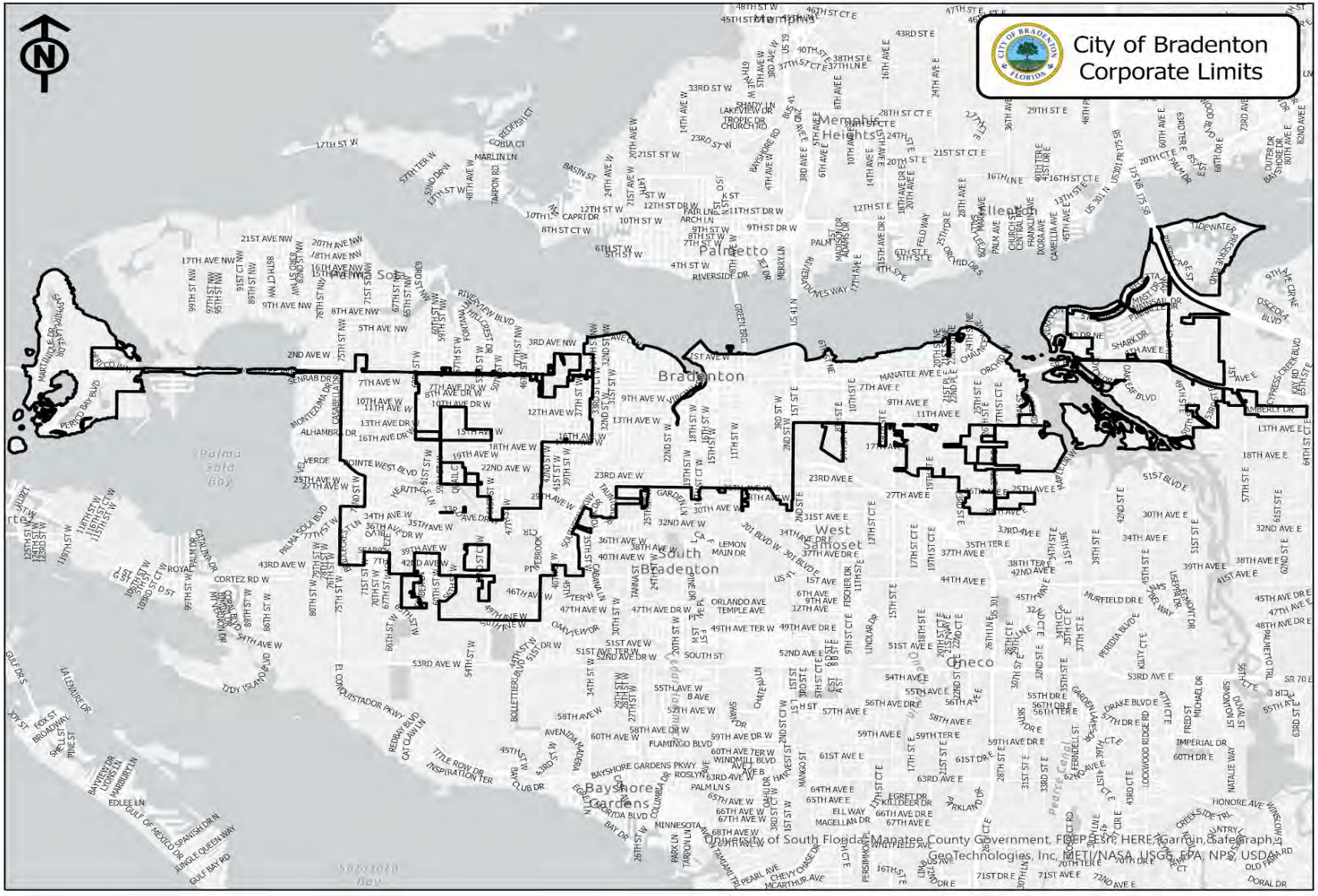
The City of Bradenton is legally authorized to own and operate a wastewater facility. The planning, design, construction, operation, and maintenance of each component of the wastewater facility are the responsibility of the Public Works and Utilities Department, as authorized under the City Charter. The Public Works and Utilities Department has an annual budget as authorized by the City Council, with funds dedicated to the wastewater facility as obtained through approved water and sewer fees from all customers of the City using wastewater services. In addition, the City collects fees from users of its reclaimed water system.

The City's rules governing the use of its wastewater system are contained in Chapter 70 of the City's Code of Ordinances. Chapter 70 includes all the City's utilities, including water, wastewater, stormwater management, and reclaimed water use.

The City of Bradenton has a Domestic Wastewater Facility National Pollutant Discharge Elimination System (NPDES) Permit from Florida Department of Environmental Protection (FDEP) and the US Environmental Protection Agency (EPA) to construct, operate, and maintain the wastewater and reclaimed water reuse systems currently installed. This is part of the maintenance responsibility of the City's Public Works and Utilities Department.

The City's lift stations and the wastewater treatment plant, including the reclaimed water storage and pumping facilities, are operated and maintained by the Public Works and Utilities Department. Divisions within the Public Works and Utilities Department directly responsible for operation and maintenance (O&M) of the wastewater and reclaimed water reuse utilities are the Sewer Collection, Lift Stations, and Wastewater Treatment divisions.

Figure 2 Bradenton City Limits



These divisions are supported by the Electrical and Engineering divisions as well as the Administrative Staff of the Public Works and Utilities Department.

1.2 Purpose and Scope

The scope and intent of the Wastewater Master Facilities Plan is to provide the City with a roadmap for wastewater collection and treatment infrastructure needs for the next 20 years and provide sufficient information for review and approval from the FDEP to qualify for State Revolving Fund (SRF) Loan funding. The City intends to use SRF funds as low-interest financing for the projects identified in this Plan. Clean Water State Revolving Fund (CWSRF) money is available for wastewater projects such as those proposed by the City.

1.3 Regulatory Framework

The following regulatory guidelines have shaped the framework for this Wastewater Master Facilities Plan:

- Senate Bill 64

  In an effort to promote water conservation and reuse of reclaimed water, Section 403.064(17), Florida Statutes (FS), required all domestic wastewater facilities to have submitted a plan by November 1, 2021, to eliminate nonbeneficial surface-water discharge by January 1, 2032. This protects the state's existing and future water supply needs while sustaining natural systems. On behalf of the City, Jones Edmunds submitted the annual progress report for Senate Bill 64 compliance. This is addressed further in Section 4.

- House Bill 53

  Section 403.9302, FS, requires a 20-year needs analysis for each county, municipality, or special district providing a wastewater or stormwater management program or system by June 30, 2022. Once the 20-year needs analysis is completed and submitted to the Office of Economic and Demographic Research (EDR), it needs to be updated and submitted every 5 years after this submission.

1.4 Overview

The Wastewater Master Facilities Plan includes the following:

- Population and flow projections.
- An inventory of the existing wastewater collection, transmission, treatment, and disposal system.

- A proposed plan that meets the requirements for SRF funding:
  - Identifies improvement projects for the 20-year planning period.
  - Identifies priority topics to proceed with in the near term (1 to 5 years).
  - Analyzes the priority topics based on different alternatives (Alternative Analysis).
  - Recommends a cost-effective, sustainable, and environmentally sound alternative based on the Alternative Analysis (Selected Alternatives).
  - Presents the cost and schedule for implementing the Selected Alternatives.
  - Identifies a source of financing the requested loan.

2 POPULATION AND FLOW PROJECTIONS

2.1 POPULATION PROJECTIONS

Table 1 lists historical population data for the City of Bradenton from 2012 through 2017, which were obtained from *Historical Functional Population* from Public Supply Annual Reports (PSARs). The City started using the PSARs in 2012, which applies water usage as a method to report the population.

Table 1 Historical Service Area Populations (2012–2017)

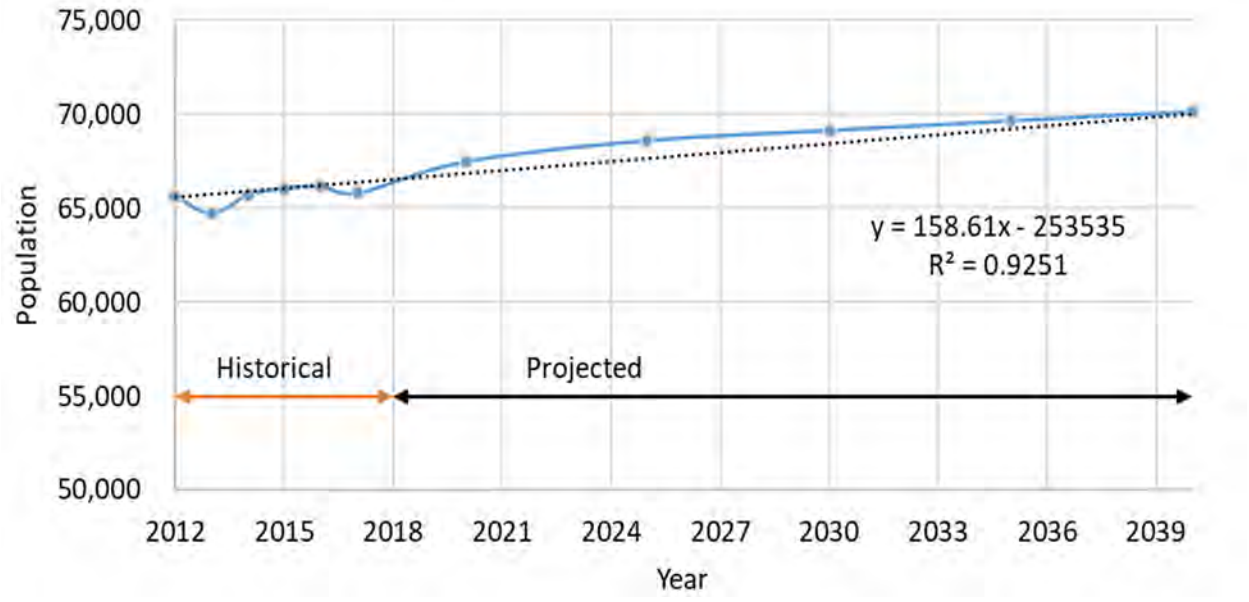
Year	Population	Annual Growth Rate (%)
2012	65,614	—
2013	64,731	-1.36
2014	65,721	1.51
2015	66,076	0.54
2016	66,167	0.14
2017	65,814	-0.54

Source: *Historical Functional Population* data from PSARs.

Note: — Not Applicable.

Figure 3 graphically presents the historical population obtained from PSARs and forecast population using the Southwest Florida Water Management District (SWFWMD) 5-year projections for 2020, 2025, and 2030. Forecast population was expected to be 67,484 in 2020, increasing to 67,604 in 2025 at an estimated growth rate of 0.33 percent. In 2030, the forecast population is expected to be 69,137, at a declining annual growth rate of 0.15 percent. These projections agree with the City's expectations since it has reached its maximum buildout.

Figure 3 Historical and Future Service Area Populations



2.2 Flows and Loads Projections

Jones Edmunds used annual average daily flow (AADF) and populations from Table 1 to calculate historical wastewater generation in gallons per capita per day (gcpd). Historical per capita wastewater-generated flow averaged 94 gcpd over the years from 2012 through 2017. To be more conservative, Jones Edmunds used a wastewater generation rate of 100 gcpd to estimate future wastewater flows through 2030. This rate coincides with the 2009 *City of Bradenton Comprehensive Plan*, Public Facilities Element, Policy 2.1.1. Table 2 summarizes these results and the 3-month average daily flow (3MADF) peaking factors.

Table 2 Historical per Capita Flows and 3-Month Peak Factors

Year	Per Capita Daily Flow (gpd)[a]	Maximum 3MADF/AADF Ratio
2012	85	1.22
2013	91	1.34
2014	92	1.18
2015	97	1.24
2016	96	1.25
2017	100	1.33
Average	**94**	**1.26**

[a] Based on residential population.

Note: gpd = gallons per day.

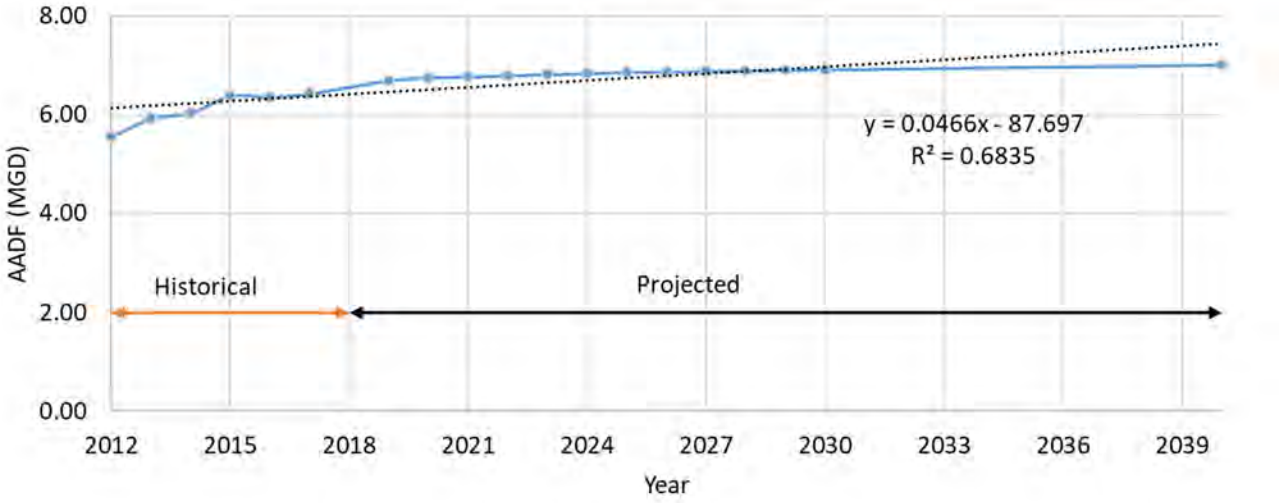
Table 3 shows that Jones Edmunds used the forecast population through 2040, a 100-gcpd wastewater generation rate, and a 1.26 3 MADF peaking factor to forecast wastewater flows until 2040. Figure 4 graphically shows historical and projected AADF until 2040. The figure suggests that by 2040 the wastewater treatment facility (WWTF) is expected to be operating at 78 percent of its design treatment capacity of 9.0 million gallons per day (MGD) AADF. Based on the projected wastewater flows, the AADF is not expected to reach the 9.0-MGD-AADF permitted capacity of the plant within the next 10 years.

Table 3 Projected Wastewater Flows

Year	AADF[a]	Year	AADF[a]
2019	6.69	2026	6.87
2020	6.75	2027	6.88
2021	6.77	2028	6.89
2022	6.79	2029	6.90
2023	6.82	2030	6.91
2024	6.84	2040	7.01
2025	6.86		

[a] Based on 100 gcpd.

Figure 4 Historical and Projected Wastewater Flow Within the WWTF Service Area

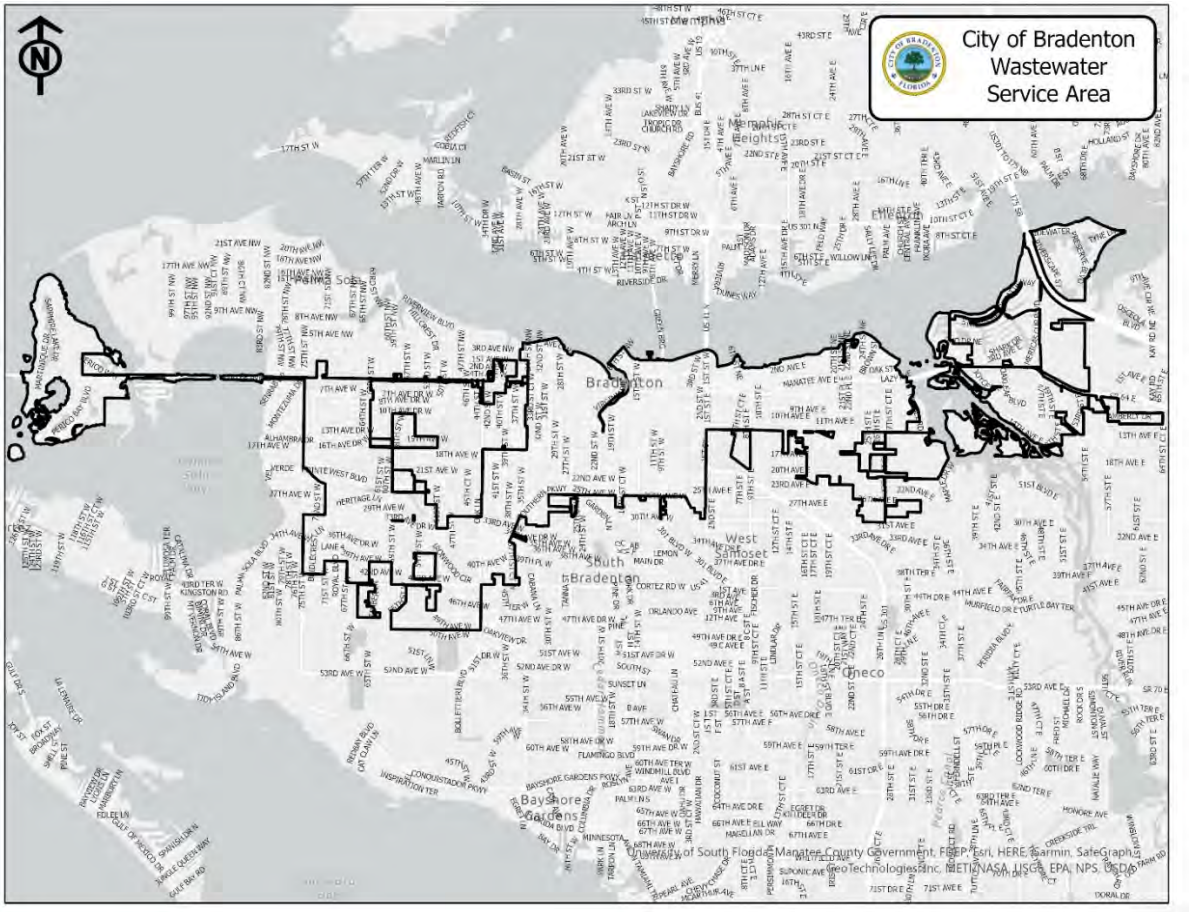


3 WASTEWATER COLLECTION AND TRANSMISSION SYSTEM

3.1 OVERVIEW

The City of Bradenton service area covers approximately 15 square miles that extend generally south of Manatee River, west of Interstate 75, north of 26th Avenue, and east of Palma Sola Bay and Anna Maria Sound. Figure 5 provides a map of the wastewater service area, which encompasses the City limits of Bradenton.

Figure 5 City Service Area



The gravity collection system contains approximately 4,300 manholes and 975,000 linear feet (LF) of non-pressurized collection piping. The pressurized system contains approximately 195,000 LF of piping, which conveys the wastewater to lift stations and/or the WWTF. Pipe diameters for the non-pressurized and pressurized systems range from less than 4 inches to 36 inches. Manholes are constructed of brick and mortar or precast concrete.

The City owns and operates 64 wastewater lift stations (WWLSs); 29 privately owned and operated WWLSs are within the City service area. Due to the locations of existing infrastructure, one City WWLS, No. 30, and two private WWLSs within City service area, Nos. P23 and P24, discharge to the Manatee County Utilities wastewater system. The

wastewater from the remaining 63 City WWLSs and 27 private WWLSs is conveyed to the Bradenton WWTF at 1810 First Street West.

3.2 Existing Conditions

The City's WWTF is permitted for and operates as a 9.0-MGD facility. Typical west-central Florida rain events create conditions where the WWTF experiences 35-MGD peak flows due to inflow and infiltration (I&I). I&I describes the way that groundwater and stormwater enter a sanitary sewer collection system. The collection systems are generally within rights-of-way (ROWs) or easements and are designed to collect wastewater from fixtures and appliances inside homes or businesses and transport the liquid to a treatment plant.

High levels of I&I reduce pipeline capacity in the collection system that would otherwise be available to transmit sanitary flow. During extreme storm events, sewer surcharge may result, causing back-up of sewage into homes and businesses, local overflows of untreated sewage, increased incidences, and increased operating costs. I&I also results in the transport of ground- and surface-water out of the natural watershed, which may adversely impact ground- and surface-water resource areas (Massachusetts Water Resources Authority, 2001).

A primary City goal is to reduce peak flow through the WWTF from 35 MGD to 20 MGD to reduce/eliminate unauthorized discharge events at the facility. To support this effort, the City is enhancing the accuracy of their collection system maps to assist in identifying problem areas, performing pipe and manhole inspections to identify where lining and replacement is required, and inspecting manholes to reduce stormwater contributions. The following sections briefly summarize the work completed to date.

3.2.1 System Mapping

Historically, the City's sanitary system was depicted on a series of 100-foot, hand-drawn mylar maps. These mylars were merged in the 1980s to create an overall AutoCAD map of the system. Unfortunately, these methods lacked spatial accuracy, inspector access, and tracking capabilities. In 2014, the City started geographic information system (GIS) mapping of the public and private sanitary system, including manholes, gravity pipes, force mains, lift stations, and valves. This effort was completed in 2016. The City continues to update the GIS map with cleanouts and laterals as well as any system built with new development.

3.2.2 Pipe Inspections and Lining

In 2016, the City began operating its own camera truck for inspecting the sewer system. Initial closed-circuit television (CCTV) videos completed with the camera truck were not connected to a GIS framework; however, from 2017 forward, all videos are connected to inspection mapping for the sanitary sewer system, the video being specific to a pipe segment. A pipe segment is defined as the length of pipe between two manholes. Approximately 10 linear miles of pipe were cleaned and recorded in this process, generating 3.6 linear miles of pipe lining within the previous 3 years. Pipe lining was also installed in the 1980s. Although most of the 1980s installations have not been re-inspected, those that have been re-inspected do not show any tearing or excess wear after 40 years of use in a corrosive environment.

When recorded, the video software (from CUES, Inc.) assigns two scores to each pipe segment – a structural score and an O&M score. For pipe lining purposes, only the structural score is reviewed. The score is viewed as an indicator to various problems associated with the pipe and assists with prioritizing pipelining activities. The pipe scores range from 0 to 100, 0 being a pipe without any defects and 100 reflecting a pipe with multiple defects and infiltration issues. The scoring provides a tool for comparing pipes within the system to prioritize lining activities.

For the pipe lining completed between 2016 through 2020, the City used a cutoff score of 50 to prioritize and schedule the cured-in-place pipe (CIPP) work. Approximately 11 miles of pipe scored 50 or greater in the evaluations and 4 miles of pipe were subsequently lined. Pipe inspections indicate that root intrusion, pipe holes, and pipe separation at the bell are common problems in the City collection system.

The City continues to pursue pipe lining efforts and is planning for work assignments to continue pipe lining, with an additional over 220,000 linear feet of pipe lining to be prioritized and proposed in the 2023 and 2024 fiscal year. These projects would be spread over three 6-month efforts and Figure 6 shows the priority areas. Table 4 lists the City's priority pipe lining projects. The listed Groups A through H are for the following 10 sewersheds: 01, 02, 06, 07, 14, 18, 20, 21, 23, and 25.

3.2.3 Manhole Inspections and Lining

The City completed GIS mapping of the sanitary sewer system in 2016 as a framework for inspection and began a formal manhole inspection program in 2017. Before the inspection program started, staff identified critical factors when inspecting manholes including proximity to waterbodies, age of structure, any force main discharge, manhole depth, hydrogen-sulfide corrosion coverage, material, grout condition, manhole lid condition, and pipe connection condition.

The first critical factor for identifying where to start evaluating sewershed areas was based on the age of the development including the date of construction, date of rehabilitation, and date of development within the lift station service area. The second critical factor was the proximity to a waterbody, assuming that the water table was higher in these areas.

The City adopted a rating system from 1 to 10, which was implemented with 1 being a new lining and 10 being significant hydrogen-sulfide damage or pending failure. Of the ±4,300 manholes in the system, 1,400 were inspected in the last 4 years, which is approximately one third of the manholes. Manhole inspections evaluate the following characteristics and are assigned a score of 1 through 10, photographs are taken, and the condition is entered in a GIS data set for visual representation:

- Manhole depth.
- Construction material, bricks missing or loose, and concrete cracking or deteriorating.
- Bench condition.
- Infiltration markers.
- Structural stability of ring and cover and pavement conditions.
- Hydrogen-sulfide damage.

Figure 6 FY 2023–FY 2024 Pipe Lining Priorities

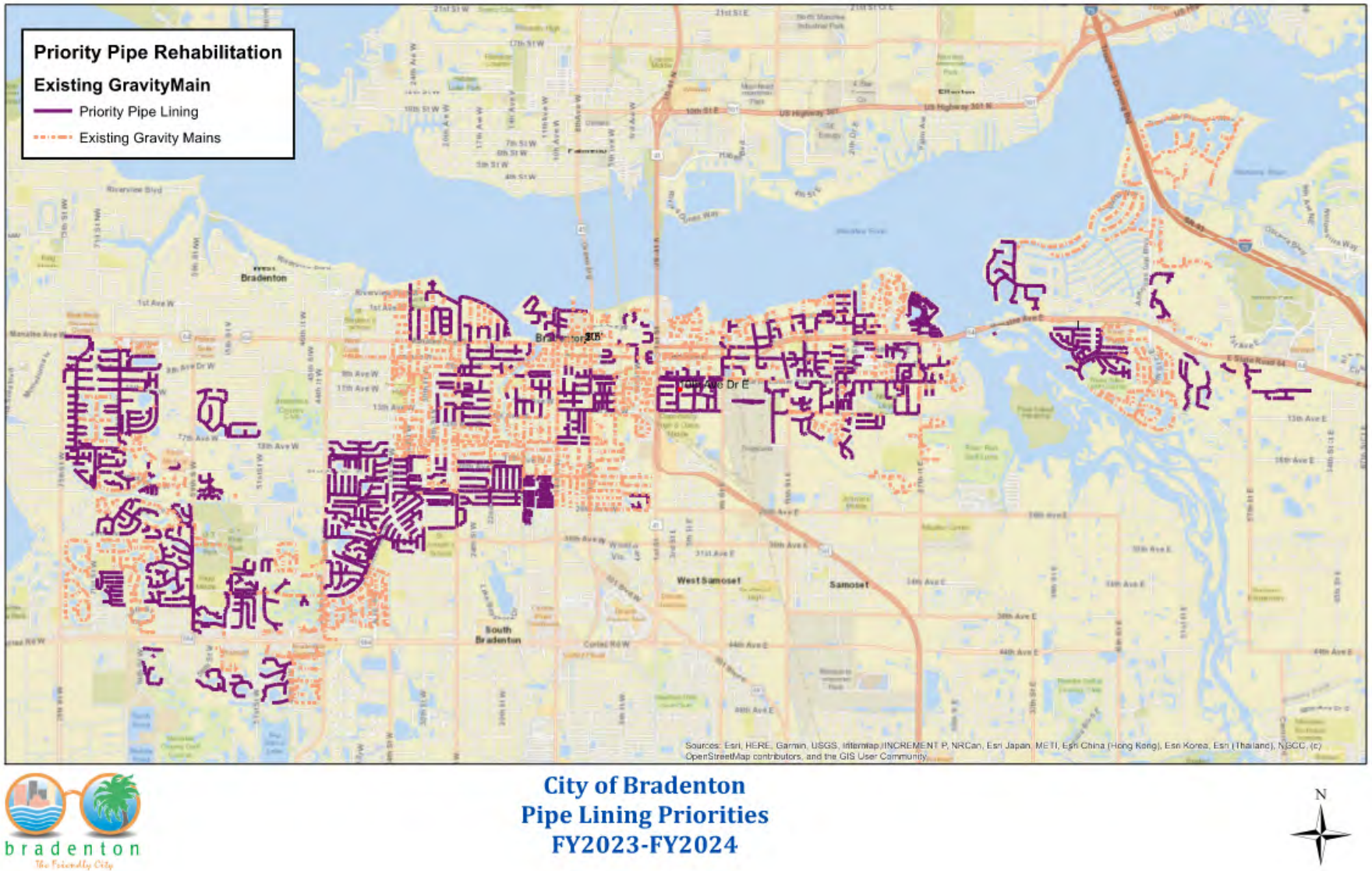


Table 4 Priority Pipe Lining Projects

Group	Lift Station ID	Pipe Lining (LF)	Cost Estimate to Line
A	06	19,730	$986,500
A	14	12,200	$610,000
A	20	13,850	$1,038,750
B	02	21,000	$600,000
B	18	4,500	$225,000
B	20	9,200	$460,000
B	25	9,200	$552,000
C	02	8,000	$400,000
C	07	9,800	$588,000
C	14	7,900	$395,000
C	18	4,650	$232,500
C	20	13,750	$687,500
D	01	4,200	$420,000
D	02	2,400	$180,000
D	07	6,500	$325,000
D	14	3,400	$170,000
D	18	4,700	$399,500
D	20	10,500	$525,000
D	21	6,600	$396,000
D	23	4,000	$200,000
E	14	7,600	$570,000
E	20	12,900	$645,000
E	21	4,800	$288,000
E	23	8,500	$637,500
F	14	6,410	$480,750
F	23	5,600	$280,000
G	14	6,000	$450,000
H	14	8,250	$618,750
TOTAL		**221,640**	**$13,280,750**
ROUNDED TOTAL			**$13,300,000**

Table 5 shows the manhole inspection results to date for the oldest sewershed areas. The listed 19 sewersheds include 01, 02, 04, 06, 07, 08, 09, 10, 11, 13, 14, 17, 18, 19, 20, 21, 22, 23, and 28. The manholes lined and identified for lining scored 9 or 10 and are considered critical based on the rating system discussed above. Of the 4,200 manholes, approximately 550 have been upgraded, prior to requesting any funding, to include corrosion-resistant liners primarily within the oldest service areas and along the Manatee River. Figure 7 shows a spatial distribution of the inspected manholes and lined manholes.

The City continues to pursue manhole lining efforts. There is planning for work assignments to continue manhole lining with an additional 700 manholes proposed to be prioritized in the 2023 and 2024 fiscal years of the 901 manholes identified as needing lining. Figure 8 shows the FY 2023–FY 2024 manhole lining priorities. The City has historically averaged $6,000 for the complete lining of their manholes, resulting in an estimated $4,200,000 required for this effort.

Table 5 Manhole Inspection Summary

Lift Station	Year of Original Development	# Manholes in Service Area	Inspected	% Inspected	Lined from 2013 to Present	Inspected; Identified to be Lined	Total Manholes for Lining	% Manholes to be Lined	Identified to be Lined FY 2023-2024
1	1955	201	104	51.7	47	80	127	63.2	80
2	1955	114	97	85.1	73	35	108	94.7	35
3	1955	23	18	78.3	6	0	6	26.1	0
4	1955	170	129	75.9	44	40	84	49.4	25
5	1955	27	27	100.0	10	17	27	100.0	0
6	1955	226	164	72.6	31	65	96	42.5	25
7	1955	204	139	68.1	89	25	114	55.9	25
8	1955	147	100	68.0	43	60	103	70.1	60
9	1955	110	14	12.7	13	5	18	16.4	5
10	1955	35	17	48.6	1	25	26	74.3	25
11	1955	86	64	74.4	35	20	55	64.0	20
12	1955	14	11	78.6	0	0	0	0.0	0
13	1955	52	31	59.6	10	40	50	96.2	40
14	1955	472	237	50.2	65	108	173	36.7	70
15	1972	7	0	0.0	0	0	0	0.0	0
16	1953	5	5	100.0	5	0	5	100.0	0
17	1973	192	117	60.9	3	87	90	46.9	50
18	1970	126	40	31.7	0	35	35	27.8	35
19	1968	27	16	59.3	0	5	5	18.5	5
20	1970	356	39	11.0	2	25	27	7.6	25
21	1960	265	144	54.3	43	75	118	44.5	75
22	1960	45	36	80.0	1	26	27	60.0	25
23	1973	352	82	23.3	17	65	82	23.3	65
24	1973	5	4	80.0	4	0	4	80.0	0
25	1973	42	19	45.2	0	18	18	42.9	0
26	1973	43	13	30.2	1	9	10	23.3	0
27	1970	98	64	65.3	4	8	12	12.2	0
28	1970	14	14	100.0	0	10	10	71.4	10
All other Lift Stations	From 1975 to Present	745	109	14.6	11	18	29	3.9	0
Total		**4,203**	**1,854**	**44.0**	**558**	**901**	**1,459**	**34.7**	**700**

Figure 7 Manhole Inspection and Lining

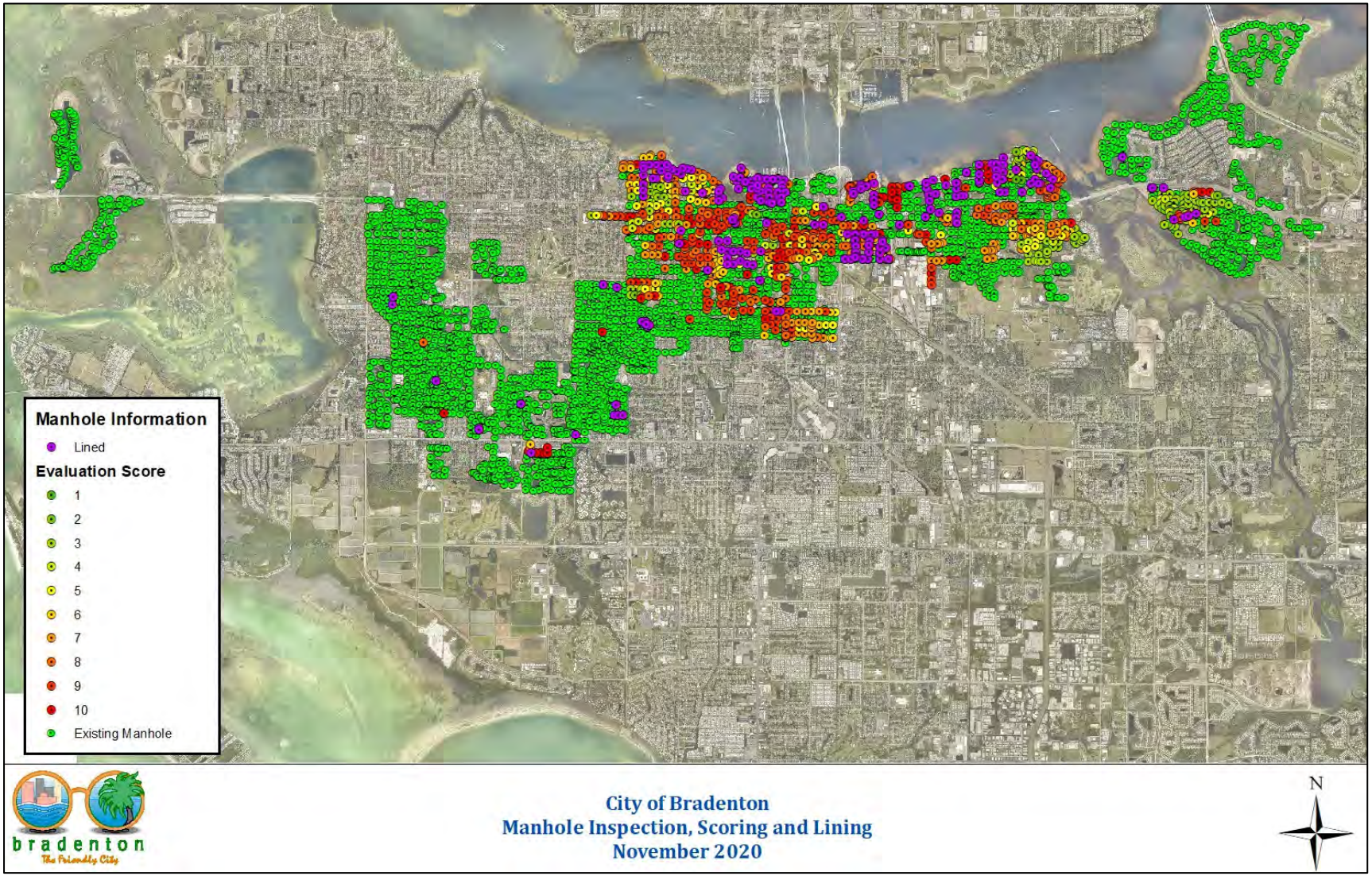
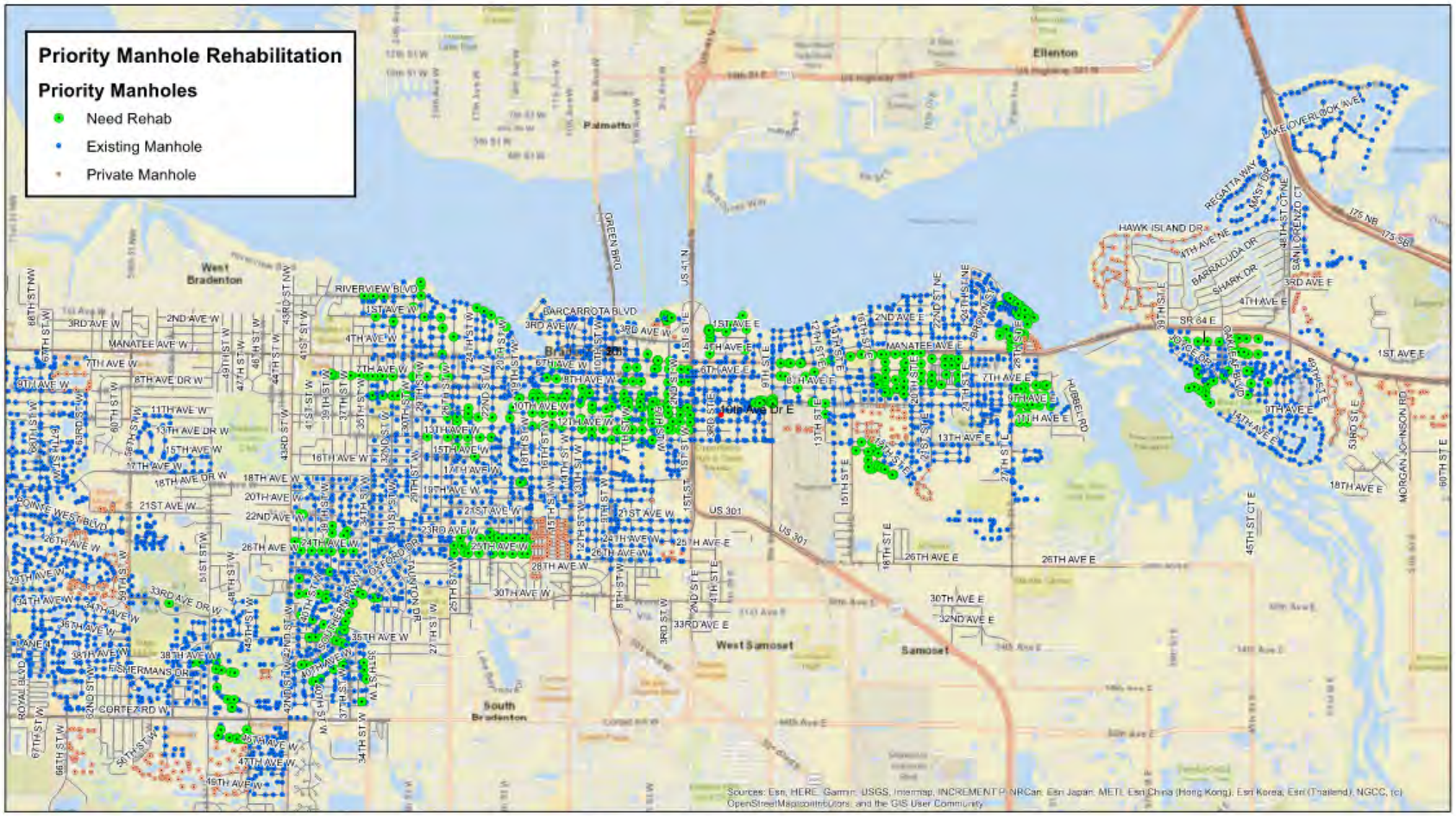


Figure 8 FY 2023 – FY 2024 Manhole Lining Priorities



3.2.4 Stormwater Abatement

In 2012, the City contracted with an outside company to inspect, provide rain guards, and install chimney seals on 610 sanitary manholes and to smoke-test approximately 30 miles of gravity sewer pipe. The manhole inspections yielded four manholes assessed in poor condition, where a score of 9 or 10 indicated the need for immediate lining, with the remainder being in fair or good condition. The City performed additional inspections between 2017 and present.

No main line issues were identified in the approximately 30 miles of gravity sewer pipe that received smoke testing. The smoke testing found 130 open or broken sanitary cleanouts, which have been repaired or replaced by the City.

3.3 I&I Improvements

A primary City goal is to reduce the peak flow through the WWTF from 35 to 20 MGD to reduce/eliminate unauthorized discharge events at the plant. To support this effort, the City conducted an I&I study and created a protocol to identify, rank, and prioritize capital projects within the collection system to enable the City to meet its WWTF peak flow-reduction goal. The City has focused their efforts on addressing I&I for the following collection and transmission system components:

- Collection System Piping.
- Manholes.
- Stormwater Abatement Programs.

4 WASTEWATER TREATMENT AND DISPOSAL

4.1 OVERVIEW

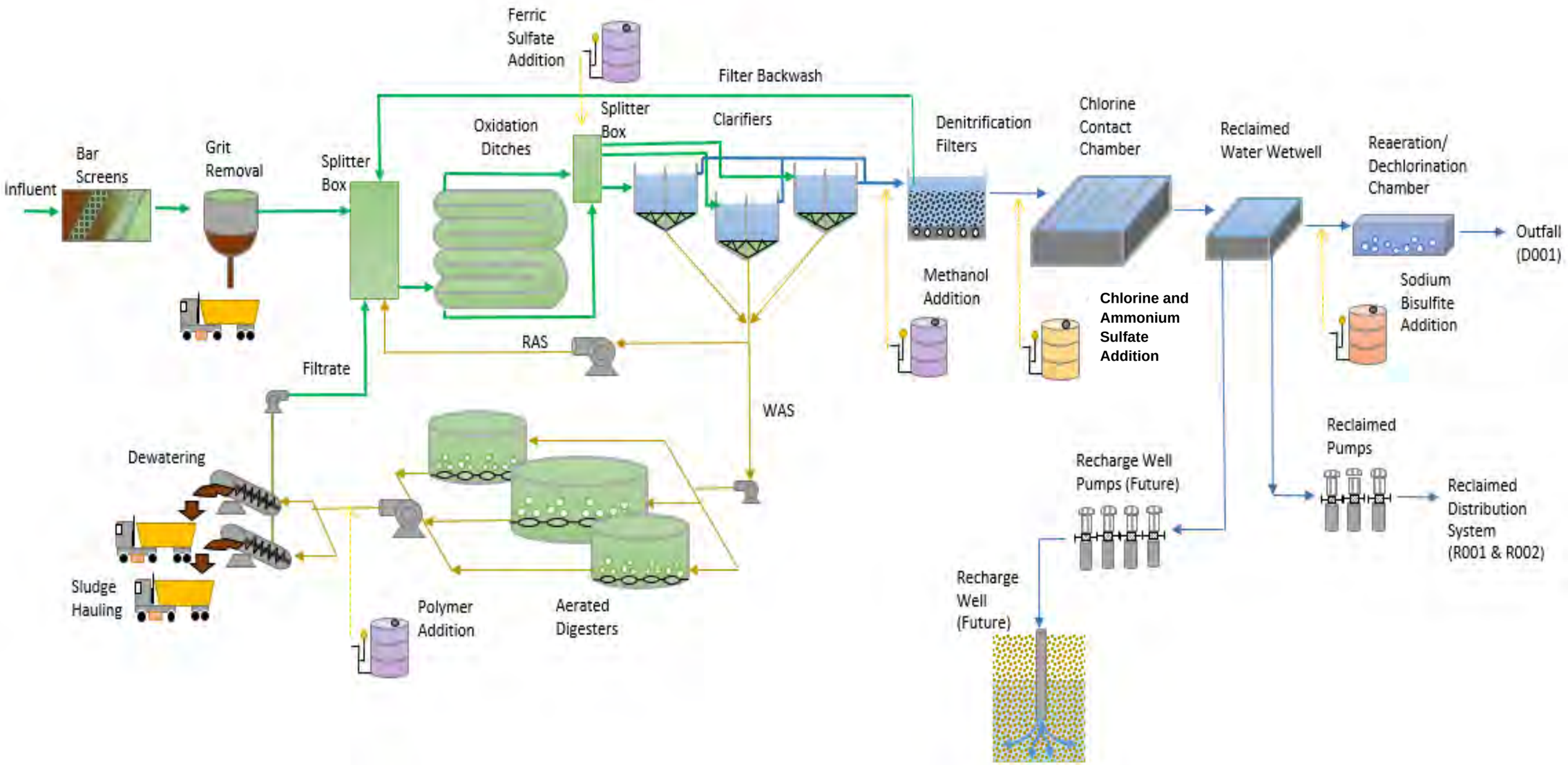
The City of Bradenton owns and operates a biological nutrient-removal (BNR) WWTF on a 10-acre site at the intersection of US 301 and 17th Avenue West (1810 First Street West, Bradenton, FL). The Bradenton WWTF is permitted to treat wastewater up to 9.0 MGD AADF and is classified by Chapter 62-699, Florida Administrative Code (FAC), as a Type I activated-sludge advanced WWTF, with a surface water discharge rated for 6.0 MGD AADF. The facility provides advanced treatment of wastewater using an extended aeration oxidation ditch and denitrification filters and high-level disinfection to allow unrestricted public-access reuse water. Specifically, the WWTF removes organic contaminants, suspended solids, total-nitrogen (TN), and total phosphorus (TP) to meet low-level limits for biological oxygen demand (BOD):total suspended solids (TSS):TN:TP of 5:5:3:1 on a milligrams-per-liter (mg/L) basis. Effluent from the facility is distributed for unrestricted public-access reuse water via the City's reclaimed water system and/or is discharged to Outfall D001 on the Manatee River – a Class III marine water body. In order to address a plan for eliminating nonbeneficial surface water discharge related to Senate Bill 64, the City submitted required documents in October 2021 and has received approval from FDEP for both a proposed Underground Injection Well to be incorporated into their permit, and also a limited wet weather discharge to be granted, in order to meet the Senate Bill 64 rule requirements by January 1, 2032. Residuals from the facility have been approved by FDEP as meeting Class B requirements and are disposed of by beneficial reuse land application by a contract hauler at their FDEP-approved sites. Figure 9 shows the current Bradenton WWTF process flow diagram. The following describes the Bradenton WWTF process in more detail:

- **Headworks**: Raw wastewater enters the WWTF headworks structure where screening and grit removal take place. After screening, wastewater flows into the forced vortex-type grit-removal unit for grit separation. Compacted screenings and separated grit are dewatered and loaded for disposal. Wastewater exits the headworks structure and is sent to the Oxidation Ditch Flow Splitter Box to be equally split between the two Oxidation Ditches.
- **Biological Treatment**: Wastewater from the Flow Splitter Box splits between two treatment trains. Each train includes a carrousel-type oxidation ditch aeration basin for organic and biological nutrient removal. Mechanical surface aerators keep the oxidation ditches aerated as well as maintaining a velocity of 1 foot per second (ft/sec) through the ditch, resulting in an internal recycle ratio of 200 MG/day. This large recycle ratio allows for cyclic aeration and anoxic cycling within the ditch for complete nitrification of the incoming wastewater and partial denitrification. The two parallel carrousel-type aeration basins are constructed of prestressed concrete. Treated flow is then sent to a Clarifier Flow Splitter Box.
- **Secondary Treatment**: To reduce the TP in the finished reclaim water to 1.0 mg/L or less, a solution of 12.5% ferric sulfate is dosed into the Clarifier Flow Splitter Box. Flow from the Clarifier Flow Splitter Box splits between three clarifiers, with a fourth being proposed for construction. Insoluble iron-phosphate solids precipitate in the clarifiers and are removed in the waste sludge. The three circular, center-feed-type clarifiers with suction tube sludge removal and internal effluent launder are housed in prestressed concrete tanks. These provide a passive environment for solids separation. The clarifiers

are skimmed to remove floatables and scum before the clarifier effluent flows over a circumferential weir. Sludge pumps send settled solids from the secondary clarifiers to two locations: to the Headworks Flow Splitter Box as return-activated sludge (RAS) to replenish the microbial community and to the aerobic digesters as waste-activated sludge (WAS).

- **Tertiary Treatment – Deep Bed Denitrification Filtration**: Clarified water is conveyed to six sand-media gravity-type downflow filters with air scour and backwash to remove the remaining suspended solids to below 5 mg/L-TSS to meet high-level disinfection requirements. Denitrification takes place in the filter using methanol as the carbon source. Filter backwash is pumped to the Oxidation Ditch Flow-Splitter Box.
- **Tertiary Treatment – Disinfection**: Filtered water splits between two Chlorine Contact Chambers (CCCs) where liquid sodium hypochlorite and ammonium sulfate are used for monochloramine disinfection. The CCCs are below grade, baffled, cast-in-place concrete basins. The chambers are designated for reclaimed water production that meets high-level disinfection requirements. The CCCs are covered with an ultraviolet (UV) 90 polypropylene cloth to avoid chlorine degradation and chlorine residual reduction as a consequence of UV radiation by direct sunlight.
- **Effluent Reclaimed Storage and Disposal Facilities**: Reclaimed quality water is pumped to a reuse pumping basin (Reclaimed Storage Basin) for storage and distribution to the reclaimed system. Reclaimed water can be sent to R-001, Master Urban Reuse, and to R-002, Slow-Rate Public-Access Reuse systems. Excess reclaimed water flow from this basin is sent to the post-aeration and dechlorination basin where liquid sodium bisulfite is used for dechlorinating the treated wastewater. This flow is sent to Outfall D-001.
- **Aerobic Digestion**: WAS is pumped from the clarifiers to the aerobic digesters where blowers provide aeration to aerobically digest the sludge before screw press dewatering. Dewatered sludge is hauled away for beneficial reuse land application by a contract hauler. Filtrate from the screw presses' dewatering system flows to the on-site lift station where it is pumped to the Oxidation Ditch Flow Splitter Box. Decanted water from the decant system also flows to the on-site lift station and ultimately to the Oxidation Ditch Flow-Splitter Box.
- **Future Recharge Well and Well Pump Station**: A recharge well and well pump station is planned to be incorporated into the facility as depicted on Figure 9. This well and well pump station have already been permitted by FDEP domestic wastewater in the Bradenton Permit FL0021369 and in the FDEP Underground Injection Control (UIC) construction and testing permit 361706-001-UC/5R.

Figure 9 Bradenton's WWTF Process Flow Diagram



4.2 Regulatory and Permitting Considerations

The permitted treatment capacity of the facility is 9.0 MGD AADF. The current permitted disposal capacity is limited to 6.0 MGD AADF through the surface water discharge (D-001) to the Manatee River (Class III Marine Waters). The disposal limit for land application through monitoring site R-001 is 1.5 MGD AADF. R-002 land-applies a limit of 6.0 MGD AADF reclaimed water to the Lakewood Ranch Development. U-001 is a new 15.0-MGD-AADF-permitted-capacity reuse system discharging to an underground injection well system consisting of one Class V, Group 2 recharge well (RW-1) and two monitoring wells (DMW-1 and SMW-1). Table 6 lists the flows and primary water-quality requirements for each effluent reuse and disposal method.

Table 6 Effluent Requirements

Reuse/Disposal Method	D-001	R-001 & R-002	U-001
Max Flow (MGD)	6.0[a]	1.5[a] & 6.0[a]	15.0[a]
Max BOD (mg/L)	5.0[a] /6.25[b] / 7.5[c] /10[d]	20[a] /30[b] /45[c] /60[d]	Not applicable
Max TSS (mg/L)	5.0[a] /6.25[b] / 7.5[c] /10[d]	5[d]	Not applicable
Max TN (mg/L)	3.0[a] /3.75[b] / 4.5[c] /6[d]	Report[d]	Not applicable
Max TP (mg/L)	1.0[a] /1.25[b] / 1.5[c] /2[d]	Report[d]	Not applicable
Total Fecal (#/mL)	25[d]	25[d]	Not applicable

Notes: #/mL = number per milliliter.
Statistical Bases: [a]annual average; [b]monthly average; [c]weekly average; [d]single sample.

The Bradenton WWTF operations are regulated by FDEP under the provisions of Chapter 403, FS, and the applicable FAC rules. The following permits govern plant operations:

- Plant Operating Permit (FL0021369), Expiration Date: September 8, 2025.
- IW-1 Permit (361706-001-UC/5R), Expiration Date: April 16, 2024.

4.3 Existing Conditions

This section includes an overview of the existing conditions of the WWTF. This includes details from a visual inspection of each treatment component and discussions with plant personnel regarding maintenance and operational problems that they may have encountered with each component. All WWTF equipment is well maintained.

Headworks

From 2017 through 2022, the WWTF performed modifications on the headworks including constructing a new bypass channel with a new staircase and walkway, replacing mechanically cleaned bar screens and aluminum slide gates, repairing concrete channels and coating for hydrogen sulfide corrosion, and replacing a channel cover for odor control. A new Oxidation Ditch Flow-Splitter Box was constructed adjacent to the headworks.





The mechanically cleaned bar screen, bar screen conveyor belt, and access stairs and walkways are functioning well. The City has replaced the mechanical screens and grit removal system and has demolished the Biocube™ odor-control system. They will continue monitoring the odor-control performance as needed.

Carrousel-Type Aeration Basins (Oxidation Ditches)



Carrousel-type aeration basins and aeration zone covers

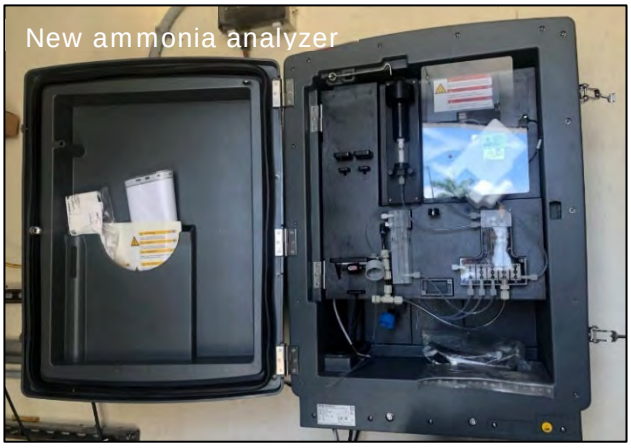
The City's two Carrousel-type aeration basins are equipped with four (two in each ditch) two-speed Eimco mixers/aerators. The zones around the mixer/aerators are covered with aluminum covers. In 2017, the City rebuilt the four Flender gear boxes associated with surface mechanical aerators and installed new Ovivo Surface mechanical aerators and invertor-duty motors with variable-frequency drives (VFDs) and a Dissolved Oxygen (DO) Control System.

Additionally, a DO control and monitoring system (Hach®) using process signals from the City's existing ammonia analyzer was installed to precisely and automatically control the nitrification/denitrification process within the ditches. New covers were installed over the aeration zones. In 2018, the sand and grit collected in the bottom of the two basins were removed, hauled, and disposed of by a subcontractor.



Hach® DO Control Meter

Ammonia Analyzer


New ammonia analyzer

The City installed a ChemScan in 2013 to monitor ammonia (NH_3) and nitrate (NO_3) in the carrousel-type aeration basins No. 1 and No. 2. In 2019, the ChemScan was replaced by an ammonia analyzer (*Amtax*, Hach®). The installed equipment consists of a digital on-site analyzer with a self-cleaning membrane designed for the high-precision determination of ammonium concentration directly at the tank.

Clarifiers



Starting in 2016 and through 2018, the City installed new mechanical components for each clarifier. The clarifiers are currently in good working condition; however, during wet season, the clarifiers experience short-circuiting causing the biological layer of sludge (mixed liquor suspended solids [MLSS]) to overflow into downstream filters. The City is pursuing a clarification system upgrade.

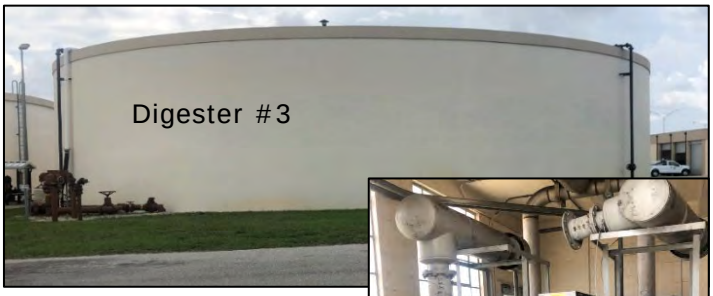
Return- and Waste-Activated Sludge Pumps

The return sludge pump station was upgraded in 2013. The City replaced the WAS centrifugal pumps with progressive cavity pumps. RAS Pumps #4 and #5 were replaced by a Gorman-Rupp pump model. RAS Pump #3 was replaced at a later date with the same model pump as RAS Pumps #4 and #5. RAS Pumps #1 and #2 are working as intended. The WAS pumps are working properly, and no replacements are scheduled at this time.


New RAS #4 Pump

Aerobic Digesters

Digester #1 and Digester #2 are in good structural condition. Digester #3 was taken offline in 2011 and is scheduled to be demolished as part of future facility improvements. Digesters No. 1 and No. 2 had their diffuser membranes replaced during the last permit cycle. Of the five aeration blowers, the shelf spare blower was rebuilt and two blowers were replaced with new blowers during the past permit cycle; two blowers are budgeted to be replaced within the next 5 years. The City recently installed the selected long-term solution to succeed the failed Dissolved Air Floatation unit – a decant system for the aerobic digesters that returns the decanted water to the on-site lift station and allows better aeration from the digesters' in-situ diffusers.


Digester #3


Blowers to be replaced

Sludge Dewatering and Polymer System

In 2016, the City started a project to demolish the two Von Roll belt filter presses (BFPs) and install a new dewatering system. In general, the project consisted of demolishing the following equipment: two BFPs, the polymer make-up and feed systems, the belt conveyor (for exterior trailer loading), two air compressors, the dewatering control room, concrete pads and containment areas, electrical equipment, lighting on the first and second floors, and the potable water sink.

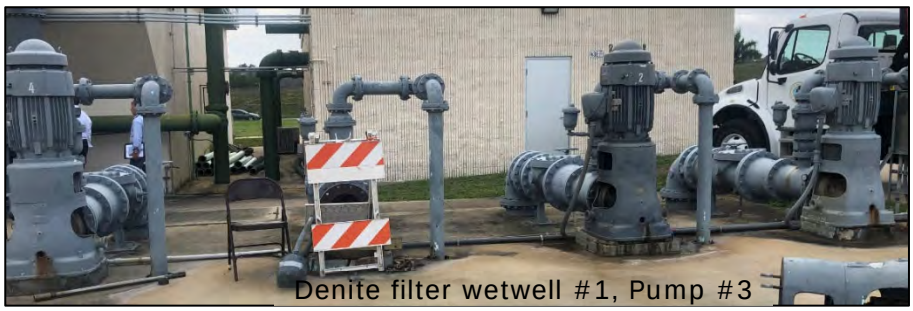


As part of this project that was completed in 2017, the City installed the following equipment and systems: two screw press dewatering units with flocculation tanks; two polymer blending units consisting of packaged, skid-mounted polymer activation; dilution and feed units; two dewatered cake pumps to load trailers in the interior truck-loading bay and exterior of the building; a pre-engineered metal canopy to cover the exterior truck-loading area and associated truck-loading slab and foundation; concrete pads and containment areas; a dewatering control room; supervisory control and data acquisition (SCADA) monitoring for status and alarm conditions; and fiber optic communications. Additionally, the City had lighting installed on the first and second floors and a potable water sink. The City also replaced the BFP feed pumps. Additionally, the dewatering pump and drive were replaced during the last permit cycle and now can be controlled by a VFD controller.

Denitrification Filters and Carbon Source System

The original four denitrification (Denite®) filter units and the two newer units and associated equipment are functioning well. The system contains seven operational pumps and has a filter lift station control system. Denite® is a fixed-film biological denitrification process that also serves as a deep bed filtration system capable of removing TSS to a level of 2 to 3 mg/L and meeting stringent TN discharge limits.

Denitrification takes place in the filter using methanol as a carbon source. The methanol feed system to the filters was upgraded in 2021 to install two VFD controllers and is controlled by a control panel mounted in the blower building. The desired flow rate is entered into a programmable controller in the panel. The filter's control panel is separated from the other treatment units in SCADA, and the City is planning to have the denitrification filters incorporated under a single global SCADA system within the next 2 years.


Denite filter wetwell #1, Pump #3

The magnetic flow meter was replaced in 2018, but the new one is experiencing poor communication issues. The City will continue monitoring the flow meter performance and adjust and/or replace it as needed. Pump #3, associated with the Denite® filter in Wetwell #1, is being rebuilt.

Disinfection and Dechlorination Systems

Liquid sodium hypochlorite is used for disinfection, and in 2021 the system was upgraded to incorporate liquid ammonium sulfate to allow monochloramine disinfection. Liquid sodium bisulfite is used for dechlorination of the treated wastewater. The tanks were upgraded in 2008 to three 4,000-gallon tanks containing sodium hypochlorite. The hypochlorite dosing system, including the associated pumps and tanks, were replaced in 2019. The sodium bisulfite dosing system pumps and piping were replaced in 2018.





In 2015, the CCCs were covered with a UV 90 polypropylene cloth to avoid chlorine degradation and chlorine residual reduction as consequences of UV radiation by direct sunlight. In 2015, the City also mounted a channel-mat-style flow meter in the CCCs to obtain a more precise measure of the flow rate to facilitate sodium hypochlorite dosing at the desired rate.

Effluent Disposal/Reuse Pumping System (R-001)

The reclaimed water pumping system is working well, and the monitoring and control system is functioning in accordance with the FDEP-approved operating protocol. The discharge flow meter, Pump #1, Pump #2, and Pump #3 are working properly. The wetwell pump motors were replaced in 2017.



Emergency Generator

The diesel fuel storage tanks for the emergency power-generating systems consist of two 4,000-gallon aboveground tanks. In June 2018, FDEP approved the City's proposed in-kind sanitary sewer project to purchase a diesel transport trailer as part of OGC No.18-0158. This trailer allows a consistent supply of fuel for the lift station generators and bypass pumps during emergencies.

Electrical, Buildings, and Laboratory

The laboratory, building's roof, and facility surroundings are well maintained. A new electrical building for the oxidation ditch aerators' VFDs and controls was constructed and placed on-line in 2019. Some electrical panels and the main breaker were replaced during the last permit cycle.



The City will continue monitoring the electrical and building's physical condition and will replace and further maintain the property as needed.

Miscellaneous Items

- Operator Staff – The City maintains a staff of 5 to operate the WWTF. Two of the operators are certified as Class A operators and three operators are certified as Class C operators; the staff also includes two operator trainees. The WWTF operates with staff 24 hours a day, 7 days a week.
- Miscellaneous Vehicles and Equipment – New City trucks have been purchased for off-site visits. The City purchased a new trailer for transporting diesel fuel during emergencies in 2019.
- Miscellaneous Pumps and Motors – Many of the plant's critical pumps and motors have been in operation more than 10 years. The City has been actively rebuilding pumps to maintain this critical equipment.
- Reclaimed Water Facilities – The off-site reclaimed water storage, pumping, and metering facilities are maintained by the staff of the WWTF and are in good operating condition. Shutters are available to be installed in the Administration and Main Buildings during hurricanes. The SCADA system for the reuse system is working properly.

4.4 Historical Flow and Characteristics Summary

To analyze the parameter trends, the significant influent, effluent, groundwater parameter concentrations, loadings, and permitted limits were graphed as a function of time. For any values recorded with a qualifier, the numeric values were graphed as the numeral value was recorded. The City's operational control sampling data from January 2014 through April 2019 were used for the trend evaluation.

4.4.1 INFLUENT

Figure 10 depicts the monthly average flows entering the WWTF over the period of January 2014 to April 2019. During the wet season (July to September), the flows entering the WWTF (measured through influent flow meter, FLW-01) increased, reaching peaking flows due to I&I. During the rest of the year, the average monthly flows remained below 8 MGD.

Figure 10 Influent Monthly Measured at FLW-01

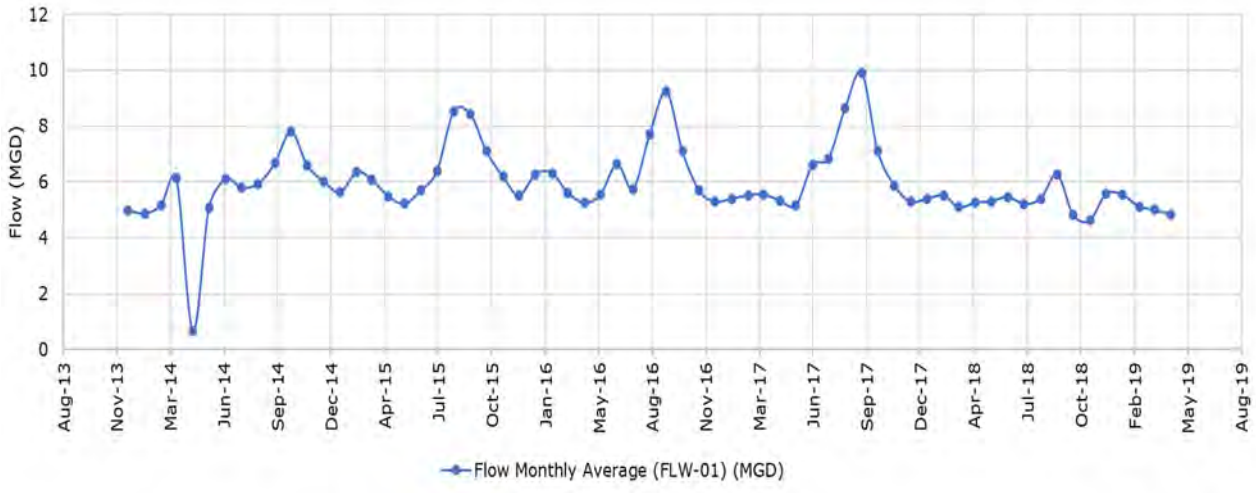


Figure 11 through Figure 18 depict the influent monthly average concentration and mass loading for 5-day carbonaceous biochemical oxygen demand ($CBOD_5$), TSS, Total Kjeldahl Nitrogen (TKN), and TP. These were taken from the sampling point at the headworks, ahead of the RAS line, (INF-01). In general, the concentrations vary over time, and no consistent trend is evident. In November 2018, one of the two carrousel-type aeration basins was taken offline for cleaning and maintenance. Effluent from the other ditch was pumped back to the headworks upstream of the influent sampling point to avoid violating permitted effluent discharge limits. The highly concentrated return stream, when mixed with influent raw sewage, skewed all the influent measurements. Therefore, influent loadings during November 2018 were excluded from the analysis.

In general, the concentrations of the four parameters are typically within the normal ranges for untreated domestic wastewater based on Table 3-18 in *Wastewater Engineering, 5th edition* (Metcalf & Eddy, 2014). The typical ranges for these parameters are:

- $CBOD_5$: 110 to 350 mg/L.
- TSS: 133 to 400 mg/L.
- TN: 29 to 86 mg/L.
- TP: 3.7 to 11.0 mg/L.

Figure 11 Influent $CBOD_5$ Monthly Average Concentration Through INF-01

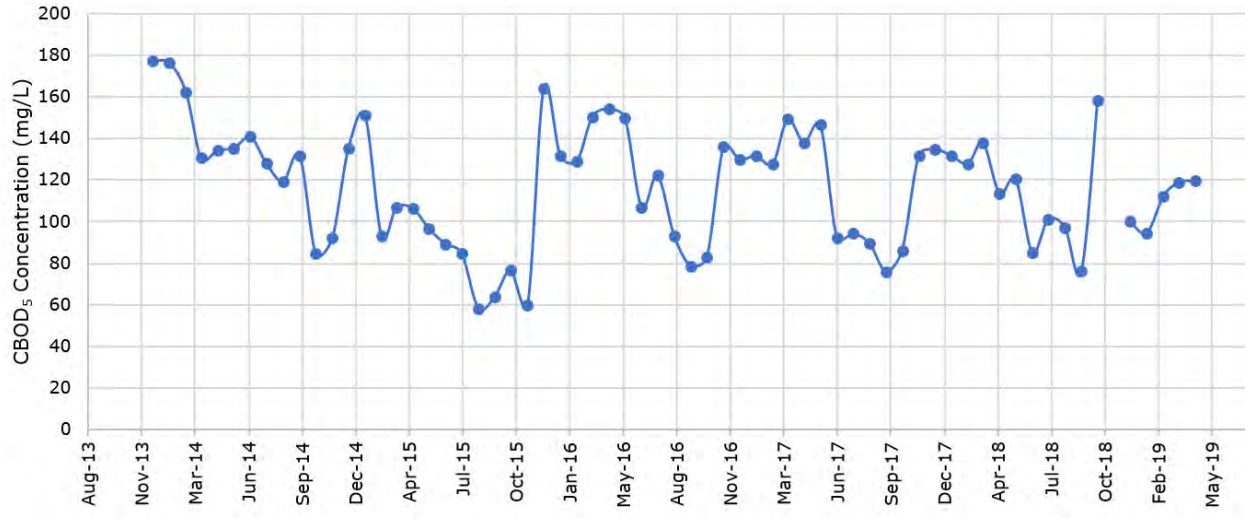


Figure 12 Influent $CBOD_5$ Monthly Average Loading Through INF-01

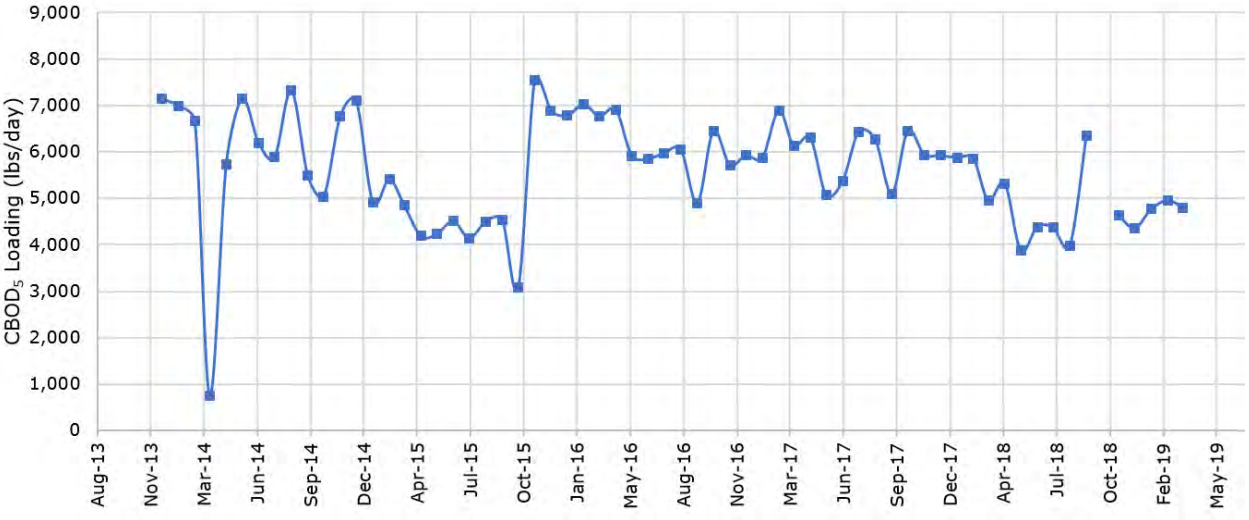


Figure 13 Influent TSS Monthly Average Concentration Through INF-01

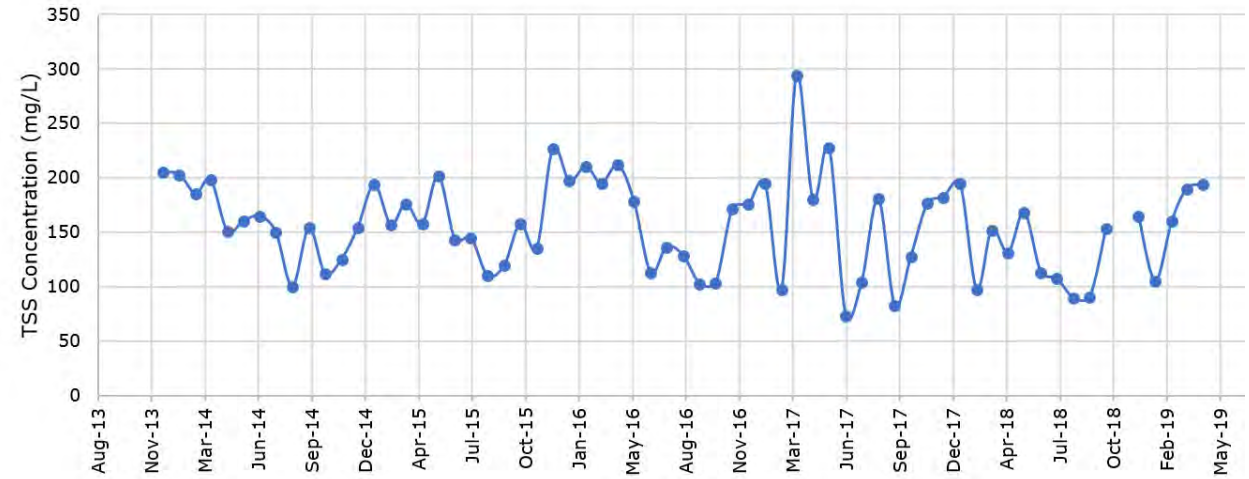


Figure 14 Influent TSS Monthly Average Loading Through INF-01

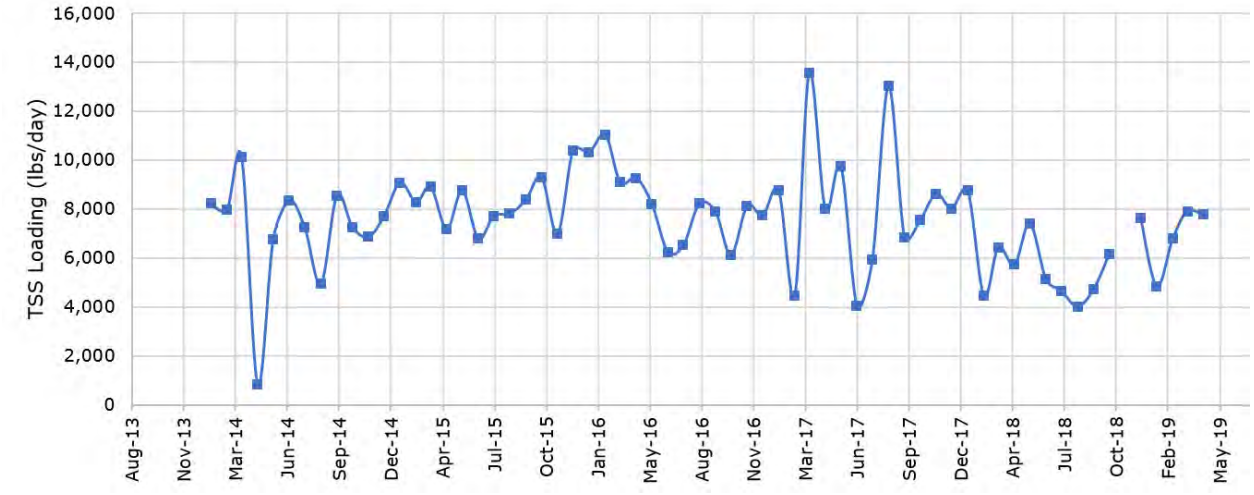


Figure 15 Influent TKN Monthly Average Concentration Through INF-01

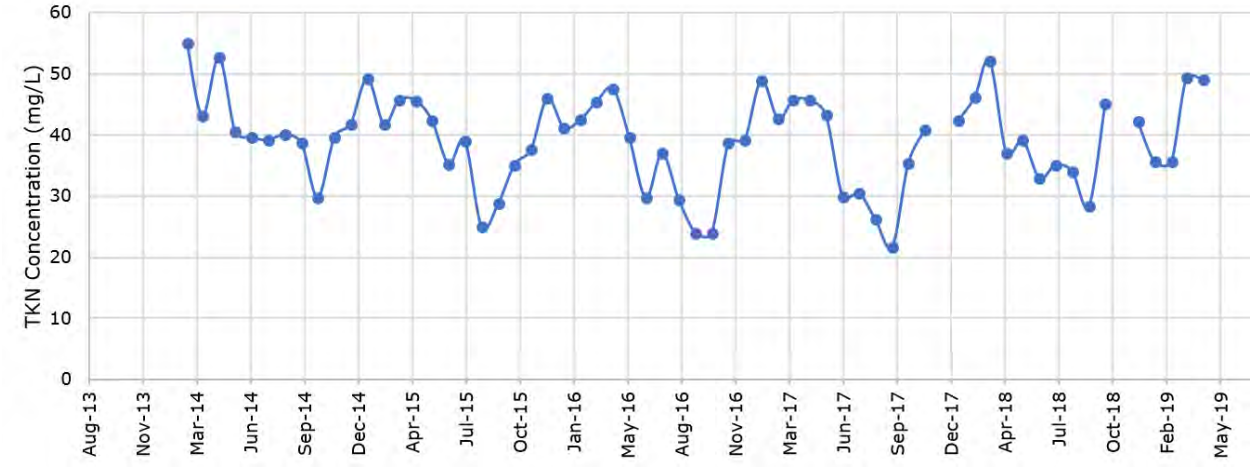


Figure 16 Influent TKN Monthly Average Loading Through INF-01

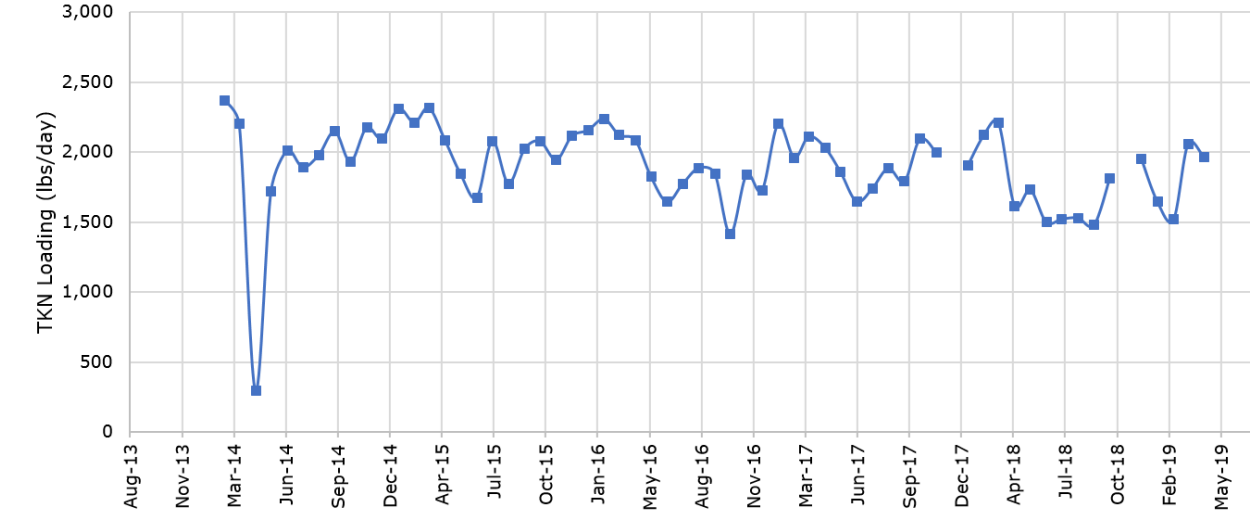


Figure 17 Influent TP Monthly Average Concentration Through INF-01

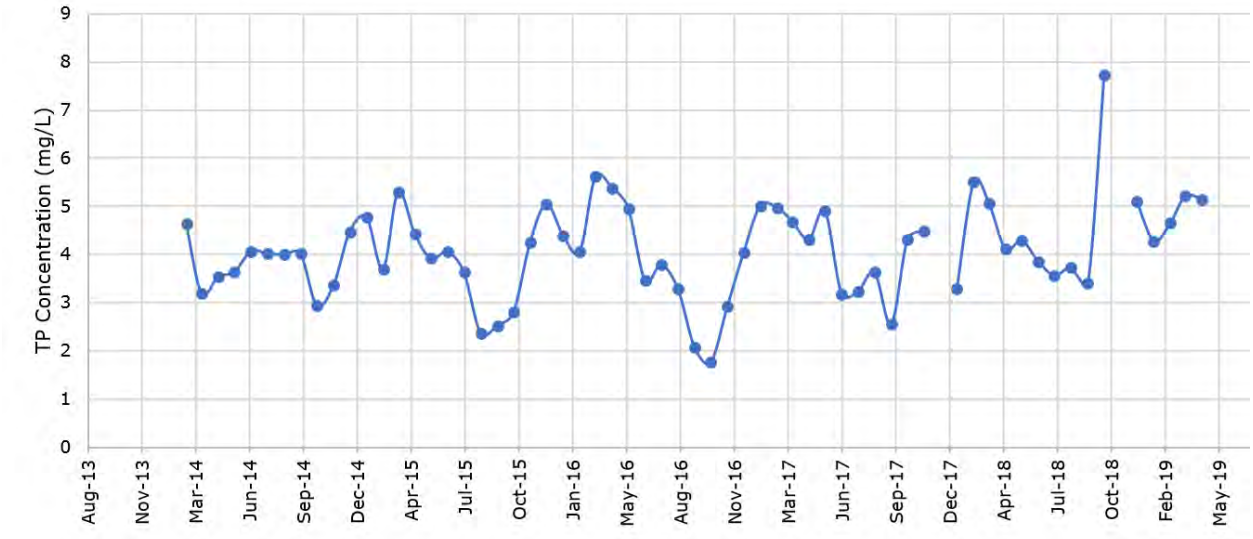
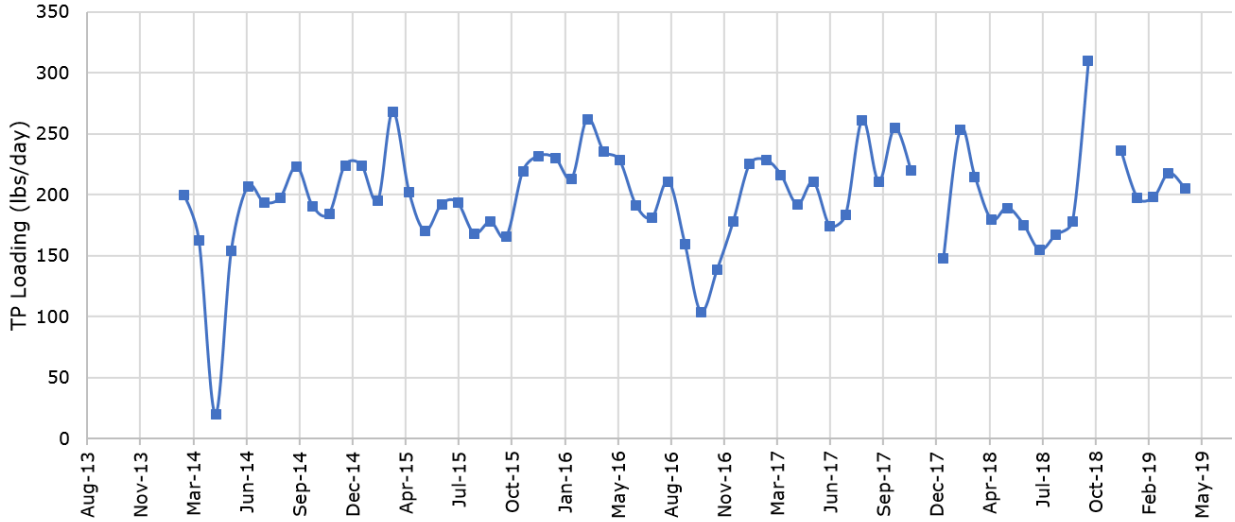


Figure 18 Influent TP Monthly Average Loading Through INF-01



4.4.2 EFFLUENT

Figure 19 shows that $CBOD_5$ remained constant between January 2014 and May 2016. In June 2016, a reduction and steady effluent $CBOD_5$ concentration was observed. The increment shown by the end of 2017 is consistent with the modifications executed on the headworks and carrousel-type aeration basin that resulted in the process upset. However, the $CBOD_5$ results for the monitored timeframe kept well below the monthly permit limit of 6.25 mg/L.

Figure 19 Effluent $CBOD_5$ Monthly Average Concentration Through EFD-01

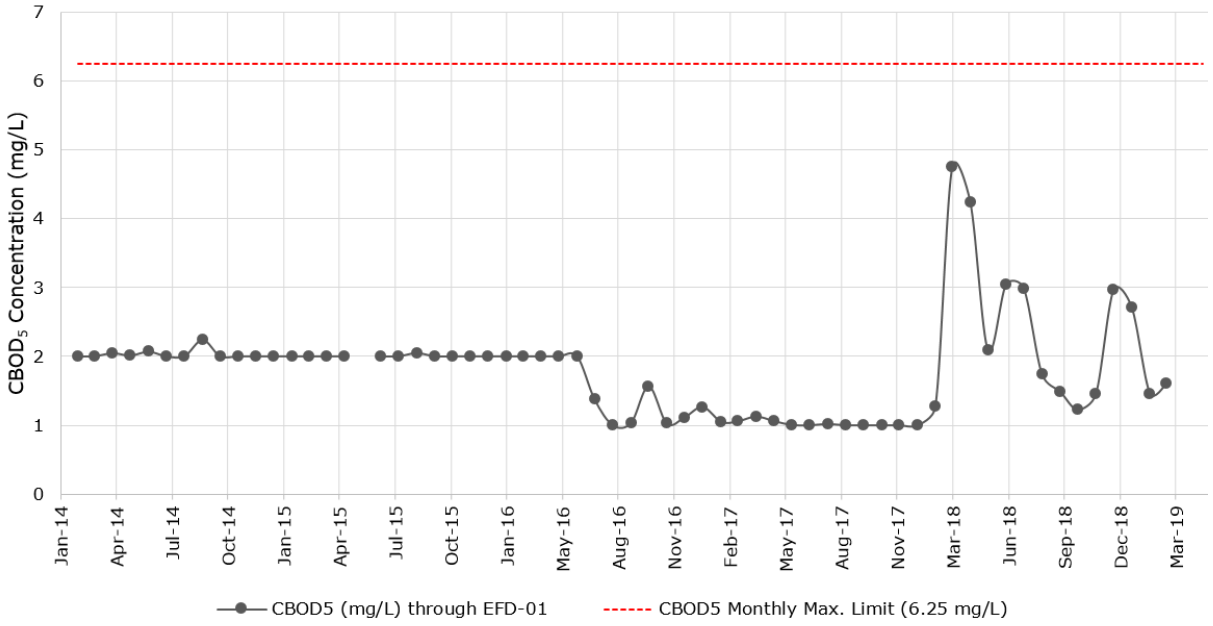


Figure 20 shows that DO has had a seasonal pattern, but the overall trend seems stable and concentrations have not fallen below the permit limit.

Figure 20 Effluent DO Single Sample Monthly Average Concentration Through EFD-01

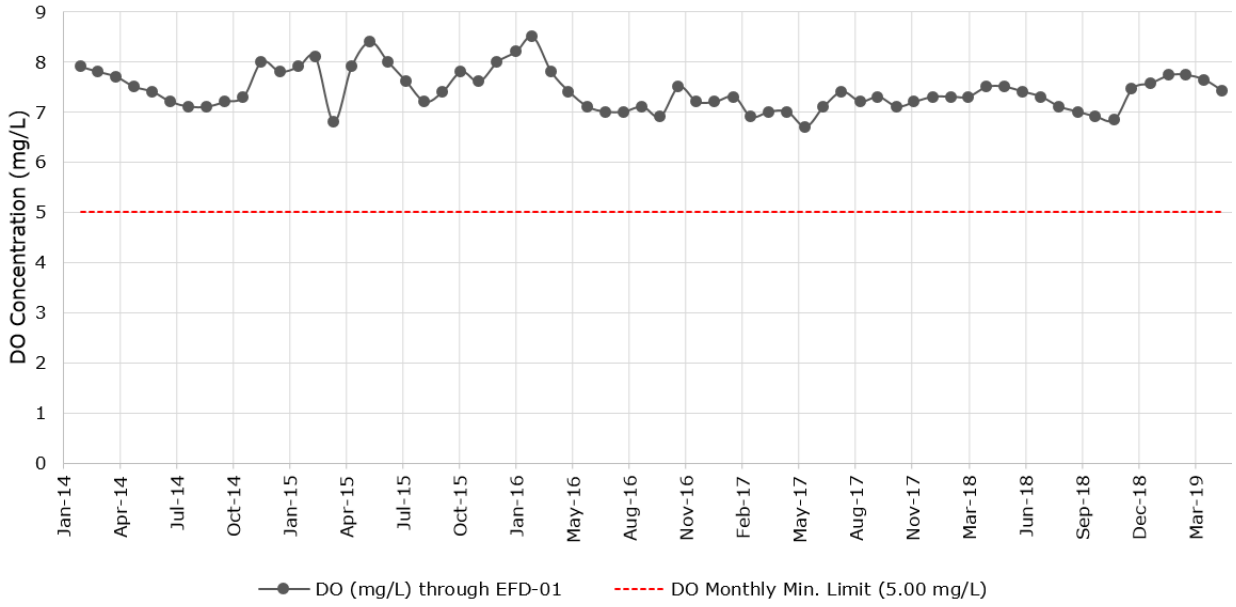


Figure 21 depicts the TSS trend, which has slight variations between January 2014 and August 2016 but in September 2016 peaked and exceeded the permit limitations. The permit violations shown by the end of 2017 and ending by August 2018 coincide with the modifications executed on the headworks and carrousel-type aeration basin that resulted in the process upset. These permit excursions were addressed under Consent Order (CO) OGC No. 18-1466. TSS effluent monitoring limits have since improved and have been removed from CO OGC No. 18-1466.

Figure 21 Effluent TSS Monthly Average Concentration Through EFD-01

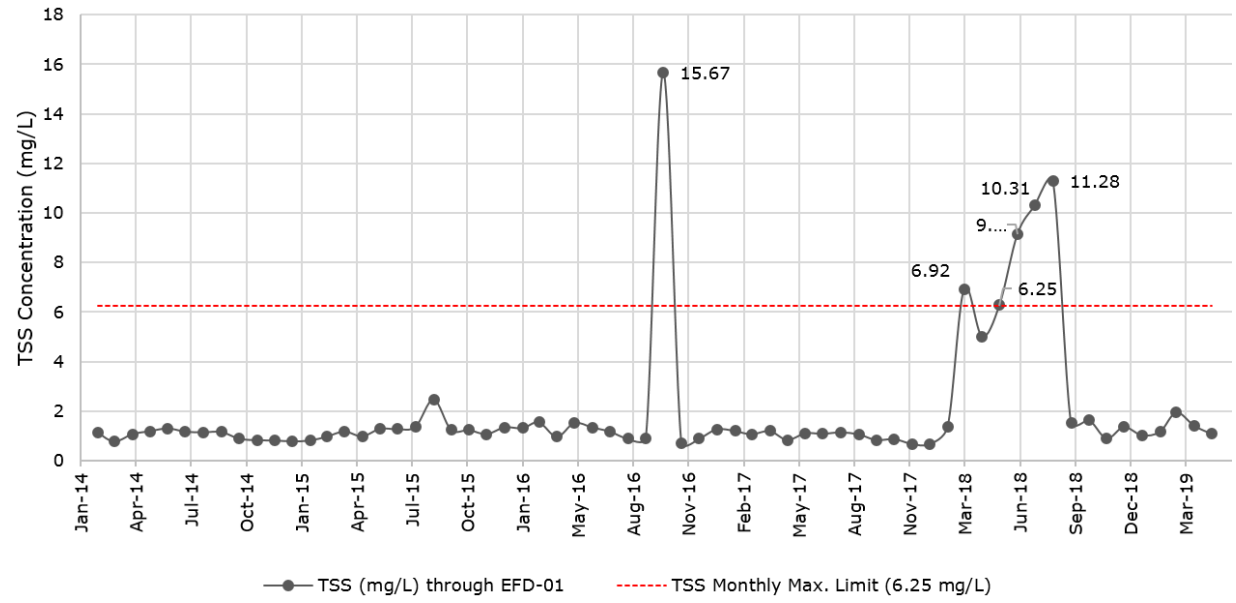


Figure 22 shows that the permit limit for TN was consistently exceeded between January and December 2018, which coincides with the improvements performed in the carrousel-type aeration basin and headworks. These permit excursions are addressed under CO OGC No. 18-1466.

Figure 22 Effluent TN Monthly Average Concentration Through EFD-01

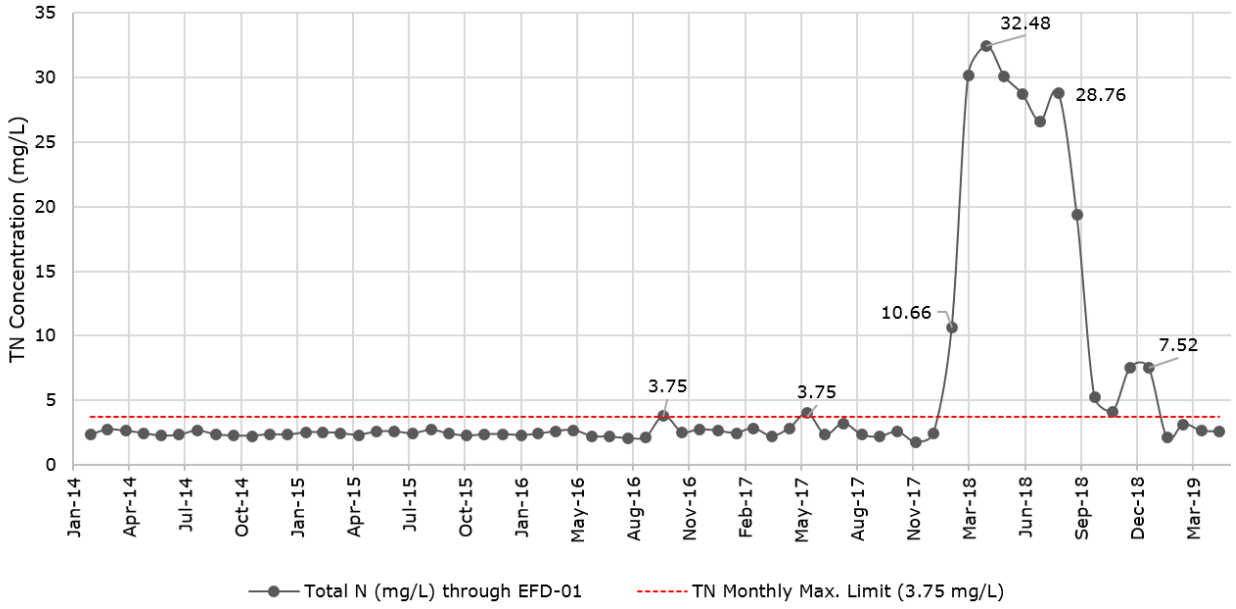


Figure 23 shows the TP effluent concentrations ranging from 0.1 to 1.0 mg/L through the course of the monitored period. The TP monthly concentration exceeded the permit limit of 1.25 mg/L in February 2018. This excursion was due to the improvements in the carrousel-type aeration basins on February 28, 2018, which was addressed under CO OGC No. 18-1466. TP effluent monitoring limits have since improved and have been removed from CO OGC No. 18-1466.

Figure 23 Effluent TP Monthly Average Concentration Through EFD-01

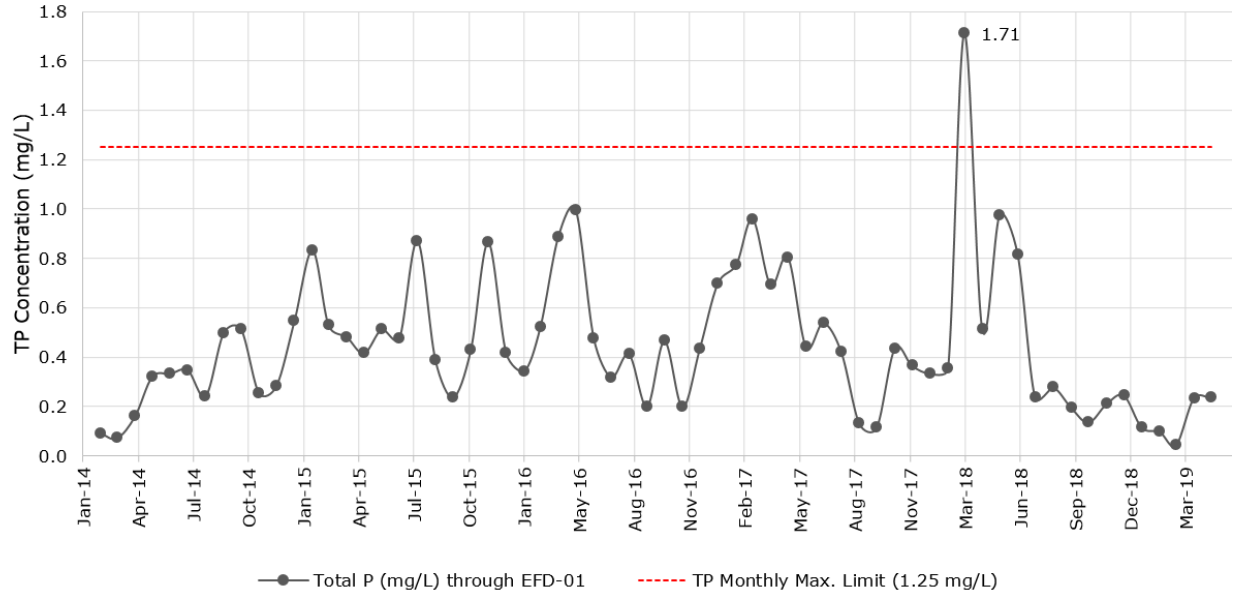


Figure 24 shows that effluent monthly fecal coliform concentrations fell under the minimum limit of 75 percent occasionally over the past 5 years, specifically April 2014, November 2014, September 2015, December 2016, and April 2018. In general, the percent of non-detectable coliform was typically over the minimum limit during the monitored timeframe.

Figure 24 Effluent Fecal Coliform Monthly Average Concentration Through EFD-01

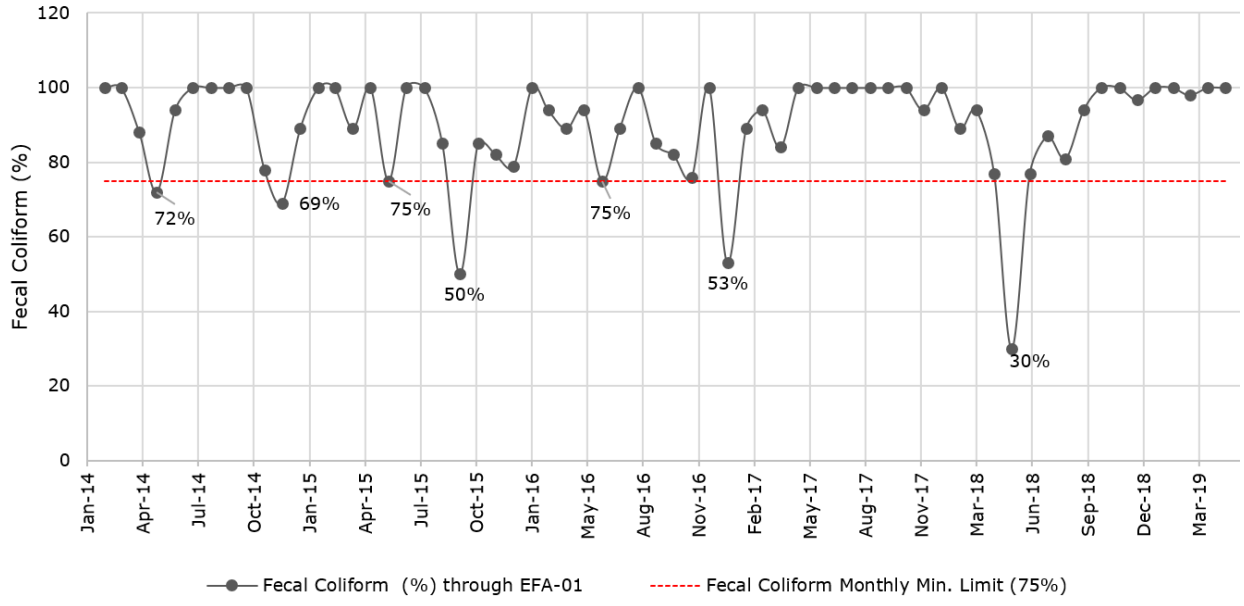
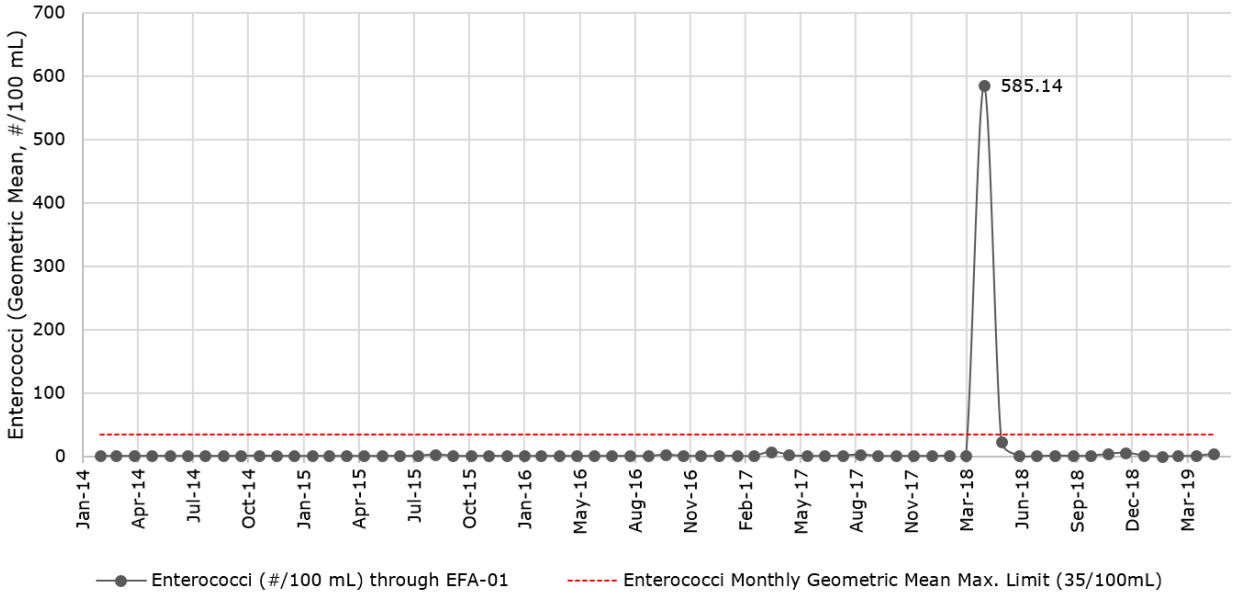


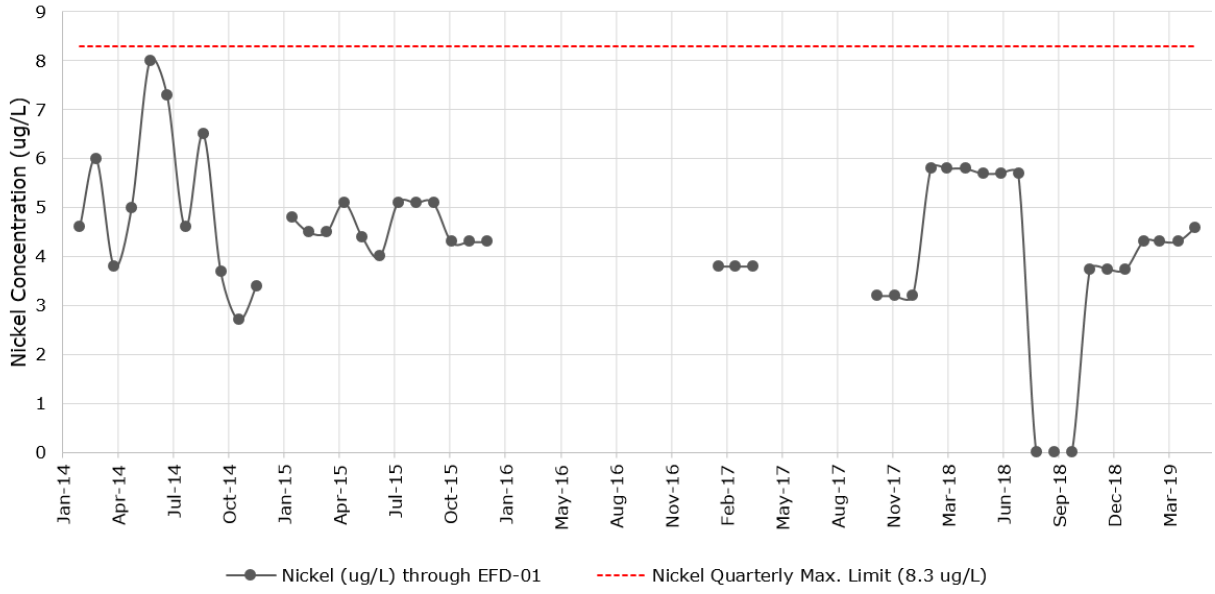
Figure 25 depicts that the effluent Enterococci monthly geometric mean constantly remained well below the permit limit of 35/100 mL during January 2014 through February 2018. However, in March 2018, a significant but isolated peak concentration was experienced due to the construction activities in the headworks and carrousel-type aeration basins, which resulted in the process upset.

Figure 25 Effluent Enterococci Monthly Geometric Mean through EFA-01



Total Recoverable Nickel is monitored quarterly in the WWTF. The Figure 26 data indicate that no excursions have been experienced within the permit cycle. The missing data from January to December 2016 and from April to September 2017 are due to no monitoring requirements over this timeframe for Nickel leaving the facility through EFD-01.

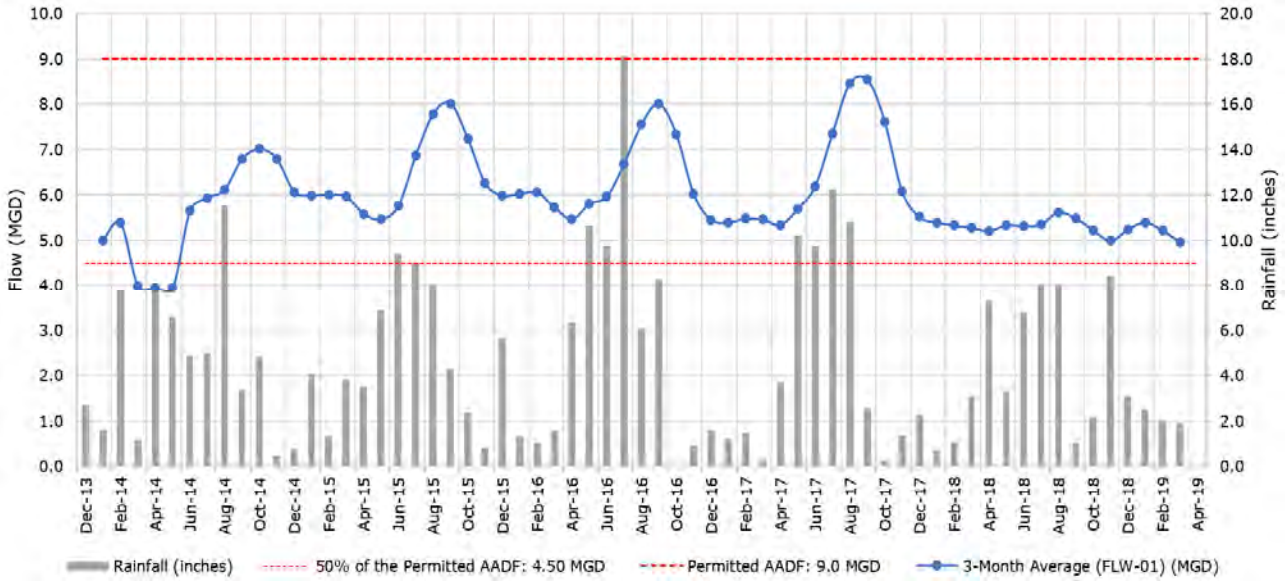
Figure 26 Effluent Total Recoverable Nickel Single Sample Quarterly Concentration Through EFD-01



4.4.3 THREE-MONTH AVERAGE DAILY FLOW

Figure 27 depicts a significant decrease in the facility's 3MADF after November 2017, although the rainfall pattern was similar to prior years. This is consistent with the continuous efforts taken by the City to improve their collection system to reduce wet-weather-related I&I.

Figure 27 3-Month Average Daily Flow Measured at FLW-01

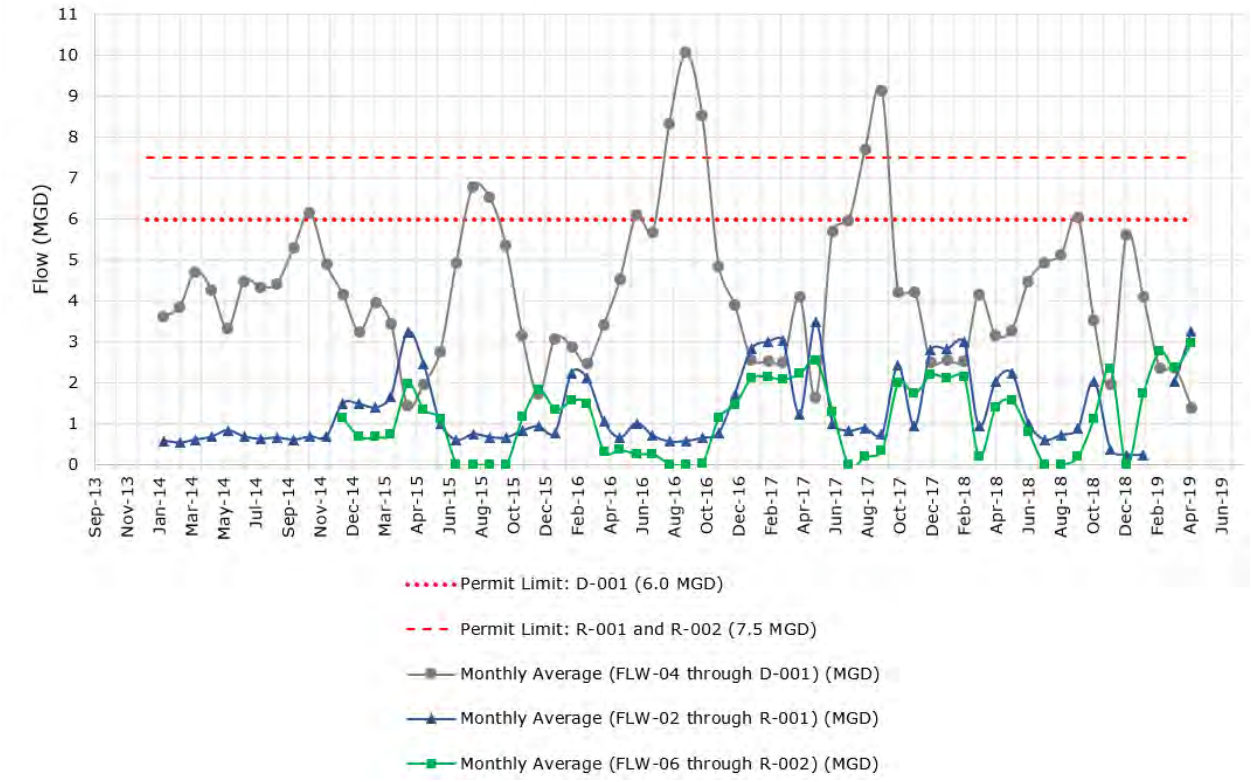


According to Rule 62-600.405, FAC, if the 3MADF for the most recent 3 consecutive months exceeds 50 percent of the permitted capacity of the WWTF, the permittee shall submit to FDEP a capacity analysis report (CAR). In compliance with Rule 62-600.405, FAC, the City submitted a CAR along with the permit renewal package in 2019 to FDEP, which noted that the projected wastewater flows entering the WWTF are not expected to reach the 9.0-MGD AADF permitted capacity of the plant within the next 10 years. Therefore, no recommendations for expansion of the WWTF are needed at this time.

Figure 28 depicts the monthly average effluent flow data for the streams discharged from the WWTF. A brief description of the monitoring sites follows.

- FLW-04 is the flow to Outfall D-001, and it is measured at the end of the effluent aeration and dechlorination basin.
- FLW-02 is the flow to R-001, Master Urban Reuse, and it is measured at the discharge side of the reuse pumps after the reuse pumping basin at the WWTF site.
- FLW-06 is the flow to R-002, the slow-rate public-access reuse system at the River Run tank. FLW-06 encompasses the service area associated to the Lakewood Ranch Development.

Figure 28 Monthly Average Outfall Flow (D-001) and Reclaimed Water Flows (R-001 and R-002)



4.5 Treatment Efficiency – Individual Treatment Units

Table 7 compares the operating data during the monitoring period January 2014 through December 2018 to recommended values for the extended aeration-activated sludge system, secondary clarifiers, denitrification filters, and aerobic digesters. The calculated values shown in Table 7 are based on the data analysis from the City for the monitoring period covering January 2014 through December 2018, where the MLSS concentration was 4,500 mg/L, mixed liquor volatile suspended solids (MLVSS) concentration was 80 percent of the MLSS, RAS flow was 5.8 MGD, WAS flow was 108,000 gpd, influent flow rate was 6.01 MGD, and influent $CBOD_5$ was 117 mg/L.

Table 7 Treatment Units Evaluation Summary

Parameter	Calculated Value*	Recommended Value**
Extended Aeration System		
Food-to-Microorganism (F/M) Ratio	0.07 lb BOD_5/lb MLVSS	0.05 to 0.10 lb BOD_5/lb MLVSS 0.05 to 0.10 lb BOD_5/lb MLVSS
MLSS	4,500 mg/L	1,500 to 5,000 mg/L 3,000 to 5,000 mg/L
Hydraulic Retention Time (HRT)	18 hours	18 to 36 hours 16 to 24 hours
Solids Retention Time (SRT)	13 days	20 to 30 days 15 days

Parameter	Calculated Value*	Recommended Value**
Secondary Clarifiers		
Surface Overflow Rate	309 gpd/ft^2	200 to 400 gpd/ft^2 1,000 gpd/ft^2
Weir Overflow Rate	21,463 gpd/ft	10,000 to 20,000 gpd/ft ≤15,000 gpd/ft
Solids Loading Rate	23 lb/ft^2-day	5 to 24 lb/ ft^2-day 20 to 30 lb/ft^2-day ≤35 lb/ft^2-day
HRT	9 hours	>3 hours
Denitrification Filters		
Filtration Rate at AADF Filtration Rate at Peak Hourly Flow (PHF) Rate (20 MGD)	1.39 gpm/ft^2 4.63 gpm/ft^2	5 to 8 gpm/ft^2 ≤6 gpm/ft^2 at PHF ≤5 gpm/ft^2 at PHF
Aerobic Digesters		
HRT	20 days	12 to 18 days 15 days

*Calculated values based on averaged data collected in the WWTF during the monitoring period covering January 2014 through December 2018.

**References:

(a) *Wastewater Engineering, Treatment, Disposal and Reuse* – Metcalf & Eddy, (2014).
(b) *Design of Water Resource Recovery Facilities, Manual of Practice (MOP) 8*, Water Environment Federation, 2018.
(c) FDEP *Ten State Standards*.

Notes: gpd/ft = gallons per day per foot; gpd/ft^2 = gallons per day per square foot; gpm/ft^2 = gallons per minute per square foot; lb = pounds; lb/ft^2-day = pounds per square foot per day.

Table 7 indicates that the major treatment processes are generally operating within the recommended values.

4.6 Effluent Reuse and Disposal

The City produces approximately 6.6 MGD of highly disinfected, treated effluent from the City's WWTF. The City has two permitted reclaimed water systems – R-001 and R-002. The existing reuse system through R-001 is permitted for a total capacity of 1.5 MGD on an AADF basis. The existing reuse system through R-002 is permitted for a total capacity of 6.0 MGD AADF, which primarily serves the Lakewood Ranch Development. Reclaimed water is transported through the reclaimed water distribution system composed of 34,539.82 feet from the WWTF to the storage tank on 27th Street E with a total capacity of 4 MG. Figure 29 shows the reclaimed water distribution system.

Figure 29 Reclaimed Water Distribution System

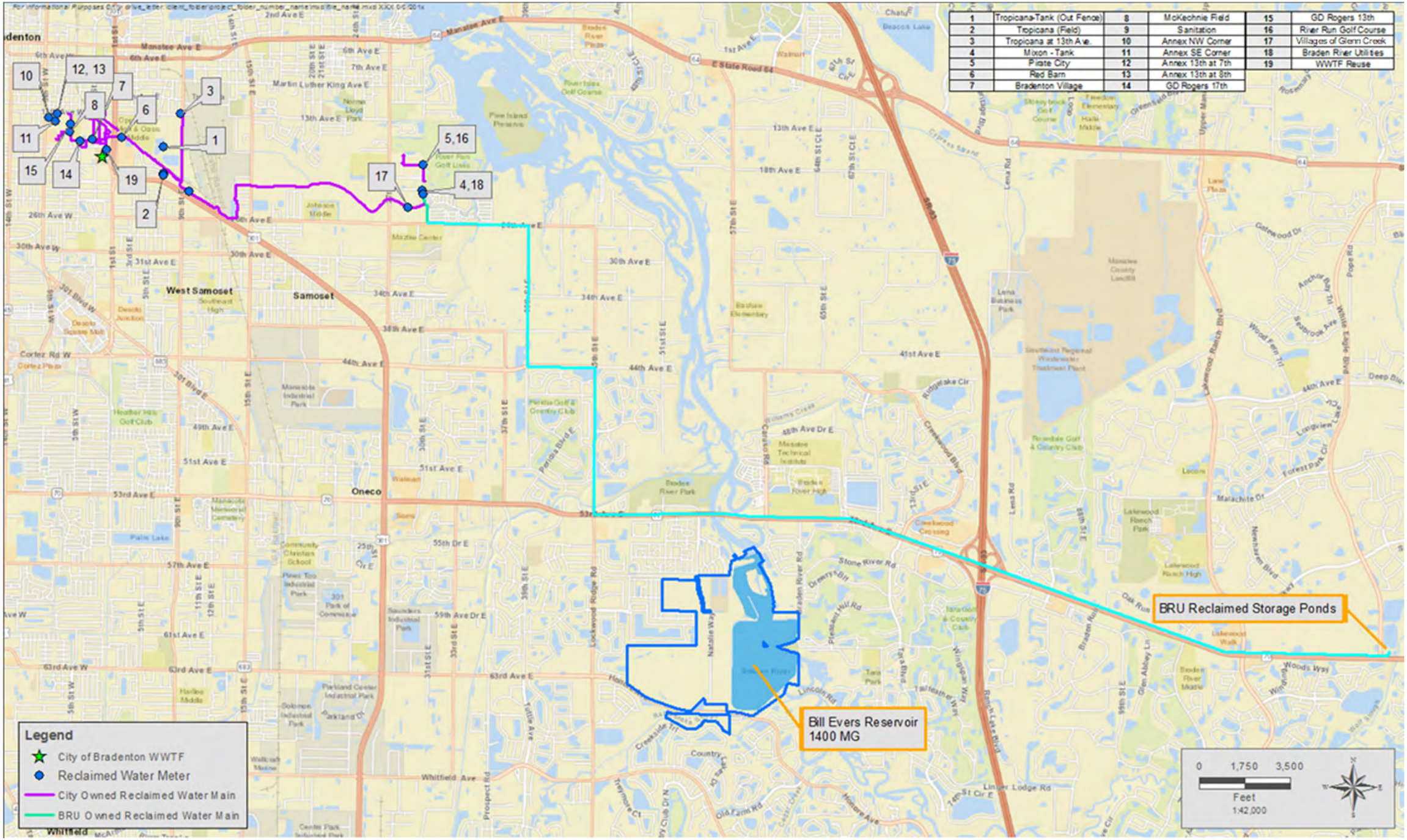


Table 8 lists the current major reclaimed water users in the reclaimed distribution system. The total flow sold as reclaimed water is 3.36 MGD. The reclaimed water is sold to bulk service customers and primarily used for irrigation. The City plans to make improvements to its reclaimed water system to provide redundancy in effluent disposal and assist with SWFWMD goals in restoring declined water-level elevations within the Southern Water Use Caution Area (SWUCA) most impacted area (MIA).

Table 8 Reclaimed Water Customers

Customer	Use	Meter Owner	WUP	Line Diameter	2019 Flow (gpd)
Tropicana-Tank (Out Fence)	RAC	Customer	—	4-inch	0
Tropicana (Field)	RAC	Customer	—	4-inch	0
Tropicana at 13th Ave.	RAC	Customer	—	4-inch	0
Mixon – Tank	RAC	Customer	3802	12-inch	152,904
Pirate City	RAC	Customer	—	4-inch	37,368
Red Barn	IND	Customer	—	12-inch	0
Bradenton Village	RES	Customer	—	6-inch	12,503
McKechnie Field	RAC	Utility	—	—	20,938
Sanitation	IND	Utility	—	2-inch	0
Annex NW Corner	IND	Utility	—	2-inch	2,111
Annex SE Corner	IND	Utility	—	1.5-inch	66
Annex 13th at 7th	RAC	Utility	—	5/8-inch	110
Annex 13th at 8th	RAC	Utility	—	2-inch	0
GD Rogers 17th	RAC	Customer	—	2-inch	0
GD Rogers 13th	RAC	Customer	—	2-inch	12
River Run Golf Course	GC	Utility	7651	4-inch	115,537
Mixon Farms	AGR	Customer	3802	12-inch	48,984
Braden River Utilities	RES	Utility	—	18-inch	2,370,760
WWTF Reuse	IND	Utility	6392	6-inch	560,173
Glen Creek	RES	Customer	—	12-inch	41,115

Note: — = Not Applicable.

AGR = Agricultural; GC = Golf Course; IND = Industrial;
RAC = Recreational and Commercial Landscaping; RES = Residential; WUP = Water Use Permit.

4.7 WWTF Improvements

Based on the current flows and loads, the WWTF has some unit process deficiencies requiring immediate attention. The clarifier weir overflow rate is exceeding the recommended range, which periodically causes solids overflows and negative downstream impacts on the filter. In addition, the passage of Senate Bill 64 prevents the City from continuing to use its surface water discharge for effluent management. Table 9 lists corrective actions developed from observations during the field evaluation and treatment overview.

Table 9 WWTF Needed Corrective Actions

Description
Add a fourth clarifier to reduce frequent extreme wet-weather events resulting in low hydraulic retention time.
Replace the switchgear at generator No. 3.
Replace weir gates in Aeration Carrousels No. 1 and No. 2.
Replace the blowers for the digesters.
Install an aquifer recharge injection well.

Design has progressed on the clarifier (cost estimate shown in Table 10) and the aquifer recharge injection well (cost estimate shown in Table 11) to allow permitting of these components, as previously noted. Escalation factors were applied to the clarifier project due to the fluctuating materials, lead times, and other extraneous circumstances observed in the current construction industry since the time of estimate; however, these escalations have not been observed related to well drilling projects.

Table 10 Addition of Clarifier No. 4 Construction Cost Estimate

Description	Total Cost
Demolition	$127,000
Sitework	$329,310
Structural	$4,108,000
Pipes, Fittings, and Valves	$1,567,900
Equipment	$1,818,000
Electrical	$504,000
Instrumentation	$212,000
SUBTOTAL	**$8,666,210**
Record Drawings	$10,000
Quality Control and Testing Allowance	$25,000
Mobilization/Demobilization/General Conditions (5% of Subtotal)	$433,311
Construction Survey, and Layout (1% of Subtotal)	$86,662
Environmental Protection (1% of Subtotal)	$86,662
Performance and Payment Bonds (1% of Subtotal)	$86,662
SUBTOTAL	**$9,394,507**
Construction Contingency (10%)	$939,451
SUBTOTAL	**$10,333,958**
Escalation Factor (38.65%)	$3,994,074
TOTAL	**$14,328,032**
ROUNDED TOTAL	**$14,329,000**

Table 11 Aquifer Recharge Injection Well Construction Cost Estimate

Description	Total Cost
Sitework	$257,000
Structural	$520,000
Pipes, Fittings, and Valves	$310,000
Equipment & Electrical	$1,528,000
Well Drilling	$3,500,000
SUBTOTAL	**$6,115,000**
Construction Contingency (10%)	$611,500
TOTAL	**$6,726,500**
ROUNDED TOTAL	**$6,730,000**

5 20-YEAR IMPROVEMENT PROJECTS

As with all utilities, the City of Bradenton is continually improving its wastewater collection, treatment, and disposal systems. Evaluations of and repairs to several areas of the collection system, major improvements to the three master lift stations, installation of a new lift station SCADA system, expansion of the wastewater treatment plant and reuse system, and improvements to several lift stations have been completed over the past 20 years or are in progress. Yet, additional problems remain to be solved and improvements need to be made as mentioned in the previous sections.

Table 12 summarizes a 20-Year Project List identified by the City of Bradenton for the wastewater collection, transmission, treatment, and disposal systems. These projects are intended to improve services to existing customers and ensure reliability of the City's conveyance and treatment systems. This list of projects is categorized based on routine O&M or needed expansion for the wastewater facility. Routine O&M includes ongoing administration and non-structural programs for the WWTF. Expansion is defined as new work, new projects, retrofitting, and significant upgrades to the WWTF and is separated into the following categories: effluent management, effluent water quality, reuse development, resiliency, end of useful life replacement, and septic-to-sewer conversion.

Table 12 20-year Projects List (Updated February 18, 2022)

Criteria	Location	Recommendation
Resiliency Initiatives Related to Climate Change	Emergency Power and/or Pump Alpha	Install/upgrade emergency power and/or pump capability at up to 15 stations.
End of Useful Life Replacement	Texting Communications for All Stations Alpha	Upgrade station panels for SciText Communications (15 stations).
Operation and Maintenance	Evaluate Stations 2, 3, 4, 5, 8, 10, 12, 13, 16, 21 (installed pre-1970)	Evaluate all wastewater lift stations installed before 1/1/1970 (10 stations).
Resiliency Initiatives Related to Climate Change	Lining Pipes in Sewersheds 01, 02, 04, 06, 07, 08, 09, 10, 11, 13, 14, 17, 18, 19, 20, 21, 22, 23, and 28	Line a minimum of 220,000 LF of gravity pipe in prioritized sewersheds.
Resiliency Initiatives Related to Climate Change	Lining Manholes in Sewersheds 01, 02, 06, 07, 14, 18, 20, 21, 23, and 25	Line a minimum of 700 manholes in prioritized sewersheds.
End of Useful Life Replacement	Station 3 Upgrade and Station 13 Decommissioning	Decommission Station 13, re-direct Station 13 flow to upgraded Station 3.
End of Useful Life Replacement	Station 8 Upgrade and Relocation	Relocate Station 8 from Manatee River south bank.
End of Useful Life Replacement	Station 10 Upgrade	Upgrade Station 10 including permanent access.
End of Useful Life Replacement	Station 21 Upgrade and Relocation	Relocate Station 21 from median of Southern Parkway.

Criteria	Location	Recommendation
Resiliency Initiatives Related to Climate Change	Emergency Power and/or Pump Beta	Install/upgrade emergency power and/or pump capability at up to 15 stations.
End of Useful Life Replacement	Texting Communications for All Stations Beta	Upgrade station panels for SciText Communications (15 stations).
Operation and Maintenance	Evaluate Stations 15, 25, 26, 27, 28, 30, 32, 33, 34, 37 (installed in 1970s)	Evaluate all wastewater lift stations installed in 1970s (10 stations).
Resiliency Initiatives Related to Climate Change	Emergency Power and/or Pump Gamma	Install/upgrade emergency power and/or pump capability at up to 15 stations.
End of Useful Life Replacement	Texting Communications for All Stations Gamma	Upgrade station panels for SciText Communications (15 stations).
Resiliency Initiatives Related to Climate Change	Emergency Power and/or Pump Delta	Install/upgrade emergency power and/or pump capability at up-to 15 stations.
End of Useful Life Replacement	Texting Communications for All Stations Delta	Upgrade station panels for SciText Communications (15 stations).
Operation and Maintenance	Evaluate Stations 23, 29, 35, 36, 38, 39 (installed in 1980s)	Evaluate all wastewater lift stations installed in 1980s (6 of 13 stations).
Operation and Maintenance	Evaluate Stations 40, 41, 42, 43, 44, 45, 46 (installed in 1980s)	Evaluate all wastewater lift stations installed in 1980s (7 of 13 stations).
Operation and Maintenance	Evaluate Stations 17, 47, 48, 49, 50 (installed in 1990s)	Evaluate all wastewater lift stations installed in 1990s (5 stations).
End of Useful Life Replacement	Campus	Evaluate and upgrade facility-wide electrical, instrumentation and control systems.
End of Useful Life Replacement	Campus	New Operations Control Room in existing Administration Building.
Operation and Maintenance	Campus	New Administration Building.
Operation and Maintenance	Campus	New vehicle storage plan (asphalt, signage for WRF and others' vehicles and miscellaneous storage).
Operation and Maintenance	Campus	Computer tablets for Superintendent, Chief Operator, Duty-Operator (for shifts 2 and 3), and Compliance Coordinator.
Operation and Maintenance	Campus	Security cameras on Facility's access gates (east vehicular two-panel gate; north vehicular two-panel gate; west person-gate).

Criteria	Location	Recommendation
End of Useful Life Replacement	Off Campus (Tropicana)	Upgrade SCADA capabilities using fiber (replace radios) for alarms and control (pumps, valves) from the WWTF to two remote reclaimed water storage and pump stations.
End of Useful Life Replacement	Off Campus (River Run/ Mixon/Braden River Utilities (BRU)	Upgrade SCADA capabilities using fiber (replace radios) for alarms and control (pumps, valves) from the WWTF to two remote reclaimed water storage and pump stations.
End of Useful Life Replacement	Emergency Power	Replace Generator No. 1.
End of Useful Life Replacement	Emergency Power	Replace Generator No. 3.
End of Useful Life Replacement	Emergency Power	Replace Generator No. 3 switch gear.
End of Useful Life Replacement	Campus Pumps	Replace pumps (chemical supply, RAS, WAS, scum, digested sludge, dewatered sludge, reclaimed water, on-site irrigation).
End of Useful Life Replacement	Headworks	Replace older gates in headworks structure.
Water Quality	Headworks	Replace slurry cup.
Water Quality	Headworks	Replace screenings conveyor at mechanical bar screens.
End of Useful Life Replacement	Aeration Carrousels (Oxidation Ditches)	Replace effluent weir gates in Carrousels No. 1 and No. 2.
End of Useful Life Replacement	Aeration Carrousels (Oxidation Ditches)	Replace dewatering valves for Carrousels No. 1 and No. 2.
Water Quality	Aeration Carrousels (Oxidation Ditches)	Add Carrousel No. 3.
Water Quality	Clarification	Add new 150-foot-diameter Clarifier No. 4.
End of Useful Life Replacement	Clarification	Replace dewatering valves for Clarifiers No. 1, No. 2, and No. 3.
Operation and Maintenance	Clarification	Replace control panels (US Filter) in RAS Pumps 1, 2, 3 Building.
Operation and Maintenance	Denitrification Filters	Replace local control panels for Filters No. 1 through 6.
Water Quality	Denitrification Filters	Add new Filters No. 7 and 8.
Operation and Maintenance	Denitrification Filters	Add Filter Operations into existing SCADA.
End of Useful Life Replacement	Denitrification Filters	Upgrade filter effluent meter and valve pit to above grade.

Criteria	Location	Recommendation
End of Useful Life Replacement	Denitrification Filters	Replace valves and actuators at Filters No. 1 through No. 6.
End of Useful Life Replacement	Digesters	Replace air distribution piping in Digesters No. 1 and No. 2.
Operation and Maintenance	Digesters	Upgrade access stairs and catwalks at Digesters No. 1 and No. 2.
End of Useful Life Replacement	Digester Blower Building	Upgrade electrical system (controllers, panels, wiring) in Digester Blower Building.
Operation and Maintenance	Sludge Handling	Replace control panel in Sludge Handling Building, first floor (green monster).
End of Useful Life Replacement	Effluent Channel	Upgrade electrical system (controllers, panels, wiring) in Dechlorination/Effluent Sampling Building.
Reuse Development and Effluent Management	Effluent Disposal	Add AR Injection Well Facility (wells and at-grade structures with electrical, instrumentation and controls).

6 PROJECT PRIORITIZATION

The City selects and prioritizes the improvement projects for the wastewater collection, transmission, treatment, and disposal/reuse system based on various drivers that include new regulations, COs, condition assessments, project costs, available funds, and other City needs. Based on these factors, the following four improvement projects must be addressed in the near term (i.e., within the next 5 years):

- **Project 1: Addition of Clarifier No. 4** – The plant's final clarification process has been heavily impacted by more frequent, extreme wet-weather events. During the wet season, the 3MADF reached 8.55 MGD, resulting in low hydraulic retention times throughout the plant's major processes. During these events, the clarifiers, which are hydraulically limited, experience short-circuiting causing the biological layer of sludge (MLSS) to be lost to the downstream filters. The solids loss overloads the filters, creates extended backwash events, and makes the filters unable to produce high-level disinfected reclaimed water (TSS ≤5 mg/L) for public-access reuse. This triggers a filter bypass event, limiting the effect of high-TSS influent to the filters and resulting in the loss of reclaimed water production.

- **Project 2: Aquifer Recharge Injection Well Facility (Subsurface and Surface Components)** – The City's existing WWTF permit allows an annual average discharge of 6.0 MGD of AWT effluent into the Manatee River; any flow above this amount must be reused by the City's reclaimed water system. The effluent and reclaimed water systems on and off site are controlled, sequenced, and operated according to procedures detailed in the FDEP-approved plant Operating Protocol to ensure maximum reliability and safeguards on the quality of the reclaimed water. However, in addressing the requirement issued under Senate Bill 64 (Section 403.064(17), FS), the City must plan for the elimination of its nonbeneficial surface water discharge by 2032.

- **Project 3: Wastewater Lift Station Emergency Power/Pump** – The City must improve the resilience of the wastewater collection and transmission system to prevent sanitary overflows and spills. FDEP recently adopted a stringent approach on sanitary spills and imposes large monetary fines for utilities that experience frequent sanitary spills. These spills most often occur at lift stations within the collection system, and therefore this project focuses on enhancing the resilience of the City's WWLSs.

- **Project 4: Wastewater Manhole and Pipe Lining** – The City must improve the collection system to reduce continuing inflow and infiltration issues. The I&I observed at the WWTF exceeds typical peaking factors, resulting in hydraulic overloading of the plant that is not sustainable. This could be reduced by mitigating I&I in the collection system.

7 PROJECT FUNDING

The City intends to apply for funding assistance for the prioritized projects addressed in Section 6 through the CWSRF Loan Program. This Section summarizes the information required by the CWSRF Loan Program to obtain funding assistance for the projects. The CWSRF funding process requires the applicant to develop a facilities plan that includes or documents the following information for each project:

- Project Need and Location
- Environmental Review
- Alternative Analysis
- Implementation Plan
- Public Participation
- Financial Feasibility

7.1 PROJECT NEED AND LOCATION

The Project Need for the four projects was described in Section 6, but these projects are primarily being conducted to address regulatory requirements. Projects 1 and 2 are at the City of Bradenton's WWTF, and Projects 3 and 4 are at various lift stations, manholes, and pipelines throughout the City's wastewater collection service area. These projects will benefit the entire City's population since they relate not only to the wastewater collection system but the WWTF effluent water quality and disposal as well.

7.2 ENVIRONMENTAL REVIEW

The FDEP CWSRF Loan Program requires that an environmental review be conducted for each project to be funded. Jones Edmunds prepared an Environmental Inventory for the entire City service area for use in completing the environmental review for each project. Appendix A provides the following information:

- A list of threatened, endangered, proposed, and candidate species and designated critical habitats that may be present in the project area (may be obtained from the US Fish and Wildlife Service).
- A discussion of any significant adverse effects on flora, fauna, threatened or endangered plant or animal species, surface-water bodies, prime agricultural lands, wetlands, or undisturbed natural areas.
- A discussion of any significant adverse human health or environmental effects on minority or low-income communities.
- A list of any significant adverse environmental effects and the project features that will mitigate such effects.

Based on the Environmental Inventory completed in 2016 and provided in Appendix A, the projects are not expected to adversely impact the environment.

7.3 ALTERNATIVE ANALYSIS

The City of Bradenton routinely assesses wastewater collection, treatment, and disposal projects based on a triple bottom-line approach (i.e., social, economic, and environmental). Depending on the size of the project, detailed evaluations, feasibility studies, and preliminary engineering reports are developed to determine the best available option for each project. The intent of this process is to establish the most functional, cost-effective, and environmentally sound wastewater collection, treatment, and disposal system for the City of Bradenton.

As part of the CWSRF requirements, a minimum of three alternatives must be considered to justify the chosen project. The “No action” alternative is used as an alternative for all three projects under consideration, and the other alternatives are based on the specifics of the topic/project.

To perform an alternatives analysis, the City developed various screening criteria to qualitatively evaluate the alternatives. In some cases, a screening criterion may not apply and is therefore not used to evaluate the alternative. A qualitative ranking scale (Good, Fair, Poor, or Ruled Out) is used to evaluate the value each alternative will add in supporting the goals of the City. The screening criteria used when assessing each alternative include:

- Regulatory Considerations, when applicable
- Permitting
- Service Agreements or Local Contracts, when applicable
- Operability/Functionality
- Sustainability – Water and Energy Efficiency
- Environmental Impacts/Benefits – Environmental Review
- Economic Impacts/Benefits, when applicable
- Relative Capital and O&M Costs, when applicable
- Cost and Effectiveness Analysis

Table 13 through Table 16 summarize the alternatives analysis for the three prioritized projects. The information has been summarized from detailed evaluations documented in various Technical Memorandums, feasibility studies, and Basis of Design Reports (BODRs) developed by the City and its subconsultants. Projects that received the “Good” ranking relative to the other alternatives were chosen for the implementation plan discussed in the following section.

Table 13 Project 1: Addition of Clarifier No. 4

Alternatives	Screening Criteria					Relative Ranking
	Permitting	Operability/Functionality	Sustainability - Water & Energy	Environmental Impacts/ Benefits	Cost and Effectiveness Analysis	
No Action- Continue Secondary Treatment With the Existing Three Clarifiers	Poor – No additional permits required. However, permit penalties are probable due to possible on-site overflow and unauthorized discharges.	Poor – No change in current treatment; however, O&M of downstream filters will increase over time.	Poor – Extended filter backwash events during peak wet-weather flow events.	Poor – Filter upset and bypass events will occur during peak wet-weather events creating possible on-site overflows and unauthorized surface water discharges.	Poor – Eventual capital improvement or replacement to the downstream filters and any cost associated with FDEP permit penalties.	Poor
Flow Equalization	Fair – Minor modification to the WWTF permit is required.	Fair – Requires an odor-control system and is labor intensive. Requires an additional pumping system to convey flow to and from the equalization tank and headworks.	Fair – Requires minor clearance of new land to accommodate structure footprint.	Good – Assists with reducing peaking flow through the facility and provides additional storage during peak wet-weather events, reducing overflows and unauthorized surface water discharges.	Poor – Requires capital investment and high O&M.	Fair
Addition of Clarifier No.4	Fair – Minor modification to the WWTF permit is required.	Good – No change in current treatment and Operators are skilled with operation.	Fair/Good – Requires clearance of an existing tank to accommodate structure footprint. Existing infrastructure was offline and no longer in operation, so making beneficial use of this existing land area instead of clearing additional area.	Good – Assists with maintaining high-level disinfection and reclaim water production under peak wet-weather events. Aids in decreasing downstream filter upset and bypass events.	Fair – Requires capital investment but has low O&M.	Good

Table 14 Project 2: Aquifer Recharge Injection Well Facility (Subsurface and Surface Components)

Alternatives	Screening Criteria						Relative			
	Regulatory Considerations	Permitting	Service Agreements & Contracts	Operability/ Functionality	Sustainability - Water & Energy	Environmental Impacts / Benefits	Economic Impacts/ Benefits	Relative Capital and O&M Costs	Cost and Effectiveness Analysis	Ranking
No Action – Continue to Use Surface Water Discharge	Poor – Alternative does not address Senate Bill 64 (Section 403.064(17), FS) requirements.	Good – No additional permits required.	Good – No additional agreements or contracts required.	Good – High volume/flow capability for managing wet-weather events.	Good – Manatee River has high storage capacity; requires little energy discharge; operates under gravity flow.	Fair – Supplements flow to the tidally influenced portion of the Manatee River, adds low-level nitrogen into the river. No other environmental impacts expected.	Fair – High sampling and monitoring costs; little cost to operate, but no revenue generated.	Good – Low O&M and no capital costs.	Good – No capital investment required; City currently plans for operation of this alternative in their O&M budget; method can handle full effluent flow.	Ruled out – Regulations require action.
Expand Reuse System to Residential Customers to Meet 90% AADF (Minimum) Reuse Flow	Good – Alternative does address Senate Bill 64 (Section 403.064(17), FS) requirements.	Fair – Minor modification to the WWTF permit is required.	Poor – Additional agreements or contracts would be required.	Poor – High reclaimed water supply and demand variations during wet-weather season/events.	Poor – As reclaimed water flows increase, more users will need to be added to use flow; requires energy for operating reuse system.	Fair – Reduces potable water use when used for irrigation; can indirectly reduce the need for nitrogen fertilizer on lawns and net imports into the area. No other environmental impacts expected.	Poor – Requires significant expansion of reuse system (distribution mains, meters, valves) and maintenance on assets; additional billing; may require additional reclaimed water storage; disturbs roadways and neighborhoods; generates additional reclaimed water sales revenue.	Poor – High O&M and capital costs.	Poor – Requires significant capital investment with O&M costs only minorly offset by sales using current reclaimed water rates. Method may not handle full effluent flow.	Poor
Extend More Reclaimed Water to BRU/Bulk Customers to Meet 90% AADF (Minimum) Reuse Flow	Good – Alternative does address Senate Bill 64 (Section 403.064(17), FS) requirements.	Fair – Minor modification to the WWTF permit is required.	Fair – One agreement/ contract would be required.	Fair – Medium reclaimed water supply and demand variations during wet-weather season/events.	Poor – Customer is not using the full current agreement amount, few additional bulk customers available; requires energy for operating reuse system.	Good – Reduces potable water use when used for irrigation; can indirectly reduce the need for nitrogen fertilizer on lawns and golf courses and net imports into the area.	Fair – May require expansion of transmission mains and meters for new customers; may require additional reclaimed water storage; generates additional reclaimed water sales revenue.	Good – Low O&M and capital costs	Poor – Requires capital investment with O&M costs only minorly offset by sales using current reclaimed water rates. Method may not handle full effluent flow.	Fair
Install a Class V AR Well to Eliminate the Discharge*	Good – Alternative does address Senate Bill 64 (Section 403.064(17), FS) requirements.	Good – Included in current WWTF permit.	Good – No additional agreements or contracts required.	Good – High volume/flow capability for managing wet-weather events.	Good – Aquifers have high storage capability; inhibits inland saltwater intrusion; requires energy when recharging the well.	Good – Recharges the aquifer in the SWFWMD SWUCA MIA.	Fair – Requires WWTF modifications; no revenue generated but possibility of net benefits. Not expected to adversely affect environment.	Fair – Low O&M and high capital costs	Fair – Requires capital investment but has low O&M and is expected to handle full effluent flow.	Good

*For more information refer to: Bradenton WWTF Aquifer Recharge System 30% BODR, May 2019; Bradenton WWTF Aquifer Recharge System, June 2018.

Table 15 Project 3: Wastewater Lift Station Emergency Power/Pump

Alternatives	Screening Criteria				Relative Ranking
	Permitting	Operability/Functionality	Environmental Impacts/ Benefits	Cost and Effectiveness Analysis	
No Action – Continue with Existing Emergency Power Capabilities at Selected WWLSs	Poor – Alternative does not consider possible wastewater spills or overflows that result in FDEP penalties.	Poor	Poor – Alternative does not consider wastewater spills and overflows; no environmental benefit.	Poor – No initial capital investment but City will eventually have to provide a solution to decrease wastewater spills and overflows at lift stations.	Poor
Replace/Install Emergency Power Capability	Good – No permitting required.	Fair – Creates a functional and resilient system when central electrical power becomes unavailable.	Good – Decreases the likelihood of wastewater spills and overflows. Provides resilience to collection and transmission system.	Good – Requires capital investment and low O&M cost.	Good
Install Emergency Bypass Pumping Capabilities	Good – No permitting required.	Good – Creates a functional and resilient system when central electrical power becomes unavailable, but includes additional automated resiliency until the generator is in operation.	Good – Decreases the likelihood of wastewater spills and overflows. Provides resilience to collection and transmission system.	Fair – Requires a higher capital investment at multiple lift stations but low O&M cost.	Good

Table 16 Project 4: Wastewater Manhole and Pipe Lining

Alternatives	Screening Criteria				Relative Ranking
	Permitting	Operability/Functionality	Environmental Impacts/ Benefits	Cost and Effectiveness Analysis	
No Action – Continue with Existing Infrastructure Conditions at Selected Manholes and Sewer Piping	Poor – does not consider possible wastewater spills from line failure or manhole failure that result in FDEP penalties.	Poor – No change in current O&M; however, O&M will increase over time with increased failures.	Poor – does not consider wastewater spills from failures; no environmental benefit.	Poor – No initial capital investment, but the City will eventually have to provide potentially significant funds to address failures and spills, likely at emergency rates.	Poor
Replace Manholes and Sewer Piping	Good – No permitting required.	Fair – Creates a functional and resilient system requiring reduced O&M, however, requires significant construction requirements and coordination.	Good – Decreases the likelihood of wastewater spills. Provides increased integrity within the collection system.	Poor – Requires significant capital investment, although reduces O&M cost somewhat.	Fair
Repair/Lining of Manholes and Sewer Piping	Good – No permitting required.	Good/Fair – Creates a functional and resilient system requiring reduced O&M within the impacted infrastructure, however, does not address entirety of infrastructure.	Good – Decreases the likelihood of wastewater spills. Provides increased integrity within impacted infrastructure of the collection system.	Fair/Good – Requires a high capital investment but will reduce O&M costs and potential emergency replacement costs.	Good

7.4 IMPLEMENTATION PLAN

Based on the evaluation described in the previous section, the following outlines the selected alternative and the total costs for each of the prioritized projects.

Project 1: Addition of Clarifier No. 4

- **Selected Alternative**: To increase the secondary treatment capacity at the WWTF, the City will add a fourth clarifier. The fourth clarifier is proposed to be 150-foot diameter with a 16-foot side water depth. The larger clarifier, along with the existing three 100-foot-diameter clarifiers, are designed to allow the facility to maintain high-level disinfection and reclaimed water production under peak wet-weather flow conditions. In addition, the fourth clarifier will prevent the loss of the sludge blankets from the three existing clarifiers during wet-weather flow events when influent flows exceed 19 MGD. The City has received a consultant's construction cost estimate resulting in an estimated $14,329,000 required for this effort as defined in Table 10. An estimated $450,000 in construction technical services are also being considered.
- **Permitting Considerations**: Requires minor modification to the existing Plant Operating Permit (FL0021369), Expiration Date: September 8, 2025. Permit modification was received from FDEP on May 12, 2022.

Project 2: Aquifer Recharge Injection Well Facility (Subsurface and Surface Components)

- **Selected Alternative**: To address the requirements issued under Senate Bill 64 (Section 403.064(17), FS) and the need for resilient disposal options, the City will pursue implementation of an AR well. The AR well will be capable of recharging the aquifer with 2 to 15 MGD of excess reclaimed water. Under current conditions, this well will capture approximately 96 percent of the excess reclaimed water. However, the remaining 4 percent of the excess water associated with wet-weather conditions will continue to use Outfall D-001 to make the economics of the AR project feasible. The City has received a consultant's construction cost estimate resulting in an estimated $6,730,000 required for this effort as defined in Table 11. An estimated $870,000 in construction technical services are also being considered.
- **Permitting Considerations**: IW-1 Permit (361706-001-UC/5R), Expiration Date: April 16, 2024. Requires modifications to the existing Plant Operating Permit (FL0021369), Expiration Date: September 8, 2025. Permit modification was received from FDEP on May 12, 2022.

Project 3: Wastewater Lift Station Emergency Power/Pump

- **Selected Alternative:** To enhance resilience within the City of Bradenton wastewater collection and transmission system to prevent sanitary overflows and spills, up to 12 WWLSs have been identified to replace the existing emergency power capability with emergency bypass pumping capability or to replace/install emergency power capability. The City is estimating an average of $350,000 per lift station upgrade, resulting in an estimated $4,200,000 required for this effort.

Project 4: Wastewater Manhole and Pipe Lining

- **Selected Alternative:** To address the high levels of I&I observed in the City's collection system and treatment facility, various manholes and piping have been inspected to determine the highest priority for repair and lining. This will improve the integrity of the infrastructure while reducing operation, maintenance, and I&I impacts. The City has historically averaged $6,000 for the complete lining of their manholes, resulting in an estimated $4,200,000 required for this effort and an estimated $13,300,000 required for the pipe lining effort as defined in Table 4.

7.4.1 Project Cost for Selected Plans

Table 17 summarizes the finalized Project Costs for the Selected Alternatives. The Total Project Costs for the Selected Alternatives include the estimated construction costs based on the preliminary design performed for each improvement plus contingencies and construction technical services costs such as construction management, inspections, project supervision, preparing record drawings, performing operator training, and preparing O&M manuals.

Table 17 Total Project Costs for Selected Plans

Description	Estimated Total Project Cost[a]	Construction Cost	Construction Technical Services
Addition of Clarifier No. 4	$16,211,900	$14,329,000	$450,000
AR Injection Well Facility – Subsurface and Surface Components	$8,273,000	$6,730,000	$870,000
WWLS Emergency Power/ Pump	$4,620,000	$4,200,000	N/A
Wastewater Manhole and Pipe Lining	$19,250,000	$17,500,000	N/A
Total	**$48,354,900**	**$42,759,000**	**$1,320,000**

[a] Estimated total project cost includes a 10% contingency on the construction cost as included in Item 6 of the Request for Information (RFI) Form.
Note: N/A = Not Applicable.

7.4.2 Implementation Schedule

Table 18 outlines the proposed construction schedules for each project in the Implementation Plan.

Table 18 Schedule

Description	Month 1[a]	Construction Schedule[b]
Addition of Clarifier No.4	06/23	23 months
AR Injection Well Facility – Subsurface and Surface Components	06/23	77 months
WWLS Emergency Power/Pump	06/23	42 months
Wastewater Manhole and Pipe Lining	06/23	24 months

[a] Month 1 reflects the starting month of the bidding process.
[b] Construction schedule includes the expected number of months for the bidding and awarding of a construction contract and construction completion and commissioning.

7.5 PUBLIC PARTICIPATION

The City of Bradenton has scheduled a public meeting in February 2023 to explain the proposed projects and enable public participation in evaluating the project alternatives. This meeting will be advertised in accordance with the City's requirements for a public meeting notice. Appendix B provides a copy of the Affidavit of Publication of a Notice of Public Meeting and the meeting minutes.

7.6 FINANCIAL FEASIBILITY

The CWSRF planning document specifies that the City provide a completed Capital Finance Plan Worksheet; detailed proposed system of charges, rates, fees, and other collections that will generate the revenues to be dedicated to loan repayment; and a fiscal sustainability or asset management plan. Appendix C provides copies of these documents.

7.7 ADOPTING RESOLUTION

The City will adopt a formal resolution to implement the planning recommendation in this document in accordance with the requirements for the SRF loan application and program. This resolution is scheduled to be reviewed and authorized by City Council at the first City Council Meeting in February 2023, will be provided to FDEP SRF, and will be included as an Appendix.

REFERENCES

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Appendix A

Environmental Inventory

APPENDIX A
ENVIRONMENTAL INVENTORY (2016)

PHYSIOGRAPHY

To examine the physical features of the City of Bradenton as they relate to wastewater collection and disposal, we must examine the soils, geology, and topography of the Study Area. From several reports prepared by the Florida Geological Survey, Soil Survey of Manatee County, and from the information provided in the Comprehensive Plan, the following physiography inventory has been derived.

SOILS

From information in the Soil Survey of Manatee County, prepared by the US Department of Agriculture, Soils Conservation Service, dated April 1983, two predominate soil types occur in the City of Bradenton. They are described as follows:

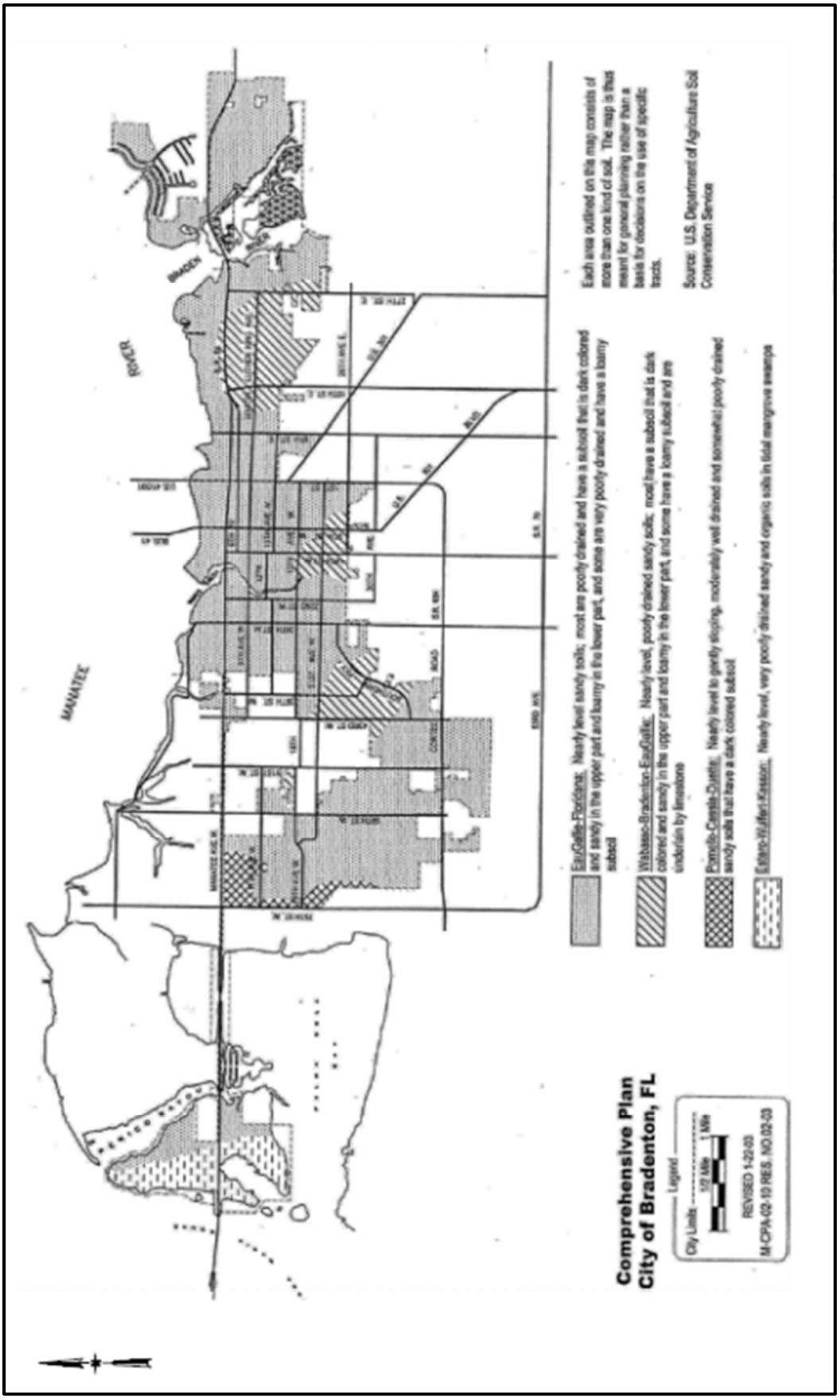
- EauGallie-Floridana – Nearly level, sandy soils. Most are poorly drained and have a subsoil that is dark colored and sandy in the upper part and loamy in the lower part; some are very poorly drained and have a loamy subsoil. Generally, Floridana soils have a high-water table between land surface and -1 foot below land surface (bls) and a permeability ranging from 0.6 to 20 inches per hour. Floridana soils can have a high-water table from +2 feet above to -1 foot bls, and a permeability ranging from less than 0.2 to 20 inches per hour.
- Wabasso-Bradenton-EauGallie – Nearly level, poorly drained sandy soils. Most have a subsoil that is dark colored and sandy in the upper part and loamy in the lower part; some have a loamy subsoil and are underlain by limestone. Permeabilities range from less than 0.2 to 20 inches per hour for Wabasso soils and from 0.6 to 20 inches per hour for Bradenton soils. Wabasso and Bradenton soils can have a high-water table between ground surface and -1 foot bls.

Other, less predominate soil types found in the City are Pomello-Cassia-Duette soils in the west part of the City near 75th Street West, Estero-Wulfert-Kesson soils on Perico Island, and Okeelanta soils on the islands in the Braden River. These soil types are described as follows:

- Pomello-Cassia-Duette – Nearly level to gently sloping, moderately well drained and somewhat poorly drained sandy soils that have a dark-colored subsoil.
- Estero-Wulfert-Kesson – Nearly level, very poorly drained sandy and organic soils in tidal mangrove swamps.
- Okeelanta – Nearly level, very poorly drained organic soils on floodplains.

Figure A-1 provides a general soils map of Bradenton.

Figure A-1 General Soils Map



GEOLOGY AND HYDROGEOLOGY

Manatee County is in the west-central portion of the Florida Peninsula. Deposits of sand, limestone, and shells, mainly of the Pleistocene age but partly of the Pliocene age, are exposed at the surface throughout most of the County. They are underlain by imbedded marl, limestone, and sand of the Hawthorn Formation of the middle Miocene age. The Hawthorn Group is underlain, at depths ranging from 175 to 350 feet below sea level, by a series of limestones of tertiary age that have a total thickness of more than 4,000 feet. The limestone units in ascending order include:

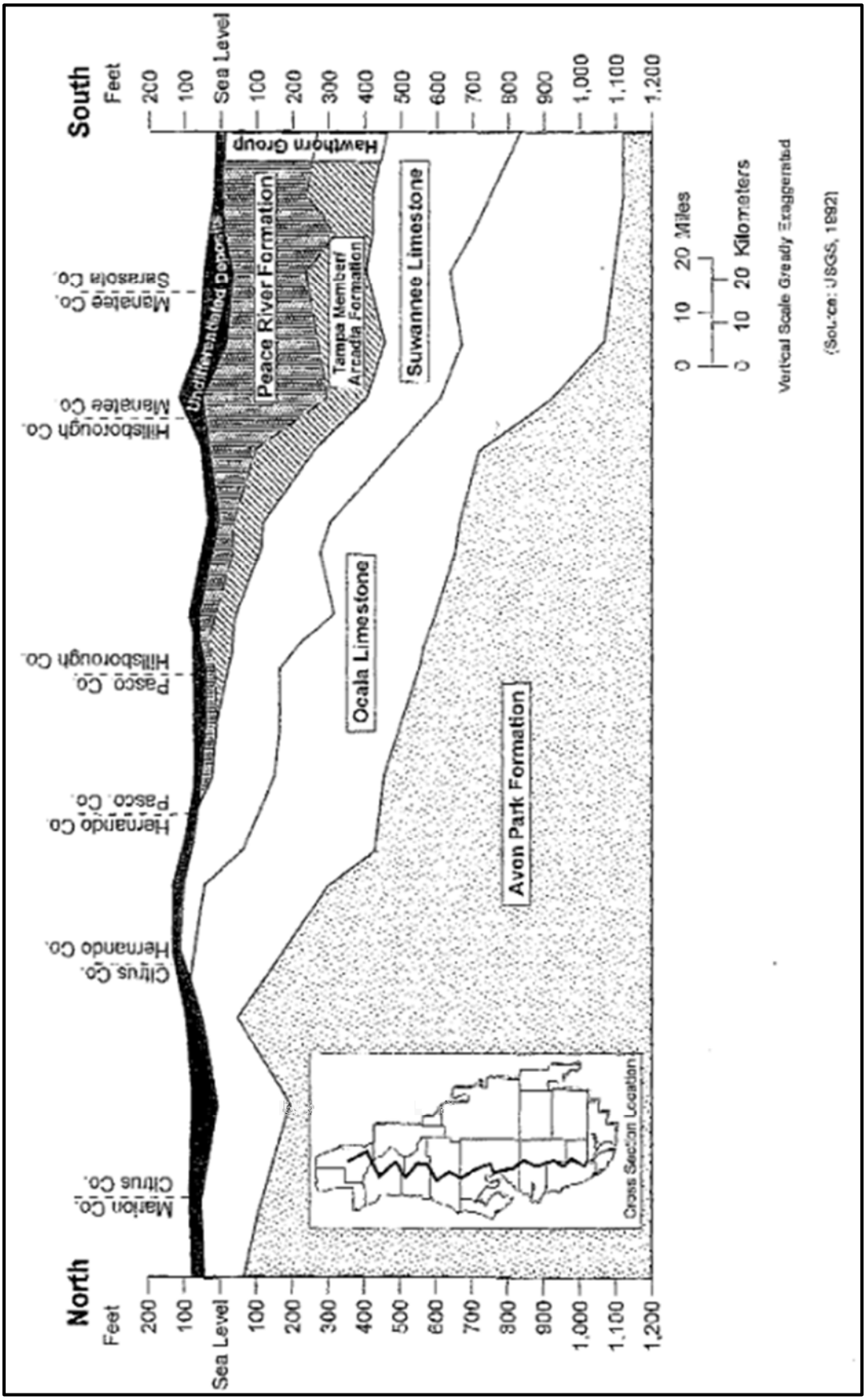
- The Avon Park Formation of the middle Eocene Series.
- The Ocala Group of the late Eocene Series.
- The Suwannee Limestone of the Oligocene Series.
- The Tampa Formation of the Lower Miocene Hawthorn Group.

Figure A-2 presents a north-south geologic cross-section extending from Marion County through Sarasota County. In general, the geologic strata dip and increase in thickness to the south. The geologic strata exhibit varying levels of permeability that form a hydrogeologic system, with more permeable strata functioning as aquifers and less-permeable strata serving at confining intervals. In Manatee County, the hydrogeologic sequence consists of three primary aquifer groups: the surficial aquifer, the intermediate aquifer, and the Floridan aquifer system.

The surficial aquifer is composed of undifferentiated deposits consisting primarily of sand and clay. This aquifer typically exhibits a low yield, with wells completed in this interval yielding approximately 5 gallons per minute (gpm) or less. This aquifer is not generally used for public water supplies in the area, but may be used as small-diameter, low-yielding irrigation supply wells by residents. Within Manatee County, the undifferentiated deposits range from approximately 5 to 100 feet in thickness.

The intermediate aquifer is comprised of the sand and limestone beds of the Miocene-aged Hawthorn Group, which consists of the Peace River Formation and the Tampa Member of the Arcadia Formation. Some limited production is present between the confining layers of the Peace River Formation. Although numerous production units are within the intermediate aquifer, the Tampa Member of the Arcadia Formation is generally the most productive interval of the intermediate aquifer system. The Tampa Member generally becomes more productive with depth, with the most productive interval occurring near the bottom of the stratum. Wells completed into the intermediate aquifer commonly yield approximately 500 gpm. A transmissivity of approximately 15,000 gallons per day per foot (gpd/ft) has been reported for the intermediate aquifer within Manatee County (Southwest Florida Water Management District [SWFWMD], 1987). The lower extent of the intermediate aquifer in Manatee County is delineated by a semi-confining layer of clayey limestone at the base of the Hawthorn Group's Tampa Member.

Figure A-2 North-South Regional Geologic Cross Section



A thick series of carbonate rocks consisting of the Oligocene-aged Suwannee Limestone, Eocene-aged Ocala Limestone, and Avon Park Formation compose the Upper Floridan aquifer system. The upper and lower Suwannee Limestone and the upper Avon Park Formation generally contain production zones, with the Ocala Limestone typically serving as a confining layer between the Suwannee and the Avon Park zones. In Manatee County, the Suwannee Limestone extends from approximately 400 to 700 feet bls. Minor productive intervals separated by layers of less permeable rock and clay are often within the upper portion of the Suwannee Limestone. Most of the production in the Suwannee Limestone typically occurs near the top and the bottom of the formation.

The Ocala Limestone forms a semi-confining unit between the Suwannee and Avon Park zones. The Ocala Limestone typically has a thickness of 250 to 300 feet in the Bradenton area. The underlying Avon Park Formation consists of alternating layers of limestone and dolomite. The production zones within the Avon Park Formation are within the upper portion of the formation and are characterized by highly transmissive, cavernous dolomite. A transmissivity of over 2,000,000 gpd/ft was reported during testing of the Manatee County Southwest Regional Wastewater Treatment Plant (SWRTP) injection well (CH2M Hill, 1989), which is on Cortez Road just southwest of the City of Bradenton.

The lower portion of the Avon Park Formation is much less transmissive than the upper portions of the formation and does not contain highly transmissive intervals capable of accepting large amounts of flow. The portion of the Floridan aquifer system below the Avon Park Formation generally consists of low-permeability carbonate and evaporate strata, which are unsuitable for the injection and storage of large amounts of water.

Figure A-3 presents the elevation contours of the potentiometric (groundwater) surface for the Floridan aquifer in Manatee County area during May and September 1995. The effects of heavy agricultural groundwater use inland during the dry season are evidenced by a local reduction in the potentiometric surface shown in May 1995. During the dry season, the natural gradient is reversed, and saltwater intrusion can occur. The depression in the potentiometric surface is shown to recover by September 1995, when local rainfall reduces agricultural irrigation pumpage requirements.

TOPOGRAPHY

The City of Bradenton lies within the Terraced Coastal Lowlands, which is a subdivision of the Coastal Plains Province. The topography is largely controlled by a series of marine terraces formed during Pleistocene time, when the sea was above or below its present level, with the City of Bradenton within the Pamlico Terrace. This terrace forms a relatively flat coastal lowland that is generally less than 20 feet above sea level. The surface drainage is primarily through the Manatee River, with smaller streams (now canals) draining the higher ground.

The topography within the City of Bradenton is characterized by subtle variations in elevation from sea level along the Braden River, Manatee River, and Palma Sola Bay to only about 35 feet above sea level along US Highway 301. Figure A-4 presents a topographic map of Bradenton.

Figure A-3 Potentiometric Surface of the Upper Floridan Aquifer, May and September 1995

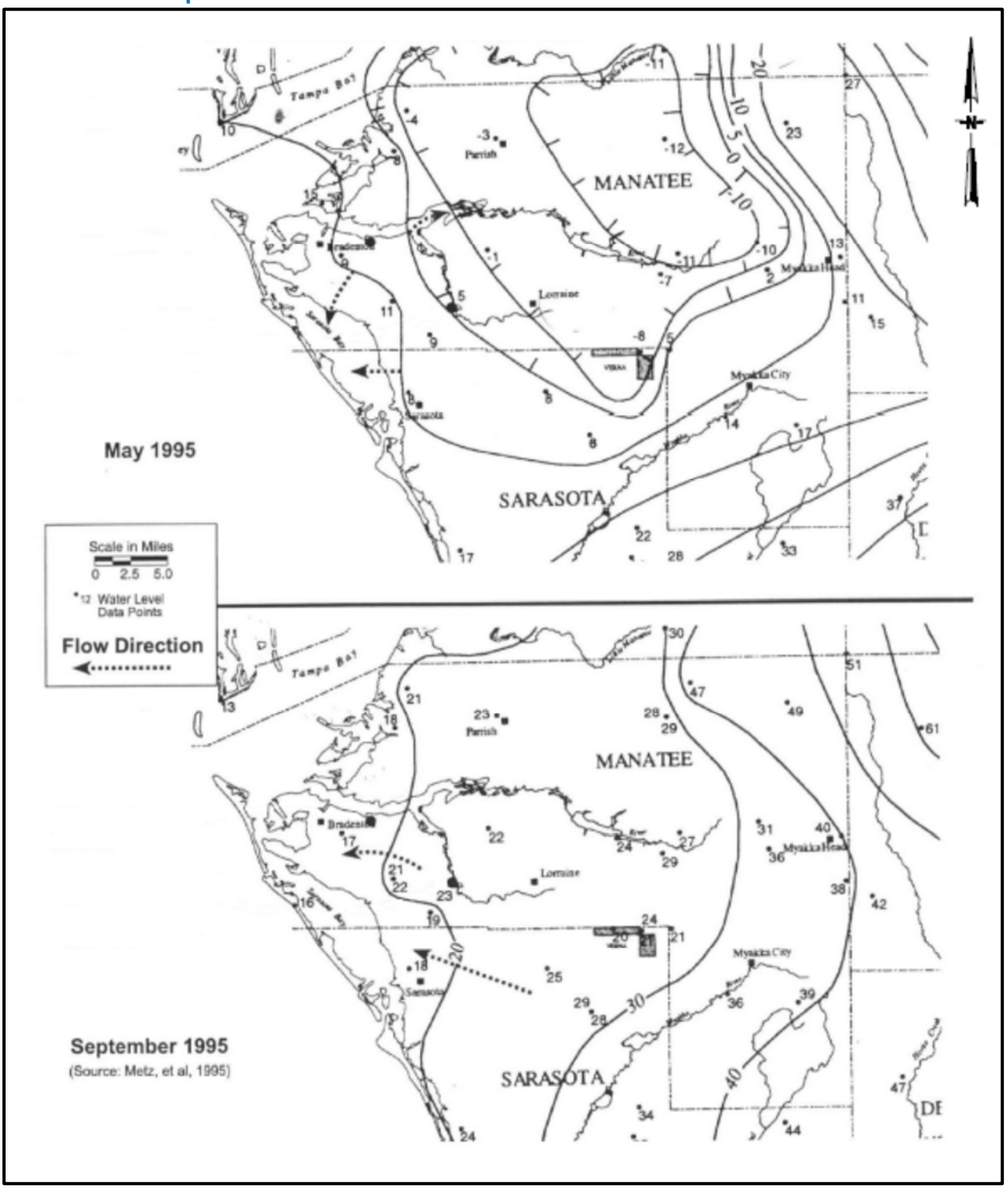


Figure A-4 Topographic Map of Bradenton



CLIMATE AND PRECIPITATION

TEMPERATURE

Bradenton's climate is oceanic and subtropical with high relative humidity, short mild winters, and long warm summers. Temperatures display little day-to-day variation in this area during the summer months, June through September. Daily maximums during this period average near 90° Fahrenheit (F) in the coastal sections and slightly above 90°F in the interior areas. Temperatures reach 90°F or higher about 3 out of 4 days during June, July, and August. In May and September, temperatures reach 90°F or higher about 1 or 2 days per week. Daily minimum temperatures during the summer average between 71° and 73°F. Extreme heat waves characteristic of continental areas are rare. Temperatures of 100°F are almost unknown in the coastal areas.

In the winter, daily temperatures display considerable day-to-day variation. Daily maximum temperatures during December, January, and February average close to 75°F. Daily minimum temperatures in winter range between 52° and 54°F. An occasional cold wave brings minimum temperatures down to the middle and high 20s. These cold waves, except in rare instances, seldom last more than 2 or 3 days at a time, and even on the coldest days, temperatures rise well above freezing during the day.

RAINFALL PATTERNS

Most summer rain falls during afternoon or evening showers or thundershowers. These occur on about one-half of the days in an average year. Showers are occasionally heavy and sometimes produce 3 inches or more of rain in an hour or two. Historical data indicate that during an average summer about 25 percent or more of the total rainfall occurs at rates exceeding 1 inch per hour. Rainfall in the fall, winter, and spring is much less frequent than in summer. During these seasons, measurable amounts of rain occur on an average of about 1 in every 4 or 5 days. The fall, winter, and spring rains are usually the result of large-scale weather developments and, therefore, tend to fall over a more general area than do the summer showers. These rains occasionally persist for a day or longer and sometimes bring heavy amounts of precipitation to large areas.

Tropical storms affect this area at irregular intervals. These storms, which usually occur during the summer and fall months, are the main causes of widespread heavy rainfall and flooding.

The summer shower season occasionally begins in late May. When it does, those rains tend to inflate the May totals even though the major portion of the May rain occurs late in the month. Generally, mid-April to late May is quite dry throughout the area, and periods of 30 days or longer with less than 1 inch of rainfall are relatively common. In some years, the spring dry period persists into mid-June. Since the dry weather in late spring and early summer is also characterized by abundant sunshine and warm temperatures, evaporation from lakes and evapotranspiration from irrigated areas can be relatively high. Late October through February is characteristically dry, with November being the driest month of the year.

Tropical storms affect this area at irregular intervals. These storms, which usually occur during the summer and fall months, are the main causes of widespread heavy rainfall and flooding. Tropical storms, which can occur during the summer and fall months, and persistent winter rains, occasionally bring heavy precipitation. In some summer seasons, abnormal shower activity persists from several days to a week or more. These rains, although local in nature, sometimes produce rather large rainfall accumulations. Table A-1 summarizes the rainfall data for a *typical* year in Bradenton.

Table A-1 Rainfall Patterns for Bradenton

Month	Annual Average Rainfall (inches)	Typical No. of Days With Rainfall	Month	Annual Average Rainfall (inches)	Typical No. of Days With Rainfall
January	2.43	3	August	8.73	22
February	2.80	5	September	7.72	7
March	3.06	3	October	3.34	4
April	2.43	4	November	1.85	4
May	3.18	5	December	1.94	8
June	7.35	18	**Totals**	**53.29**	**98**
July	8.46	15			

EVAPORATION

Evaporation from a free-water surface has been measured using a US Weather Bureau Class A evaporation pan at several points within or immediately adjacent to Bradenton for several years. The records indicate that close to 60 percent of the total evaporation occurs during the 6-month period May through October. The greatest evaporation usually occurs in May and June and, in some years, these 2 months can account for nearly 25 percent of the annual total. The average annual evaporation from lakes is about 53 inches. Evapotranspiration from plants should be somewhat less than lake evaporation because depleted soil moisture conditions limit the uptake of water by plants in some seasons, especially in the fall, winter, and spring.

GROUNDWATER

The groundwater conditions in the Bradenton area are summarized as follows:

- The surficial aquifer is used for localized irrigation and is within 1 foot of the surface for many months, with some areas having the seasonal high groundwater rise above the ground surface during high-rainfall periods.
- The Hawthorn aquifer begins approximately 50 ft bls and is separated from the surficial aquifer by a shallow confining layer. Some local wells take water from this aquifer and show high levels of Chlorides from saltwater intrusion.
- The Floridan aquifer directly under Bradenton is approximately 600 to 1,000 ft bls and separated from the Hawthorn aquifer by approximately 50 feet of a confining geological layer. Many local wells extend into the Floridan aquifer, and several were used for public water supply before the late 1930s.

- The City lies within the SWFWMD East Tampa Bay Water Use Caution Area. This means that special permitting for potable water use for the Floridan aquifer under Bradenton is required due to special groundwater problems with saltwater intrusion.
- The water quality of the Floridan aquifer under Bradenton is currently not suitable for drinking water following the strict requirements of the Florida Department of Environmental Protection (FDEP) drinking water standards, with high levels of Total Dissolved Solids, Sulfates, Chlorides, and Hardness. Extensive treatment systems such as reverse osmosis would be required to lower the contaminant levels to acceptable standards.
- Total rainfall entering the surficial groundwater directly during and after a storm event is estimated at approximately 55 percent.

SURFACE WATER

The major water bodies adjacent to the City of Bradenton are the Manatee River, Braden River, Lower Tampa Bay, Anna Maria Sound, and Palma Sola Bay. Lower Tampa Bay, Anna Maria Sound, and Palma Sola Bay are Class II (Shellfish Propagation or Harvesting) waters. In the Bradenton area, the Manatee River and Braden River are Class III (Recreation, Propagation of a Healthy, Well-Balanced Population of Fish and Wildlife) waters.

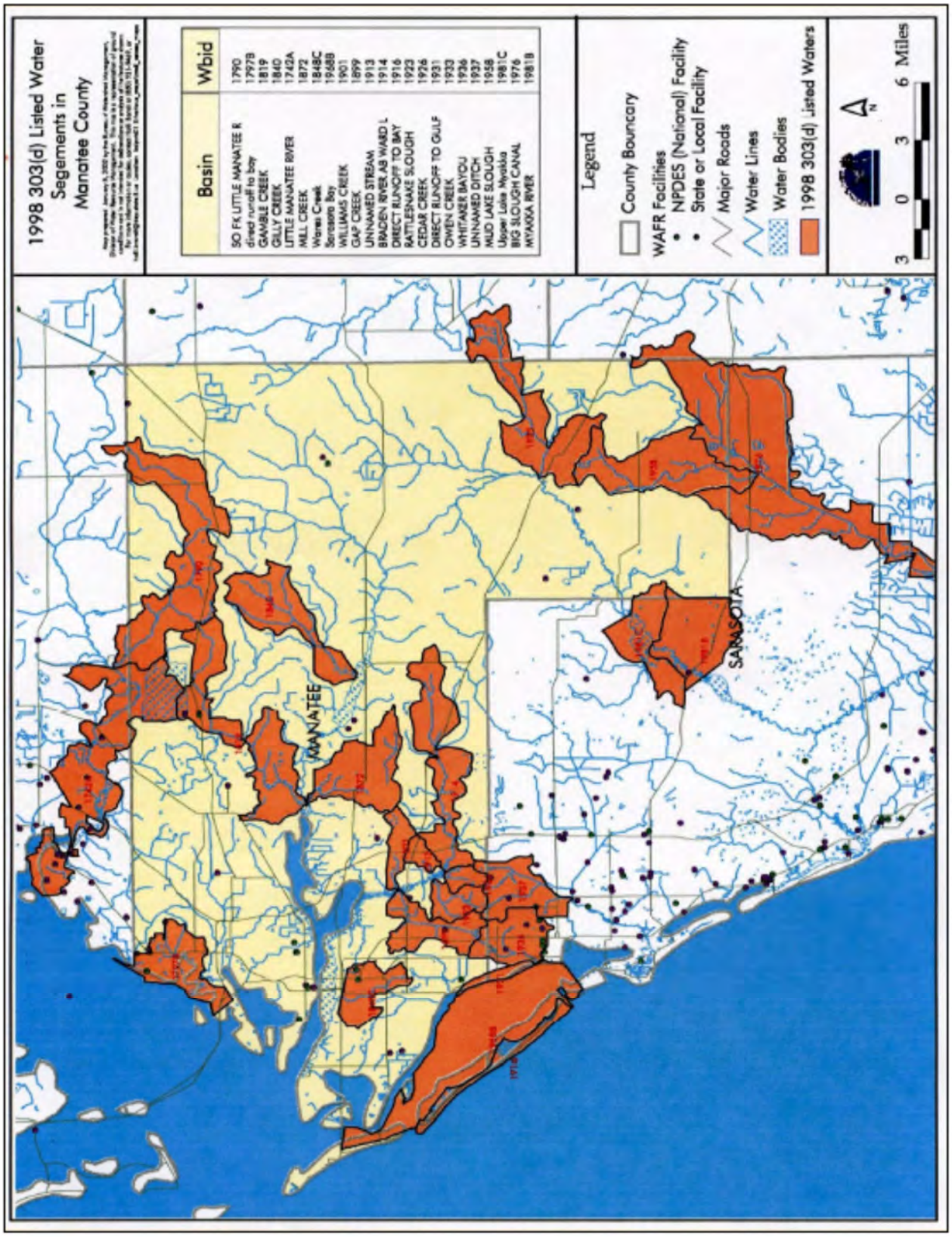
Section 303(d) of the Clean Water Act (CWA) requires states to develop a list of waters not meeting water-quality standards or not supporting their designated uses. Total Maximum Daily Loads (TMDLs) are required for the waters determined to be impaired based on these detailed assessments because technology-based effluent limitations, current effluent limitations required by State or local authority, or other pollution-control requirements are not stringent enough to meet current water-quality standards. Figure A-5 presents the Section 303(d) listed water bodies in Manatee County. Water bodies in or adjacent to the City of Bradenton that have been placed on the Section 303(d) list are Wares Creek and Lower Tampa Bay.

Wares Creek (Water Body ID #1848C) was included on the original 1998 Section 303(d) list due to high levels of biochemical oxygen demand (BOD) and coliforms. Lower Tampa Bay (Water Body ID #1558A) was included in the 2002 update to the list because of accumulations of mercury in fish tissue and downgrading of the shellfish harvesting classification because of high coliform levels in the bay.

The City of Bradenton provides sanitary sewer services to all residences and businesses within its City limits. The City's wastewater treatment plant or water reclamation facility is outside of the Wares Creek drainage basin, discharges into the Manatee River, and provides reclaimed water for irrigation of areas on the east side of the City.

A primary contributor of pollutants to surface water is untreated urban and agricultural runoff. According to several studies conducted by the EPA and FDEP, fertilizers, pesticides and oils make up most of the pollutants in stormwater runoff. The use of septic systems in the unincorporated area south of the City may also be a contributor to water quality degradation. The high groundwater levels and high amount of precipitation in the City adds to the potential for pollution of the surface waters.

Figure A-5 1998 303(d) Listed Water Segments in Manatee County



The City has been issued a National Pollutant Discharge Elimination System (NPDES) Permit. Pursuant to Part II of this permit, the City has developed a Storm Water Management Program. This Program includes the controls necessary to prohibit the discharge of non-stormwater into municipal separate storm sewers and to reduce to the maximum extent practicable the discharge of pollutants from the municipal separate storm sewer system.

AIR QUALITY

Manatee County has been designated an air quality attainment area by the EPA. The major discharges of air emissions that could potentially affect the area include Port Manatee, the Tropicana facility, and FPL's Parrish Power Plant. Transportation-generated pollutants such as carbon monoxide, particulate matter, and hydrocarbons also contribute to local air pollution. Air quality is monitored by the Manatee County Environmental Management Department. A monitoring station for particulate matter, ozone, and oxides of nitrogen is at the G.T. Bray Park in west Bradenton.

Data obtained from this and other stations indicate no significant air-quality problems. Monthly and yearly averages for the monitored pollutants are within federal and Florida standards. Given the small number of industries in the Bradenton area, any decrease in the City's air-quality standards will likely be generated by automobiles. In the future, methods to attenuate increased emission levels resulting from increase in traffic may need to be implemented.

Endangered Special and Critical Habitats

Table A-2 from the Coastal Management Element of the City's *Comprehensive Plan* lists the protected species of fish, birds, mammals, and plants that may be found in Manatee County. Species known to inhabit the Bradenton area include Common Snook, American Alligator, Little Blue Heron, Snowy Egret, Wood Stork, Osprey, Brown Pelican, and West Indian Manatee.

Since Bradenton is highly urbanized, few remaining unaltered land areas exist that are worthy of preservation. The area's estuarine grass flats and mangrove ecosystems are its most unique and critical features. The wetlands in the estuarine areas are highly biologically productive ecosystems. These estuarine communities are comprised of a mixture of endemic and migratory marine species, plus a very few species with the osmo-regulatory capabilities for penetrating to or from the freshwater environment. Estuaries serve as a spawning and/or nursing ground for many commercially important species of nekton (marine animals that swim). Further, most commercial species of shellfish are primarily estuarine. The areas that are of special concern are the north and south half of Perico Island and the shoreline and islands of the Braden River.

Table A-2 Protected Species Potentially Found in Manatee County

Scientific Name	Common Name	Designated Status	
		FGFWFC	USFWS
Fish:			
Centropomus undecimalis	Common Snook	SSC	SSC
Amphibians and Reptiles:			
Alligator mississippiensis	American Alligator	SSC	T(S/A)
Caretta	Atlantic Loggerhead Turtle	T	T
Chelonia mydas Chrysemys (=Pseudemys)	Atlantic Green Turtle	E	E
Concinna suwanniensis	Suwannee Cooter	SSC	UR5
Dermochelys Coriacea	Leatherback Turtle	E	E
Drymarchon corais couperi	Eastern Indigo Snake	T	T
Gopherus Polyphemus	Gopher Tortoise	SSC	UR2
Pituophis melanoleucus muqitus	Florida Pine Snake	SSC	UR2
Rana areolata	Gopher Frog	SSC	UR2
Eretmochelys imbricate	Atlantic Hawkbill Turtle	E	E
Lepidochelys kempi	Atlantic Ridley Turtle	E	E
Birds:			
AJaia aJaJa	Roseate Spoonbill	SSC	
Ammodramus savannarum floridanus	Florida Grasshopper Sparrow	E	E
Aphelocoma citerulescens coerulescens	Florida Scrub Jay	T	T
Aramus quarauna	Limpkin	SSC	SSC
Athene Cunicularia	Burrowing Owl	SSC	SSC
Egretta Caerulea	Little Blue Heron	SSC	SSC
Egretta rufrescens	Reddish Egret	SSC	SSC
Egretta thula	Snowy Egret	SSC	SSC
Egretta tricolor	Tri-colored Heron; Louisiana Heron	SSC	SSC
Falco sparverius paulus	Southeastern Kestrel	T	UR2
Grus canadensis pratensis	Florida Sandhill Crane	T	T
Raliaeetus leucocephalus	Bald Eagle	T	UR2
Mycteria Americana	Wood Stork	E	E
Pandion haliaetus	Osprey	SSC	SSC
Pelecanus occidentalis	Brown Pelican	SSC	SSC
Charadrius alexandrinus tenuirostris	Southeastern Snowy Plover	T	UR2
Haematopus palliatus	American Oystercatcher	T	T
Sternac antillurum	Least Tern	T	T
Caracara cheriway auduboni	Caracara	T	T

Scientific Name	Common Name	Designated Status	
		FGFWFC	USFWS
Mammals:			
Peromyscus floridanus	Florida Mouse	SSC	UR2
Sciurus nigerr shermani	Sherman's Fox Squirrel	SSC	UR2
Sorex longirostris eionis	Homosassa Shrew	SSC	UR2
Trichechus manatus latirostris	West Indian Manatee	E	E
Plants:			
Acrostichum aureum	Golden Leather Fern	E	E
Acrostichum danaeifolium	Giant Leather Fern	T	T
Asclepias curtissii	Curtiss Milkweed	T	T
Bonamia grandiflora	Florida Bonamia; Large-flowered Bonamia	E	T
Calopogon multiflorus	Many-flowered Grass Pink	T	T
Calopogon tuberosus	Grass Pink (unnamed)	T	T
Chrysopsis floridana	Florida Golden Aster	E	E
Drosera Intermedla	Water Sundew	T	T
Encyclia tampensis	Butterfly Orchid	T	T
Eulophia alta	Wild Coco; Ground Coco	T	T
Garberia Teterophylla	Garberia	T	T
Gossypium hirsutum	Wild Cotton	E	E
Habenaria	Odontopetala Rein Orchid (unnamed)	T	T
Habenaria repens	Water Spider Orchid; Creeping Orchid	T	T
Harrisella filiformis	Orchid (unnamed)	T	T
Ilex ambigua	Carolina Holly; Sandholly	T	T
Ilex deciduas	Possumhaw	T	T
Isoetes flaccida	Florida Quillwort	T	UR5
Lilium catesbaei	Catesby Lily	T	T
Lycopodium alopecuroides	Foxtail Club Moss	T	T
Lycopodium appressum	Southern Club Moss	T	T
Lycopodium cernuum	Nodding Club Moss	T	T
Malaxis spicata	Florida Malaxis; Florida Adder's Mouth	T	T
Nepholepsis biserrata	Boston Fern (unnamed)	T	T
Ophioglossum palmatrum	Hand Adder's Tongue Fern	E	UR5
Phlebodium aureum	Golden Polypody	T	T
Platanthera ciliaris	Yellow Fringed Orchid	T	T
Polyqala ruqelii	Big Yellow Milkwort	T	T
Polypodium Ptilodon	Polypody Fern (unnamed)	T	T
Psilotum Nudum	Whisk Fern; Fork Fern	T	T

Scientific Name	Common Name	Designated Status	
		FGFWFC	USFWS
Pteris tripartite	Giant Brake Fern	T	T
Pteris Vittata	Brake Fern (unnamed)	T	T
Rhododendron viscosum	Swamp Honeysuckle	T	T
Rudbeckia nitida	St. John's Susan	E	UR2
Sabal etonia	Scrub Palmetto	T	T
Sabal minor	Dwarf Palmetto; Bluestem	T	T
Scaevola plumieri	Inkberry	T	T
Selaqinella arenicola	Sand Spikemoss	T	T
Spiranthes precox	Giant Ladies' Tresses; Grass-leaved Ladies Tresses	T	T
Spiranthes vernalis	Spring Ladies' Tresses	T	T
Thelypteris dentata	Downy Shield Fern	T	T
Thelypteris Hispidula	Aspidium Fern (unnamed)	T	T
Thelypteris Interrupta	Aspidium Fern (unnamed)	T	T
Thelypteris kunthii	Aspidium Fern (unnamed)	T	T
Thelypteris palustris	Marsh Fern	T	T
Tillandsia setacea	Wild Pine; Air Plant (unnamed)	T	T
Vittaria lineata	Shoestring Fern	T	T
Woodwardia areolata	Netted Chain Fern	T	T
Zephryanthes simpsonii	SimpsonZephyr Lily	E	E
Zephryanthes (all white species)	Rain Lilies	T	T

Notes: The above list does not preclude the possibility that other protected species may exist within Manatee County. FGFWFC = Florida Game and Freshwater Fish Commission; USFWS = US Fish and Wildlife Services.
Index: E = Endangered; T = Threatened; SSC = Species of Special Concern; UR2 = Under review for listing, but substantial evidence of biological vulnerability and/or threat is lacking; UR5 = Still formally under review for listing, but no longer are considered for listing because recent information indicates species is more widespread or abundant than previously believed.

ENVIRONMENTALLY SENSITIVE HABITATS IN STUDY AREA

From the *Drainage Master Plan*, the *Soils Conservation Service Soil Survey*, and the *Comprehensive Plan*, the following areas within the City Limits are considered wetlands and can be considered environmentally sensitive habitats:

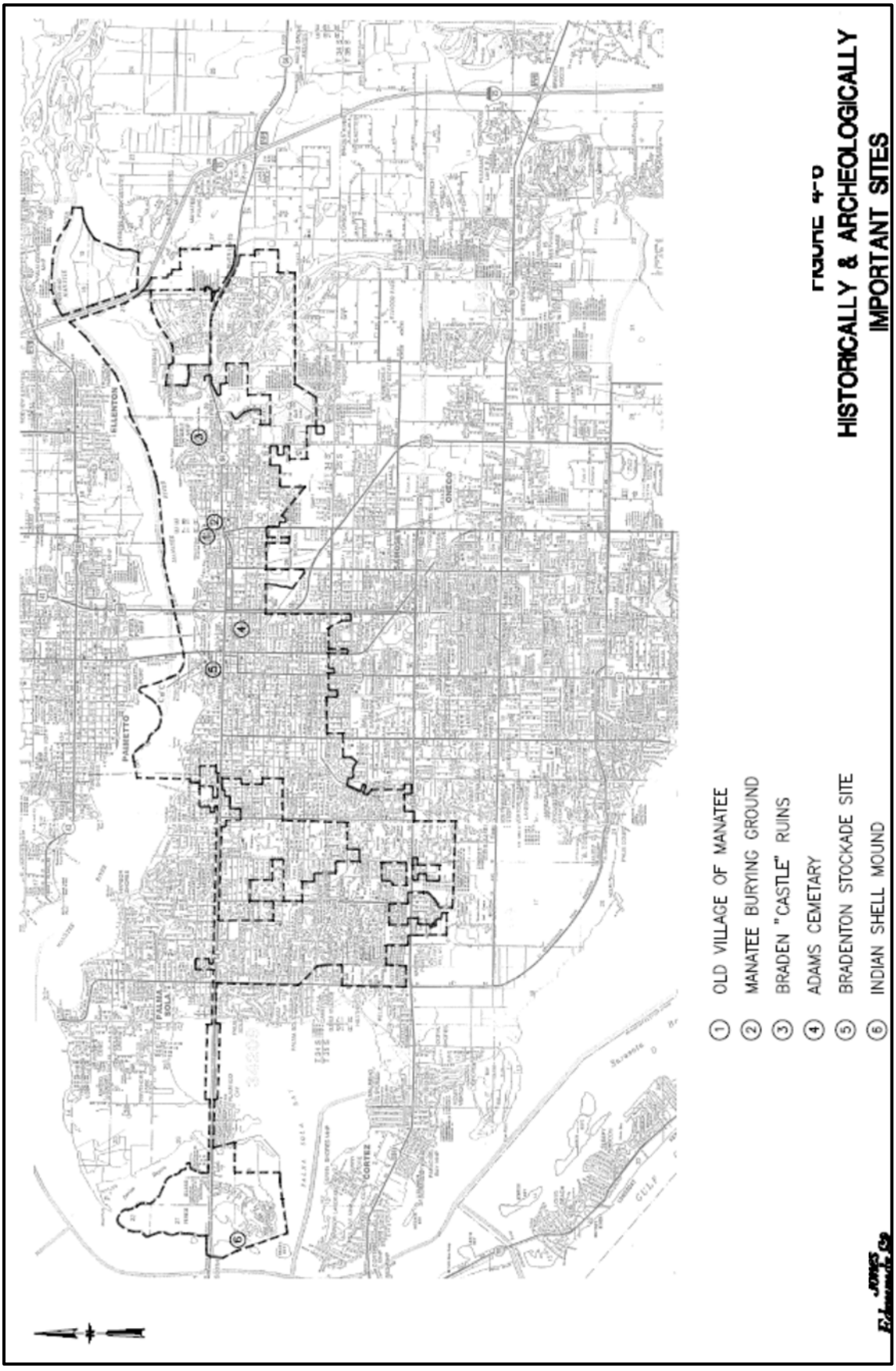
- The shorelines of the Manatee River.
- The shorelines and islands of the Braden River.
- Wares Creek.
- Cedar Hammock Canal.
- Perico Island and the shorelines of Palma Sola Bay, Anna Maria Sound, and Perico Bayou.

HISTORICALLY AND ARCHAEOLOGICALLY IMPORTANT AREAS

Figure A-6 shows the historic sites within the City of Bradenton and are described below:

- Site of Old Village of Manatee – The center of the village ran from Manatee Avenue northward along 15th Street East to the south shore of the Manatee River. In the early days, this was known as Main Street. This is the site of the first Anglo-American settlement in this area. At the time it was settled in 1843, it was a part of Hillsborough County. A dozen or so years later, it became the County Seat of Manatee County when it was carved from Hillsborough County. Historically significant structures and building sites in the Old Village of Manatee include:
  - Old Manatee Methodist Church – This old frame structure is the third house of worship of this religious denomination. It has the distinction of being the oldest Christian congregation south of Tampa and north of Key West. The structure was built in the late 1800s on the northeast corner of 15th Street East and 4th Avenue. It has been replaced by a new and more modern structure, and the original structure was moved to the nearby Manatee Village Historic Park where it will be preserved.
  - Manatee County's First Courthouse – The site is on 15th Street East, immediately south of the new church building that replaced the one previously discussed. This was the original courthouse for early Manatee County. It has also been moved to the Manatee Village Historic Park and restored.
  - Site of Original Home Built in Manatee County – The site is on the Manatee River on the east side of 15th Street East. A nursing home now occupies a portion of the site. Many large oak trees are still standing. Josiah Gates was Manatee County's original settler. He arrived in 1843 after the close of the Second Seminole War. On this site, he built a large *double pen* log home, slave quarters for four or five slaves, and pens for domesticated animals. All this was enclosed by a palisade of logs sunk vertically into the ground as a defense against Indians and wild animals.
  - Manatee Mineral Springs – The spring is near the foot of 14th Street East. The spring is near the original home site of Josiah Gates, the first settler. It is likely that the presence of this spring was responsible for the selection of this particular spot. It is currently nothing more than a pipe sticking out of the ground from which water flows during wet weather and ceases to flow during dry spells. When Gates settled here, the spring is reported to have been a pool 12 feet across. He also reported two Indian mounds nearby (they are now gone). He also found an abandoned Indian cornfield about half a mile south of this site.
  - Site of Branch's Fort – Branch's Fort is on the riverbank just north of the mineral spring. An early settler, Dr. Franklin Branch, constructed a log home on this large site. He also constructed another log structure that was used as a general store. All were enclosed with a log palisade. During the Third Seminole War (also known as the Billy Bowlegs War), the settlers from miles around took refuge at this location. They remained here for 6 months until the danger was over.

Figure A-6 Historically and Archaeologically Important Sites



- Manatee Burying Ground – The site is on the east side of 15th Street East at Manatee Avenue. It is the oldest public burying ground between Tampa and Key West and dates to 1850. Many prominent settlers of early Manatee County are buried there, including Josiah Gates.

- Braden Castle Ruins – The ruins are at the confluence of the Manatee and Braden Rivers on the west shore of the Braden River (in East Bradenton). Dr. Joseph Addison Braden, for whom Bradenton was named, constructed this for his home in 1850. The walls were made of an early type of cement known as *tabby*. This tabby was made of crushed oyster shells and sand, and was bound together with a cement made from burned oyster shells. The walls of the structure were 12 inches or more thick. Many of the early settlers took refuge around this large two-story structure during the Third Seminole War. It was attacked by the Seminoles on March 31, 1856. Braden Castle was the *manor house* for the very extensive sugar cane plantation that was owned by Dr. Braden. A sugar mill was on Sugar House Creek near the corner of 26th Avenue and 27th Street East, south of the City. The mill was destroyed by the Federal Navy in 1864.

- Adams Cemetery – The cemetery is on the north side of 9th Avenue West between 3rd and 4th Streets West. The land for this cemetery was donated by Major Alden Adams. Many prominent early citizens, including Major Adams, are buried there.

- Braden Stockade Site – The site is in downtown Bradenton. It is bordered on the north by 3rd Avenue, on the south by 4th Avenue, on the east by 13th Street West, and on the west by 14th Street West. This is formerly the site of the old city hall. Dr. Joseph Braden built a pier out into the river at the foot of 12th Street West, where schooners could load his products for transportation to market. He also constructed a large stockade for the storage of sugar and for protection against the Indians. A high log wall around this stockade and gun ports were constructed in overhanging corner towers to keep the Indians away from the walls in case of an attack.

- Indian Shell Mound – An historic shell mound is on the west peninsula of south Perico Island. The site has been severely damaged by erosion and should be preserved.

A historic survey of the older area of Bradenton from 34th Street West to the Braden River was completed in 1980. Based on this survey, 85 structures were chosen to be included in the Florida Master Site File, an inventory of historic structures maintained by the Division of Historical Resources. As a result of the survey, the Braden Castle and Braden Castle Tourist Camp were nominated to the National Register of Historic Places, and two historic districts were established by City Ordinance – the Downtown Bradenton commercial district and the old Manatee District. All building and renovation within the districts are scrutinized by the City's Architectural Review Board to ensure that work is consistent with the guidelines that encourage renovations in keeping with the architecture of the building.

Appendix B

Public Participation Meeting Minutes
[to be included after the meeting]
and Affidavit of Publication

McClatchy

Beaufort Gazette
Belleville News-Democrat
Bellingham Herald
Bradenton Herald
Centre Daily Times
Charlotte Observer
Columbus Ledger-Enquirer
Fresno Bee
The Herald - Rock Hill
Herald Sun - Durham
Idaho Statesman
Island Packet
Kansas City Star
Lexington Herald-Leader
Merced Sun-Star
Miami Herald
el Nuevo Herald - Miami
Modesto Bee
Raleigh News & Observer
The Olympian
Sacramento Bee
Fort Worth Star-Telegram
The State - Columbia
Sun Herald - Biloxi
Sun News - Myrtle Beach
The News Tribune Tacoma
The Telegraph - Macon
San Luis Obispo Tribune
Tri-City Herald
Wichita Eagle

AFFIDAVIT OF PUBLICATION

Account #	Order Number	Identification	Order PO	Amount	Cols	Depth
35970	373654	Print Legal Ad-IPL01065140 - IPL0106514		$106.47	1	90 L

Attention: Marshall McCrary

CITY BRADENTON
101 12TH ST W
BRADENTON, FL 34205

CITY OF BRADENTON, FLORIDA
NOTICE OF PUBLIC MEETING

NOTICE IS HEREBY GIVEN: PROPOSED RESOLUTION 23-14

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, ADOPTING THE 2023 CITY WASTEWATER MASTER FACILITIES PLAN; MAKING FINDINGS; AUTHORIZING THE SUBMITTAL FOR THE CITY'S FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STATE REVOLVING FUND LOAN REQUEST FOR PROJECT NUMBER CW-4103A AND THE 2023 CITY WASTEWATER MASTER FACILITIES PLAN; DESIGNATING THE CITY'S AUTHORIZED REPRESENTATIVE; AUTHORIZING THE EXECUTION OF APPLICABLE LOAN AGREEMENT AND RELATED DOCUMENTS; PROVIDING FOR THE ESTABLISHMENT OF PLEDGED REVENUES FOR THE REPAYMENT OF THE LOAN; PROVIDING ASSURANCES OF COMPLIANCE WITH LOAN PROGRAM REQUIREMENTS; PROVIDING FOR CONFLICTS, SEVERABILITY, AND EFFECTIVE DATE.

will be considered at the regular meeting of the Bradenton City Council to be held Wednesday, February 8, at 8:30 a.m. at City Hall, 101 Old Main Street, Bradenton, Florida 34205. Interested parties may appear at the meeting and be heard. A copy of the proposed resolution may be inspected by the public by contacting the City Clerk at 941-932-9461 or cityclerk@cityofbradenton.com.
Non-Discrimination Statement: The City of Bradenton prohibits discrimination in all of its services, programs or activities on the basis of race, color, age, disability, sex, national origin, religion, genetic information or marital status. Persons with a disability needing a reasonable accommodation to participate in, or who require assistance or an alternative means for communication of program information such as Braille, large print, etc., should contact as soon as possible, but at least 48 hours in advance:
City of Bradenton
ADA/Title VI Coordinator
101 Old Main Street
Bradenton, FL 34205
ADACoordinator@cityofbradenton.com
941-932-9470
TTY: 7-1-1 or 1-800-955-8771

La ciudad de Bradenton proveera servicio de interprete a las personas quienes su primer lenguage no es el ingles. Si necesita estos servicios, usted o su representante puede comunicar al ADA/Title VI Coordinator, 101 Old Main Street, Bradenton, FL 34205. Tambien puede llamar al (941) 932-9470 o enviar correo electronico a ADACoordinator@cityofbradenton.com
According to Section 286.0105, Florida Statutes, if any person decides to appeal any decision made by City Council with respect to any matter to be considered at the meeting or hearing, he/she will need a record of the proceeding and for such purpose, he/she may need to ensure that a verbatim record of the proceedings is made, which record would include any testimony and evidence upon which the appeal is to be based.
IPL0106514
Jan 23 2023

THE STATE OF TEXAS
COUNTY OF DALLAS

Before the undersigned authority personally appeared Ryan Dixon, who, on oath, says that she is a Legal Advertising Representative of The Bradenton Herald, a daily newspaper published at Bradenton in Manatee County, Florida; that the attached copy of the advertisement, being a Legal Advertisement in the matter of Public Notice, was published in said newspaper in the issue(s) of:
1 insertion(s) published on:

01/23/23

THE STATE OF FLORIDA
COUNTY OF MANATEE

Affidavit further says that the said publication is a newspaper published at Bradenton, in said Manatee County, Florida, and that the said newspaper has heretofore been continuously published in said Manatee County, Florida, each day and has been entered as second-class mail matter at the post office in Bradenton, in said Manatee County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.



Sworn to and subscribed before me this 23rd day of January in the year of 2023

Stephanie Hatcher

Notary Public in and for the state of Texas, residing in Dallas County



Extra charge for lost or duplicate affidavits.
Legal document please do not destroy!

Appendix C

Financial Feasibility Documents

[Not included in this draft document]

CAPITAL FINANCING PLAN

City of Bradenton
(Project Sponsor)

Rob Perry, City Administrator
(Authorized Representative and Title)

Bradenton, FL 34205
(City, State, and Zip Code)

Heidi Warnemunde, Accounting Manager, 941-932-9475
(Capital Financing Plan Contact, Title and Telephone Number)

101 Old Main Street
(Mailing Address)

Bradenton, FL 34205
(City, State, and Zip Code)

The Department needs to know about the financial capabilities of potential State Revolving Fund (SRF) loan applicants. Therefore, a financial capability demonstration (and certification) is required well before the evaluation of the actual loan application.

The sources of revenues being dedicated to repayment of the SRF loan are Net revenues - water and sewer
(Note: Projects pledging utility operating revenues should attach a copy of the existing/proposed rate ordinance)

Estimate of Proposed SRF Loan Debt Service

Capital Cost*	48,354,900
Loan Service Fee (2% of capital cost)	967,098
Subtotal	49,321,998
Capitalized Interest**	5,127,048
Total Cost to be Amortized	54,449,046
Interest Rate***	3.24%
Annual Debt Service	3,720,376
Annual Debt Service Including Coverage Factor****	4,278,432

* Capital Cost = Allowance + Construction Cost (including a 10% contingency) + Technical Services after Bid Opening.
** Estimated Capitalized Interest = Subtotal times Interest Rate times construction time in years divided by two.
***20 GO Bond Rate times Affordability Index divided by 200.
**** Coverage Factor is generally 15%. However, it may be higher if other than utility operating revenues are pledged.

SCHEDULE OF PRIOR AND PARITY LIENS

List annual debt service beginning two years before the anticipated loan agreement date and continuing at least fifteen fiscal years. Use additional pages as necessary.

IDENTIFY EACH OBLIGATION

#1 SW68117P **Coverage %** 15% **Insured (Yes/No)** Yes	**#2** WW68118P **Coverage %** 15% **Insured (Yes/No)** Yes	**#3** WW410300 **Coverage %** 15% **Insured (Yes/No)** Yes
#4 WW410301 **Coverage %** 15% **Insured (Yes/No)** Yes	**#5** SW410320 **Coverage %** 15% **Insured (Yes/No)** Yes	**#6** SW410330 **Coverage %** 15% **Insured (Yes/No)** Yes

Fiscal Year	Annual Debt Service (Principal + Interest)						Total Non-SRF Debt Service w/coverage	Total SRF Debt Service w/coverage
	#1	#2	#3	#4	#5	#6		
2021	41,592	25,845	481,745	29,106	64,658	91,369	None	Continued
2022	41,592	25,845	481,745	29,106	64,658	91,369	None	Continued
2023	41,592	25,845	481,745	29,106	64,658	91,369	None	Continued
2024	41,592	25,845	481,745	29,106	64,658	91,369	None	Continued
2025	41,592	25,845	481,745	29,106	64,658	91,369	None	Continued
2026	41,592	25,845	481,745	29,106	64,658	91,369	None	Continued
2027	41,592	25,845	481,745	29,106	64,658	91,369	None	Continued
2028	41,592	25,845	481,745	29,106	64,658	91,369	None	Continued
2029	41,592	25,845	481,745	29,106	64,658	91,369	None	Continued
2030			481,745	29,106	64,658	91,369	None	Continued
2031			481,745	29,106	64,658	91,369	None	Continued
2032			481,745	29,106	64,658	91,369	None	Continued
2033					64,658	91,369	None	Continued
2034						91,369	None	Continued
2035							None	Continued

SCHEDULE OF PRIOR AND PARITY LIENS

List annual debt service beginning two years before the anticipated loan agreement date and continuing at least fifteen fiscal years. Use additional pages as necessary.

IDENTIFY EACH OBLIGATION

#1 SW410340 **Coverage %** 15% **Insured (Yes/No)** Yes	**#2** WW410360 **Coverage %** 15% **Insured (Yes/No)** Yes	**#3** WW410361 **Coverage %** 15% **Insured (Yes/No)** Yes
#4 WW410370 **Coverage %** 15% **Insured (Yes/No)** Yes	**#5** **Coverage %** **Insured (Yes/No)**	**#6** **Coverage %** **Insured (Yes/No)**

Fiscal Year	Annual Debt Service (Principal + Interest)						Total Non-SRF Debt Service w/coverage	Total SRF Debt Service w/coverage
	#1	#2	#3	#4	#5	#6		
2021	80,570	36,970	267,754	160,766			None	1,280,375
2022	80,570	36,970	267,754	160,766			None	1,280,375
2023	80,570	36,970	267,754	160,766			None	1,280,375
2024	80,570	36,970	267,754	160,766			None	1,280,375
2025	80,570	36,970	267,754	160,766			None	1,280,375
2026	80,570	36,970	267,754	160,766			None	1,280,375
2027	80,570	36,970	267,754	160,766			None	1,280,375
2028	80,570	36,970	267,754	160,766			None	1,280,375
2029	80,570	36,970	267,754	160,766			None	1,280,375
2030	80,570	36,970	267,754	160,766			None	1,212,938
2031	80,570	36,970	267,754	160,766			None	1,212,938
2032	80,570	36,970	267,754	160,766			None	1,212,938
2033	80,570	36,970	267,754	160,766			None	702,087
2034	80,570	36,970	267,754	160,766			None	637,429
2035		36,970	267,754	160,766			None	465,490

SCHEDULE OF ACTUAL REVENUES AND DEBT COVERAGE FOR PLEDGED REVENUE

(Provide information for the two fiscal years preceding the anticipated date of the SRF loan agreement)

		FY 2021		**FY** 2022	
(a)	Operating Revenues (Identify)				
	Water and sewer charges	26,984,595	A	29,552,511	E
(b)	Interest Income	208,501	B	(7,922)	F
(c)	Other Incomes or Revenues (Identify)				
	Gain (loss) on disposition of assets	118,168	C	(11,775)	G
(d)	Total Revenues	27,311,264		29,532,814	
(e)	Operating Expenses (excluding interest on debt, depreciation, and other non-cash items)	16,183,845	D	18,006,463	H
(f)	**Net Revenues (f = d – e)**	11,127,419		11,526,351	
(g)	Debt Service (including coverage) Excluding SRF Loans	0		0	
(h)	Debt Service (including coverage) for Outstanding SRF Loans	1,280,375		1,280,375	
(i)	**Net Revenues After Debt Service (i = f – g – h)**	9,847,044		10,245,976	

Source:	FY2021 ACFR and FY2022 Budget Report
Notes:	FY2022 ACFR is not yet complete - due March 30, 2023

SCHEDULE OF PROJECTED REVENUES AND DEBT COVERAGE
FOR PLEDGED REVENUE
(Begin with the fiscal year preceding first anticipated semiannual loan payment)

		FY 2024	**FY** 2025	**FY** 2026	**FY** 2027	**FY** 2028
(a)	Operating Revenues (Identify)					
	Water and sewer charges	31,352,259	32,292,827	33,261,612	34,259,460	35,287,244
(b)	Interest Income	534,008	550,028	566,529	583,525	601,030
(c)	Other Incomes or Revenues (Identify)					
(d)	Total Revenues	31,886,267	32,842,855	33,828,141	34,842,985	35,888,274
(e)	Operating Expenses[1]	19,103,057	19,676,148	20,266,433	20,874,266	21,500,658
(f)	**Net Revenues (f = d - e)**	12,783,210	13,166,707	13,561,708	13,968,559	14,387,616
(g)	Existing Debt Service on Non-SRF Projects (including coverage)	0	0	0	0	0
(h)	Existing SRF Loan Debt Service (including coverage)	1,280,375	1,280,375	1,280,375	1,280,375	1,280,375
(i)	**Total Existing Debt Service (i = g + h)**	1,280,375	1,280,375	1,280,375	1,280,375	1,280,375
(j)	Projected Debt Service on Non-SRF Future Projects (including coverage)	0	0	0	0	0
(k)	Projected SRF Loan Debt Service (including coverage)	4,278,432	4,278,432	4,278,432	4,278,432	4,278,432
(l)	**Total Debt Service (Existing and Projected) (l = i + j + k)**	5,558,807	5,558,807	5,558,807	5,558,807	5,558,807
(m)	**Net Revenues After Debt Service (m = f – l)**	7,224,403	7,607,900	8,002,901	8,409,752	8,828,809

Source: 3% yearly increase to income and expenses

Notes: (i.e. rate increases, explanations, etc.)
1. For existing and proposed facilities, excluding interest on debt, depreciation, and other non-cash items.

CERTIFICATION

I, Rob Perry , certify that I have reviewed the information
Chief Financial Officer (please print)

included in the preceding capital financing plan worksheets, and to the best of my knowledge, this information accurately reflects the financial capability of City of Bradenton
Project Sponsor

I further certify that City of Bradenton has the financial capability to ensure
Project Sponsor

adequate construction, operation, and maintenance of the system, including this SRF project.

Signature

Date

CITY OF BRADENTON, FLORIDA
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION
PROPRIETARY FUNDS
For the Fiscal Year Ended September 30, 2021

	Business-type Activities-Enterprise Funds					Governmental Activities-Internal Service Funds
	Water and Sewer Fund	Sanitation Fund	Parking Fund	Golf Course Fund (Nonmajor)	Total	
Operating revenues						
Charges for services	$ 26,984,595 A	9,281,554	210,671	1,676,561	38,153,381	11,387,715
Operating expenses						
Personal services	7,278,266 D	3,078,976	105,673	827,583	11,290,498	-
Contractual services	1,553,877	109,159	13,761	21,935	1,698,732	1,161,162
Supplies and materials	5,066,703	1,108,111	100,400	348,757	6,623,971	2,038,754
Repairs and maintenance	1,335,479	509,378	175,048	79,911	2,099,816	-
Utilities	949,520	2,065,973	9,438	11,539	3,036,470	-
Claims	-	-	-	-	-	8,271,434
Depreciation and amortization cost	3,873,496	1,316,011	485,302	102,408	5,777,217	-
Total operating expenses	20,057,341	8,187,608	889,622	1,392,133	30,526,704	11,471,350
Operating income (loss)	6,927,254	1,093,946	(678,951)	284,428	7,626,677	(83,635)
Non-operating revenues (expenses)						
Operating grants	-	-	-	3,091	3,091	-
Interest and investment earnings	208,501 B	(7,624)	97,765	(538)	298,104	(3,229)
Gain (loss) on disposition of assets	118,168 C	43,286	-	1,650	163,104	-
Interest expenses and fiscal charges	(208,307)	(315)	(453,232)	(1,248)	(663,102)	-
Total non-operating revenues (expenses)	118,362	35,347	(355,467)	2,955	(198,803)	(3,229)
Income (loss) before capital contributions and transfers	7,045,616	1,129,293	(1,034,418)	287,383	7,427,874	(86,864)
Capital contributions	547,014	-	25,000	-	572,014	-
Transfers from other funds	-	71,456	2,033,660	-	2,105,116	-
Transfers to other funds	(655,500)	-	-	-	(655,500)	-
Change in net position	6,937,130	1,200,749	1,024,242	287,383	9,449,504	(86,864)
Total net position, beginning	100,588,722	8,133,918	12,812,557	1,206,272	122,741,469	18,640,781
Total net position, ending	$ 107,525,852	9,334,667	13,836,799	1,493,655	132,190,973	18,553,917
Change in net position, above					$ 9,449,504	
Adjustment to reflect the consolidation of internal service fund activities related to enterprise funds					(21,948)	
Change in net position of business-type activities					$ 9,427,556	

The notes to the financial statements are an integral part of this statement.

YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 402 WATER-SEWER FUND		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE		REMAINING REVENUE	PCT USE/COL
00000 REVENUES								
40201 GENERAL REVENUE								
40201 361100	INTEREST EARNINGS	-30,563	0	-30,563	287,384.70	F	-317,947.70	-940.3%
40201 364410	EQUIPMT/DISP OF FI	0	0	0	11,775.07	G	-11,775.07	100.0%
40202 CHARGES FOR SERVICES								
40202 343310	WATER REVENUE	-10,272,833	-21,445	-10,294,278	-11,618,782.29	E	1,324,504.29	112.9%
40202 343320	WATER TAPS REVENUE	-61,500	0	-61,500	-351,556.00		290,056.00	571.6%
40202 343330	WATER REV - PENALT	-350,000	0	-350,000	-641,373.37		291,373.37	183.2%
40202 343350	WATER REV - SERVIC	-5,000	0	-5,000	-2,919.99		-2,080.01	58.4%
40202 343360	RECLAIMED WATER RE	-313,604	0	-313,604	-434,680.35		121,076.35	138.6%
40202 343510	SEWER REVENUE	-11,420,635	0	-11,420,635	-13,035,895.35		1,615,260.35	114.1%
40202 343520	SEWER TAPS REVENUE	-72,000	0	-72,000	-85,213.48		13,213.48	118.4%
40202 369200	CASH - OVER/SHORT	0	0	0	67.72		-67.72	100.0%
40202 369300	REFUND-PRIOR YR EX	0	0	0	-2,509.44		2,509.44	100.0%
40202 369900	OTHER MISC REVENUE	-55,000	-39,832	-94,832	-56,577.71		-38,254.29	59.7%
40205 NON GOVERNMENTAL REV CLASS								
40205 369150	CASH CARRYFORWARD	0	-910,438	-910,438	.00		-910,438.00	.0%
TOTAL REVENUES		-22,581,135	-971,715	-23,552,850	-25,930,280.49		2,377,430.49	110.1%

YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 402 WATER-SEWER FUND			ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE		REMAINING REVENUE	PCT USE/COL
51210 EXECUTIVE PUBLIC WORKS									
40251210 EXECUTIVE PUBLIC WORKS									
40251210	512000	REGULAR SALARIE	441,592	0	441,592	450,701.25	H	-9,109.25	102.1%
40251210	512100	SICK PAY	0	0	0	5,096.34		-5,096.34	100.0%
40251210	512500	VACATION PAY OU	0	0	0	13,345.95		-13,345.95	100.0%
40251210	512600	SICK PAY OUT	0	0	0	53,058.42		-53,058.42	100.0%
40251210	512900	SERVICE INCENTI	6,241	0	6,241	10,401.45		-4,160.45	166.7%
40251210	516000	COMPENSATED VAC	0	0	0	-2,947.71		2,947.71	100.0%
40251210	521000	CITY FICA CONTR	32,569	0	32,569	39,365.57		-6,796.57	120.9%
40251210	522000	CITY RETIREMENT	73,084	0	73,084	78,406.03		-5,322.03	107.3%
40251210	523000	CITY HEALTH INS	63,316	0	63,316	65,150.20		-1,834.20	102.9%
40251210	523100	CITY LIFE INS C	1,050	0	1,050	1,182.19		-132.19	112.6%
40251210	524000	WORKER'S COMPEN	6,943	0	6,943	8,737.79		-1,794.79	125.9%
40251210	525000	UNEMPLOYMENT CO	0	0	0	893.75		-893.75	100.0%
40251210	531000	LEGAL FEES	5,000	0	5,000	184.50		4,815.50	3.7%
40251210	531000	WTRKP LEGAL FEES	0	412,092	412,092	412,091.60		.40	100.0%
40251210	531900	CONSULTANT FEES	202,000	-189,750	12,250	12,250.00		.00	100.0%
40251210	534000	CONTRACTUAL SER	36,673	19,201	55,874	55,873.19		.81	100.0%
40251210	540100	TRAVEL & PER DI	1,000	-1,000	0	.00		.00	.0%
40251210	540200	EMPLOYEE AUTO E	250	0	250	.00		250.00	.0%
40251210	541000	COMMUNICATIONS	12,132	0	12,132	10,926.08		1,205.92	90.1%
40251210	542000	FREIGHT & POSTA	150	0	150	12.00		138.00	8.0%
40251210	543000	ELECTRICITY - U	11,812	2,141	13,953	13,952.51		.49	100.0%
40251210	544200	RENTALS & LEASE	7,376	-926	6,450	3,482.08		2,967.92	54.0%
40251210	546100	BUILDING REPAIR	9,500	0	9,500	5,427.29		4,072.71	57.1%
40251210	546200	EQUIPMENT REPAI	4,450	19,945	24,395	20,417.97		3,977.03	83.7%
40251210	546300	VEHICLE REPAIR	2,750	0	2,750	2,277.38		472.62	82.8%
40251210	547100	PRINTING & BIND	875	347	1,222	1,221.87		.13	100.0%
40251210	547100	MAINT PRINTER CO	3,750	0	3,750	1,011.37		2,738.63	27.0%
40251210	547200	DUPLICATING	1,700	0	1,700	643.05		1,056.95	37.8%
40251210	548000	PROMOTIONAL ACT	3,000	1,993	4,993	4,992.71		.29	100.0%
40251210	549000	MISC CHARGES	2,700	0	2,700	2,700.00		.00	100.0%
40251210	549100	LEGAL ADVERTISI	250	0	250	.00		250.00	.0%
40251210	549700	PRE STORM PURCH	0	285	285	284.28		.72	99.7%
40251210	551000	OFFICE SUPPLIES	2,700	0	2,700	2,256.37		443.63	83.6%
40251210	551100	EQUIPMT UNDER 5	6,000	1,962	7,962	7,961.47		.53	100.0%
40251210	551200	COMPUTER EQUIP	5,450	3,406	8,856	8,855.10		.90	100.0%
40251210	552100	EQUIPMENT FUEL	100	0	100	.00		100.00	.0%
40251210	552200	VEHICLE FUEL	4,750	0	4,750	4,628.20		121.80	97.4%

YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 402 WATER-SEWER FUND		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
40251210 552300	GEAR / UNIFORM	500	0	500	137.77	362.23	27.6%
40251210 552500	OTHER OPERATING	3,450	1,765	5,215	5,214.43	.57	100.0%
40251210 554000	BOOKS PUB & SUB	2,625	0	2,625	55.00	2,570.00	2.1%
40251210 555000	EDUCATION / TRA	6,000	-5,500	500	104.77	395.23	21.0%
40251210 559000	DEPRECIATION	0	0	0	35,578.37	-35,578.37	100.0%
40251210 562000	BUILDINGS - CAP	140,875	0	140,875	.00	140,875.00	.0%
40251210 564000	MACH & EQUIPMT	0	57,964	57,964	.00	57,964.00	.0%
TOTAL EXECUTIVE PUBLIC WORKS		1,102,613	323,925	1,426,538	1,335,930.59	90,607.41	93.6%

YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 402 WATER-SEWER FUND			ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
53310 WATER DISTRIBUTION DIVISION								
40253310 WATER DISTRIBUTION DIVISION								
40253310	512000	REGULAR SALARIE	705,868	0	705,868	587,147.94	118,720.06	83.2%
40253310	512100	SICK PAY	0	0	0	21,794.80	-21,794.80	100.0%
40253310	512500	VACATION PAY OU	0	0	0	4,934.88	-4,934.88	100.0%
40253310	512600	SICK PAY OUT	0	0	0	396.80	-396.80	100.0%
40253310	512900	SERVICE INCENTI	7,514	0	7,514	8,378.29	-864.29	111.5%
40253310	514000	OVERTIME	33,592	0	33,592	36,221.49	-2,629.49	107.8%
40253310	516000	COMPENSATED VAC	0	0	0	9,973.73	-9,973.73	100.0%
40253310	521000	CITY FICA CONTR	53,500	0	53,500	47,692.61	5,807.39	89.1%
40253310	522000	CITY RETIREMENT	95,012	0	95,012	88,612.77	6,399.23	93.3%
40253310	523000	CITY HEALTH INS	203,927	0	203,927	205,859.90	-1,932.90	100.9%
40253310	523100	CITY LIFE INS C	1,720	0	1,720	1,764.88	-44.88	102.6%
40253310	524000	WORKER'S COMPEN	33,752	0	33,752	26,553.67	7,198.33	78.7%
40253310	534000	CONTRACTUAL SER	413,150	0	413,150	419,261.64	-6,111.64	101.5%
40253310	540100	TRAVEL & PER DI	50	0	50	.00	50.00	.0%
40253310	540200	EMPLOYEE AUTO E	1,800	0	1,800	89.60	1,710.40	5.0%
40253310	541000	COMMUNICATIONS	4,867	0	4,867	4,838.18	28.82	99.4%
40253310	542000	FREIGHT & POSTA	2,362	0	2,362	84.78	2,277.22	3.6%
40253310	543000	ELECTRICITY - U	540	6,608	7,148	7,147.12	.88	100.0%
40253310	544200	RENTALS & LEASE	2,000	0	2,000	640.69	1,359.31	32.0%
40253310	546100	BUILDING REPAIR	0	2,000	2,000	1,791.29	208.71	89.6%
40253310	546200	EQUIPMENT REPAI	24,950	-7,431	17,519	9,503.51	8,015.49	54.2%
40253310	546300	VEHICLE REPAIR	30,000	0	30,000	24,114.55	5,885.45	80.4%
40253310	547100	PRINTING & BIND	1,275	0	1,275	5.15	1,269.85	.4%
40253310	547200	DUPLICATING	145	0	145	34.39	110.61	23.7%
40253310	549200	ADMINISTRATIVE	961,047	0	961,047	961,047.00	.00	100.0%
40253310	551000	OFFICE SUPPLIES	250	0	250	220.25	29.75	88.1%
40253310	551100	EQUIPMT UNDER 5	16,189	0	16,189	7,327.78	8,861.22	45.3%
40253310	551200	COMPUTER EQUIP	500	0	500	.00	500.00	.0%
40253310	552100	EQUIPMENT FUEL	2,000	329	2,329	2,328.36	.64	100.0%
40253310	552200	VEHICLE FUEL	38,000	-236	37,764	37,763.78	.22	100.0%
40253310	552300	GEAR / UNIFORM	12,500	0	12,500	9,619.44	2,880.56	77.0%
40253310	552500	OTHER OPERATING	220,193	102,922	323,115	323,114.16	.84	100.0%
40253310	553000	ROAD MATERIALS	500	0	500	.00	500.00	.0%
40253310	554000	BOOKS PUB & SUB	620	0	620	.00	620.00	.0%
40253310	555000	EDUCATION / TRA	6,165	0	6,165	1,736.92	4,428.08	28.2%
40253310	559000	DEPRECIATION	0	0	0	823,063.75	-823,063.75	100.0%
40253310	564000	MACH & EQUIPMT	86,000	0	86,000	.00	86,000.00	.0%

YEAR-TO-DATE BUDGET REPORT

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ACCOUNTS FOR: 402 WATER-SEWER FUND	ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
TOTAL WATER DISTRIBUTION DIVISION	2,959,988	104,192	3,064,180	3,673,064.10	-608,884.10	119.9%

YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 402 WATER-SEWER FUND			ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
53320 WATER TREATMENT DIVISION								
40253320 WATER TREATMENT DIVISION								
40253320	512000	REGULAR SALARIE	796,852	0	796,852	712,804.96	84,047.04	89.5%
40253320	512100	SICK PAY	0	0	0	33,991.53	-33,991.53	100.0%
40253320	512500	VACATION PAY OU	0	0	0	10,477.74	-10,477.74	100.0%
40253320	512600	SICK PAY OUT	0	0	0	628.19	-628.19	100.0%
40253320	512900	SERVICE INCENTI	14,999	0	14,999	15,656.96	-657.96	104.4%
40253320	514000	OVERTIME	36,400	0	36,400	47,214.99	-10,814.99	129.7%
40253320	516000	COMPENSATED VAC	0	0	0	-1,815.50	1,815.50	100.0%
40253320	521000	CITY FICA CONTR	61,407	0	61,407	60,032.25	1,374.75	97.8%
40253320	522000	CITY RETIREMENT	93,792	0	93,792	94,343.49	-551.49	100.6%
40253320	523000	CITY HEALTH INS	187,827	0	187,827	190,219.98	-2,392.98	101.3%
40253320	523100	CITY LIFE INS C	1,915	0	1,915	1,960.74	-45.74	102.4%
40253320	524000	WORKER'S COMPEN	36,253	0	36,253	33,734.44	2,518.56	93.1%
40253320	531900	CONSULTANT FEES	24,000	46,692	70,692	67,891.29	2,800.71	96.0%
40253320	534000	CONTRACTUAL SER	628,631	-308,356	320,275	335,414.16	-15,139.16	104.7%
40253320	540100	TRAVEL & PER DI	50	0	50	.00	50.00	.0%
40253320	540200	EMPLOYEE AUTO E	825	0	825	166.36	658.64	20.2%
40253320	541000	COMMUNICATIONS	7,720	0	7,720	6,338.69	1,381.31	82.1%
40253320	542000	FREIGHT & POSTA	12,300	-7,000	5,300	2,767.95	2,532.05	52.2%
40253320	543000	ELECTRICITY - U	393,750	-61,758	331,992	331,991.87	.13	100.0%
40253320	543300	GAS - UTILITY S	1,500	0	1,500	574.68	925.32	38.3%
40253320	544200	RENTALS & LEASE	8,500	0	8,500	701.18	7,798.82	8.2%
40253320	546100	BUILDING REPAIR	62,900	-21,500	41,400	41,156.75	243.25	99.4%
40253320	546200	EQUIPMENT REPAI	360,000	-78,960	281,040	281,039.32	.68	100.0%
40253320	546300	VEHICLE REPAIR	2,500	2,459	4,959	4,958.62	.38	100.0%
40253320	547100	PRINTING & BIND	2,400	0	2,400	.00	2,400.00	.0%
40253320	547100	MAINT PRINTER CO	870	0	870	631.09	238.91	72.5%
40253320	547200	DUPLICATING	1,775	0	1,775	210.54	1,564.46	11.9%
40253320	549000	MISC CHARGES	0	158	158	158.00	.00	100.0%
40253320	549800	POST STORM PURC	0	137	137	136.84	.16	99.9%
40253320	551000	OFFICE SUPPLIES	2,700	0	2,700	248.25	2,451.75	9.2%
40253320	551100	EQUIPMT UNDER 5	14,500	19,457	33,957	33,956.46	.54	100.0%
40253320	551200	COMPUTER EQUIP	3,900	0	3,900	1,762.44	2,137.56	45.2%
40253320	552100	EQUIPMENT FUEL	17,500	-2,137	15,363	3,548.88	11,814.12	23.1%
40253320	552200	VEHICLE FUEL	4,000	15,562	19,562	19,561.94	.06	100.0%
40253320	552300	GEAR / UNIFORM	11,400	0	11,400	9,544.10	1,855.90	83.7%
40253320	552500	OTHER OPERATING	40,000	0	40,000	29,780.61	10,219.39	74.5%
40253320	552900	CHEMICAL SUPPLI	1,758,842	-121,821	1,637,021	1,637,020.41	.59	100.0%

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ACCOUNTS FOR: 402 WATER-SEWER FUND		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
40253320 553000	ROAD MATERIALS	7,500	0	7,500	.00	7,500.00	.0%
40253320 554000	BOOKS PUB & SUB	8,460	0	8,460	6,916.00	1,544.00	81.7%
40253320 555000	EDUCATION / TRA	4,125	0	4,125	1,473.63	2,651.37	35.7%
40253320 559000	DEPRECIATION	0	0	0	755,585.29	-755,585.29	100.0%
40253320 564000	MACH & EQUIPMT	33,150	20,210	53,360	.00	53,360.00	.0%
TOTAL WATER TREATMENT DIVISION		4,643,243	-496,857	4,146,386	4,772,785.12	-626,399.12	115.1%

YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 402 WATER-SEWER FUND		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
53510 SEWER COLLECTION DIVISION							
40253510 SEWER COLLECTION DIVISION							
40253510 512000	REGULAR SALARIE	374,721	0	374,721	241,452.53	133,268.47	64.4%
40253510 512100	SICK PAY	0	0	0	12,096.16	-12,096.16	100.0%
40253510 512500	VACATION PAY OU	0	0	0	292.77	-292.77	100.0%
40253510 512900	SERVICE INCENTI	3,697	0	3,697	2,506.56	1,190.44	67.8%
40253510 514000	OVERTIME	20,800	0	20,800	9,778.59	11,021.41	47.0%
40253510 516000	COMPENSATED VAC	0	0	0	-1,997.16	1,997.16	100.0%
40253510 521000	CITY FICA CONTR	28,592	0	28,592	19,184.24	9,407.76	67.1%
40253510 522000	CITY RETIREMENT	46,635	0	46,635	29,525.87	17,109.13	63.3%
40253510 523000	CITY HEALTH INS	107,330	0	107,330	107,448.76	-118.76	100.1%
40253510 523100	CITY LIFE INS C	876	0	876	877.00	-1.00	100.1%
40253510 524000	WORKER'S COMPEN	17,214	0	17,214	11,016.84	6,197.16	64.0%
40253510 534000	CONTRACTUAL SER	970	0	970	951.86	18.14	98.1%
40253510 540200	EMPLOYEE AUTO E	500	0	500	.00	500.00	.0%
40253510 541000	COMMUNICATIONS	1,261	0	1,261	720.00	541.00	57.1%
40253510 542000	FREIGHT & POSTA	50	0	50	.00	50.00	.0%
40253510 543000	ELECTRICITY - U	5,625	1,327	6,952	6,951.05	.95	100.0%
40253510 543200	TONNAGE CHGS -	200	0	200	.00	200.00	.0%
40253510 544100	RENTS - BUILDIN	125	0	125	.00	125.00	.0%
40253510 544200	RENTALS & LEASE	9,450	-6,000	3,450	.00	3,450.00	.0%
40253510 546200	EQUIPMENT REPAI	8,150	0	8,150	2,431.68	5,718.32	29.8%
40253510 546300	VEHICLE REPAIR	10,000	6,432	16,432	16,431.19	.81	100.0%
40253510 547100	PRINTING & BIND	825	0	825	.00	825.00	.0%
40253510 551000	OFFICE SUPPLIES	100	8	108	107.75	.25	99.8%
40253510 551100	EQUIPMT UNDER 5	12,300	-10,233	2,067	2,066.63	.37	100.0%
40253510 551200	COMPUTER EQUIP	1,250	-258	992	.00	992.00	.0%
40253510 552100	EQUIPMENT FUEL	8,500	-7,459	1,041	1,040.40	.60	99.9%
40253510 552200	VEHICLE FUEL	25,000	0	25,000	23,882.01	1,117.99	95.5%
40253510 552300	GEAR / UNIFORM	7,150	0	7,150	6,343.84	806.16	88.7%
40253510 552500	OTHER OPERATING	49,400	8,183	57,583	57,582.76	.24	100.0%
40253510 553000	ROAD MATERIALS	700	0	700	.00	700.00	.0%
40253510 554000	BOOKS PUB & SUB	80	0	80	.00	80.00	.0%
40253510 555000	EDUCATION / TRA	3,350	0	3,350	1,052.28	2,297.72	31.4%
40253510 559000	DEPRECIATION	0	0	0	465,649.54	-465,649.54	100.0%
40253510 564000	MACH & EQUIPMT	4,500	493,194	497,694	.00	497,694.00	.0%
TOTAL SEWER COLLECTION DIVISION		749,351	485,194	1,234,545	1,017,393.15	217,151.85	82.4%

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ACCOUNTS FOR: 402 WATER-SEWER FUND		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE		REMAINING REVENUE	PCT USE/COL
53515 MECHANICAL DIVISION								
40253515 LIFT STATIONS DIVISION								
40253515 512000	REGULAR SALARIE	487,095	0	487,095	429,800.02	H	57,294.98	88.2%
40253515 512100	SICK PAY	0	0	0	19,753.25		-19,753.25	100.0%
40253515 512500	VACATION PAY OU	0	0	0	1,951.77		-1,951.77	100.0%
40253515 512600	SICK PAY OUT	0	0	0	56.01		-56.01	100.0%
40253515 512900	SERVICE INCENTI	1,697	0	1,697	1,696.61		.39	100.0%
40253515 514000	OVERTIME	18,720	0	18,720	19,806.50		-1,086.50	105.8%
40253515 516000	COMPENSATED VAC	0	0	0	118.62		-118.62	100.0%
40253515 521000	CITY FICA CONTR	36,014	0	36,014	34,440.24		1,573.76	95.6%
40253515 522000	CITY RETIREMENT	59,664	0	59,664	57,063.14		2,600.86	95.6%
40253515 523000	CITY HEALTH INS	140,529	0	140,529	141,260.31		-731.31	100.5%
40253515 523100	CITY LIFE INS C	1,135	0	1,135	1,144.55		-9.55	100.8%
40253515 524000	WORKER'S COMPEN	20,614	0	20,614	16,961.95		3,652.05	82.3%
40253515 534000	CONTRACTUAL SER	152,272	-41,406	110,866	110,866.00		.00	100.0%
40253515 534000	WTRKP CONTRACTUA	0	60,000	60,000	2,905.50		57,094.50	4.8%
40253515 540100	TRAVEL & PER DI	2,500	0	2,500	.00		2,500.00	.0%
40253515 540200	EMPLOYEE AUTO E	1,000	0	1,000	206.34		793.66	20.6%
40253515 541000	COMMUNICATIONS	9,612	0	9,612	9,345.05		266.95	97.2%
40253515 542000	FREIGHT & POSTA	50	0	50	11.00		39.00	22.0%
40253515 543000	ELECTRICITY - U	230,625	11,193	241,818	241,817.71		.29	100.0%
40253515 544200	RENTALS & LEASE	872	0	872	297.67		574.33	34.1%
40253515 546100	BUILDING REPAIR	10,350	-1,000	9,350	6,717.05		2,632.95	71.8%
40253515 546200	EQUIPMENT REPAI	365,000	-69,592	295,408	324,657.76		-29,249.76	109.9%
40253515 546300	VEHICLE REPAIR	10,000	15,326	25,326	25,325.30		.70	100.0%
40253515 547100	PRINTING & BIND	50	115	165	165.00		.00	100.0%
40253515 547100	MAINT PRINTER CO	384	83	467	466.70		.30	99.9%
40253515 547200	DUPLICATING	525	0	525	.00		525.00	.0%
40253515 549800	POST STORM PURC	0	56	56	55.21		.79	98.6%
40253515 551000	OFFICE SUPPLIES	200	0	200	30.95		169.05	15.5%
40253515 551100	EQUIPMT UNDER $	7,300	0	7,300	6,049.99		1,250.01	82.9%
40253515 551200	COMPUTER EQUIP	1,050	1,228	2,278	2,277.98		.02	100.0%
40253515 552100	EQUIPMENT FUEL	6,000	9,562	15,562	15,561.58		.42	100.0%
40253515 552200	VEHICLE FUEL	18,940	3,127	22,067	22,066.18		.82	100.0%
40253515 552300	GEAR / UNIFORM	16,690	-4,000	12,690	8,715.07		3,974.93	68.7%
40253515 552500	OTHER OPERATING	11,900	-1,000	10,900	9,931.44		968.56	91.1%
40253515 552900	CHEMICAL SUPPLI	445,000	172,519	617,519	617,518.40		.60	100.0%
40253515 554000	BOOKS PUB & SUB	370	0	370	50.00		320.00	13.5%
40253515 555000	EDUCATION / TRA	2,250	0	2,250	1,261.69		988.31	56.1%

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ACCOUNTS FOR: 402 WATER-SEWER FUND		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
40253515 559000	DEPRECIATION	0	0	0	329,466.41	-329,466.41	100.0%
40253515 564000	MACH & EQUIPMT	66,000	51,448	117,448	.00	117,448.00	.0%
TOTAL MECHANICAL DIVISION		2,124,408	207,659	2,332,067	2,459,818.95	-127,751.95	105.5%

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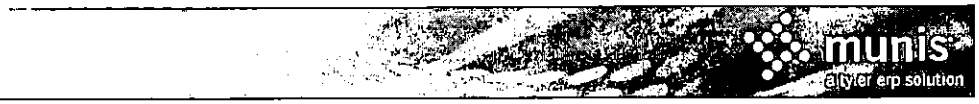
FOR 2022 99

ACCOUNTS FOR: 402 WATER-SEWER FUND		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE		REMAINING REVENUE	PCT USE/COL
53520 WATER RECLAMATION DIVISION								
40253520 WATER RECLAMATION DIVISION								
40253520 512000	REGULAR SALARIE	673,122	0	673,122	525,826.03	H	147,295.97	78.1%
40253520 512100	SICK PAY	0	0	0	28,885.10		-28,885.10	100.0%
40253520 512500	VACATION PAY OU	0	0	0	15,004.39		-15,004.39	100.0%
40253520 512600	SICK PAY OUT	0	0	0	628.19		-628.19	100.0%
40253520 512700	COMP TIME PAY O	0	0	0	5,182.56		-5,182.56	100.0%
40253520 512900	SERVICE INCENTI	8,221	0	8,221	8,966.39		-745.39	109.1%
40253520 514000	OVERTIME	40,352	0	40,352	47,962.50		-7,610.50	118.9%
40253520 516000	COMPENSATED VAC	0	0	0	-13,691.42		13,691.42	100.0%
40253520 521000	CITY FICA CONTR	52,557	0	52,557	46,579.74		5,977.26	88.6%
40253520 522000	CITY RETIREMENT	80,182	0	80,182	74,041.22		6,140.78	92.3%
40253520 523000	CITY HEALTH INS	166,362	0	166,362	167,455.47		-1,093.47	100.7%
40253520 523100	CITY LIFE INS C	1,632	0	1,632	1,650.29		-18.29	101.1%
40253520 524000	WORKER'S COMPEN	24,763	0	24,763	20,830.19		3,932.81	84.1%
40253520 531900	CONSULTANT FEES	41,000	15,927	56,927	56,926.44		.56	100.0%
40253520 534000	CONTRACTUAL SER	361,351	0	361,351	349,056.34		12,294.66	96.6%
40253520 534000	WTRKP CONTRACTUA	0	20,000	20,000	.00		20,000.00	.0%
40253520 540100	TRAVEL & PER DI	100	0	100	.00		100.00	.0%
40253520 540200	EMPLOYEE AUTO E	50	0	50	.00		50.00	.0%
40253520 541000	COMMUNICATIONS	3,549	401	3,950	3,949.90		.10	100.0%
40253520 542000	FREIGHT & POSTA	2,400	0	2,400	758.42		1,641.58	31.6%
40253520 543000	ELECTRICITY - U	382,500	125,285	507,785	507,784.13		.87	100.0%
40253520 543200	TONNAGE CHGS -	4,000	0	4,000	2,022.00		1,978.00	50.6%
40253520 544200	RENTALS & LEASE	2,380	0	2,380	1,355.96		1,024.04	57.0%
40253520 546100	BUILDING REPAIR	6,900	119	7,019	7,018.13		.87	100.0%
40253520 546200	EQUIPMENT REPAI	230,600	14,676	245,276	406,440.75		-161,164.75	165.7%
40253520 546200	WTRKP EQUIP REPA	0	83,000	83,000	80,529.16		2,470.84	97.0%
40253520 546300	VEHICLE REPAIR	1,500	0	1,500	560.16		939.84	37.3%
40253520 547100	PRINTING & BIND	30	0	30	.00		30.00	.0%
40253520 547100	MAINT PRINTER CO	1,410	38	1,448	1,447.19		.81	99.9%
40253520 547200	DUPLICATING	4,390	-4,000	390	.00		390.00	.0%
40253520 551000	OFFICE SUPPLIES	2,000	0	2,000	227.11		1,772.89	11.4%
40253520 551100	EQUIPMT UNDER 5	7,260	0	7,260	4,501.60		2,758.40	62.0%
40253520 551200	COMPUTER EQUIP	2,500	71	2,571	2,571.00		.00	100.0%
40253520 552100	EQUIPMENT FUEL	10,750	8,500	19,250	19,203.68		46.32	99.8%
40253520 552200	VEHICLE FUEL	2,500	2,317	4,817	4,816.29		.71	100.0%
40253520 552300	GEAR / UNIFORM	14,790	0	14,790	7,383.71		7,406.29	49.9%
40253520 552500	OTHER OPERATING	36,000	-1,500	34,500	26,439.07		8,060.93	76.6%



YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 402 WATER-SEWER FUND			ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
40253520	552900	CHEMICAL SUPPLI	491,341	332,931	824,272	824,271.78	.22	100.0%
40253520	553000	ROAD MATERIALS	500	0	500	.00	500.00	.0%
40253520	554000	BOOKS PUB & SUB	7,250	0	7,250	6,935.00	315.00	95.7%
40253520	555000	EDUCATION / TRA	2,900	1,500	4,400	4,155.77	244.23	94.4%
40253520	559000	DEPRECIATION	0	0	0	733,639.25	-733,639.25	100.0%
40253520	564000	MACH & EQUIPMT	27,000	245,982	272,982	.00	272,982.00	.0%
TOTAL WATER RECLAMATION DIVISION			2,694,142	845,247	3,539,389	3,981,313.49	-441,924.49	112.5%

YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 402 WATER-SEWER FUND		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
53600 UTILITY CLERICAL							
40253600 UTILITY CLERICAL							
40253600 512000	REGULAR SALARIE	535,543	0	535,543	435,240.97	100,302.03	81.3%
40253600 512100	SICK PAY	0	0	0	16,054.54	-16,054.54	100.0%
40253600 512900	SERVICE INCENTI	3,345	0	3,345	3,343.41	1.59	100.0%
40253600 513100	PART-TIME SALAR	0	0	0	5,415.75	-5,415.75	100.0%
40253600 514000	OVERTIME	5,400	0	5,400	5,534.87	-134.87	102.5%
40253600 516000	COMPENSATED VAC	0	0	0	-3,041.98	3,041.98	100.0%
40253600 521000	CITY FICA CONTR	38,191	0	38,191	33,302.53	4,888.47	87.2%
40253600 522000	CITY RETIREMENT	58,900	0	58,900	51,647.36	7,252.64	87.7%
40253600 523000	CITY HEALTH INS	150,262	0	150,262	150,427.82	-165.82	100.1%
40253600 523100	CITY LIFE INS C	1,327	0	1,327	1,334.58	-7.58	100.6%
40253600 524000	WORKER'S COMPEN	8,944	0	8,944	8,059.20	884.80	90.1%
40253600 534000	CONTRACTUAL SER	37,470	8,362	45,832	45,831.75	.25	100.0%
40253600 534100	BANK FEES	203,400	0	203,400	240,704.11	-37,304.11	118.3%
40253600 541000	COMMUNICATIONS	10,320	0	10,320	8,570.66	1,749.34	83.0%
40253600 542000	FREIGHT & POSTA	73,512	-8,914	64,598	63,186.55	1,411.45	97.8%
40253600 544200	RENTALS & LEASE	1,672	0	1,672	1,232.58	439.42	73.7%
40253600 545100	INSURANCE & BON	521,925	0	521,925	521,925.00	.00	100.0%
40253600 546200	EQUIPMENT REPAI	650	0	650	54.99	595.01	8.5%
40253600 546300	VEHICLE REPAIR	6,720	525	7,245	7,244.47	.53	100.0%
40253600 547100	PRINTING & BIND	36,370	0	36,370	35,100.07	1,269.93	96.5%
40253600 547100	MAINT PRINTER CO	1,560	0	1,560	1,398.17	161.83	89.6%
40253600 547200	DUPLICATING	500	0	500	162.25	337.75	32.5%
40253600 548000	PROMOTIONAL ACT	600	0	600	.00	600.00	.0%
40253600 549000	MISC CHARGES	500	0	500	350.00	150.00	70.0%
40253600 551000	OFFICE SUPPLIES	2,700	0	2,700	583.66	2,116.34	21.6%
40253600 551100	EQUIPMT UNDER 5	1,110	27	1,137	1,136.13	.87	99.9%
40253600 551200	COMPUTER EQUIP	6,000	0	6,000	5,674.72	325.28	94.6%
40253600 552200	VEHICLE FUEL	15,000	0	15,000	12,599.80	2,400.20	84.0%
40253600 552300	GEAR / UNIFORM	3,924	0	3,924	2,708.21	1,215.79	69.0%
40253600 552500	OTHER OPERATING	10,005	0	10,005	4,160.35	5,844.65	41.6%
40253600 554000	BOOKS PUB & SUB	250	0	250	.00	250.00	.0%
40253600 559000	DEPRECIATION	0	0	0	15,784.08	-15,784.08	100.0%
TOTAL UTILITY CLERICAL		1,736,100	0	1,736,100	1,675,726.60	60,373.40	96.5%

YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 402 WATER-SEWER FUND		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE		REMAINING REVENUE	PCT USE/COL
54110 ENGINEERING DIVISION								
40254110 ENGINEERING DIVISION								
40254110 512000	REGULAR SALARIE	621,276	0	621,276	625,708.19	H	-4,432.19	100.7%
40254110 512100	SICK PAY	0	0	0	38,304.33		-38,304.33	100.0%
40254110 512500	VACATION PAY OU	0	0	0	949.22		-949.22	100.0%
40254110 512600	SICK PAY OUT	0	0	0	11,282.11		-11,282.11	100.0%
40254110 512900	SERVICE INCENTI	7,969	0	7,969	8,267.79		-298.79	103.7%
40254110 513100	PART-TIME SALAR	0	0	0	4,741.88		-4,741.88	100.0%
40254110 514000	OVERTIME	2,600	0	2,600	4,570.64		-1,970.64	175.8%
40254110 516000	COMPENSATED VAC	0	0	0	20,771.80		-20,771.80	100.0%
40254110 521000	CITY FICA CONTR	45,684	0	45,684	50,870.99		-5,186.99	111.4%
40254110 522000	CITY RETIREMENT	76,240	0	76,240	85,120.10		-8,880.10	111.6%
40254110 523000	CITY HEALTH INS	115,306	0	115,306	119,344.26		-4,038.26	103.5%
40254110 523100	CITY LIFE INS C	1,505	0	1,505	1,646.46		-141.46	109.4%
40254110 524000	WORKER'S COMPEN	17,873	0	17,873	19,607.76		-1,734.76	109.7%
40254110 534000	CONTRACTUAL SER	16,238	0	16,238	16,078.77		159.23	99.0%
40254110 540100	TRAVEL & PER DI	350	106	456	456.00		.00	100.0%
40254110 541000	COMMUNICATIONS	15,670	-1,600	14,070	11,218.90		2,851.10	79.7%
40254110 542000	FREIGHT & POSTA	200	0	200	87.83		112.17	43.9%
40254110 546200	EQUIPMENT REPAI	4,898	1,306	6,204	6,204.49		-.49	100.0%
40254110 546300	VEHICLE REPAIR	2,000	4,807	6,807	6,606.23		200.77	97.1%
40254110 547100	PRINTING & BIND	260	41	301	300.16		.84	99.7%
40254110 547200	DUPLICATING	942	1,399	2,341	2,340.22		.78	100.0%
40254110 551000	OFFICE SUPPLIES	1,200	0	1,200	646.03		553.97	53.8%
40254110 551100	EQUIPMT UNDER 5	2,000	2,496	4,496	4,495.99		.01	100.0%
40254110 551200	COMPUTER EQUIP	1,000	1,592	2,592	2,591.77		.23	100.0%
40254110 552200	VEHICLE FUEL	10,000	4,659	14,659	14,658.04		.96	100.0%
40254110 552300	GEAR / UNIFORM	3,180	-1,000	2,180	1,784.32		395.68	81.8%
40254110 552500	OTHER OPERATING	3,000	3,951	6,951	6,950.97		.03	100.0%
40254110 554000	BOOKS PUB & SUB	300	227	527	527.00		.00	100.0%
40254110 555000	EDUCATION / TRA	3,200	-1,906	1,294	1,293.77		.23	100.0%
40254110 559000	DEPRECIATION	0	0	0	27,670.19		-27,670.19	100.0%
40254110 564000	MACH & EQUIPMT	9,500	51,455	60,955	.00		60,955.00	.0%
TOTAL ENGINEERING DIVISION		962,391	67,533	1,029,924	1,095,096.21		-65,172.21	106.3%

YEAR-TO-DATE BUDGET REPORT

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ACCOUNTS FOR: 406 WATER IMPACT FEES		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
00000 REVENUES							
40601 GENERAL REVENUE							
40601 361100	INTEREST EARNINGS	-6,787	0	-6,787	-15,408.66 F	8,621.66	227.0%
40602 CHARGES FOR SERVICES							
40602 324210	RESID-PHYS ENVRNMT	-126,000	0	-126,000	-353,987.20 > E	227,987.20	280.9%
40602 324220	COMML-PHYS ENVRNMT	-27,540	0	-27,540	-25,487.28	-2,052.72	92.5%
40605 NON GOVERNMENTAL REV CLASS							
40605 369150	CASH CARRYFORWARD	0	-67,173	-67,173	.00	-67,173.00	.0%
TOTAL REVENUES		-160,327	-67,173	-227,500	-394,883.14	167,383.14	173.6%

YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 407 SEWER IMPACT FEES		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
00000 REVENUES							
40701 GENERAL REVENUE							
40701 361100	INTEREST EARNINGS	-32,883	0	-32,883	-60,084.81 F	27,201.81	182.7%
40702 CHARGES FOR SERVICES							
40702 324210	RESID-PHYS ENVRNMT	-186,000	0	-186,000	-443,628.36 > E	257,628.36	238.5%
40702 324220	COMML-PHYS ENVRNMT	-39,000	0	-39,000	-34,488.16	-4,511.84	88.4%
TOTAL REVENUES		-257,883	0	-257,883	-538,201.33	280,318.33	208.7%

YEAR-TO-DATE BUDGET REPORT

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ACCOUNTS FOR: 408 INFRASTRUCTURE FUND	ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE		REMAINING REVENUE	PCT USE/COL
00000 REVENUES							
40801 GENERAL REVENUE							
40801 361100 INTEREST EARNINGS	-184,426	0	-184,426	-339,749.95	F	155,323.95	184.2%
40802 CHARGES FOR SERVICES							
40802 369300 REFUND-PRIOR YR EX	0	0	0	-402,125.12	E	402,125.12	100.0%
40804 CAPITAL GRANTS/CONTRIBUTIONS							
40804 334350 22517 FDEP ST GRANT	0	-500,000	-500,000	-294,024.80		-205,975.20	58.8%
40804 366000 12509 SWFWMD GRANT	0	-201,044	-201,044	-9,706.68		-191,337.32	4.8%
40804 366000 18501 SWFWMD GRANT-	0	-2,658,019	-2,658,019	-20,611.50		-2,637,407.50	.8%
40805 NON GOVERNMENTAL REV CLASS							
40805 369150 CASH CARRYFORWARD	0	-6,077,178	-6,077,178	.00		-6,077,178.00	.0%
40805 381402 FUND TRANSFER-402	-3,815,574	0	-3,815,574	-3,815,574.00		.00	100.0%
TOTAL REVENUES	-4,000,000	-9,436,241	-13,436,241	-4,881,792.05		-8,554,448.95	36.3%

YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 430 STORMWATER RUNOFF FUND	ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
00000 REVENUES						
43001 GENERAL REVENUE						
43001 361100 INTEREST EARNINGS	-27,192	0	-27,192	135,780.97 F	-162,972.97	-499.3%
43002 CHARGES FOR SERVICES						
43002 343600 STORMWATER REVENUE	-2,178,116	0	-2,178,116	-2,063,241.60 > E	-114,874.40	94.7%
43002 369300 REFUND-PRIOR YR EX	0	0	0	-112.86	112.86	100.0%
43003 OPERATING GRANTS/CONTRIBUTIONS						
43003 366000 21514 SWFWMD-VOTA S	-300,000	-100,000	-400,000	-88,576.87	-311,423.13	22.1%
43004 CAPITAL GRANTS/CONTRIBUTIONS						
43004 389300 22808 FDEP RESILIEN	0	-1,145,000	-1,145,000	-24,716.67	-1,120,283.33	2.2%
43005 NON GOVERNMENTAL REV CLASS						
43005 369150 CASH CARRYFORWARD	-206,975	-246,082	-453,057	.00	-453,057.00	.0%
TOTAL REVENUES	-2,712,283	-1,491,082	-4,203,365	-2,040,867.03	-2,162,497.97	48.6%

YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 430 STORMWATER RUNOFF FUND		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE		REMAINING REVENUE	PCT USE/COL
53810 DRAINAGE DIVISION								
43053810 DRAINAGE DIVISION								
43053810 512000	REGULAR SALARIE	558,856	0	558,856	466,023.50	H	92,832.50	83.4%
43053810 512100	SICK PAY	0	0	0	24,789.60		-24,789.60	100.0%
43053810 512500	VACATION PAY OU	0	0	0	920.15		-920.15	100.0%
43053810 512900	SERVICE INCENTI	4,661	0	4,661	4,658.43		2.57	99.9%
43053810 514000	OVERTIME	8,840	0	8,840	5,852.90		2,987.10	66.2%
43053810 516000	COMPENSATED VAC	0	0	0	5,646.36		-5,646.36	100.0%
43053810 521000	CITY FICA CONTR	41,583	0	41,583	36,934.17		4,648.83	88.8%
43053810 522000	CITY RETIREMENT	66,025	0	66,025	60,069.49		5,955.51	91.0%
43053810 523000	CITY HEALTH INS	133,557	0	133,557	135,207.18		-1,650.18	101.2%
43053810 523100	CITY LIFE INS C	1,377	0	1,377	1,418.17		-41.17	103.0%
43053810 524000	WORKER'S COMPEN	40,863	0	40,863	34,327.20		6,535.80	84.0%
43053810 525000	UNEMPLOYMENT CO	0	0	0	343.75		-343.75	100.0%
43053810 534000	CONTRACTUAL SER	129,090	33,342	162,432	100,849.87		61,582.13	62.1%
43053810 540100	TRAVEL & PER DI	0	806	806	805.36		.64	99.9%
43053810 540200	EMPLOYEE AUTO E	100	471	571	570.86		.14	100.0%
43053810 541000	COMMUNICATIONS	2,975	0	2,975	1,956.56		1,018.44	65.8%
43053810 543200	TONNAGE CHGS -	2,500	0	2,500	.00		2,500.00	.0%
43053810 544200	RENTALS & LEASE	98,053	0	98,053	5,742.84		92,310.16	5.9%
43053810 546100	BUILDING REPAIR	1,000	0	1,000	997.21		2.79	99.7%
43053810 546200	EQUIPMENT REPAI	21,100	-8,747	12,353	118,046.98		-105,693.98	955.6%
43053810 546300	VEHICLE REPAIR	30,000	10,704	40,704	40,703.62		.38	100.0%
43053810 547100	PRINTING & BIND	0	471	471	470.10		.90	99.8%
43053810 549000	MISC CHARGES	320	0	320	170.00		150.00	53.1%
43053810 549200	ADMINISTRATIVE	25,115	0	25,115	25,115.00		.00	100.0%
43053810 551000	OFFICE SUPPLIES	200	0	200	69.11		130.89	34.6%
43053810 551100	EQUIPMT UNDER 5	15,000	-3,705	11,295	7,054.69		4,240.31	62.5%
43053810 552100	EQUIPMENT FUEL	8,000	0	8,000	3,991.50		4,008.50	49.9%
43053810 552200	VEHICLE FUEL	41,000	16,608	57,608	57,607.57		.43	100.0%
43053810 552300	GEAR / UNIFORM	14,000	0	14,000	6,967.29		7,032.71	49.8%
43053810 552500	OTHER OPERATING	29,950	0	29,950	23,915.87		6,034.13	79.9%
43053810 552900	CHEMICAL SUPPLI	2,400	0	2,400	.00		2,400.00	.0%
43053810 553000	ROAD MATERIALS	8,000	0	8,000	1,513.80		6,486.20	18.9%
43053810 554000	BOOKS PUB & SUB	12,740	0	12,740	8,522.00		4,218.00	66.9%
43053810 555000	EDUCATION / TRA	3,075	0	3,075	510.77		2,564.23	16.6%
43053810 559000	DEPRECIATION	0	0	0	621,367.44		-621,367.44	100.0%
43053810 563000	21511 9TH AVE E	0	127,274	127,274	.00		127,274.00	.0%
43053810 563000	21512 26TH AVE W	0	31,203	31,203	.00		31,203.00	.0%

YEAR-TO-DATE BUDGET REPORT

FOR 2022 99

ACCOUNTS FOR: 430 STORMWATER RUNOFF FUND	ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT USE/COL
43053810 563000 21514 VOTA SOUTH	300,000	97,729	397,729	.00	397,729.00	.0%
43053810 563000 22508 MISC CMP P	250,000	52,985	302,985	.00	302,985.00	.0%
43053810 563000 22513 VILLAGE GR	100,000	-13,059	86,941	.00	86,941.00	.0%
43053810 563000 22808 FDEP RES-E	0	1,145,000	1,145,000	.00	1,145,000.00	.0%
43053810 564000 MACH & EQUIPMT	520,000	0	520,000	.00	520,000.00	.0%
TOTAL DRAINAGE DIVISION	2,470,380	1,491,082	3,961,462	1,803,139.34	2,158,322.66	45.5%

City of Bradenton, Florida

Annual Comprehensive Financial Report for the Year Ended September 30, 2021

Rob Perry
City Administrator

City of Bradenton, Florida
Office of the City Clerk & Treasurer

March 22, 2022

The Honorable Mayor, City Council,
and Citizens of the City of Bradenton, Florida

Dear Mayor, Council, and Citizens:

I am proud to present the City of Bradenton Annual Comprehensive Financial Report. This report addresses the City's finances for the fiscal year ended September 30, 2021. The accuracy of the data, the completeness and fairness of the presentation and the disclosures are the responsibility of the City Clerk & Treasurer, the Chief Financial Officer of the City. The data presented is believed to be accurate in all material respects and is presented to fairly reflect the financial position of the City. All disclosures necessary for a comprehensive understanding of the City's financial activity are included within this financial report.

The City Clerk & Treasurer is responsible for establishing and maintaining internal controls to provide reasonable, but not absolute, assurance regarding the safeguarding of assets against loss from unauthorized use or disposition, along with the reliability of financial records for preparing financial statements and maintaining accountability of assets. These controls have been integrated into the basic functions of the City's accounting system. The concept of reasonable assurance recognizes that the cost of a control should not exceed the benefits likely to be derived, and the evaluation of costs and benefits requires estimates and judgments by management. All internal control evaluations occur within this framework. We believe that the City's internal accounting controls adequately safeguard assets and provide reasonable assurance of proper recording of financial transactions.

Chapter 11.45 of the Florida Statutes requires all Florida municipalities to undergo a financial audit, conducted by an independent Certified Public Accountant. This requirement has been met for the fiscal year ended September 30, 2021, and the reports of the City's independent auditing firm have been included in this document. In addition to meeting the requirements set forth in state statutes, the audit was also designed to meet the requirements of the Uniform Guidance. The independent auditor's report on the basic financial statements and combining and individual fund statements and schedules, and the single audit are included in the Financial Section of this report.

The City of Bradenton operates under a charter adopted on May 19, 1903. The City Council is the legislative body for the City of Bradenton and is made up of five residents elected by the City voters. Each council person lives in and represents an individual ward, but all are elected "at large." In addition to the City Council, the voters elect a mayor that serves as the Chief Elected Official. As of September 30, 2021 the City's elected officials were:

Mayor: Gene Brown	Term to Expire: 2024
Ward 1: Jayne Kocher	Term to Expire: 2024
Ward 2: Marianne Barnebey	Term to Expire: 2022
Ward 3: Patrick Roff	Term to Expire: 2022
Ward 4: William Sanders	Term to Expire: 2022
Ward 5: Pam Coachman	Term to Expire: 2024

Governmental accounting and auditing principles require that management provides a narrative introduction, overview and analysis of the basic financial statements in the form of Management's Discussion and Analysis (MD&A). This letter of transmittal is designed to complement the MD&A and should be read in conjunction with it. The City of Bradenton's MD&A begins on page 4, immediately following the Independent Auditor's Report.

City Organization. The City of Bradenton is centrally located on the west (Gulf) coast of Florida, approximately forty miles south of Tampa. Bradenton encompasses 14.55 square miles and has a population of 56,442. The City of Bradenton provides a full range of services including public safety (police and fire), planning and community development, public works and utilities including water, sewer, stormwater, solid waste and recycling services, as well as recreational facilities. Bradenton has proudly served as the southern home to Major League Baseball's Pittsburgh Pirates since 1968.

Formal budgetary integration is employed as a management control device throughout the year. All City departments submit their budget requests to the City Administrator during May of each year. After various work sessions are completed at the department and legislative levels, the tentative budget is submitted to the public by the City Council, and public hearings are held to obtain taxpayers' comments. A final public hearing is held when the final budget is adopted by Resolution during September of each year. Budget adjustments of less than $10,000 are approved administratively by the City Clerk & Treasurer; budget adjustments greater than $10,000 and amendments to the total budget must be approved by City Council via Resolution. The legal level of control is the total fund appropriation. Expenditures may not exceed appropriations at this level.

Budget-to-actual comparisons are presented in this report for each individual fund for which the annual budget has been adopted. For the general fund and the major special revenue funds, these comparisons are included in the Required Supplementary Information section. The non-major special revenue funds, debt service funds, and capital project funds are included in the Combining and Individual Fund Statements and Schedules section of this report.

Local economy. The City of Bradenton and surrounding Manatee County had traditionally been one of the fastest growing regions in the state. The years of recession had a potentially devastating financial impact on the local economy. Construction and the real estate industries were virtually non-existent during that time. With that being said, the City of Bradenton and Manatee County have a diversified economic base that relies on service, retail, light manufacturing, agriculture and particularly tourism. That diversity, along with fiscal responsibility, allowed the City to rebound better than most.

The most recent economic indicators point to a somewhat stable local economy. Real estate has continued to show some strength, as evidenced by an 5.5% increase in total taxable assessed values, which follows a 7.4% increase from the previous year. The unemployment has dropped from 6.0% last year to a current level of 4.0%. The longer-term impact of the pandemic on the local economy remains to be seen.

Long-term financial planning. During fiscal year 2011, the Bradenton City Council approved and adopted a formal Fund Balance Policy. The 2021 unassigned fund balances in the General Fund have been maintained to insulate the general governmental operations from any fluctuations that may be associated with the current economy, or in the event of a natural or man-made disaster.

During September of 2017, most of Florida was impacted by Hurricane Irma. The financial impact to the City amounted to nearly $2,600,000. The City continued to work on reimbursement requests with FEMA during the year. These storm payments and reimbursements are, and will continue to be, accurately reflected in the City's financial reporting.

Relevant financial policies. For several years, a poor real estate market and rampant foreclosures resulted in a severe reduction in property values. In a bold move, and after substantial cost cutting, City Council consistently voted to raise property tax revenues to fend off a further deterioration of our financial condition. City leaders were not deterred from their goal to provide and maintain infrastructure for future growth and to practice sound fiscal responsibility with the City's resources to continue to maintain the quality of life for the citizens of Bradenton. Now, the City is pleased to produce financial reports that reflect the impact of the half-cent sales tax adopted in 2016 and implemented in 2017. This additional infrastructure funding allows the City to make those improvements that were set aside during those times of fiscal restraint.

Understanding and meeting the needs of the citizens is a challenging and metamorphic process. The City, through sound, prudent and sustainable budgeting practices, has been able to provide programs, infrastructure, and facilities to meet the current needs of its citizens. In order to meet these challenges, the City Council and management have consistently governed by the following tenets:
1) *Live within your means,* 2) *Look to the future,* 3) *Don't defer critical items,* 4) *Dedicate your surplus funds* and 5) *Be prepared for a rainy day.*

While weathering the economic downturn over a dozen years ago, the City's management team reviewed all operations in an effort to reduce costs while maintaining a consistent level of service; a review process that continues to this day. The City now operates with 7.75% fewer employees than it did in 2007. As noted in the City's financial statements, this very conservative approach has allowed the City to be nimble in reaction to the changes of a modern economy.

The City Clerk & Treasurer's staff monitor the daily cash needs of the City and invests these funds in accordance with the City's investment policy. In concert with monitoring these daily needs, the remainder of the surplus funds are under professional management that allows them to be more aggressively invested, but still within the policy as approved by City Council.

Major initiatives. The City adopted a series of policies and initiatives that are intended to provide short-term relief to our business community, taking advantage of a strong economic recovery that will aid all of our citizens.

The City, primarily through its three Community Redevelopment Areas, is aggressively implementing workforce development strategies, incentives for in-fill development and 'place branding' through the continuing efforts of Realize Bradenton. This strategy appears to be working well as there has been a very visible surge in interest in downtown Bradenton. New parks, restaurants, a recently completed 130-room hotel, and a new 500-space parking garage are proof that downtown Bradenton has become a popular destination. Additionally, a visually pleasing "streetscape" program is nearly complete, further demonstrating confidence in our strong economic base.

Considerable efforts continue to be devoted to ensuring that our citizens' quality of life is both maintained and enhanced. Our continuing efforts to expand both our potable water Aquifer Storage and Recovery (ASR) and reclaimed water systems continue to reap results that improve the reliability of our City's overall water supply. Our ASR program is nearing completion of the cycle-testing phase to demonstrate for State regulatory agencies our ability to safely achieve an underground storage volume of 350 million gallons, adding 27% to the storage volume of the Bill Evers Reservoir. Once the cycle-testing is completed we expect to receive an operational permit for the system. The multiple projects we have completed to expand our reclaimed water system are allowing us to increase our beneficial use of this valuable resource by up to 5 million gallons per day, with a corresponding decreasing volume of treated water discharged to the Manatee River. We are currently completing a project to change the disinfection process for reclaimed water to allow our primary customer, Braden River Utilities, to inject the reclaimed water into an ASR well. This would allow the City to pump reclaimed even during wet weather periods. Over the past seven years we have replaced nearly 10 miles of old cast iron water mains throughout the City to increase the reliability of the water distribution system. Our ongoing program to upgrade our system of 64 sewage lift stations throughout the City is continuing. These upgrades include providing improved electrical controls and SCADA to allow for remote monitoring of the operations of all stations. These upgrades will provide better assurance for uninterrupted wastewater collection and transmission for our citizens.

Several major upgrade projects have also been completed at our wastewater treatment plant (WWTP). A project in design seeks to install an injection well at the WWTP for excess reclaimed water to serve as a fresh water barrier against salt water intrusion into the regional aquifer. This project will include construction of a fourth settling tank at the WWTP specifically for wet weather flows. An annual sanitary sewer program to line old leaking sewers is continuing, with the intent to preserve the treatment capacity of our wastewater treatment plant by removing excess groundwater infiltration into our sewer system.

A city-wide stormwater model has been developed that will be the planning tool we use for new stormwater improvement projects. The first major project from the model was completed in 2020. That project made significant upgrades to the drainage system from the east end of 9th Ave. E. that discharges to Braden River. The design for the next major project being pursued is nearing completion. This project, cooperatively funded by SWFWMD, will redirect stormwater from the southern half of the Village of the Arts away from Wares Creek and take it to the Manatee River. This multi-year project will go to construction in 2022.

Another project from the stormwater model that was constructed in 2021 is a major improvement to the drainage system serving the 13th Ave. E./14th St. E. area. This project added new storm drain pipes, bioswales and detention ponds to an area that has experienced frequent flooding.

We are in the process of upgrading all existing street lights in the City to LED lamps that provide enhanced street lighting. An expansion of the Riverwalk started construction in March 2021 to essentially double the size of the park and tie it on the east end to a redevelopment of the Mineral Springs Park. A program is also being established to replace/upgrade playground equipment at all city parks, and a new Glazier Gates Tot Lot playground was completed in 2019 that has become the new standard for our parks. This interactive park for younger children is underlain with artificial turf to provide a fall-safe surface and reduce maintenance. This design standard was utilized for the recently completed new Glazier Gates II passive park. This park includes playground equipment for older children, as well as several exercise stations along the park's pathways. In addition, a redesign of Lewis Park has been completed in a joint agreement with the Rotary's Suncoast Playground Projects, Inc. The upgrades to Lewis Park will go to construction in 2022 and convert the park to the City's first fully ADA compliant playground.

A project to construct new sidewalks in the service area of Manatee High School has been 100% funded by FDOT under the Sidewalk to Schools program and is set to go to construction in 2021. A second Sidewalk to Schools project has also been approved by FDOT for new sidewalks for the Manatee Elementary School service area. This project is in design and construction is set for 2022. Finally, our enhanced paving program has successfully repaved nearly 37% of city roadways since 2012.

These projects reflect the City's commitment to its citizens during this time of economic health.

Awards. The Government Finance Officers Association (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the City of Bradenton for its Annual Comprehensive Financial Report for fiscal year ended September 30, 2020. This was the forty-seventh year that the City of Bradenton received this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized Annual Comprehensive Financial Report which must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement for Excellence in Financial Reporting is valid for a period of one year. We believe our 2021 report continues to conform to the Certificate of Achievement program requirements, and we are submitting this report to the GFOA to determine its eligibility for another certificate for the fiscal year ended September 30, 2021.

Acknowledgments. This report was completed through the dedication of the City of Bradenton's fine staff of professionals in the Finance Department, namely Tom Kelley, Linda Guth, Al Villegas and Donna Smith. I would like to express my appreciation and thanks to the audit firm of Christopher, Smith, Leonard & Stanell, P.A., who helped us with their comments and advice. Finally, I thank Mayor Brown and the City Council for their guidance and support in planning and conducting the financial operations of the City of Bradenton in a responsible and progressive manner.

Sincerely,

Rob Perry
City Administrator

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

City of Bradenton
Florida

For its Annual Comprehensive
Financial Report
For the Fiscal Year Ended

September 30, 2020

Christopher P. Morrill

Executive Director/CEO

RESOLUTION NO. 21-64

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BRADENTON AMENDING THE CITY'S RATE AND FEE STRUCTURE FOR CITY WATER, SEWER AND RECLAIMED WATER CHARGES, AS PROVIDED FOR IN CHAPTER 70, SECTIONS 70-154 AND 70-155, OF THE CODE OF ORDINANCES, BY INCREASING SUCH FEES; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, there currently exists on file at the City Clerk & Treasurer's office a rate structure for utilities set by the City of Bradenton including fees for water, sewer and reclaimed water; and

WHEREAS, the City Council of the City of Bradenton desires to enact a new rate fee structure so as to more accurately reflect the costs of operation of such utility system, to decrease its dependence upon any general fund revenues and to remain in compliance with its bond issues and covenants; and

WHEREAS, the current rate structure is to be increased by two (2) percent, as described herein.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BRADENTON, FLORIDA, THAT:

1. The City's rates for water, sewer and reclaimed water services shall be as set forth on that list of water, sewer and reclaimed water rates attached hereto, and shall be maintained in the office of the city clerk.

2. Any charges not modified by this Resolution shall remain in full force and effect.

3. This Resolution, and the rates adopted herein, shall take effect on October 1, 2021.

PASSED AND DULY ADOPTED BY THE CITY COUNCIL FOR THE CITY OF BRADENTON, FLORIDA, WITH A QUORUM PRESENT AND VOTING ON THIS 22nd DAY OF SEPTEMBER, 2021.

ATTEST:

Tamara Melton
Acting City Clerk

Gene Brown
Mayor

APPROVED AS TO FORM:

Scott Rudacille
City Attorney

3048857v1

WATER, SEWER AND RECLAIMED RATES
City of Bradenton
Effective 10/1/2021
(Resolution 21-64 Proposed)

I. Water Rates

A. Connection Charges

Meter Size (inches)	Connection Charge (with Meter)	Connection Charge (Tap Only)	Commercial Deposit	Residential Deposit
3/4	$ 1,751	$ 450	$ 135	$ 135
1	$ 1,866	$ 475	$ 135	$ 135
1 1/2	$ 1,725	$ 575	$ 200	n/a
2	$ 1,800	$ 700	$ 200	n/a
3	$ 1,900	$ 800	$ 500	n/a
4	$ 2,400	$ 1,400	$ 600	n/a
6	$ 4,000	$ 1,550	$ 700	n/a
8	$ 4,800	$ 2,200	$ 1,000	n/a
10	$ 5,950	$ 3,250	$ 1,000	n/a
Over 10	Cost plus 25%			

B. Monthly Charge

1. Base Charge

WATER METER SIZE (IN.)	CUSTOMER CHARGE Inside City Limits	Outside City Limits	
3/4	$ 15.97	$ 19.97	or number of living units served times $7.45 ($9.31) whichever is greater.
1	$ 29.87	$ 37.33	or number of living units served times $7.45 ($9.31) whichever is greater.
1 1/2	$ 56.32	$ 70.41	or number of living units served times $7.45 ($9.31) whichever is greater.
2	$ 75.78	$ 94.72	or number of living units served times $7.45 ($9.31) whichever is greater.
3	$ 147.71	$ 184.63	or number of living units served times $7.45 ($9.31) whichever is greater.
4	$ 251.37	$ 314.21	or number of living units served times $7.45 ($9.31) whichever is greater.
6	$ 565.40	$ 706.75	or number of living units served times $7.45 ($9.31) whichever is greater.
8	$ 1,021.26	$ 1,276.58	or number of living units served times $7.45 ($9.31) whichever is greater.
10	$ 1,591.14	$ 1,988.92	or number of living units served times $7.45 ($9.31) whichever is greater.
12	$ 1,863.37	$ 2,329.21	or number of living units served times $7.45 ($9.31) whichever is greater.
Over 12	To be determined by the Public Works & Utilities Director.		

2. Volume (usage) Charge - Inside City Limits

- First 3,000 gallons $ 2.51 per 1,000 gallons
- Over 3,000 gallons $ 4.03 per 1,000 gallons

3. Volume (usage) Charge - Outside City Limits

- First 3,000 gallons $ 3.14 per 1,000 gallons
- Over 3,000 gallons $ 5.04 per 1,000 gallons

II. Sewer Rates

A. Connection Charges

Single Family Dwelling:		
- Single family dwelling unit containing not more than four (4) bedrooms.	$	1,550.00
- Each additional bedroom	$	672.00
Multi-Family Dwelling (i.e. Duplexes, Apartments, Condominiums, Motels, etc.):		
- The first units within each building or structure.	$	1,550.00
- The second unit within each structure.	$	672.00
- Each additional unit within the structure.	$	623.00
Commercial, Non-Housing Structure:		
- Commercial restaurants: for each 25 seats.	$	1,550.00
- Hospitals, nursing and convalescent homes including all related facilities (each bed).	$	1,550.00
- Offices and other commercial or industrial buildings or structures, each 3,000 square feet.	$	1,550.00
- For businesses, commercial or any type of industrial operations not specifically enumerated above and which have excessive wastewater flows and strengths as set forth in Ordinance no. 1142 and not clearly defined, the Director of Public Works or his designated representative will set the connection charge as a result of his findings.	To be calculated by Public Works and Utilities	
All Other Structures (not mentioned above)		
- For any tap or connection for which no specific provision is made herein, each 3,000 square feet.	$	1,550.00

B. Monthly Charge

1. Base Charge

WATER METER SIZE (IN.)	CUSTOMER CHARGE Inside City Limits	Outside City Limits	
3/4	$ 23.59	$ 29.49	or number of living units served times $11.64 ($14.55) whichever is greater.
1	$ 44.13	$ 55.16	or number of living units served times $11.64 ($14.55) whichever is greater.
1 1/2	$ 71.98	$ 89.98	or number of living units served times $11.64 ($14.55) whichever is greater.
2	$ 112.11	$ 140.14	or number of living units served times $11.64 ($14.55) whichever is greater.
3	$ 218.54	$ 273.17	or number of living units served times $11.64 ($14.55) whichever is greater.
4	$ 371.94	$ 464.93	or number of living units served times $11.64 ($14.55) whichever is greater.
6	$ 836.05	$ 1,045.07	or number of living units served times $11.64 ($14.55) whichever is greater.
8	$ 1,509.95	$ 1,887.43	or number of living units served times $11.64 ($14.55) whichever is greater.
10	$ 2,224.72	$ 2,780.90	or number of living units served times $11.64 ($14.55) whichever is greater.
12	$ 2,839.69	$ 3,549.61	or number of living units served times $11.64 ($14.55) whichever is greater.
Over 12	To be determined by the Public Works & Utilities Director.		

2. Volume (usage) Charge - Inside City Limits

- First 3,000 gallons $ 2.14 per 1,000 gallons
- Over 3,000 gallons $ 4.75 per 1,000 gallons

3. Volume (usage) Charge - Outside City Limits

- First 3,000 gallons $ 2.68 per 1,000 gallons
- Over 3,000 gallons $ 5.94 per 1,000 gallons

4. Sewage Strength Surcharge

- If the BOD and suspended solids are above the limits for domestic sewage, add the following to the monthly sewage volume charge:

(BOD measured or)
(Estimated Mg/l -1 or) (0.7) (3.29)
(250)
(Suspended solids measured or)
(Estimated Mg/l -1 or) (0.7) (3.32)
(250)

III. Impact Fees

A. Water - $62.24 per fixture unit valve. (change effective 8/1/06 per Resolution No. 06-45)

B. Sewer - $81.34 per fixture unit valve. (change effective 8/1/06 per Resolution No. 06-45)

IV. Reclaimed Water Tapping Charge.

At the time of making application for tapping into City of Bradenton reclaimed water system, the applicant shall pay to the Department of Public Works, taking their receipt herefor, the sum to cover the cost of making the taps upon the reclaimed water mains as follows:

Reclaimed Water Meter Size (Inches)	Connection Charge
3/4	$ 381.00
1	$ 569.00
1 1/2	$ 799.00
2	$ 1,245.00
3	$ 1,519.00
4	$ 2,282.00
6	$ 3,808.00
8	$ 4,407.00
10	$ 5,007.00

All meters 12-inches or larger shall be charged for at the cost of labor and material, including cost of meter plus twenty-five percent (25%) thereof.

V. Reclaimed Water Service Rates and Charges.

The monthly rates and charges to those served by the facilities and services afforded by the reclaimed water system of the City shall consist of a customer charge and volume charge as follows:

1 Base Charge

Reclaimed Water Meter Size (Inches)	Base Charge
3/4	$ 5.74
1	$ 9.19
1 1/2	$ 17.23
2	$ 22.97
3	$ 45.94
4	$ 74.67
6	$ 172.32

Customers with reclaimed water meter size 8-inches and larger shall be required to enter into a service contract with the City which shall include customer charges.

2 Volume (usage) Charge

Reclaimed Water Used per Month (Gallons)	Volume Charge (per 1000 Gallons)
0 to 20,000	$ 0.66
20,001 to 100,000	$ 0.59
100,001 to 250,000	$ 0.54
250,001 to 500,000	$ 0.49
Over 500,000	$ 0.40

Customer who average in excess of 500,000 gallons per month will be required to enter into a service contract with the City which shall include volume charges.

VI. Deposit Fees.

Deposit fees shall be required from all reclaimed water customers to ensure the payment of reclaimed water charges. Such deposit shall be held by the City without payment of interest. Customers who have an amount on deposit which is less than required shall not be required to make the increased deposit until there has been an interruption in reclaimed water service for nonpayment of charges.

Reclaimed Water Meter Size (Inches)	Deposit Fee
3/4	$ 135.00
1	$ 135.00
1 1/2	$ 200.00
2	$ 500.00
3	$ 1,000.00
4	$ 1,400.00
6	$ 2,400.00
8	$ 4,000.00
10 and above	$ 5,000.00

VII. Billing and Collection of Reclaimed Water Charges.

A. Reclaimed water charges as established herein may include placement of the fee as a line item on the existing Bradenton utility bill pursuant to Section 166.201, Florida Statutes, and Article VIII, Section 2 (b), Florida Constitution.

B. The City shall include the monthly reclaimed water charges on its monthly utility bill for all reclaimed water customers served by the City's water and wastewater utility system. Reclaimed water customers who are not served by the City's water and wastewater utility system shall be billed monthly on a separate billing by the City.

C. If any bill for reclaimed water service charges shall not be paid before the 20th day following the original date of billing, an additional charge equal to ten percent of the amount of such bill shall be added thereto. If the amount of such reclaimed water service charges shall not be paid within 30 days from the rendition of such bill, the Director of Public Works shall discontinue furnishing reclaimed water to such premises and shall disconnect the premises from the reclaimed water system of the City and shall proceed forthwith to recover the amount of such reclaimed water services in such lawful manner as he may deem advisable. The City shall be entitled to recover attorney's fees incurred in collecting delinquent fees.

VIII. Annual Adjustments

Each year beginning October 1st, water, sewer and reclaimed base and volume (usage) charges shall be subject to a potential increase by a percentage amount equal to the percentage increase of the Consumer Price Index for all Urban consumers (CPI-U) as determined by the U.S. Department of Labor, Bureau of Labor Statistics for the last twelve (12) month period that will allow adequate time for public notice. Such increased rates shall become effective on October 1st unless otherwise revised by resolution of the City Council.

CITY CLERK FEE SCHEDULE
City of Bradenton
(fee policies on file in the City Clerk's office)

FEE	FEE DESCRIPTION	FEE AMOUNT	FEE AUTHORITY
Administrative	Fee charged to turn on or off a water meter or to obtain the final and\or start meter reading when utility accounts change account holders.	$15.00	Sec. 70-153. - Charge for turning on or turning off water; service calls.
Tampering or Illegal Use	Fee charged when evidence of tampering with a city owned water meter as determined by the Utility Billing Department. Fee is charged on a per occurrence basis.	**First** Offense = $250 **Second** Offense = $500 **Each occurring offense after** = $500	Sec. 70-40. - Unauthorized use or taking of water.
Water Meter Testing (customer requested)	Fee charged and paid by customer prior to requested meter being tested (a.k.a. bench tested). Test result in either a pass or fail. If test results are a pass, customer forfeits fee. If test results are a fail, customer will be refunded fee.	**3/4" or 5/8"** Meter = $140.00. **1" or 1 1/2"** Meter = $225.00.	Sec. 70-64. - Schedule of fees
Additional Deposit	Additional deposit is applied to accounts that have been shut-off for non-payment. Additional Deposits are applied to the customer's account at the time the disconnection order is generated and must be paid prior to services being restored.	Additional Deposit amount is calculated based on a six (6) month average bill amount times two (2) months, plus $15.00.	Sec. 70-151 (3). - Utility deposits prerequisite to service.
Credit or Debit Card Charge Back	A fee of no less than $20 will be charged to the customer if their utility bill payment is returned through a bank chargeback. Fee may increase depending on the return charge received by The City of Bradenton.	Minimum $20	Sec. 70-64. - Schedule of fees.
NSF-Returned Item	A fee of no less than $25 will be charged to the customer if their utility bill payment is returned through a bank NSF. Fee may increase depending on the return charge received by The City of Bradenton.	Minimum $25	Sec. 70-64. - Schedule of fees.
Hydrant Meter Deposit	Upon request of a Hydrant Meter, customer will pay a refundable deposit. Deposit is applied to the utility account upon closing. Should a credit balance exist after final billing, customer will receive a refund check within 30 days.	$500	Sec. 70-38. - Application for water service & Sec. 70-151 (3). - Utility deposits prerequisite to service.
After-Hours Service	Fee charged to customers who request service to be turned on or off outside of regular business ours (see Hours of Operation at www.cityofbradenton.com for details).	$75	Sec. 70-64. - Schedule of fees
Irrigation Meter and Installation	Fee charged for a new water meter to record irrigation usage. Prior to installation, a backflow prevention device must be installed. Fee is paid by customer at the time of request and prior to installation.	$75	Sec. 70-38. - Application for water service & Sec. 70-64. - Schedule of fees

FISCAL SUSTAINABILITY PLAN

CITY OF BRADENTON

2023 FISCAL SUSTAINABILITY PLAN

As required by Clean Water State Revolving Fund (CWSRF) process for Project Number CW-4103

January 2023

EXECUTIVE SUMMARY

This Fiscal Sustainability Plan (FSP) document provides background on the City of Bradenton's wastewater transmission and treatment systems, a summary of current Request For Inclusion submitted in April 2022 to the State of Florida Department of Environmental Protection State Revolving Fund (SRF) program, FSP requirements, and the completed FSP requirements for each of the four (4) wastewater assets (projects and programs) planned for construction. Appendix 1 provides the inventory and condition evaluation of the assets. Appendix 2 provides the self-performed water and energy assessments.

BACKGROUND – WASTEWATER COLLECTION AND TRANSMISSION SYSTEM

The Bradenton wastewater collection system services approximately 15 square miles. System components include approximately 4,200 manholes, 205 miles of gravity pipelines, 64 lift stations, and 37 miles of pressurized or forcemains.

Manhole construction is brick or concrete.

Gravity pipeline materials include cast iron (CI), ductile iron (DI), polyvinyl chloride (PVC), vitrified clay (VC), unknown, and lined. Pipeline diameters range from 2-inch to 36-inch with three-quarters being 8-inch.

Of the 64 lift stations, more than half were constructed before 1990. Twenty-nine (29) privately owned and maintained contribute flow into the City wastewater system.

Pressure pipeline materials, also referred to as forcemains, include cast iron (CI), ductile iron (DI), polyvinyl chloride (PVC), vitrified clay (VC), high-density polyethylene (HDPE).

BACKGROUND - WATER RECLAMATION SYTEM

The City of Bradenton operates its wastewater system under Domestic Wastewater Facility Permit No. FL0021369 as issued and effective on September 9, 2020 and revised on May 12, 2022 by the Florida Department of Environmental Protection (Department). The permit expires September 8, 2025. The wastewater treatment facility (WWTF) is located at 1810 1st Street West, Bradenton, Florida 34208-3504, Manatee County, Latitude at 27-degrees, 29-minutes, 0.73-seconds N; Longitude at 82-degrees, 33-minutes, 51-seconds W.

The WWTF is an advanced wastewater treatment with a design flow of 9.0 million gallons per day (MGD) annual average daily flow (AADF) type I activated sludge advanced wastewater treatment facility consisting of: headworks with mechanical bar screens; bypass channel with a manual bar rack; grit removal system; biofilter odor control system; aeration carrousel flow splitter box; two (2) carrousel-type aeration basins of 2.26 million gallons (MG) each for a total of 4.52 MG; three clarifiers of 705,000 gallons each for a total of 2.115 MG and 23,562 square-feet of total surface area; two (2) below-grade filter lift stations; six (6) single media gravity denitrification filters with air scour and water backwash providing a total of 3,000 square-feet filtration surface area; one (1) split-compartment chlorine contact chamber of 500,000 gallons; one (1) reclaimed water storage basin of 280,000 gallons; and a de-chlorination chamber and post-aeration basin of 200,000 gallons. The WWTF is operated to provide secondary treatment and high-level disinfection.

The Department May 12, 2022 permit revision allows for construction on a new 2.114 MG clarifier, the associated return activated sludge ad scum pumping facilities, and modifications of the existing clarifier splitter box. Construction of Underground Injection Well (U-001) surface facilities including a pump station added to the existing reclaimed storage basin with associated piping, valves and flow meter. Items were added to Section VI. Schedules. This revision did not change the current Discharge Monitoring Reports (DMR).

The biosolids handling stream consists of: one (1) dissolved air flotation residuals thickening unit of 400 square-feet total surface area; three (3) aerobic digesters, two (2) with capacities of 570,000 gallons each and one (1) of 1,260,000 gallons, providing a total digestion volume of 2,400,000 gallons; and two (2) screw presses.

The WWTF utilizes surface water discharge, a planned injection well facility, and its existing reuse transmission system for effluent disposal. The surface water discharge, D-001, is an existing 6.0 MGD AADF to Robinson's Ditch thence the Manatee River below Braden River, Class III Marine waters, (WBID# 1848A). The outfall is a 36-inch diameter ductile iron pipe that discharges effluent through the existing Robinson's ditch storm sewer before discharging to the Manatee River. The point of discharge is located approximately at latitude 27-degrees, 29-minutes, 54-seconds N and longitude 82-minutes, 33-seconds, 17-seconds W.

The planned injection well facility, U-001, will have 15.0 MGD AADF permitted capacity reuse water system to an underground well system consisting of one (1) Class V, Group 2 recharge well (RW-1) and two (2) monitoring wells (DMW-1 and SMW-1) permitted under Department permit number 361706-001-UC/5R (WACS ID 105168). U-001 will be located approximately at latitude 27-degrees 29-minutes 1.10-seconds N and longitude 82-degrees 33-minutes 50-seconds W. The Underground Injection Control (UIC) well will receive reclaimed water meeting high-level disinfection from the WWTF to be used only for operational testing of the Class V underground injection well. Except for flow, compliance reporting shall be monitored under the Department-issued UIC permit.

The reuse transmission and delivery system is regulated by the Department as two (2) distinct service areas. The first reuse service area is Land Application R-001, a 1.5 MGD AADF permitted capacity Part III slow-rate public access reuse system. R-001 is an area that generally lies within the City of Bradenton limits east of Business 41 and U.S. 301, north of 26th Avenue, extending into Manatee County to the Manatee River on the north, east of the Braden River, and south to the vicinity of Evers Reservoir (Bradenton's off-stream raw water storage reservoir). The second reuse service area is Land Application R-002, a 6.0 MGD AADF permitted capacity slow-rate public access reuse system, consisting of the area encompassing the Lakewood Ranch development (through its irrigation-only Braden River Utilities, a private utility company) in eastern Manatee County. The City WWTF serves as a source plant for the Braden River Utilities Mater Reuse System, FL0824381.

REQUEST FOR INCLUSION TECHNICAL SUMMARY

The City of Bradenton is offering one treatment project (clarifier), disposal project (injection well), transmission program (emergency power and or pumping) and collection program (lining of manholes and gravity pipes) for consideration for Clean Water State Revolving Fund (CWSRF) loans. The table below provides a summary.

Project Number	Project Name	Project Purpose	Elements
1	Plant Modifications associated with Injection Well (Addition of Clarifier No. 4)	**Increasing Secondary Treatment Capacity** to allow the facility to maintain complete treatment under peak wet-weather flows.	a) Department permit issued to allow construction and operation. b) Clarifier. c) Pump station. d) Electrical building with controls and equipment.
2	Aquifer Recharge Injection Well Facility	**Increasing WWTF Effluent Disposal Options** through a Class V well to eliminate surface water discharge (Senate Bill 64).	a) Department permits issued to allow construction and testing of subsurface and surface components. b) Injection well. c) Shallow depth monitoring well. d) Deeper depth monitoring well. e) Pump station and wet well. f) Electrical, instrumentation, controls.
3	Station Emergency Power or Pumping Upgrades	**Increasing Wastewater Collection and Transmission Resilience** by installing emergency power and pumping capability	a) No permitting required. b) Wastewater lift station 04. c) Wastewater lift station 08. d) Wastewater lift station 09. e) Wastewater lift station 10. f) Wastewater lift station 11. g) Wastewater lift station 14. h) Wastewater lift station 17. i) Wastewater lift station 18. j) Wastewater lift station 27. k) Wastewater lift station 32. l) Wastewater lift station 40. m) Wastewater lift station 43.
4	Sewersheds Lining of Manholes and Pipes	**Increasing Wastewater Collection and Transmission Resilience** by lining wastewater manholes and gravity pipes.	a) No permitting required. b) Sewersheds prioritized in City Infiltration and Inflow Plan and City Wastewater Master Facilities Plan updated as needed. c) Manhole lining, at a minimum, in sewersheds 01, 02, 04, 06, 07, 08, 09, 10, 11, 13, 14, 17, 18, 19, 20, 21, 22, 23, 28. d) Gravity pipe lining, at a minimum, in sewersheds 01, 02, 06, 07, 14, 18, 20, 21, 23, 25.

FISCAL SUSTAINABILITY PLAN REQUIREMENTS

Rule 62-503.700 and Rule 62-503.751, Florida Administrative Code (F.A.C.) provides the list of planning requirements for CWSRF approval of the City's Wastewater Planning Document. In the Financial Feasibility area, one (1) requirement is development and implementation a Fiscal Sustainability Plan (FSP). For the planned improvements listed in previous section the FSP shall contain:

- An inventory of critical assets.
- An evaluation of the condition and performance of the assets.
- A certification that Bradenton has evaluated and will be implementing water and energy conservation efforts as part of the plan.
- A plan for maintaining, repairing, and as necessary, replacing the treatment works and a plan for funding such activities.

SRF PROJECT CW-4103A

CITY PROJECT 1 - Plant Modifications associated with Injection Well (Addition of Clarifier No. 4)

Description

This asset or project is one (1) steel-reinforced concrete round treatment basin, 150-foot-diameter with a 16-foot side water depth with associated appurtenances. The additional plus existing clarification treatment capacity is designed to allow the facility to maintain high-level disinfection and reclaimed water production under peak wet-weather flow conditions. Required appurtenances include yard piping, fittings and associated valving, connections to existing infrastructure, demolition of existing structures (out of service digester no. 3 and out of service dissolved air flotation), replacement of demolished structures (drying bed, roadway), modification of existing structures (clarifier flow splitter box), lighting, instrumentation, etc.

The required Department permit to allow construction and operation was issued in May 2022. The location of this work is the City WWTF.

Inventory and Condition

Appendix 1 provides an inventory of critical assets and a condition-and-performance evaluation of this project.

Water and Energy Conservation

Throughout the project design and permitting, Bradenton evaluated and incorporated water and energy conservation practices for the project and its elements allowing the finished project to be water and energy efficient. The practices include analyzing options for modifying existing infrastructure and building new infrastructure. One example is the clarifier flow splitter box. The selected option of modifying the existing clarifier splitter box allows water and energy conservation in lesser amounts of new materials needed to accomplish the same goal of efficiently splitting flow among the three (3) existing and one (1) new clarification treatment basins.

Funding of Future Requirements

The project ready to be advertised for construction bids in calendar year (CY) 2023. Following project start-up, maintenance, repair, replacement and related activities will be funded through net revenue of the water and sewer utility system, agency grants as applicable, and as needed, the Department's state revolving fund program.

SRF PROJECT CW-4103A

CITY PROJECT 2 - Aquifer Recharge Injection Well Facility

Description

The aquifer recharge (AR) injection well facility is a resilient disposal option for the City's excess reclaimed water. The AR well will be capable of recharging the aquifer with up to 15 MGD of excess reclaimed water. Under current conditions, the injection well will beneficially recharge the aquifer with over 95% of the excess reclaimed water. This disposal option allows the City to significantly reduce the surface water discharge volumes associated with wet-weather conditions. Facility components include subsurface (injection well to a minimum depth of 900-feet below land surface; two (2) monitoring wells); and surface (yard piping, fittings and associated valving, connections to existing infrastructure, lighting, instrumentation, etc.

Issued Department permits to allow construction and testing of subsurface (UIC 361706-001 in April 2019) and surface (FL0021369-015 in May 2022) components. The location of this work is the City WWTF.

Inventory and Condition

Appendix 1 provides an inventory of critical assets and a condition-and-performance evaluation of the project.

Water and Energy Conservation

Throughout the project design and permitting, Bradenton evaluated and incorporated water and energy conservation practices for the project and its elements allowing the finished project to be water and energy efficient. The practices include co-locating the injection well facility and its associated monitoring wells to be most advantageous of existing wastewater-related infrastructure at the City WWTF. Minimized runs of new pipe (wet for wastewater; and dry for fiber and electrical) and appurtenances, modified existing structures (new pumping basin to be adjacent to existing pumping basin). Materials used to construct appurtenances contribute to minimizing friction (energy) losses and water loss.

Funding of Future Requirements

The project ready to be advertised for construction bids in CY2023. Following project start-up, future maintenance, repair, replacement and related activities will be funded through net revenue of the water and sewer utility system, agency grants as applicable, and as needed, the Department's state revolving fund program.

SRF PROJECT CW-4103A

CITY PROJECT 3 - Station Emergency Power or Pumping Upgrades

Description

This program includes installing new or enhancing existing emergency power or emergency pumping capabilities at up to twelve (12) wastewater lift stations providing increased resiliency in the City wastewater collection and transmission system. Stations under consideration include numbers 04, 08, 09, 10, 11, 14, 17, 18, 27, 32, 40, 43.

No Department permitting required.

Inventory and Condition

Appendix 1 provides an inventory of critical assets and a condition-and-performance evaluation of the program.

Water and Energy Conservation

Throughout program concept and development, Bradenton evaluated and incorporated water and energy conservation practices for the asset and its elements allowing the finished effort to be water and energy efficient. The practices include equipment for either emergency power capability or emergency pumping capability that minimize friction losses and water loss. Existing stations with a proposed new permanently installed generator or a new permanently installed bypass pump will contribute to the Bradenton wastewater system's increased resiliency in containing wastewater flow within the infrastructure (pipes, manholes, lift station wet wells) and efficiently moving the contained wastewater to the WWTF for treatment and disposal in accordance with Department-issued permits. The increased resiliency allows for the bypass pumps and or generators be responsive when needed in all types of operational conditions.

Funding of Future Requirements

The program will be completed in several implementation stages to accomplish the identified stations. The initial stage is targeted for completion in CY2023 with the second stage in CY2024 and the third and final stage in CY2025. Following start-up of each new installation, future maintenance, repair, replacement and related activities will be funded through net revenue of the water and sewer utility system, agency grants as applicable, and as needed, the Department's state revolving fund program.

SRF PROJECT CW-4103A

CITY PROJECT 4 - Sewersheds Lining of Manholes and Pipes

Description

This program includes lining wastewater manholes and gravity pipes within prioritized sewersheds in multiple stages providing increased resiliency in the City wastewater collection system. The City regularly reviews and when necessary, update the priority lists. Sewersheds under consideration for manhole lining include wastewater service areas 01, 02, 04, 06, 07, 08, 09, 10, 11, 13, 14, 17, 18, 19, 20, 21, 22, 23, 28. Sewersheds under consideration for gravity pipeline lining include wastewater services areas 01, 02, 06, 07, 14, 18, 20, 21, 23, 25.

No Department permitting required.

Inventory and Condition

Appendix 1 provides an inventory of critical assets and a condition-and-performance evaluation of the program.

Water and Energy Conservation

Throughout program concept and implementation, Bradenton evaluated and incorporated water and energy conservation practices for the asset and its elements allowing the finished effort to be water and energy efficient. In the preparation of the City Infiltration and Inflow Plan, September 2021, the analyses included prioritizing sewershed areas with the older buried infrastructure first and most likely the greater leakage into the wastewater collection system. Having less or no leakage into the collection system allows less energy to be used by the pumps in the lift stations as they would be transporting wastewater volumes only. It also allows for groundwater to remain in the groundwater table. This program is complementary to the emergency pumping and or power program to increase resiliency in containing wastewater flow within the infrastructure (pipes, manholes, lift station wet wells) and efficiently moving the contained wastewater to the WWTF for treatment and disposal in accordance with Department-issued permits. The increased resiliency allows for the normal-operations pumps and any installed bypass pumps and or generators be responsive when needed in all types of operational conditions.

Funding of Future Requirements

The assets will be completed in multiple implementation batches to accomplish the prioritized sewersheds. This list manhole linings and pipeline linings is targeted for completion in CY2025. Following acceptance from the contractor of each lining effort, future maintenance, repair, replacement and related activities will be funded through net revenue of the water and sewer utility system, agency grants as applicable, and as needed, the Department’s state revolving fund program.

Appendix 1

City of Bradenton
Fiscal Sustainability Plan
State Revolving Fund Loan Project Number CW-4103A
Janary.2023
Inventory of Assets and their Elements, Condition, and Requirements for Maintenance, Inspection and Replacement

Asset	Division	Item No.	Element	Quantity	Criticality Rating	Condition Rating	Capacity (units)	Placed Into Service (year)	Remaining Life (years)	Maintenance Requirements	Inspection Requirements	Replacement Requirements
Plant Modifications associated with Injection Well (Clarifier No. 4 addition)	Water Reclamation	WR-CL4-1	Clarifier	1	5	1	ea	2024	20	Per OEM manual or annually at a minimum	Annually at a minimum	Per OEM manual or 30 years at latest
Plant Modifications associated with Injection Well (Clarifier No. 4 addition)	Water Reclamation	WR-CL4-2	Pump Station	1	5	1	ea	2024	20	Per OEM manual or annually at a minimum	Annually at a minimum	Per OEM manual or 30 years at latest
Plant Modifications associated with Injection Well (Clarifier No. 4 addition)	Water Reclamation	WR-CL4-3	Electrical, Instrumentation and Controls.	1	5	1	ea	2024	20	Per OEM manual or annually at a minimum	Annually at a minimum	Per OEM manual or 30 years at latest
Aquifer Recharge Injection Well Facility	Water Reclamation	WR-IW-1	Injection Well	1	5	1	ea	2028	24	Per OEM manual or annually at a minimum	Annually at a minimum	Per OEM manual or 30 years at latest
Aquifer Recharge Injection Well Facility	Water Reclamation	WR-IW-2	Shallow Monitoring Well	1	5	1	ea	2028	24	Per OEM manual or annually at a minimum	Annually at a minimum	Per OEM manual or 30 years at latest
Aquifer Recharge Injection Well Facility	Water Reclamation	WR-IW-3	Deep Monitoring Well	1	5	1	ea	2028	24	Per OEM manual or annually at a minimum	Annually at a minimum	Per OEM manual or 30 years at latest
Aquifer Recharge Injection Well Facility	Water Reclamation	WR-IW-4	Pump Station and Wet Well	1	5	1	lot	2028	24	Per OEM manual or annually at a minimum	Annually at a minimum	Per OEM manual or 30 years at latest
Aquifer Recharge Injection Well Facility	Water Reclamation	WR-IW-5	Electrical, Instrumentation and Controls.	1	3	1	lot	2028	24	Per OEM manual or annually at a minimum	Annually at a minimum	Per OEM manual or 30 years at latest

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Station Emergency Power or Pumping Upgrades	Mechanical Lift Sta	ME-LS04-1	Generator or bypass pump	1	5	4	ea	2024	20	Per OEM manual or annually at a minimum	Monthly at a minimum	Per OEM manual or 20 years at latest
Station Emergency Power or Pumping Upgrades	Mechanical Lift Sta	ME-LS08-1	Generator or bypass pump	1	5	4	ea	2025	21	Per OEM manual or annually at a minimum	Monthly at a minimum	Per OEM manual or 20 years at latest
Station Emergency Power or Pumping Upgrades	Mechanical Lift Sta	ME-LS09-1	Generator or bypass pump	1	5	4	ea	2024	20	Per OEM manual or annually at a minimum	Monthly at a minimum	Per OEM manual or 20 years at latest
Station Emergency Power or Pumping Upgrades	Mechanical Lift Sta	ME-LS10-1	Generator or bypass pump	1	5	4	ea	2025	21	Per OEM manual or annually at a minimum	Monthly at a minimum	Per OEM manual or 20 years at latest
Station Emergency Power or Pumping Upgrades	Mechanical Lift Sta	ME-LS11-0	Generator	1	5	4	ea	2026	22	Per OEM manual or annually at a minimum	Monthly at a minimum	Per OEM manual or 20 years at latest
Station Emergency Power or Pumping Upgrades	Mechanical Lift Sta	ME-LS14-1	Generator	1	5	4	ea	2026	22	Per OEM manual or annually at a minimum	Monthly at a minimum	Per OEM manual or 20 years at latest
Station Emergency Power or Pumping Upgrades	Mechanical Lift Sta	ME-LS17-1	Generator	1	5	4	ea	2026	22	Per OEM manual or annually at a minimum	Monthly at a minimum	Per OEM manual or 20 years at latest
Station Emergency Power or Pumping Upgrades	Mechanical Lift Sta	ME-LS18-1	Generator	1	5	4	ea	2026	22	Per OEM manual or annually at a minimum	Monthly at a minimum	Per OEM manual or 20 years at latest
Station Emergency Power or Pumping Upgrades	Mechanical Lift Sta	ME-LS27-1	Generator or bypass pump	1	5	4	ea	2024	20	Per OEM manual or annually at a minimum	Monthly at a minimum	Per OEM manual or 20 years at latest
Station Emergency Power or Pumping Upgrades	Mechanical Lift Sta	ME-LS32-1	Generator or bypass pump	1	5	4	ea	2025	21	Per OEM manual or annually at a minimum	Monthly at a minimum	Per OEM manual or 20 years at latest
Station Emergency Power or Pumping Upgrades	Mechanical Lift Sta	ME-LS40-1	Generator or bypass pump	1	5	4	ea	2024	20	Per OEM manual or annually at a minimum	Monthly at a minimum	Per OEM manual or 20 years at latest
Station Emergency Power or Pumping Upgrades	Mechanical Lift Sta	ME-LS43-1	Generator or bypass pump	1	5	4	ea	2025	21	Per OEM manual or annually at a minimum	Monthly at a minimum	Per OEM manual or 20 years at latest

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Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS01	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS02	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS04	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS06	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS07	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS08	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS09	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS10	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS11	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS13	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest

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Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS14	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS17	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS18	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS19	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS20	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS21	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS22	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS23	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-MH-LS28	Manholes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest

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Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-GP-LS01	Gravity pipes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-GP-LS02	Gravity pipes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-GP-LS06	Gravity pipes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-GP-LS07	Gravity pipes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-GP-LS14	Gravity pipes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-GP-LS18	Gravity pipes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-GP-LS20	Gravity pipes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-GP-LS21	Gravity pipes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-GP-LS23	Gravity pipes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest
Sewersheds Lining of Manholes and Pipes	Sewer Collection	SC-GP-LS25	Gravity pipes lined	lot	4	4	ea	2025	21	Every 10 years at minimum	Every 10 years at a minimum and one (1) year prior to vendor warranty expiration.	Per OEM installation Warranty, significant infiltatration, or 30 years at latest

Appendix 2

WATER CONSERVATION AND EFFICIENCY/ASSESSMENT

As self-performed by City of Bradenton

Bradenton wastewater collection/transmission and treatment systems include the following practices:

Each of our 64 wastewater lift stations are visited and checked every other week at a minimum. Potable water is utilized for washing equipment and structures at the station for maintenance and operational needs. Electrical inspections and preventative maintenances are performed routinely, annually at a minimum. All newly-completed construction work is inspected prior to warranty expiration.

The water reclamation facility is staffed 24 hours per day, 7 days a week, 365 days per year by licensed operators. Routine checks on the various facility components occur throughout. Reclaimed water is utilized on-site for irrigation, wash-down or cleaning of equipment, basins and structures, filter backwashing function of filtration equipment. These usages are measured and recorded. All newly-completed construction work is inspected prior to warranty expiration.

The City's four (4) projects listed in SRF project number CW-4103A were designed to be water conserving and energy conserving. As examples:

1. the **Plant Modifications associated with Injection Well (Addition of Clarifier No. 4)** designed to consistent with existing hydraulic operating levels, minimizing losses and energy consumption.
2. the **Aquifer Recharge Injection Well Facility** improvements are designed using higher durability material for well casings, pipe and required appurtenances to lessen the friction losses; common-wall construction to existing structures include surface coatings to be applied to the below-grade structures to reduce infiltration and/or inflow into the below-grade systems;
3. the **Station Emergency Power or Pumping Upgrades** includes use permanent installations of either upgraded power capability or bypass pumping capability for increased resiliency of the system and efficiently transmission of the contained wastewater to the WWTF for permitted treatment and disposal.
4. the **Sewersheds Lining of Manholes and Pipes** allows the wastewater collection system to have less or no leakage of groundwater into the collection system resulting in less energy to be used by the pumps in the lift stations as they would be transporting wastewater volumes only.

Energy Efficiency Assessment for Small Wastewater Systems

Adapted from the National Rural Water Association Energy Efficiency Assessment for Small Wastewater Systems who adapted from NYSERDA's FOCUS on Municipal Water and Wastewater Program.

As self-performed by City of Bradenton December 2022.

Responses in grey areas indicate potential for gains in energy efficiency.

1.	INFLUENT/EFFLUENT PUMPING	YES	NO	N/A
A.	Do you have influent and/or effluent pumps?	X		
B.	If yes, do you have variable speed control on influent pumps?			X
C.	If yes, are premium-efficiency motors currently installed on influent pumps?			X
D.	If yes, do you have variable speed control on effluent pumps?	X		
E.	If yes, are premium-efficiency motors currently installed on effluent pumps?	X		
2.	**PRE-AERATION/POST-AERATION**	**YES**	**NO**	**N/A**
A.	Do you utilize aeration blowers and/or compressors?		X	
B.	If yes, can you throttle the amount of air delivered or otherwise adjust output?			X
3.	**INTERMEDIATE PUMPING**	**YES**	**NO**	**N/A**
A.	Do you have intermediate pumps to convey flow between treatment processes?		X	
B.	If yes, do you have variable speed control on the intermediate pumps?			X
C.	If yes, are the intermediate pumps equipped with premium-efficiency motors?			X
4.	**ACTIVATED SLUDGE PROCESSES**	**YES**	**NO**	**N/A**
A.	Does you have aeration blowers/compressors in an activated sludge process?		X	
B.	If yes, can you throttle the amount of air delivered or otherwise adjust output?			X
C.	If yes, are premium-efficiency motors currently installed?			X
D.	Does your plant use mechanical aerators (including mixers)?	X		
E.	If yes, do the aerators have variable speed control?	X		
F.	Is the aeration system controlled via DO levels and/or pressure differentials?	X		
G.	If yes, are dissolved oxygen/pressure sensors located within the aeration basins?	X		
H	Do you currently use a fine-bubble aeration system?		X	
I.	If you have a pure oxygen system, do you have a VPSA O2 generation system?			X
J.	Do you currently have variable speed return activated sludge (RAS) pumps?	X		
K.	Do you currently have variable speed waste activated sludge (WAS) pumps?	X		
5.	**FIXED FILM PROCESSES**	**YES**	**NO**	**N/A**
A.	Does you have aeration blowers/compressors as part of a fixed film process?		X	
B.	If yes, can you throttle the amount of air delivered or otherwise adjust output?			X
C.	If yes, are premium-efficiency motors currently installed?			X
D.	Do you utilize pumping for conveying flow to the trickling filters?		X	
E.	If yes, do you have variable speed control on these pumps?			X
F.	Are your trickling filter distribution arms mechanically driven?			X

Energy Efficiency Assessment for Small Wastewater Systems

Adapted from the National Rural Water Association Energy Efficiency Assessment for Small Wastewater Systems who adapted from NYSERDA's FOCUS on Municipal Water and Wastewater Program.

As self-performed by City of Bradenton December 2022.

Responses in grey areas indicate potential for gains in energy efficiency.

6.	**DISINFECTION**	**YES**	**NO**	**N/A**
A.	Do you currently use an ultraviolet disinfection system?		X	
B.	If yes, does the UV system utilize low-pressure, high-output lamps?			X
C.	If yes, is the UV system operated via flow-pacing and/or dosing setpoint?			X
7.	**SLUDGE PUMPING**	**YES**	**NO**	**N/A**
A.	Do you process sludge on an intermittent (less than 24 hours per day) basis?	X		
B.	If yes, do you currently process sludge during off-peak hours?	X		
C.	Do you have equalization capacity within your existing sludge handling process?		X	
D.	If no, do you have variable speed capability on your sludge transfer pumps?	X		
8.	**SLUDGE STABILIZATION**	**YES**	**NO**	**N/A**
A.	Does your plant utilize aerobic digestion?	X		
B.	If yes, have considered switching to anaerobic digestion or another method?		X	
C.	Do you currently produce biogas (methane) from anaerobic digestion processes?		X	
D.	If yes, is biogas currently flared and/or vented?			X
E.	If yes, is biogas currently being used for thermal or electrical power generation?			X
F.	Does your plant currently accept hauled waste at the headworks to the plant?		X	
G.	If yes, is there equalization capacity for the introduction of hauled wastes?			X
9.	**SLUDGE THICKENING AND DEWATERING**	**YES**	**NO**	**N/A**
A.	Does your thickening and/or dewatering equipment run less than 24 hours per day?	X		
B.	Do you use centrifuges for thickening, dewatering, or both?		X	
C.	Do you currently use sludge drying beds for dewatering?		X	
D.	Does your plant currently haul sludge to another location for processing?		X	
E.	Does your plant use incineration for sludge stabilization/disposal?		X	
10.	**FACILTY / OPERATIONS**	**YES**	**NO**	**N/A**
A.	Do you monitor your power bills?		X	
B.	Is there significant inflow/infiltration into the collection system?	X		
C.	Has your plant had any energy efficiency improvements in the last 5 years?	X		
D.	If yes, have you switched to more efficient lighting?	X		
E.	If yes, have you done any load shedding and/or off-peak load shifting?	X		
F.	If yes, have you installed new or improved HVAC equipment?	X		
G.	Are energy efficiency measures included with future improvement plans?	X		

As self-performed by City of Bradenton December 2022.

Responses in grey areas indicate potential for gains in energy efficiency.

11. ADDITIONAL COMMENTS AND INFORMATION

The Bradenton wastewater collection system services approximately 13 square miles. System components include approximately 4,521 manholes, 205 miles of gravity pipelines, 64 lift stations, and 37 miles of pressurized or force mains.

The wastewater system utilizes a supervisory control and data acquisition (SCADA) process for monitoring and evaluation of pump run times; water quality processes including chemical addition.

Annual budget includes specific line items for infiltration/inflow management through pipe lining or replacement and manhole/wetwell lining or replacement; wastewater lift station rehabilitation and/or rebuilding; and treatment facility needs. Project design, engineering, and procurement steps incorporate best management practices including energy efficiency and conservation to provide prudent strategies in equipment standardization, energy and water management, and evaluation of newer technology for accomplishing the project goals.

12. FUNDING MECHANISMS

Maintenance, repair, replacement and related activities will be funded through net revenue of the water and sewer utility system, agency grants as applicable, and as needed, Department state revolving funds.