CHARLES TOWN UTILITY BOARD
AGENDA

WEDNESDAY, OCTOBER 14, 2020

Regular Meeting | **661 South George Street, Charles Town, WV 25414** | **4:00 PM**

CALL TO ORDER

1. **APPROVAL OF MINUTES**
   Approval of September 23, 2020 regular meeting minutes
   UB Minutes September 23, 2020.pdf

2. **PUBLIC COMMENT**

   This portion of the agenda is designed for members of the general public to share thoughts on items of interest in the community. By law, Board members may ask clarifying questions or discuss procedural matters but are not permitted to discuss the policy merits of any issue unless it is scheduled for discussion.

   Until such time as Governor Justice revokes Executive Order 09-20 or any subsequent executive order that is primarily intended to address the public health emergency and spread of COVID-19 by restricting public gatherings and invoking physical distancing, public access to the meeting room will be restricted. Members of the public may still submit written comments to kstolipher@ctubwv.com that will be read aloud. Up to 20 minutes of time will be allotted for reading public comments.

   The public is invited to attend this meeting via webcast (www.ctubwv.com - Board Meetings - Meeting Agendas and Minutes 2020).

3. **REPORTS**
   a. Dewberry Water Model Report Presentation
      CTUB Water System Report - Final.pdf

4. **ACTION ITEMS**
   a. Route 9 Sewer Project Resolution No. 8 - Contractor Pay Application No. 008, Hatch Invoices and CTUB Reimbursement
      Route 9 Sewer Project Resolution No 8.pdf
   b. Telegia Keyes Ferry First Amendment to License Agreement
      Telegia Keyes Ferry Agreement.pdf
   c. Burns Farm Agreement Renewal - Possible Executive Session Under: WV State Code Section §6-9A-4(b)(9) - To consider matters involving or

affecting the purchase, sale or lease of property, advance construction planning, the investment of public funds or other matters involving commercial competition, which if made public, might adversely affect the financial or other interest of the state or any political subdivision and involving contract matters.

d. Hatch Task Order No. 11 - County Green and Hale Road Pump Station Decommissioning
   Task Order No. 11.pdf
e. November Meeting Schedule - Special Meeting on November 18th

5. **UTILITY MANAGER REPORT**
   Utility Manager Report
   10142020 Report.pdf

6. **CHAIRMAN UPDATES**
   a. Safe Drinking Water Collaborative
   b. Mission Statement

7. **APPROVAL OF BILLS**
   Approval of Bills
   10142020.pdf

8. **ADJOURNMENT**

9. **INFORMATION ONLY - NEXT MEETING - OCTOBER 28, 2020 AT 4:00 PM**

September 23, 2020

The Charles Town Utility Board held a regular meeting on September 23, 2020 at 4:00 p.m. at 661 S. George Street. Members of the Board present were Daryl Hennessy, Pete Kubic, Jacquelyn Milliron and Tommy Stocks. Also present were Kristen Stolipher, April Shultz and Hoy Shingleton. The Chairman called for changes or corrections to the September 9, 2020 regular meeting minutes. Jacquelyn had several changes. The Board approved the minutes as amended. There were no public comments.

The Chairman next opened the floor for discussion on the Beallair Sewer Availability Letter. Kristen noted the request dates back to November 2019. The former PSD had an approved AMEA for Beallair Phases 1-5. RK&K has completed an evaluation and determined the existing sewer system in that area can accommodate the additional flow from the previously approved Beallair Phases 1-5, 301 lots. Kristen mentioned that Beallair Phase 6 would have to come back before the Board to request a new AMEA for those lots. Jacquelyn had several questions and concerns with the availability letter and the overall process of developers requesting capacity. She suggested listing only the lot numbers rather than the phases in case of future changes by the Developer and changing "and" to "and/or" where is mentions onsite/offsite. By motion from Tommy, second by Pete, the Board approved the Beallair sewer availability letter as amended.

Next discussed was RK&K Task Order No. 13 – Belvedere Pump Station Demolition. Kristen provided that once the Magnolia Springs pump station is constructed, it would be cost beneficial to decommission the Belvedere, County Green and Hale Road pump stations. RK&K presented a task order to provide engineering and surveying services for assisting with the decommissioning of the Belvedere pump station. Kristen mentioned most of the construction work for this project would likely be done in-house. Jacquelyn expressed her concerns as she believes the decommissioning seem to be the result of a bigger project which she feels the developer should contribute to those engineering fees. Jacquelyn requested a cost benefit analysis to illustrate the cost savings. By motion from Pete, second by Tommy, the Board approved 3-1 Task Order No. 13. Jacquelyn opposed.

Next, the Chairman opened the floor for discussion on the Utility Manager Report. Kristen noted the 2nd meetings of the month she will be providing an overview of all the consultant efforts for the month. She briefed the Board on this month's efforts and upcoming task orders including a flushing program and disinfection biproducts assessment. Kristen also included the NPDES signature resolution for DEP to allow for her to sign for permit documents.

The Chairman next discussed the Approval of Bills. By motion from Duke, second by Pete, with discussion from Jacquelyn, the Board approved the payment of bills. The meeting was adjourned at 5:15 p.m. The October 14th regular meeting will be held at the CTUB office located at 661 S. George Street.

_____ _____

Chairman Secretary

Dewberry

System Model Development and Summary Report

Charles Town Utility Board

Dewberry Project Number: 50107004

March 2020

SUBMITTED BY:

Dewberry Engineers Inc.
8401 Arlington Boulevard
Fairfax, Virginia 22031
703.849.0100

SUBMITTED TO:



Charles Town Utility Board
661 South George Street, Suite 101
Charles Town, WV, 25414

SYSTEM MODEL DEVELOPMENT AND SUMMARY REPORT

PREPARED FOR:

CHARLES TOWN UTILTY BOARD

661 SOUTH GEORGE STREET, SUITE 101

CHARLES TOWN, WV 25414

PREPARED BY:

DEWBERRY ENGINEERS INC

8401 ARLINGTON BOULEVARD

FAIRFAX, VIRGINIA 22031

MARCH 2020

TABLE OF CONTENTS

TABLE OF CONTENTS 1
SECTION 1 – EXECUTIVE SUMMARY 2
1.1 INTRODUCTION 2
1.2 SCOPE OF WORK 2
2.1 WATER MODEL OVERVIEWS 4
2.2 HYDRAULIC MODEL DEVELOPMENT 7
2.2.1 Geocoding of Demands for WaterCAD 7
2.2.2 Diurnal Patterns by Demand Type 8
2.2.3 LIDAR Topography 9
2.2.4 Pressure Zone 10
2.2.5 Quality Control Reviews 11
2.2.6 Hydrant Testing 13
Section 3 - Existing System Analysis 16
3.1 Fire Flow Analysis 16
3.1.1 Pressure Requirement Compliance 19
3.1.2 Existing System Headloss 23
SECTION 4 – SYSTEM IMPROVEMENT RECOMMENDATIONS 26
CONCLUSION 32
ITEMS for further study 33
APPENDIX A – Hydrant Test Protocol and Test Data 34
APPENDIX B – Water Distribution System Maps of Charles Town 51

SECTION 1 – EXECUTIVE SUMMARY

1.1 INTRODUCTION

The City of Charles Town, West Virginia, has been seeing a steady increase in residential and commercial customers since the early 2000s. Charles Town Utility Board (CTUB) currently serves about 6,400 customers in the area; roughly 90% of these customers are residential and 10% are commercial (based on the number of customers), with Hollywood Casino at Charles Town Races and Jefferson Medical Center as their two largest customers. When Dewberry met with CTUB, they stated that their water model had not been updated since 2015. To address the future demand increase and the outdated water model concerns, CTUB entered into an Agreement with Dewberry Engineers Inc. (Dewberry) in November 2018 to update the existing water model by incorporating all infrastructure installed since 2015, implementing operational changes in light of the recently constructed water treatment plant, analyzing the existing system for hydraulic limitations (bottle-necks), and identifying conceptual improvements needed to meet current demand projections, including fire flow allowances. The updated model will further be used as a long-term planning tool for evaluating the impacts of proposed development on the distribution system.

This report includes a description and graphics of the water model (before and after the updates and calibration), an inventory of major water distribution system components (tanks, pumps, valves, etc.), current and recommended operating philosophy, water model calibration information, water model results and figures, and recommendations to improve the water distribution and fire flow suppression systems.

1.2 SCOPE OF WORK

The Scope of Work agreed upon between CTUB and Dewberry includes the following key elements, which have each been addressed in this report:

- Obtain CTUB customer usage records (from January, 2018) and geocode demands for all customers to use in the WaterCAD model for base demands.
- Add Dewberry / USGS 2016 LIDAR topographic information to all elements in the model and generated 5-foot contours from this data.

- Perform a quality control review of assets shown on Record Drawings versus those in the model and resolve observed discrepancies after consulting with CTUB. Add pipes and junctions as necessary based on the findings.
- Clarify existing control rules within the model for valves, pumps, tank levels, etc. as necessary based on SCADA data and set limits.
- Clarify necessary information with CTUB to more accurately model the connection between the different pressure zones.
- Assign each junction to the appropriate pressure zone for better calibration of the model and results in the fire flow analysis.
- Update pump curves with multiple points for the pump curves and the efficiency curves.
- Data Gathering and Field Reconnaissance.
- Complete hydrant testing at 11 sites for calibration of the model and added these locations and the appropriate information in the model.
- Update the pipe material in the model using information from record drawings and consulting with CTUB.
- Calibrate the model under static and 168-hour extended period simulation (EPS).
- Run a fire flow analysis to identify junctions that are not compliant with state and local regulations for fire flow.
- Identification of Hydraulic Limitations (Bottle-Necks) and Near-term Improvements.
- Consideration of Other Related Improvements for the Overall Distribution System.

The updates and evaluations to the water distribution and fire flow systems for CTUB are provided in Section 2 of this report. The recommended improvements to the CTUB system are presented in Section 3 of this report.

SECTION 2 – WATER MODEL DEVELOPMENT CRITERIA

2.1 WATER MODEL OVERVIEWS

CTUB had previously developed a hydraulic model in WaterCAD. The last update to the model was done in May 2015 (by others); the purpose of this update was to model Jefferson Avenue, located in the Main System pressure zone, in order to show the existing fire flows and pressure of the existing lines. Since then there have been several capital improvements made in all three (3) pressure zones that were not reflected in the 2015 model. Ultimately, Dewberry made improvements to both the GIS and WaterCAD model, adding all the improvements made by CTUB since 2015, including updates to the controls in the model in order to evaluate the system more accurately. The model data was verified using the existing as-builts provided by CTUB. Once the model was up-to-date was underway, hydrant flow testing was completed throughout the service system to record system pressures and flows so the model could be calibrated for greater precision and accuracy. **Figure 2-1** show a flow schematic of the existing tanks and pumps in the Model with key information regarding these major assets. **Figure 2-2** show a WaterCAD nodal diagram of the main infrastructure elements of the three pressure zones for the existing CTUB Model.

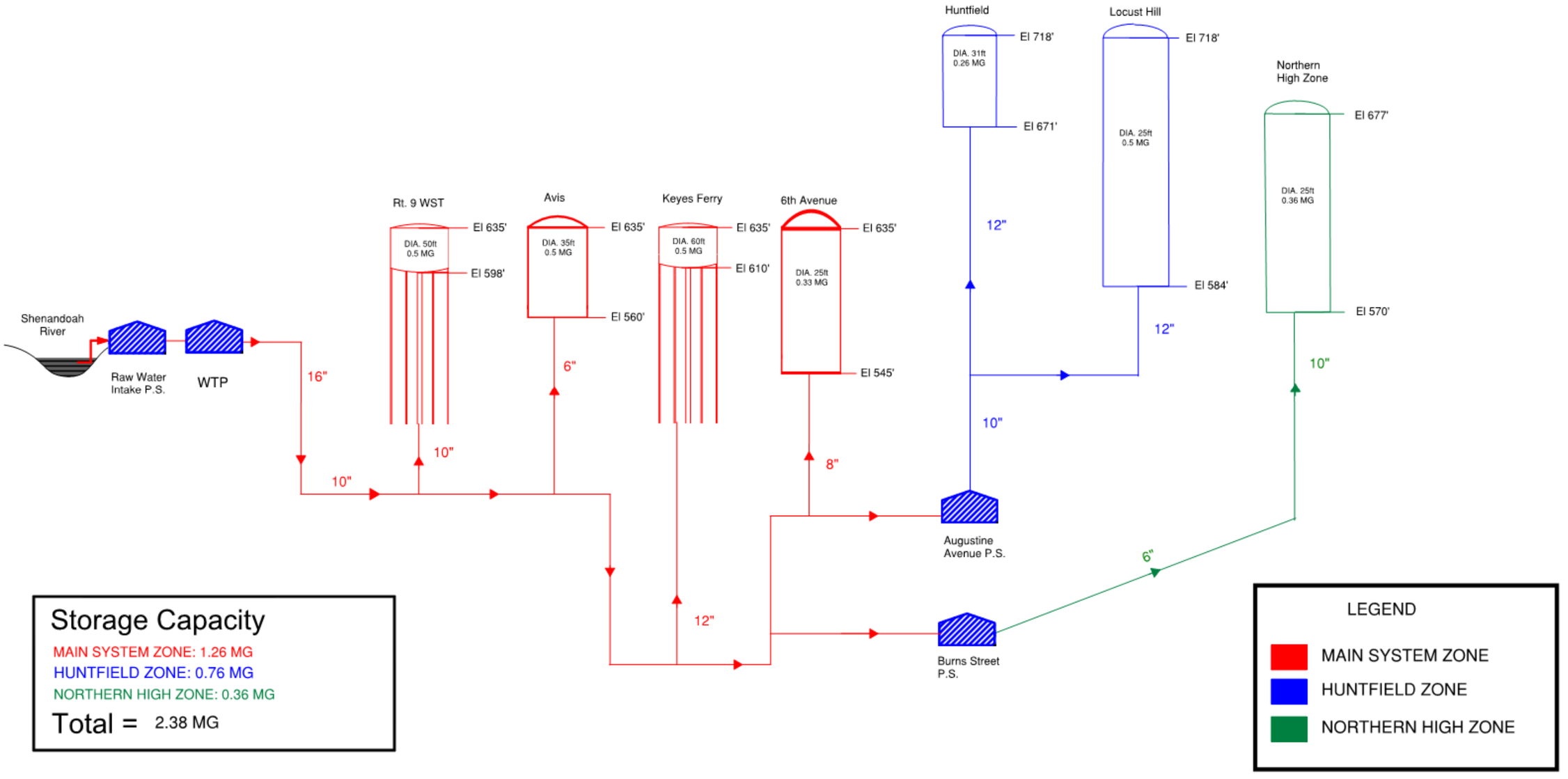


Figure 2-1: CTUB Flow Schematic Diagram

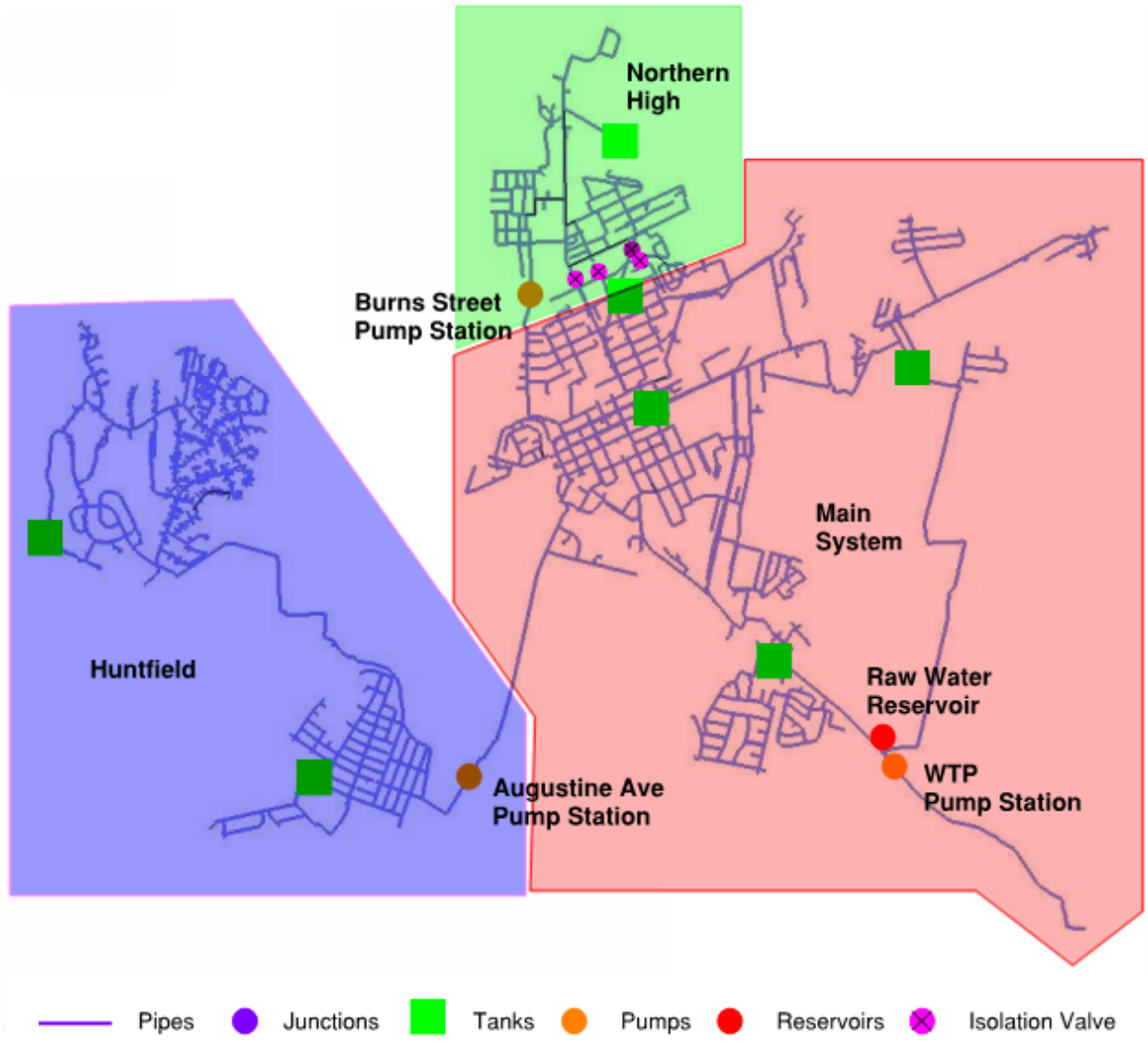


Figure 2-2: CTUB Model Nodal Diagram

2.2 HYDRAULIC MODEL DEVELOPMENT

The preliminary model that was provided to Dewberry contained the location of major assets (pumps, tanks, valves and pipelines), but it did not have the existing controls for valves, pumps, tank levels, etc. currently governing the operation of CTUB's water distribution system. The system was initially modeled to analyze only the area around Jefferson Avenue. This section of the report further discusses the changes that Dewberry made to the water distribution model in order to accurately represent CTUB's existing system.

2.2.1 Geocoding of Demands for WaterCAD

Geocoding the demands was necessary to apply the estimated demands to the appropriate nodes in the model in WaterCAD. CTUB provided Dewberry the account number and demand for each meter, as well as the street address associated with each account. The geocoding effort created a GIS layer that assigned a specific spatial location (latitudes and longitudes) to each meter data point. An example of the resultant geocoded information from GIS is provided as **Figure 2-3**. The geocoded demands are the pink circles, and the selected geocoded demand and its associated information is highlighted in blue.

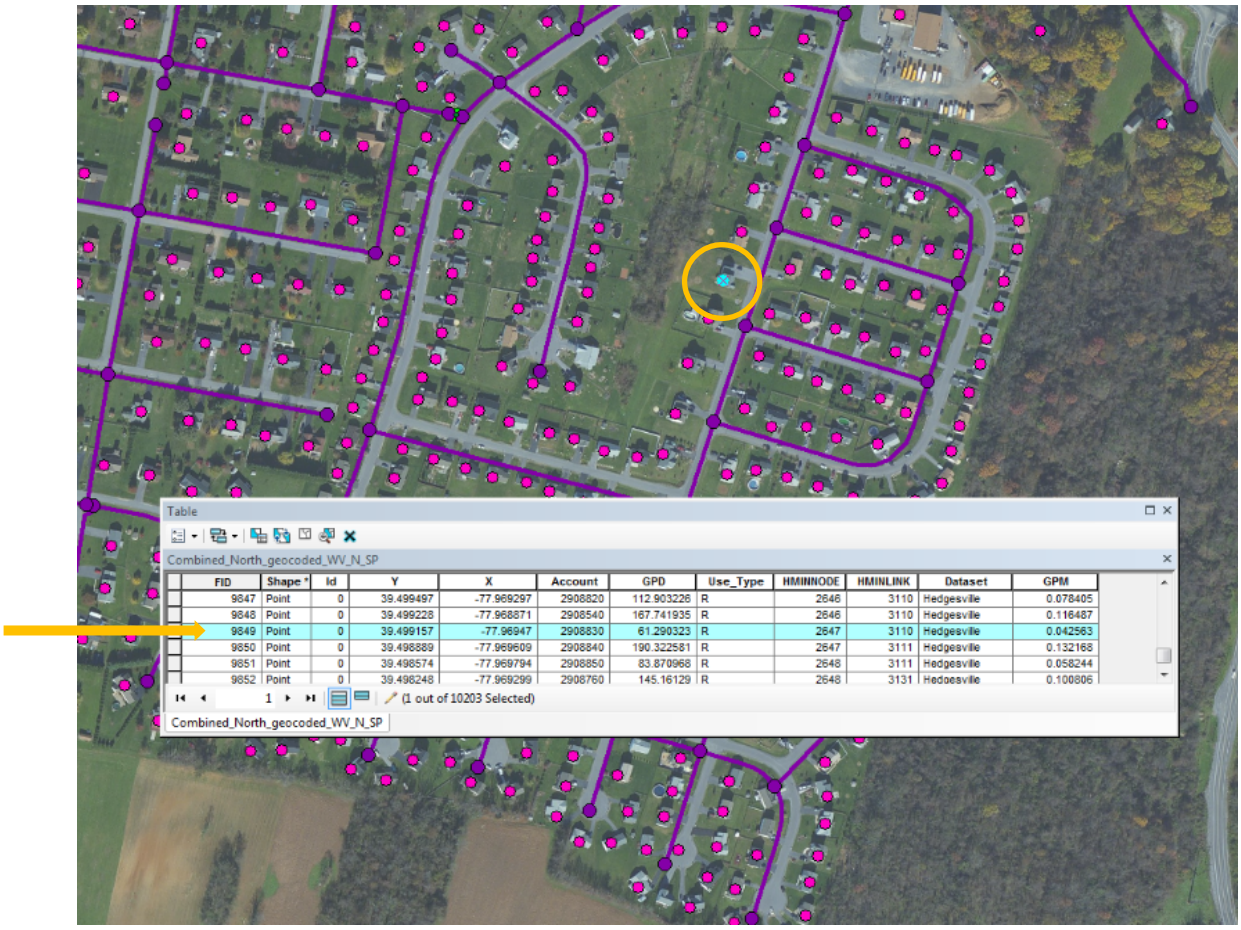


Figure 2-3: Example Geocoded Demand Mapping for the model

Once these demands were loaded into WaterCAD, Dewberry performed a quality check to verify that the large demands to the system (demands larger than 1.0 gpm) were assigned to the correct junction nodes in the model. When a comparison of the allocated demands with the GIS imagery revealed that not all of these large demands were assigned to the correct node, Dewberry clarified these discrepancies with CTUB. Dewberry also edited the piping and junctions in the WaterCAD model to reflect these changes for a better model of the existing system.

2.2.2 Diurnal Patterns by Demand Type

Table 2-1 shows the diurnal demand patterns that were used for each day during the seven (7) day extended period simulation (EPS) run and calibration based on *AWWA's M32 Computer Modeling of Water Distribution System, Fourth Edition* (Figure 6-1). These factors are further categorized by the geocoded demand type (residential, commercial, or industrial):

Table 2-1: Diurnal Patterns by Demand Type

RESIDENTIAL		COMMERCIAL		INDUSTRIAL	
Time from Start (hours)	Multiplier	Time from Start (hours)	Multiplier	Time from Start (hours)	Multiplier
1	0.6	1	0.16	1	0
2	0.2	2	0.16	2	0
3	0.175	3	0.16	3	0
4	0.2	4	0.16	4	0
5	0.2	5	0.16	5	0
6	0.4	6	0.16	6	0
7	1.0	7	0.16	7	0
8	1.15	8	0.16	8	2.0
9	1.6	9	0.16	9	2.0
10	1.8	10	1.8	10	2.0
11	1.65	11	1.8	11	2.0
12	1.65	12	1.8	12	2.0
13	1.55	13	1.8	13	2.0
14	1.4	14	1.8	14	2.0
15	1.4	15	1.8	15	2.0
16	1.45	16	1.8	16	2.0
17	1.6	17	1.8	17	2.0
18	1.5	18	1.9	18	2.0
19	1.2	19	1.9	19	2.0
20	1.1	20	1.9	20	0
21	0.6	21	1.9	21	0
22	0.5	22	0.16	22	0
23	0.5	23	0.16	23	0
24	0.6	24	0.16	24	0

Residential, Commercial, and Industrial patterns were all modeled as stepwise patterns. These diurnal patterns (listed for 24 hours) were repeated over the course of the 168-hour simulation.

2.2.3 LIDAR Topography

Dewberry updated the topographic information of all modeled assets in the model to utilize 2016 Dewberry / USGS LIDAR data, which is the latest and most accurate County-wide data available. As part of this effort, Dewberry also generated 5-foot contours from the LIDAR data

for use in the model. As a result, the estimated accuracy of the elevation data in the Model is approximately ± 2.5 feet.

2.2.4 Pressure Zone

After calibrating the model, reviewing the existing information, and examining the valve control settings, Dewberry created boundaries for each pressure zone in the model, namely the Main System Pressure Zone, Northern High Pressure Zone, and Huntfield Pressure Zone. A map of the pressure zones for the entire system can be seen below in **Figure 2-4**, including the hydrant naming convention that was created by Dewberry to differentiate the hydrants for different pressure zones**.** **Figure 2-5** shows the location of the four (4) isolation valves that separate the Northern High Zone from the Main System Zone. With these boundaries created in the model, Dewberry was then able to calibrate the model.

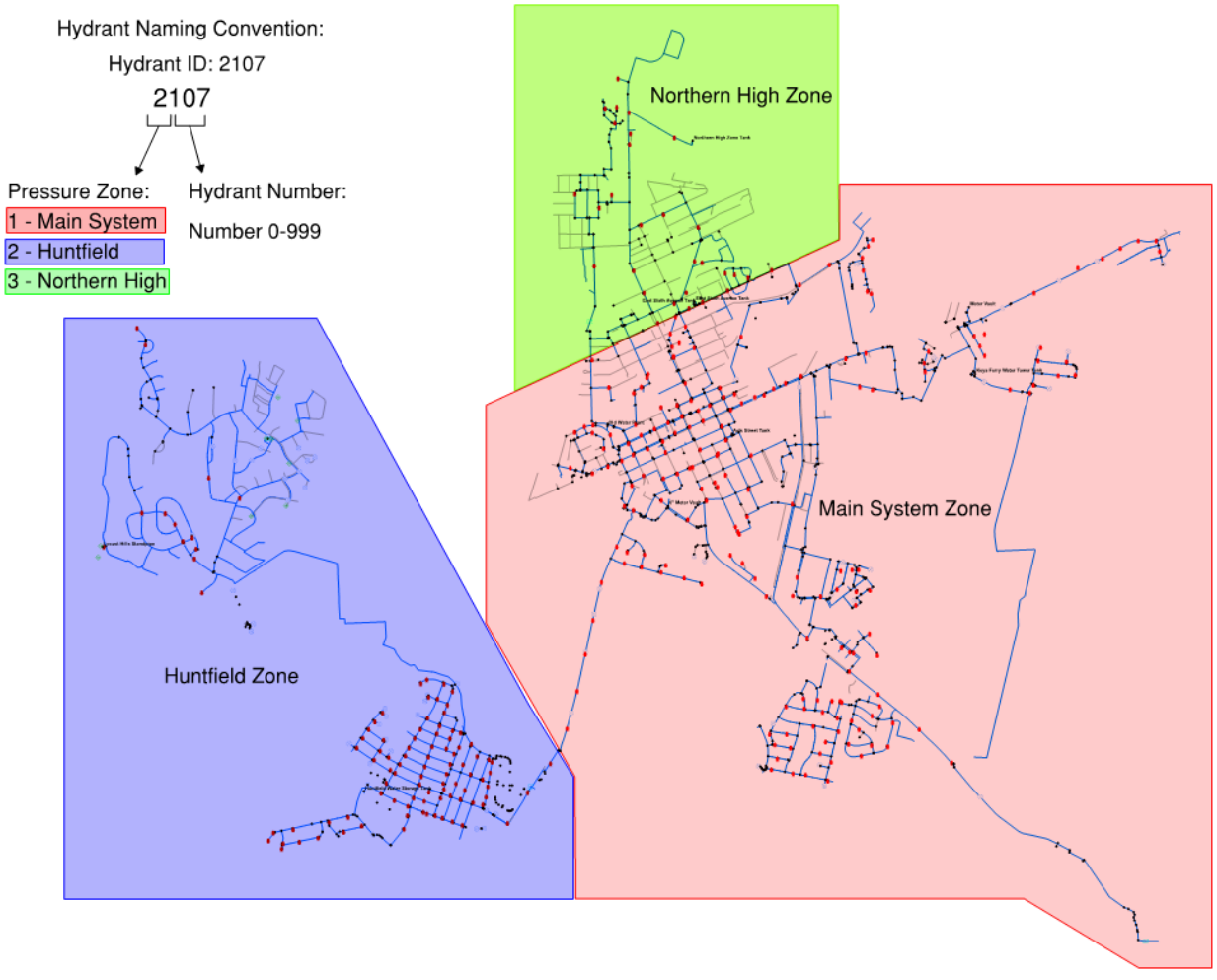


Figure 2-4: Charles Town Pressure Zone Boundaries and Hydrant Naming Convention



Figure 2-5: Isolation Valves Location

2.2.5 Quality Control Reviews

Dewberry compared pipe sizes/locations, junction elevations, tank locations/levels, valve locations, pump locations/pump curve information, and hydrant locations in the WaterCAD model versus those appearing in GIS, Record Drawings, or other supplemental information provided by CTUB. Observed discrepancies were corrected and updated in the model in consultation with CTUB. Valve controls and pump settings were also adjusted based upon updated information provided by CTUB.

Pump stations control setpoints were pulled from the SCADA system at the Water Treatment Plant and compared to historical tank level data to ensure accuracy. **Figure 2-6** shows an example of this comparison with a graph of model vs. SCADA of the Northern High tank level before the quality control review. After reviewing the data, setpoints were adjusted to match historical data. **Figure 2-7** shows the graph after the operational setting and control adjustments, a much better correlation.

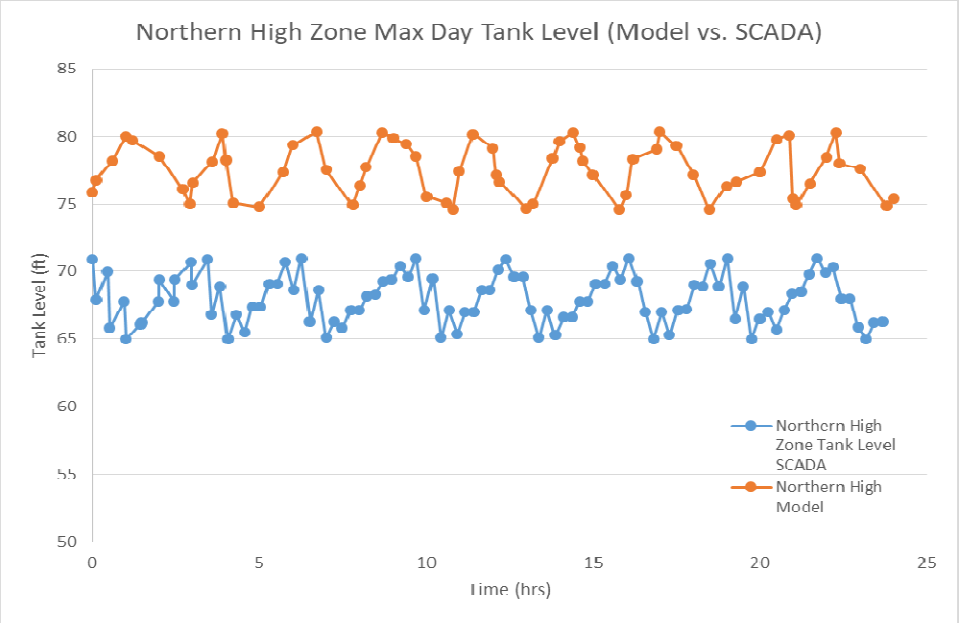


Figure 2-6: Northern High Zone Tank Level Output Before Updates (Model vs. SCADA)

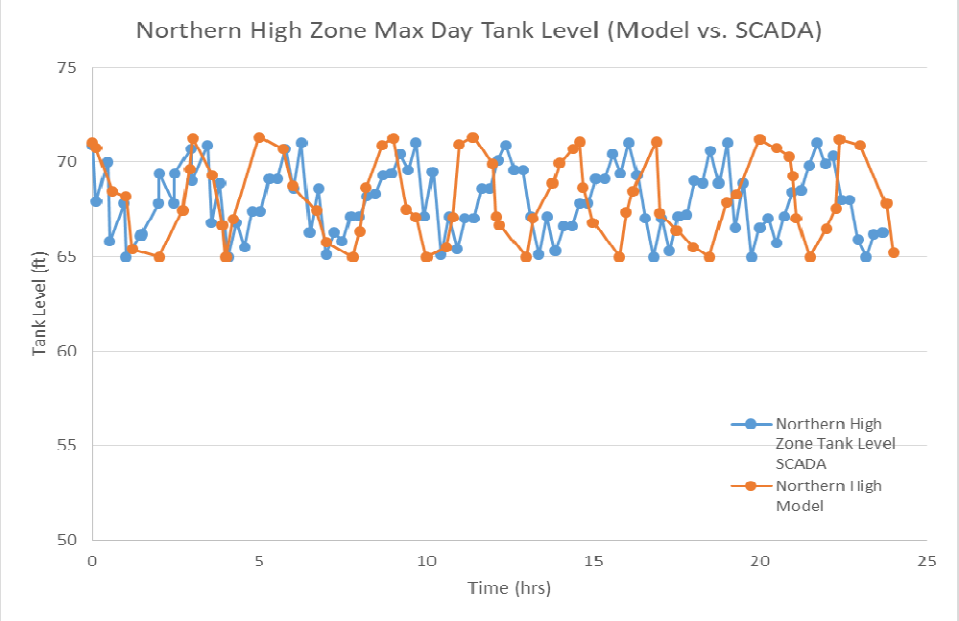


Figure 2-7: Northern High Zone Tank Level Output After Updates (Model vs. SCADA)

Table 2-2 provides a summary of setpoints, historical data and model controls.

Table 2-2: Summary of Setpoints and Model Controls

Pump Station	Tank	Pump On (Setpoint)	Pump Off (Setpoint)	Pump On (SCADA)	Pump Off (SCADA)	Pump On (Updated Model)	Pump Off (Updated Model)
WTP	Route 9	-	-	27’	40’	27’	37’
Augustine Avenue PS	Huntfield	36’	42’	36’	42’	36’	42’
Burns Street PS	Northern High	65’	71’	65’	71’	65’	71’

For purposes of this analysis, model controls were set to operate the WTP pump station based on level in the Route 9 Elevated Storage Tank. Record drawings indicate the overflow level of the Route 9 tank was established at approximately 37 feet; however, historical SCADA data recording tank level indicated that the Route 9 tank typically operates between 27 and 40 feet. The model controls were adjusted to turn off the pumps once the tank reaches 37 feet. Both the Huntfield and Northern High Zone tanks appeared to operate within the specified ranges.

2.2.6 Hydrant Testing

Dewberry personnel developed a hydrant testing protocol and worked in collaboration with CTUB to conduct hydrant testing at 13 locations (2 hydrants for each test, one flow hydrant and one pressure residual hydrant, while the pump stations were turned off during the test) throughout Charles Town water system, shown in **Figure 2-8** below. The nodal network (pipes and junctions) are shown in purple, and each individual hydrant is represented as a yellow circle.



Figure 2-8: Hydrant Test Locations

The resulting data was utilized in the WaterCAD model to help calibrate the model. However, due to specious data at hydrant locations #4 and #8, only 11 hydrant data points were used to calibrate the model. A copy of the hydrant testing protocol and data collected is provided in **Appendix A: Hydrant Test Protocol and Data.**

In order to accurately model a water system, Dewberry had to first calibrate the model. Upon completion of the quality control reviews and creating boundaries for the pressure zones, the model was calibrated using the "Darwin Calibrator" tool in WaterCAD under static simulation conditions.

Calibration required hydrant data from the hydrant tests, tank and pump SCADA data, and assumptions for friction losses in the pipelines in the model. For the friction losses in pipes, the Hazen-Williams "C" coefficients (friction losses in pipes) were assigned based on pipe material. The Hazen-Williams "C" coefficients that were assumed for the various pipe materials in the model are shown in **Table 2-3**.

Table 2-3: Hazen-Williams "C" Coefficients

Pipe Material	Minimum C-Value	Maximum C-Value
Asbestos Cement	80	150
CMP	60	100
Copper	130	150
Cast Iron	75	90
DIP	125	140
Galvanized Pipe	120	150
PVC	130	150

Darwin Calibrator automatically calibrates the model through the use of efficient genetic algorithms. This allows for multiple calibration candidates to be presented so the best possible solution to a given system can be found. The optimized calibrated solutions were exported into a new scenario and used in the existing water system model.

Using this calibrated model, Dewberry identified nodes in the area that did not meet state and local pressure requirements.

SECTION 3 - EXISTING SYSTEM ANALYSIS

Municipalities operating utility systems are governed by Title 64 Series 77 of the West Virginia Bureau of Public Health (WVBPH) Public Water System Design Standards (hereafter BPH Regulations). Portions of the regulations are quoted in the paragraphs below and serve as the basis of evaluation.

According to the BPH Regulations, pressures in these pipelines (and all such pipelines in the distribution system) need to be maintained at 30 psi minimum under static conditions and 20 psi under all dynamic flow conditions (including fire flow). An excerpt from the regulations appears below:

9.4.a. Pressures. -- The maximum variation between high and low levels in standpipes or elevated storage structures providing pressure to a distribution system shall not exceed thirty (30) feet (thirteen (13) pounds per square inch). The minimum pressure in the distribution system shall be thirty (30) pounds per square inch under static conditions and twenty (20) pounds per square inch under all flow conditions. The normal working pressures of the distribution mains shall be designed based upon the pipe manufacturer's recommendations and the applicable AWWA standards for the type of pipe. Pressure regulating/pressure reducing valves shall be used to protect the distribution mains from excessive pressures. When static pressures in the distribution mains exceed one hundred thirty five (135) pounds per square inch, the utility shall have the option of installing pressure reducing valves on service lines or requiring (or recommending) the customer install and maintain a pressure reducing valve on the customer's service line.

In practice, a pressure range of between 40 and 100 psig is typically preferred. The existing system was analyzed using the calibrated model and to ensure compliance with the following conditions:

- Greater than 20 psi minimum pressure under maximum day demands coupled with fire-flow conditions
- Greater than 30 psi minimum pressure under normal operating conditions with maximum day demands
- Less than 135 psi maximum pressure under normal operating conditions with average day demands

3.1 FIRE FLOW ANALYSIS

Dewberry developed the fire flow analysis to determine the system's response to a fire flow event at 500 gpm. **Table 3-1** shows the Fire Flow constraints used to analyze the system.

Table 3-1: Fire Flow Constraints

Fire Flow (Goal)	500 gpm
Fire Flow (Upper Limit)	1,000 gpm
Apply Fire Flows By	Adding to Baseline Demand
Pressure (Residual Lower Limit)	20 psi
Pressure (Zone Lower Limit)	20 psi

Initial tank levels were set at the corresponding pump on level to conservatively analyze system pressure. Based on the fire flow analysis report generated in WaterCAD, Dewberry determined which nodes are not compliant with state and local regulations for required fire flows and residual pressures during maximum day demands. **Figure 3-1** shows a map of which node failed to meet the desired fire flow of 500 gpm, and **Figure 3-2** shows a map of available fire flow.

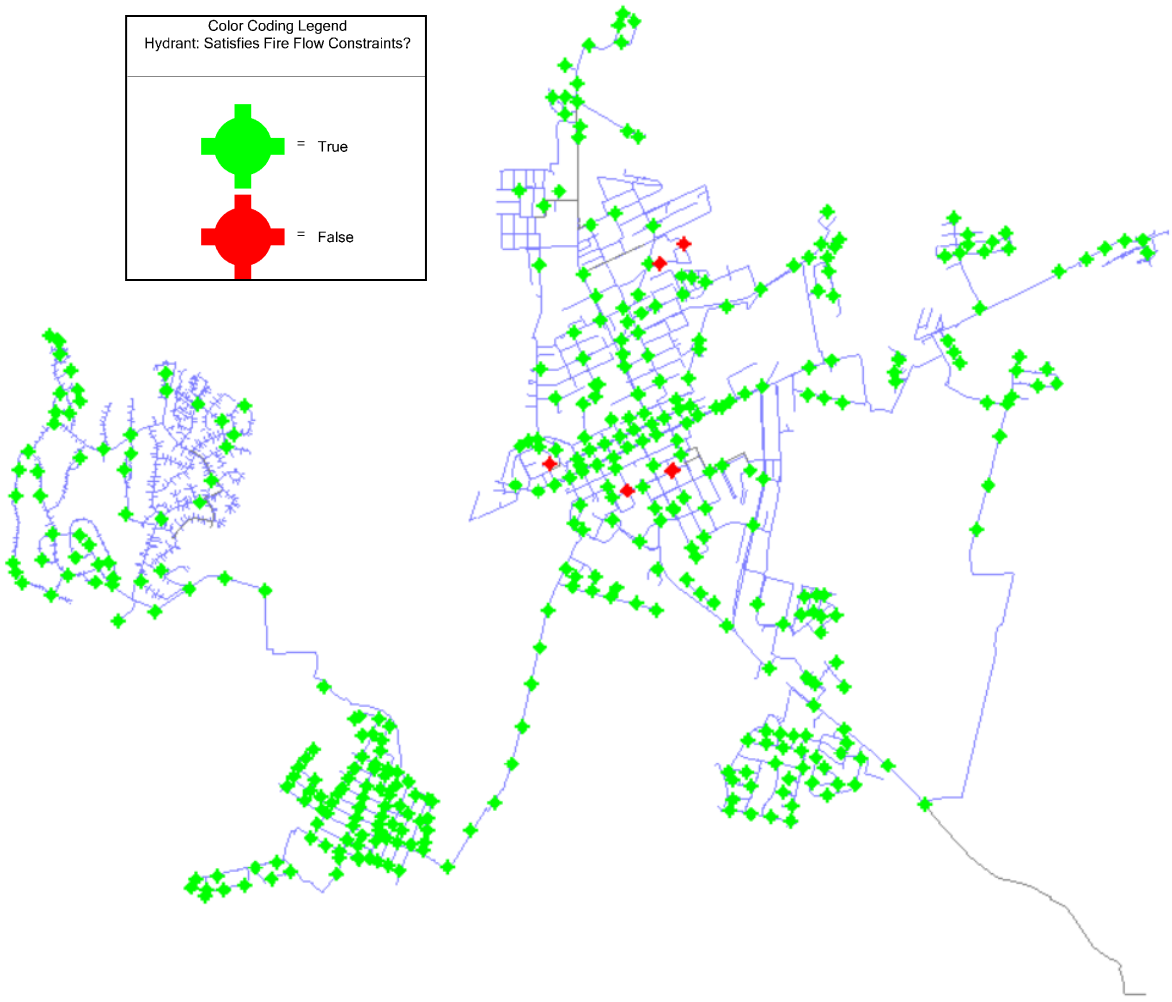


Figure 3-1: Fire Flow Pass/Fail Results

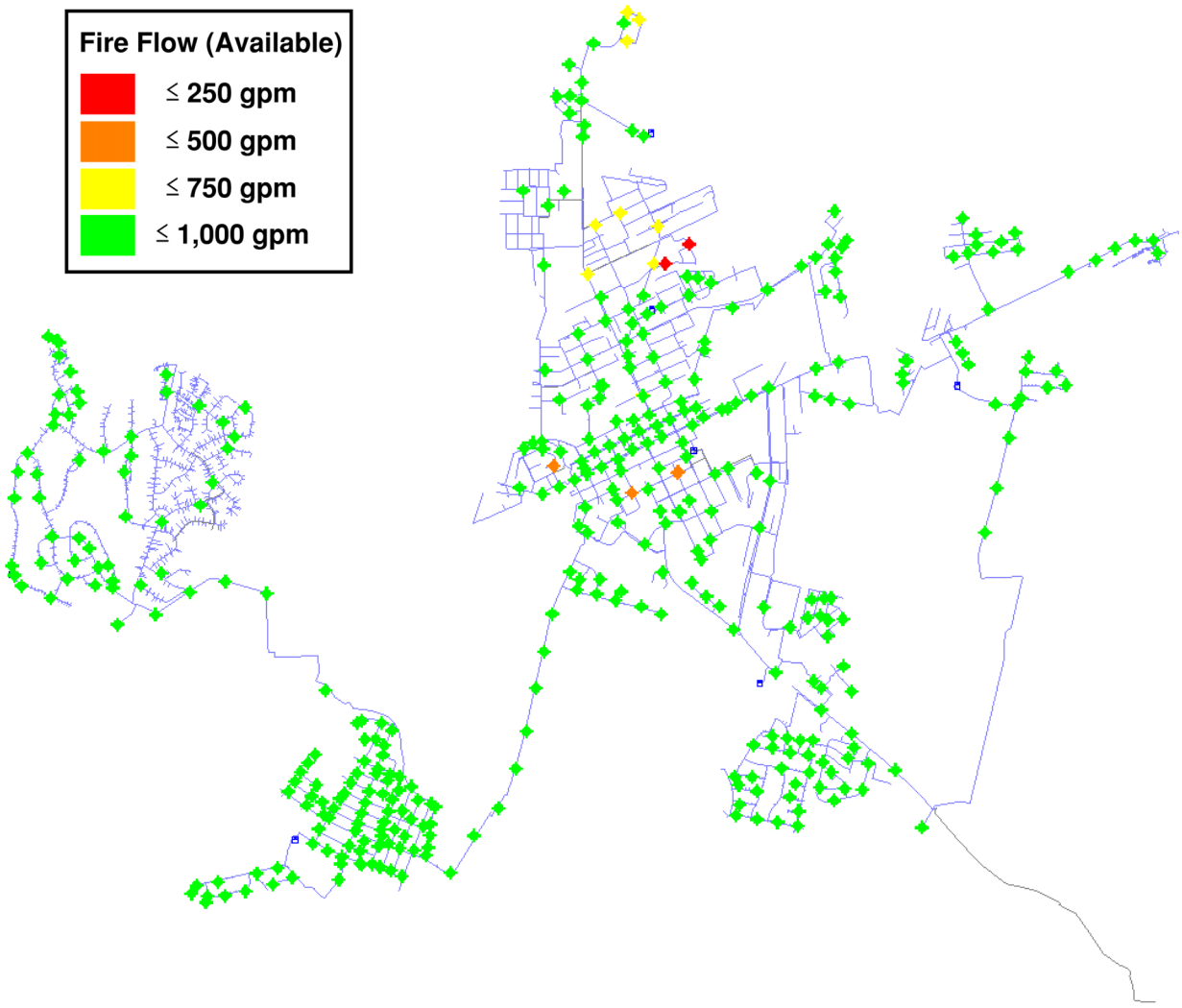


Figure 3-2: Fire Flow Analysis Results

3.1.1 Pressure Requirement Compliance

Once the Fire Flow Analysis was completed, Dewberry identified nodes that do not meet state and local pressure requirements. **Figure 3-3** shows a color-coded junction map based on minimum pressure under peak hour flow conditions.

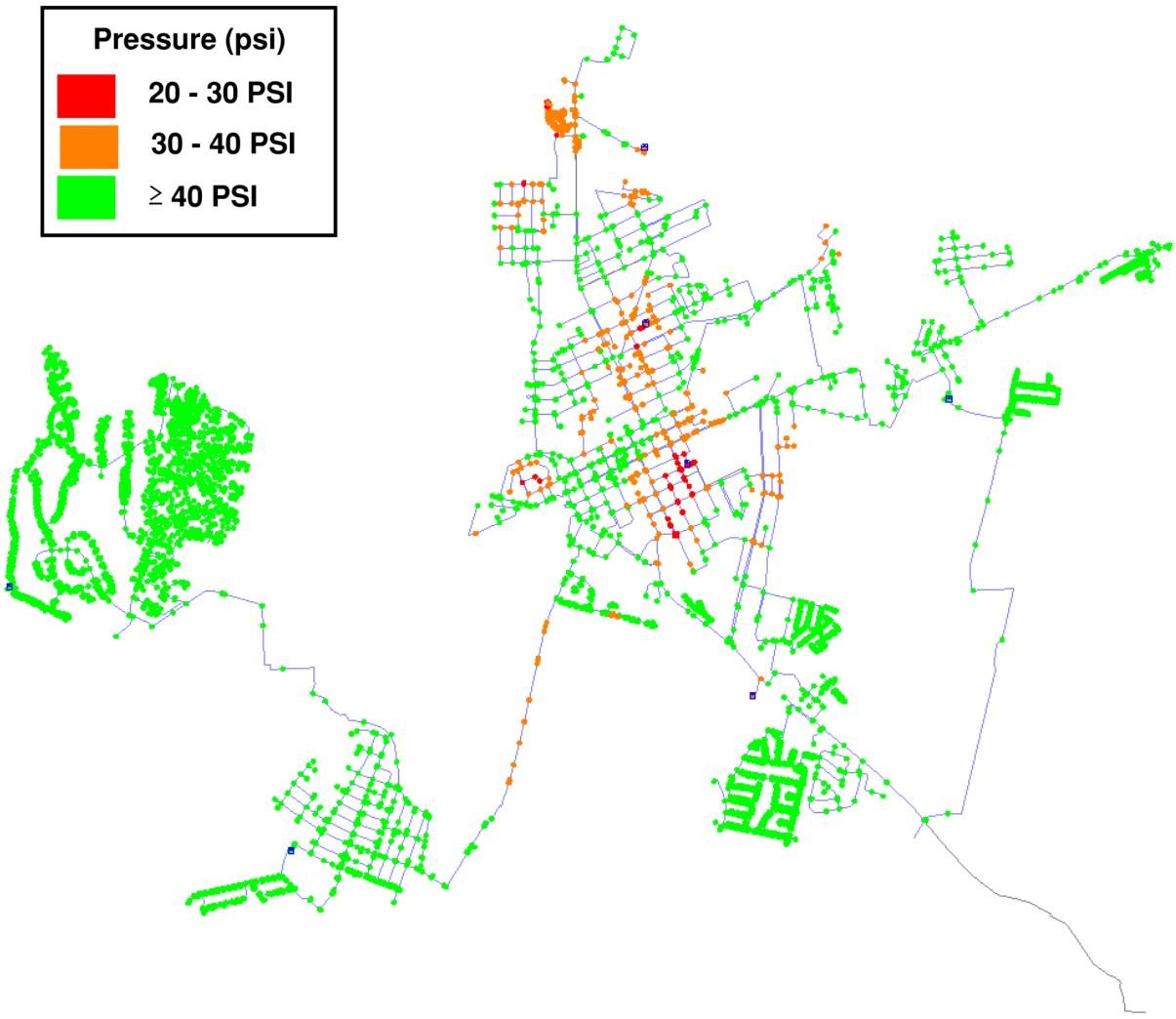


Figure 3-3: Minimum Pressures at Peak Flow

Three main areas of low pressure were identified by this analysis – Northern High Zone, 6th St Tank , and near the Avis Storage Tank. A more detailed look at these specific the low pressure areas are shown in **Figures 3-4 through 3-6**.

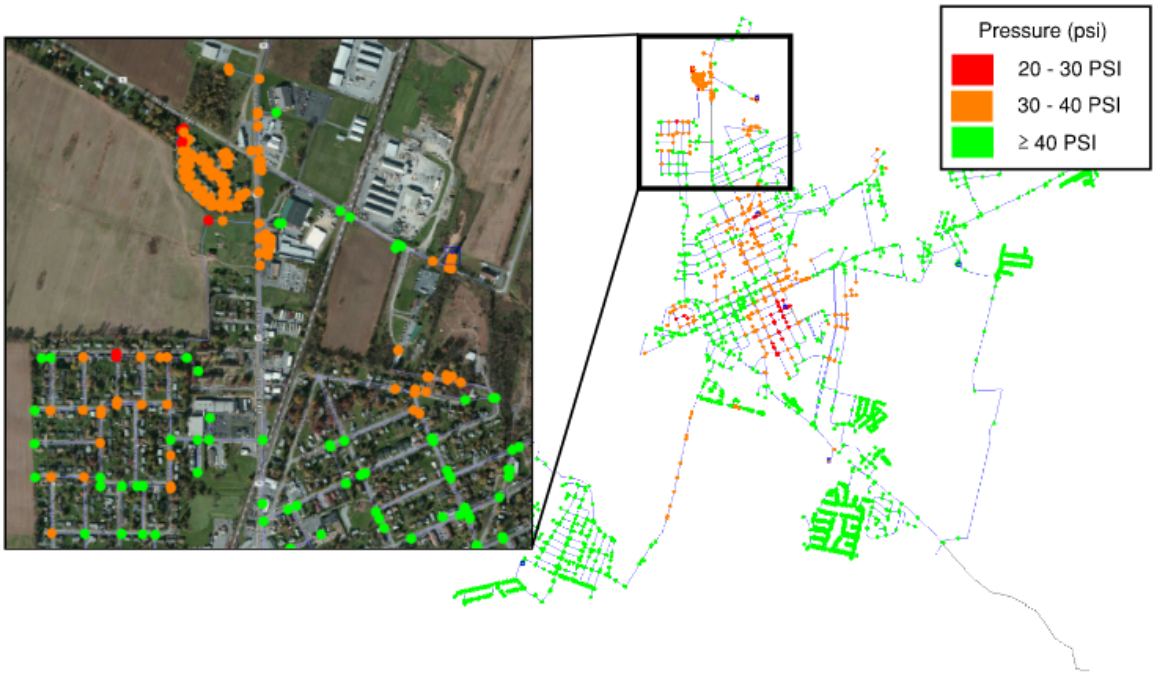


Figure 3-4: Low Pressure Area – Northern High Zone



Figure 3-5: Low Pressure Area – 6th St Ave Tank Area



Figure 3-6: Low Pressure Area - Avis St Tank Area

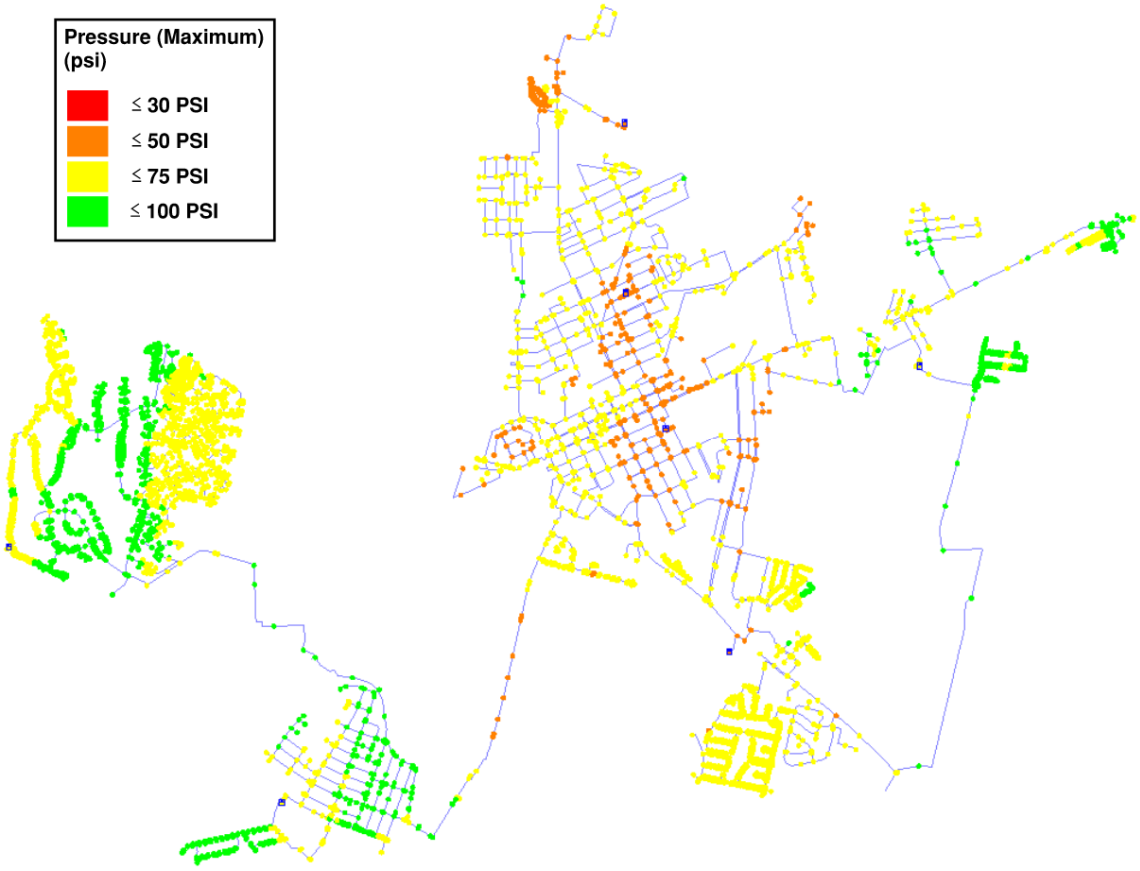


Figure 3-7: Maximum Pressure

Dewberry also analyzed the system to identify potential areas where high pressure may be a concern. To accomplish this, Dewberry utilized the extended period simulation based on average day demands to determine what normal operating maximum pressures could be expected. **Figure 3-7** provides a nodal diagram depicting the results of this analysis, which shows that no portion of the system experiences pressures greater than 100 psi.

3.1.2 Existing System Headloss

In order to better understand the existing infrastructure to evaluate it for potential improvements, an analysis of the highest headloss per thousand feet of pipe was calculated for each pipe segment in the model. The results from each hour of Day 2 in the EPS simulation (hours 25-48) were found for each pipe segment, and an average of these results were used to evaluate the "Top 100" pipe segments with the highest pressure loss gradient in the system. Results from Day 2

were used to let the water model adjust to the initial settings and stabilize until we observed a similar operational pattern day to day. The resulting figure of the top 100 segments are shown as thick red segments in **Figure 3-8** below.

Dewberry recommends that over the long-term, CTUB reviews all pipelines with headloss exceeding 5.0 feet per thousand feet (0.005 ft/ft) as it implements its capital improvements program. CTUB may consider either upgrading the identified pipelines, adding parallel lines, creating loops in the system, adding pressure reducing valves, adding additional storage, and/or adding booster pump station(s) to reduce headloss to below 5.0 feet per thousand feet.

The pipeline upgrades that Dewberry deemed necessary to improve the water distribution and fire flow availability are described subsequently in **Section 4 – System Improvement Recommendations**.

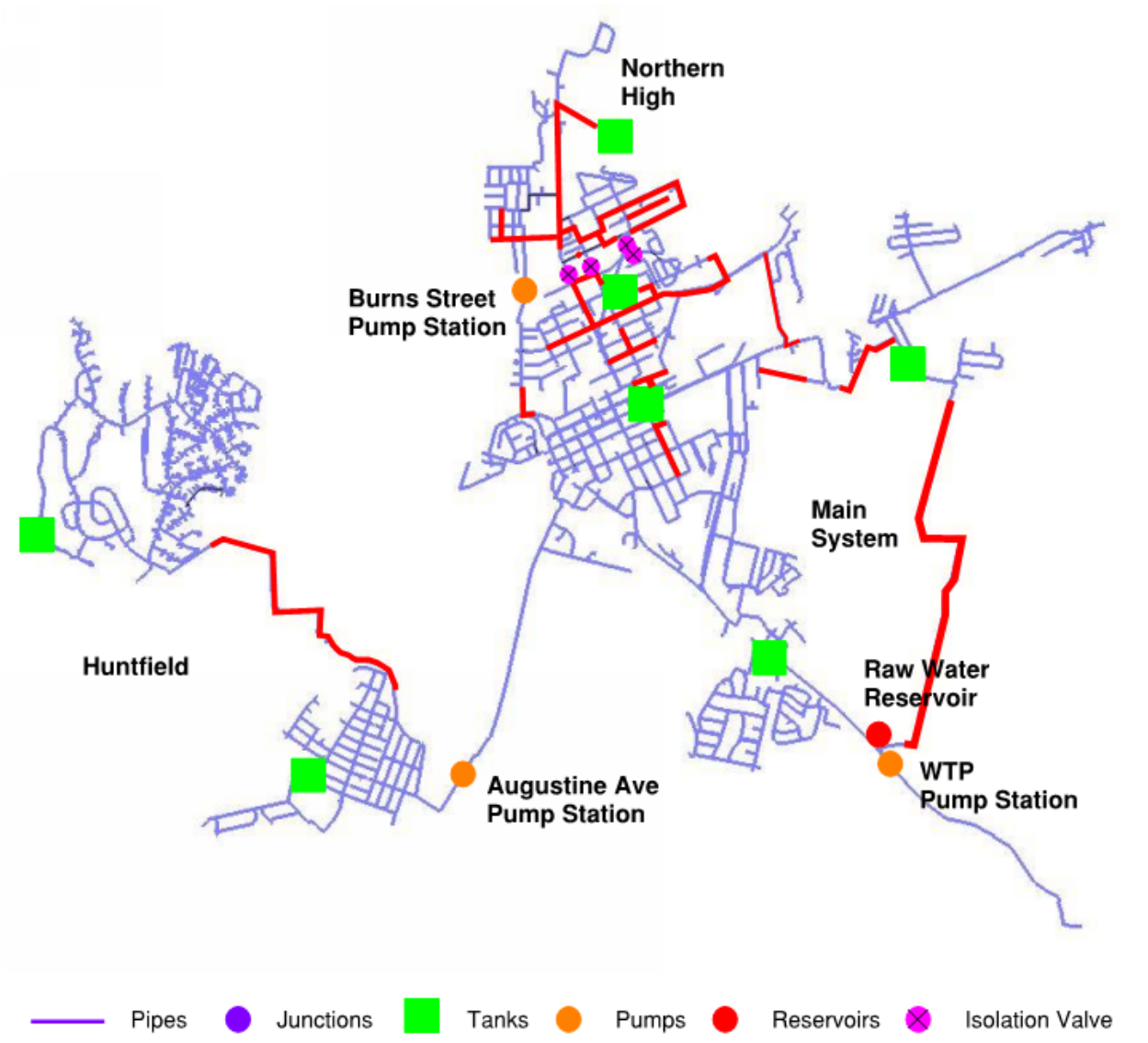


Figure 3-8: Top 100 Segments with Highest Headloss ft/ 1000 ft in Existing System

SECTION 4 – SYSTEM IMPROVEMENT RECOMMENDATIONS

Based on the fire flow analysis discussed above, the following water distribution system improvements were identified as necessary in order to achieve a minimum flow of 500 gpm at 20 psi minimum pressure.



Figure 4-1: Northern High Zone Waterline Improvements

Project 1 – Northern High Zone North Transmission Waterline Improvements: Parallel the existing 6-inch asbestos cement waterline which serves as the main transmission conduit for the Northern High Pressure Zone to eliminate this bottle-neck. The project will include approximately 2,700 LF of 10-inch PVC waterline as shown above.

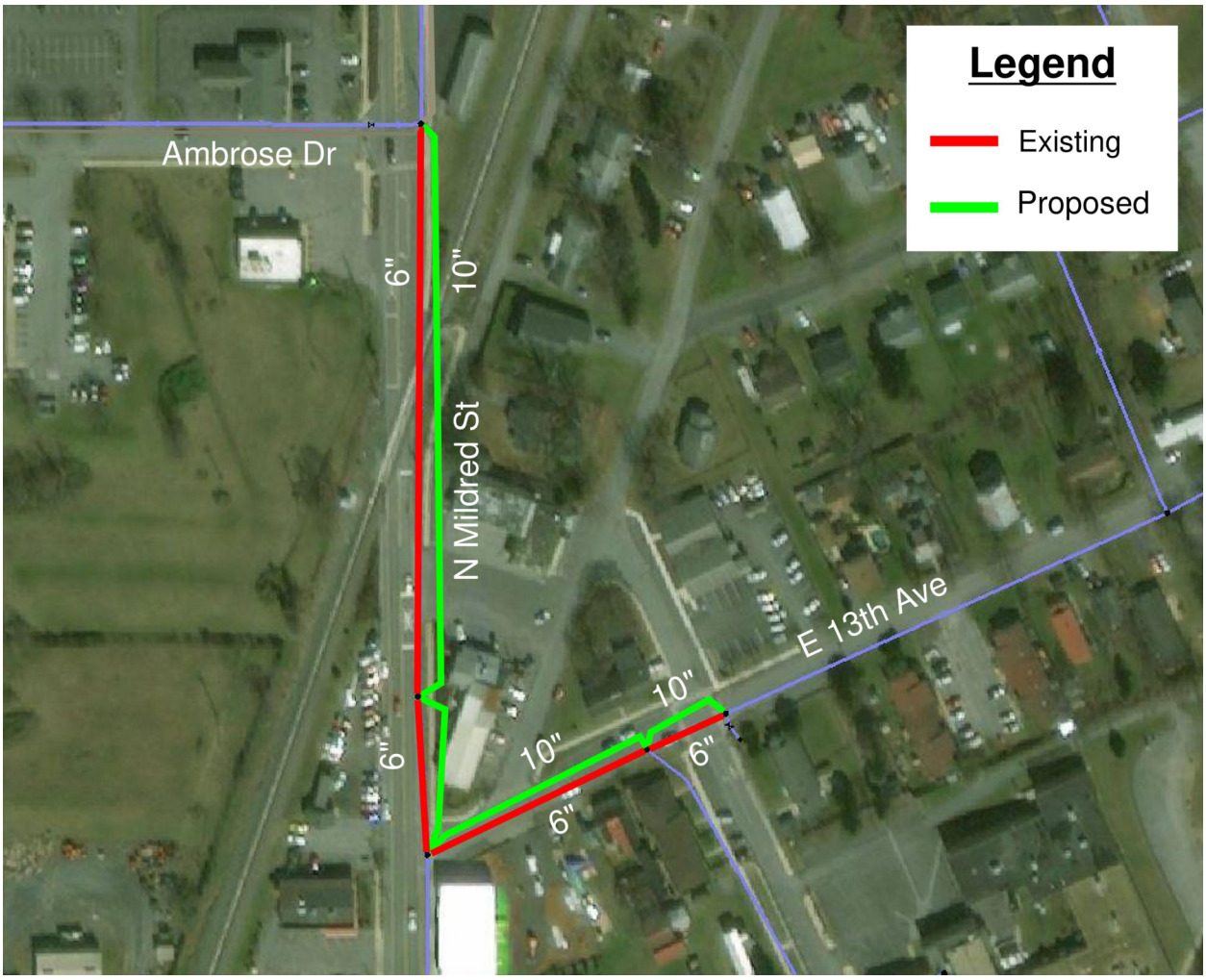


Figure 4-2: Northern High Zone Waterline Improvements

Project 2 – Northern High Zone South Transmission Waterline Improvements: Parallel the existing 6-inch asbestos cement waterline which serves as the main transmission conduit for the Northern High Pressure Zone to eliminate this bottle-neck. The project will include approximately 1,100 LF of 10-inch PVC waterline as shown above.



Figure 4-3: East 10th Avenue Waterline Improvements

Project 3 – East 10th Avenue Waterline Improvements: Install approximately 1,800 LF of 6-inch PVC waterline along East 10th Avenue from North Mildred Steert to North Fairfax Boulevard and install an interconnection between the existing 6-inch waterlines at the intersection of East 10th Street and North Fairfax Boulevard.



Figure 4-4: West Liberty Street Improvements

Project 4 – West Liberty Street Improvements: Install approximately 400 LF of 6-inch PVC waterline along West Liberty Street from North Water Street to Higgs Boulevard to provide adequate looping.



Figure 4-5: South Mildred Street Waterline Improvements

Project 5 – South Mildred Street Waterline Improvements: Install an interconnection between the existing 8-inch and 4-inch waterlines at the intersection of East Academy Street and South Mildred Street to improve looping.



Figure 4-6: West Academy Street Waterline Improvements

Project 6 – West Academy Street Waterline Improvements: Install an interconnection between the existing 8-inch waterlines at the intersection of West Academy Street and South Charles Street to improve looping.

CONCLUSION

Dewberry has developed a more accurate and updated model through the following methods:

- Use of LIDAR data for more accurate elevations
- Geocoding of demands to more accurately reflect actual conditions
- Addition of new construction projects
- Addition of controls to simulate actual operating procedures
- Updated diurnal patterns for extended period simulation (EPS)
- Calibration via hydrant testing and SCADA data

As was illustrated via **Figure 2-7**, the updated model now correlates with actual operating SCADA data and will serve as a useful tool for analyzing proposed development and new potential capital projects to support expected growth and development.

Based on the results from the calibrated model, several system improvements were identified and recommended in **Section 3** in order to improve fire flow capacity within the system.

ITEMS FOR FURTHER STUDY

The model update presented herein was limited to the scope of services presented in Section 1, Paragraph 1.2. For example, this report does not specifically address capital improvements needed to support future growth and development. CTUB would benefit from the following items for further study:

- Use the model to analyze storage requirements versus BPH regulations and determine water-age to examine potential areas which may be more at risk for THM and HAA5 formation.[1]

- Consider more detailed reviews of the Main Pressure Zone where pressures are generally much lower than other areas of the system to determine potential capital improvements to improve system pressure. Such reviews may include consideration of taller tanks, booster pumping stations, flow control valves, looping, parallel mains and other means to improve system pressures for area customers.

- Consider a systematic plan to upgrade segments with high pressure loss gradients as initially identified in Figure 3-6.

- Use the model to support a more rigorous water system master planning effort to identify short-term and long-term capital projects to address future growth and development.

These items will leverage the updated model to better address future growth and development.

1 The Stage 2 Disinfection Byproducts Rule promulgated by EPA governs Trihalomethanes (THM) and Haloaccetic acids (HAA5) in public water systems.

APPENDIX A

Hydrant Test Protocol and Test Data

Hydrant Flow Testing Work Plan			
Project Name:		Page:	1
Client/Owner:		Date:	
Contact/Title:			
Dewberry Job#:			

1. Hydrant flow testing will be conducted to provide data for developing and calibrating the computerized hydraulic model. Coordination will be done with the District in regards to when these tests can be performed so that proper notification can be given advising customers of possible temporary discoloration of water. The location and number of the hydrant flow test to be performed will be provided.

2. At the time the tests are performed, the following information will need to be obtained as appropriate:

    - The pump stations, treatment plants or water supplies that were operational.

    - The number of pumps and their horsepower within the pump stations or treatment plants that were operating.

    - The water level elevations within each storage tank.

3. A minimum of two hydrants will be used to conduct the flow testing, one designated as the test hydrant to observe static and residual pressures and one designated as the flow hydrant to discharge water. Each hydrant used in the test will be manned. The selection of the flow hydrant will be made to minimize damage to private property, preferably near a catch basin or drainage swale, and to avoid discharging water onto streets.

4. Hydrants will be opened and closed slowly to avoid generating pressure surges within the system. The flow hydrant will be fully opened and allowed to discharge until the pitot gauge has stabilized so that an accurate reading can be recorded (typically about 10 seconds).

5. The data to be collected during each test will be as noted on the attached **Hydrant Flow Test Report.** Static pressure readings will be taken on both the test (pressure) hydrant and flow hydrant to correct for differences in elevation. Tests will be completed using the 2-1/2” outlets on the hydrants.

6. The discharge from the flow hydrant will be calculated based on the following formula:

$$Q_f = 29.83 \times c \times d^2 \times p^{0.5}$$

Where Q_f = gallons per minute
d = diameter of nozzle in inches (2-1/2")
p = pitot gauge in psi (measured at flow hydrant with pitot gauge instrument)
c = coefficient of discharge (0.85)

7. To determine the available flow at a residual pressure of 20 psi from the test results, the following formula will be used:

$$Q_{20} = Q_F \times (H_s - 20)^{0.54} / (H_s - H_r)^{0.54}$$

Where H_s = static pressure reading at the test hydrant
H_r – residual pressure reading from the test hydrant

Charles Town Hydrant Test Locations

Fire Hydrant Test Location	Flow Hydrant		Residual Hydrant	
	Address	ID	Address	ID
1	185 Stephanie Way, Charles Town, WV 25414	1165	19 Stephanie Way, Charles Town, WV 25414	1064
2	1000 Co Rte 340/4, Charles Town, WV 25414 Next to Windmill Crossing Sign	1059	912 Somerset Blvd, Charles Town, WV 25414	1061
3	15527 Charles Town Rd, Charles Town, WV 25414 Charles Town Potable Treatment Plant	1005	15376 Charles Town Rd. Charles Town, WV 25414	1011
4	565 Barksdale Dr, Charles Town, WV 25414	1173	242 Okanagan Dr., Charles Town, WV 25414	1174
5	839 M.L.K. Jr. Blvd., Charles Town, WV 25414	1121	718 W Washington St., Charles Town, WV 25414	1120
6	NW Corner of Finish Line Ave / Flowing Springs Rd Charles Town, WV 25414	1086	580 5th Ave, Ranson, WV, 25438	1161
7	207 N Fairfax Blvd, Ranson, WV 25438	1082	108 E 5th Ave, Ranson, WV 25438	1139
8	1453 N Mildred St., Ranson, WV 25438	3001	1208 N Mildred St., Ranson, WV 25438 SW Corner of 16th St / N Mildred St	3003
9	178 Robelei Dr., Ranson, WV 25438	3007	74 Robelei Dr., Ranson, WV 25438	3006
13	492 Oakmont Dr., Charles Town, WV 25414	2032	406 Oakmont Dr., Charles Town, WV 25414	2035
14	49 Patrick Henry Way, Charles Town, WV 25414	N/A	7 Captain Chews Trce, Charles Town, WV 25414	N/A
15	312 Baltusrol Dr., Charles Town, WV 25414	2033	Tuscawilla Dr / Packett Dr Charles Town, WV 25414	2034
16	452 Spyglass Hill Dr., Charles Town, WV 25414	2001	353 Spyglass Hill Dr., Charles Town, WV 25414	2004

Fire Hydrant Test

Location # 1

Date: 4-2-19
Time: 1:52 p.m
Weather: cloudy
Temp.: 46°F
Tester Name(s): Chris Hutzler

Legend:		Hydrant Naming Convention:	
Pressure Zone	ID	Hydrant ID:	2105
Main	1	2	105
Huntfield	2	2 is the pressure zone ID and	
Northern High	3	105 is the hydrant number.	

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	34.5	1:54 p.m
				Avis	1	63.4	1:54 p.m
				Keyes Ferry	1	15.1	1:54 p.m
Huntfield	2	off		6th Ave.	1	77.6	1:54 p.m
				Huntfield	2	41.1	1:54 p.m
Northern High	3	off		Locust Hill	2	130.2	1:54 p.m
				Northern High Zone	3	67.1	1:54 p.m

Flow Hydrant ID: _____
Hydrant Manufacturer: American Darling
Nozzle Diameter (in): 2½"
Coefficient (Circle one): (Rounded) Square

Pitot Pressure: 50 psi
Flow: 1190 gpm

Residual Hydrant ID: _____
Static Pressure: 70 psi
Residual Pressure: 64 psi

Notes: Flow accrossed from 185 Stephanie WAY
Due to orginal Hyd. connection stuck.

Fire Hydrant Test

Location #2

Date: 4-4-19
Time: 12:55 p.m
Weather: Partly cloudy
Temp.: 62°F
Tester Name(s): Larry Stewart

Legend:	
Pressure Zone	ID
Main	1
Huntfield	2
Northern High	3

Hydrant Naming Convention:
Hydrant ID: 2105
2 105
2 is the pressure zone ID and 105 is the hydrant number.

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	33.0	12:55 pm
				Avis	1	62.2	12:55 pm
				Keyes Ferry	1	14.3	12:55 p.m
Huntfield	2	off		6th Ave.	1	76.7	12:55 p.m
				Huntfield	2	41.4	12:55 p.m
Northern High	3	off		Locust Hill	2	130.1	12:55 p.m
				Northern High Zone	3	64.4	12:55 p.m

Flow Hydrant ID: _____
Hydrant Manufacturer: American Darling
Nozzle Diameter (in): 2½"
Coefficient (Circle one): (Rounded) Square

Pitot Pressure: 50 psi
Flow: 1190 gpm

Residual Hydrant ID: _____
Static Pressure: 68 psi
Residual Pressure: 61 psi

Notes:

Fire Hydrant Test

Location #3

Date: 4-2-19
Time: 1:27 p.m.
Weather: Cloudy
Temp.: 46°F
Tester Name(s): Chris Hutzler

Legend:	
Pressure Zone	ID
Main	1
Huntfield	2
Northern High	3

Hydrant Naming Convention:	
Hydrant ID:	2105
2	105
2 is the pressure zone ID and 105 is the hydrant number.	

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	34.3	1:28 p.m.
				Avis	1	63.1	1:28 p.m.
				Keyes Ferry	1	15.2	1:28 p.m.
Huntfield	2	off		6th Ave.	1	77.4	1:28 p.m.
				Huntfield	2	40.7	1:28 p.m.
Northern High	3	off		Locust Hill	2	129.7	1:28 p.m.
				Northern High Zone	3	69.4	1:28 p.m.

Flow Hydrant ID: _____
Hydrant Manufacturer: Kennedy
Nozzle Diameter (in): 2½
Coefficient (Circle one): (Rounded) Square

Pitot Pressure: 32 psi
Flow: 980 gpm

Residual Hydrant ID: _____
Static Pressure: 50 psi
Residual Pressure: 46 psi

Notes:

Fire Hydrant Test

Location #4

Date: 4-4-19
Time: 1:30 p.m
Weather: Partly Cloudy
Temp.: 63°F
Tester Name(s): Larry Steward

Legend:	
Pressure Zone	ID
Main	1
Huntfield	2
Northern High	3

Hydrant Naming Convention:	
Hydrant ID:	2105
2	105
2 is the pressure zone ID and 105 is the hydrant number.	

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	33.0	1:35 p.m
				Avis	1	62.8	1:35 p.m
				Keyes Ferry	1	14.3	1:35 p.m
Huntfield	2	off		6th Ave.	1	77.2	1:35 p.m
				Huntfield	2	39.6	1:35 p.m
Northern High	3	off		Locust Hill	2	130.3	1:35 p.m
				Northern High Zone	3	64.4	1:35 p.m

Flow Hydrant ID:
Hydrant Manufacturer: American Darling
Nozzle Diameter (in): 2½"
Coefficient (Circle one): (Rounded) Square

Pitot Pressure: 86.0 psi
Flow: 28 gpm

Residual Hydrant ID:
Static Pressure: 48 psi
Residual Pressure: 40 psi

Notes:

Fire Hydrant Test

Location #5

Date: 4-4-19
Time: 1:55 pm
Weather: Partly Cloudy
Temp.: 63°F
Tester Name(s): Larry Stewart

Legend:	
Pressure Zone	ID
Main	1
Huntfield	2
Northern High	3

Hydrant Naming Convention:	
Hydrant ID:	2105
2	105
2 is the pressure zone ID and 105 is the hydrant number.	

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	32.6	2:05 pm
				Avis	1	62.9	2:05 pm
				Keyes Ferry	1	14.3	2:05 pm
Huntfield	2	off		6th Ave.	1	77.3	2:05 pm
				Huntfield	2	38.9	2:05 pm
Northern High	3	off.		Locust Hill	2	130.2	2:05 p.m
				Northern High Zone	3	63.8	2:05 p.m

Flow Hydrant ID: _____
Hydrant Manufacturer: American Darling
Nozzle Diameter (in): 2½"
Coefficient (Circle one): (Rounded) Square

Pitot Pressure: 22 psi
Flow: 800 gpm

Residual Hydrant ID: _____
Static Pressure: 44 psi
Residual Pressure: 32 psi

Notes:

Fire Hydrant Test

Location #6

Date: 4-16-19
Time: 1:30 p.m
Weather: Sunny
Temp.: 61°F
Tester Name(s): Larry Stewart

Legend:	
Pressure Zone	ID
Main	1
Huntfield	2
Northern High	3

Hydrant Naming Convention:	
Hydrant ID:	2105
2	105
2 is the pressure zone ID and 105 is the hydrant number.	

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	33.2	1:30 p.m
				Avis	1	62.3	1:30 p.m
				Keyes Ferry	1	14.3	1:30 p.m
Huntfield	2	off		6th Ave.	1	76.7	1:30 p.m
				Huntfield	2	39.0	1:30 p.m
Northern High	3	off		Locust Hill	2	129.9	1:30 p.m
				Northern High Zone	3	66.5	1:30 p.m

Flow Hydrant ID: #6
Hydrant Manufacturer: American Darling
Nozzle Diameter (in): 2.5
Coefficient (Circle one): (Rounded) Square
Pitot Pressure: 37 psi
Flow: 1030 gpm

Residual Hydrant ID: #6
Static Pressure: 50 psi
Residual Pressure: 42 psi

Notes:

Fire Hydrant Test

Location #7

Date: 4-16-19
Time: 1:50 p.m
Weather: Sunny
Temp.: 61°F
Tester Name(s): Lacy Stewart

Legend:	
Pressure Zone	ID
Main	1
Huntfield	2
Northern High	3

Hydrant Naming Convention:	
Hydrant ID:	2105
2	105
2 is the pressure zone ID and 105 is the hydrant number.	

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	32.8	1:55p.m
				Avis	1	62.5	1:55p.m
				Keyes Ferry	1	14.1	1:55p.m
Huntfield	2	off		6th Ave.	1	77.6	1:55p.m
				Huntfield	2	38.2	1:55p.m
Northern High	3	off		Locust Hill	2	129.6	1:55p.m
				Northern High Zone	3	65.9	1:55p.m

Flow Hydrant ID: #7
Hydrant Manufacturer: American Darling
Nozzle Diameter (in): 2½
Coefficient (Circle one): (Rounded) Square

Pitot Pressure: 25 psi
Flow: 840 gpm

Residual Hydrant ID: #7
Static Pressure: 46 psi
Residual Pressure: 38 psi

Notes:

Fire Hydrant Test

Location # 8

Date: 4-16-19
Time:
Weather: Sunny
Temp.: 61°F
Tester Name(s): Larry Stewart

Legend:	
Pressure Zone	ID
Main	1
Huntfield	2
Northern High	3

Hydrant Naming Convention:	
Hydrant ID:	2105
2	105
2 is the pressure zone ID and 105 is the hydrant number.	

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	32.6	2:15 p.m
				Avis	1	62.5	2:15 p.m
				Keyes Ferry	1	14.1	2:15 p.m
Huntfield	2	off		6th Ave.	1	74.9	2:15 p.m
				Huntfield	2	37.6	2:15 p.m
Northern High	3	off		Locust Hill	2	129.1	2:15 p.m
				Northern High Zone	3	65.2	2:15 p.m

Flow Hydrant ID: # 8
Hydrant Manufacturer: American Darling
Nozzle Diameter (in): 2½"
Coefficient (Circle one): (Rounded) Square

Pitot Pressure: 18 psi
Flow: 750 gpm

Residual Hydrant ID: # 8
Static Pressure: 50 psi
Residual Pressure: 44 psi

Notes:

Form revised on March 26th, 2019

Fire Hydrant Test

Location #9

Date: 4-18-19
Time: 12:51 p.m
Weather: Sunny
Temp.: 68°F
Tester Name(s): Larry Stewart

Legend:	
Pressure Zone	ID
Main	1
Huntfield	2
Northern High	3

Hydrant Naming Convention:	
Hydrant ID:	2105
2	105
2 is the pressure zone ID and 105 is the hydrant number.	

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	32.7	1:00 p.m
				Avis	1	62.3	1:00 p.m
				Keyes Ferry	1	13.8	1:00 p.m
Huntfield	2	off		6th Ave.	1	76.7	1:00 p.m
				Huntfield	2	37.6	1:00 p.m
Northern High	3	off		Locust Hill	2	128.1	1:00 p.m
				Northern High Zone	3	64.5	1:00 p.m

Flow Hydrant ID: #9
Hydrant Manufacturer: American Darling
Nozzle Diameter (in): 2½"
Coefficient (Circle one): (Rounded) Square

Pitot Pressure: 15 psi
Flow: 650 gpm

Residual Hydrant ID: H9
Static Pressure: 32 psi
Residual Pressure: 22 psi

Notes:

Fire Hydrant Test

Location # 13

Date: 4-9-19
Time: 1:40 p.m.
Weather: Sunny
Temp.: 75°F
Tester Name(s): Larry Stewart

Legend:	
Pressure Zone	ID
Main	1
Huntfield	2
Northern High	3

Hydrant Naming Convention:	
Hydrant ID:	2105
2	105
2 is the pressure zone ID and 105 is the hydrant number.	

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	32.8	1:45 p.m.
				Avis	1	62.7	1:45 p.m.
				Keyes Ferry	1	13.9	1:45 p.m.
Huntfield	2	off		6th Ave.	1	77.0	1:45 p.m.
				Huntfield	2	30.9	1:45 p.m.
Northern High	3	off		Locust Hill	2	128.8	1:45 p.m.
				Northern High Zone	3	66.4	1:45 p.m.

Flow Hydrant ID: _____
Hydrant Manufacturer: American Darling
Nozzle Diameter (in): 2½"
Coefficient (Circle one): (Rounded) Square

Pitot Pressure: 47 psi
Flow: 1160 gpm

Residual Hydrant ID: _____
Static Pressure: 74 psi
Residual Pressure: 64 psi

Notes:

Fire Hydrant Test

Location # 14

Date: 4-2-14
Time: 2:24 p.m
Weather: Cloudy
Temp.: 46° F
Tester Name(s): Chris Hutzler

Legend:		Hydrant Naming Convention:	
Pressure Zone	ID	Hydrant ID:	2105
Main	1	2	105
Huntfield	2	2 is the pressure zone ID and	
Northern High	3	105 is the hydrant number.	

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	33.4	2:23 p.m
				Avis	1	63.6	2:23 p.m
				Keyes Ferry	1	15.0	2:23 p.m
Huntfield	2	off		6th Ave.	1	77.9	2:23 p.m
				Huntfield	2	40.3	2:23 p.m
Northern High	3	off		Locust Hill	2	130.3	2:23 p.m
				Northern High Zone	3	65.0	2:23 p.m

Flow Hydrant ID: _____
Hydrant Manufacturer: American Darling
Nozzle Diameter (in): 2½"
Coefficient (Circle one): (Rounded) Square

Pitot Pressure: 45 psi
Flow: 1130 gpm

Residual Hydrant ID: _____
Static Pressure: 68 psi
Residual Pressure: 62 psi

Notes:

Fire Hydrant Test

Location #15

Date: 4-9-19
Time: 2:05 p.m.
Weather: Sunny
Temp.: 75°F
Tester Name(s): Larry Stewart

Legend:		Hydrant Naming Convention:	
Pressure Zone	ID	Hydrant ID:	2105
Main	1	2	105
Huntfield	2	2 is the pressure zone ID and	
Northern High	3	105 is the hydrant number.	

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	32.5	2:15 p.m.
				Avis	1	63.1	2:15 p.m.
				Keyes Ferry	1	13.8	2:15 p.m.
Huntfield	2	off		6th Ave.	1	77.5	2:15 p.m.
				Huntfield	2	36.1	2:15 p.m.
Northern High	3	off		Locust Hill	2	128.1	2:15 p.m.
				Northern High Zone	3	64.3	2:15 p.m.

Flow Hydrant ID: _____
Hydrant Manufacturer: American Darling
Nozzle Diameter (in): 2½
Coefficient (Circle one): (Rounded) Square

Pitot Pressure: 35 psi
Flow: 1000 gpm

Residual Hydrant ID: _____
Static Pressure: 62 psi
Residual Pressure: 46 psi

Notes:

Form revised on March 26th, 2019

Fire Hydrant Test

Location #16

Date: 4-9-19
Time: 2:35 p.m.
Weather: Sunny
Temp.: 75°F
Tester Name(s): Larry Stewart

Legend:	
Pressure Zone	ID
Main	1
Huntfield	2
Northern High	3

Hydrant Naming Convention:	
Hydrant ID:	2105
2	105
2 is the pressure zone ID and 105 is the hydrant number.	

Pumps:				Tanks:			
Location:	Pressure Zone ID:	On/Off	Flow (gpm)	Tank Name:	Press. Zone ID:	Tank Level (ft):	Time Stamp:
WTP	1	off		Rt. 9 WST	1	32.2	2:35 p.m.
				Avis	1	62.8	2:35 p.m.
				Keyes Ferry	1	14.0	2:35 p.m.
Huntfield	2	off		6th Ave.	1	77.3	2:35 p.m.
				Huntfield	2	36.0	2:35 p.m.
Northern High	3	off		Locust Hill	2	127.7	2:35 p.m.
				Northern High Zone	3	63.7	2:35 p.m.

Flow Hydrant ID:
Hydrant Manufacturer: American Darling
Nozzle Diameter (in): 2½
Coefficient (Circle one): (Rounded) Square

Pitot Pressure: 25 psi
Flow: 840 gpm

Residual Hydrant ID:
Static Pressure: 64 psi
Residual Pressure: 58 psi

Notes:

CHARLES TOWN UTILITY BOARD
ROUTE 9 SEWER PROJECT

RESOLUTION NO. 8

RESOLUTION OF THE CITY OF CHARLES TOWN UTILITY BOARD APPROVING INVOICES RELATING TO THE CONSTRUCTION AND OTHER SERVICES FOR THE ROUTE 9 SEWER PROJECT AND AUTHORIZING PAYMENT THEREOF,

WHEREAS, the City of Charles Town Utility Board has reviewed the invoices attached hereto and incorporated herein by reference relation to the project funded by ROXUL USA, Inc., dba ROCKWOOL under an Alternate Mainline Extension Agreement (WV PSC Case No. 191025-S-PC, approved November 22, 2019) and the Escrow Agreement dated October 11, 2019.

a) That none of the items for which payment is proposed to be made has formed the basis for any disbursement theretofore made.

b) That each item for which the payment is proposed to be paid is or was necessary in connection with the Project and constitutes a cost of the project.

c) That each of such costs has been otherwise properly incurred.

d) That the payment for each of the items proposed is due and owing.

NOW, THEREFORE, BE IT RESOLVED the City of Charles Town Utility Board that the payment of the attached Contractor's Application for Payment No. 08, HATCH Invoice No. 90758960 and the CTUB Reimbursement per the attached Schedule B (See Column - Resolution No. 8) as summarized below, is hereby authorized and directed.

Vendor	Route 9 Sewer Project
Snyder Environmental Services, Inc.	$402,969.65
HATCH	$41,275.75
CTUB Reimbursement	$61,455.70
Total	**$505,701.10**

ADOPTED BY the City of Charles Town Utility Board, at the meeting held on the 14th day of October 2020.

By: _____
Daryl Hennessy, Chairman

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Contractor's Application for Payment No. 08

Application Period: 9/1/2020 to 9/30/2020		9/30/2020
To (Owner): **Charles Town Utility Board**	From (Contractor): **Snyder Environmental Services**	Via (Engineer): **Hatch Associates Consultants, Inc.**
Project: **Route 9 Sewer Project Ranson, WV**	Contract:	
Owner's Contract No.:	Contractor's Project No.: 20018	Engineer's Project No.: **H-359787**

Application For Payment

Change Order Summary

Approved Change Orders

Number	Additions	Deductions
01		$1,162,000.00
02		$1,177,551.00
03	$902,406.49	
04		$75,000.00
05		$26,160.87
6	$62,514.40	
TOTALS	$964,920.89	$2,440,711.87
NET CHANGE BY CHANGE ORDERS	**-$1,475,790.98**	

1. ORIGINAL CONTRACT PRICE	$	**$8,453,848.00**
2. Net change by Change Orders	$	**-$1,475,790.98**
3. Current Contract Price (Line 1 ± 2)	$	**$6,978,057.02**
4. TOTAL COMPLETED AND STORED TO DATE	$	**$6,037,763.05**
5. RETAINAGE:		
a. 10% X $3,489,028.51 **Work Completed**	$	**$348,902.85**
b. 10% X $299,845.53 **Stored Material**	$	**$29,984.55**
c. Total Retainage (Line 5.a + Line 5.b)	$	**$378,887.40**
6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c)	$	**$5,658,875.64**
7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)	$	**$5,255,905.99**
8. AMOUNT DUE THIS APPLICATION	$	**$402,969.65**
9. BALANCE TO FINISH, PLUS RETAINAGE (Column G total on Progress Estimates + Line 5.c above)	$	**$1,319,181.38**

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: Brandon L	Date: 10/1/2020

Payment of: $ 402,969.65
(Line 8 or other - attach explanation of the other amount)

is recommended by: _____ 10/1/2020
(Engineer) (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)

© 2013 National Society of Professional Engineers for EJCDC. All rights reserved.

Progress Estimate - Unit Price Work **Contractor's Application**

For (Contract):	Route 9 Sewer Project Ranson, WV	Application Number:	08
Application Period:	9/1/2020 to 9/30/2020	Application Date:	9/30/2020
Engineer's Project Number:	H-359787		

A					B	C		D		E	F		G
Bid Item Code	Description	Item Quantity	Units	Unit Price	Scheduled Value ($)	Work Completed: Quantity Installed this Period	Work Completed: Value of Work Installed This Period	Work Completed: Quantity Installed to Date	Work Completed: Value of Work Installed to Date	Materials PresentlyStored (not in C or D)	Total Completed and Stored to Date (D + E)	% (F / B)	Balance to Finish (B - F)
100	**MOBILIZATION**												
101	MOBILIZE EQUIPMENT	1.00	LS	$ 300,000.00	$ 300,000.00	0	$ -	0.90	$270,000.00		$270,000.00	90.0%	$ 30,000.00
102	BLASTING STAKEOUT	1.00	LS	$ 75,000.00	$ 75,000.00	0	$ -	1.00	$75,000.00		$75,000.00	100.0%	$ -
103	CONSTRUCTION STAKEOUT	1.00	LS	$ 75,000.00	$ 75,000.00	0	$ -	1.00	$75,000.00		$75,000.00	100.0%	$ -
104	VIDEO DOCUMENTATION	1.00	LS	$ 25,000.00	$ 25,000.00	0	$ -	1.00	$25,000.00		$25,000.00	100.0%	$ -
105	SUBMITTALS	1.00	LS	$ 25,000.00	$ 25,000.00	0	$ -	0.95	$23,750.00		$23,750.00	95.0%	$ 1,250.00
106	BONDS & INSURANCE	1.00	LS	$ 100,000.00	$ 100,000.00	0	$ -	1.00	$100,000.00		$100,000.00	100.0%	$ -
200	TRAFFIC CONTROL	1.00	LS	$ 27,700.00	$ 27,700.00	0	$ -	1.00	$27,700.00		$27,700.00	100.0%	$ -
300	EROSION AND SEDIMENT CONTROL	1.00	LS	$ 60,000.00	$ 60,000.00	0.15	$ 9,000.00	1.00	$60,000.00		$60,000.00	100.0%	$ -
400	GRAVITY SEWER 6" & 8", OPEN CUT	1,085.00	LF	$ 107.00	$ 116,095.00	0	$ -	1101.00	$117,807.00		$117,807.00	101.5%	$ (1,712.00)
500	GRAVITY SEWER 10", OPEN CUT	1,014.00	LF	$ 101.00	$ 102,414.00	0	$ -	1025.00	$103,525.00		$103,525.00	101.1%	$ (1,111.00)
600	GRAVITY SEWER 12", OPEN CUT	3,567.00	LF	$ 119.00	$ 424,473.00	0	$ -	3588.00	$426,972.00		$426,972.00	100.6%	$ (2,499.00)
700	GRAVITY SEWER 15", OPEN CUT	3,776.00	LF	$ 130.00	$ 490,880.00	0	$ -	3776.00	$490,880.00		$490,880.00	100.0%	$ -
800	FORCE-MAIN (6"-4") OPEN CUT	4,149.00	LF	$ 121.00	$ 502,029.00	0	$ -	4122.00	$498,762.00		$498,762.00	99.3%	$ 3,267.00
900	FORCE-MAIN (6"-4") IN EX. RT. 9 CASING	265.00	LF	$ 252.00	$ 66,780.00	0	$ -	265.00	$66,780.00		$66,780.00	100.0%	$ -
1000	FORCE-MAIN (6"-4") AIR VAULT & INTERNALS	6.00	EA	$ 8,370.00	$ 50,220.00	0	$ -	8.00	$66,960.00		$66,960.00	133.3%	$ (16,740.00)
1300	FORCE-MAIN (8"-6"-8") OPEN CUT	11,646.00	LF	$ 93.00	$ 1,083,078.00	0	$ -	11675.00	$1,085,775.00		$1,085,775.00	100.2%	$ (2,697.00)
1400	FORCE-MAIN (8"-6"-8") AIR VAULT & INTERNALS	21.00	EA	$ 8,370.00	$ 175,770.00	0	$ -	21.00	$175,770.00		$175,770.00	100.0%	$ -
1700	FORCE-MAIN MISC. DIP FITTINGS, IF DIRECTED	2,000.00	LBS	$ 7.00	$ 14,000.00	0	$ -						$ 14,000.00
1800	CONCRETE CLASS B, IF DIRECTED	100.00	CY	$ 435.00	$ 43,500.00	0	$ -						$ 43,500.00
1900	CASING 24" BORED, W/ 10" GRAVITY SEWER	62.00	LF	$ 540.00	$ 33,480.00	0	$ -	65.00	$35,100.00		$35,100.00	104.8%	$ (1,620.00)
2000	CASING 24" BORED, W/ 12" GRAVITY SEWER	94.00	LF	$ 532.00	$ 50,008.00	0	$ -	94.00	$50,008.00		$50,008.00	100.0%	$ -
2100	CASING 24" BORED, W/ 6"-4"-6" FORCE-MAINS	130.00	LF	$ 596.00	$ 77,480.00	0	$ -	110.00	$65,560.00		$65,560.00	84.6%	$ 11,920.00
2200	CASING 30" BORED, W/ 15" GRAVITY SEWER	162.00	LF	$ 779.00	$ 126,198.00	0	$ -	166.00	$129,314.00		$129,314.00	102.5%	$ (3,116.00)
2300	CASING 36" BORED, W/ 8"-6"-8" FORCE-MAINS	141.00	LF	$ 692.00	$ 97,572.00	0	$ -	205.00	$141,860.00		$141,860.00	145.4%	$ (44,288.00)
2600	MANHOLE, 4'-DIA. (UP TO 6' DEEP)	44.00	EA	$ 7,630.00	$ 335,720.00	0	$ -	44.00	$335,720.00		$335,720.00	100.0%	$ -
2700	MANHOLE BV-03 (DOGHOUSE), 4'-DIA. (UP TO 6' DEEP)	1.00	EA	$ 7,500.00	$ 7,500.00	0	$ -	1.00	$7,500.00		$7,500.00	100.0%	$ -
2800	MANHOLE DC-02 (DOGHOUSE), 4'-DIA. (UP TO 6' DEEP)	1.00	EA	$ 7,500.00	$ 7,500.00	0	$ -	1.00	$7,500.00		$7,500.00	100.0%	$ -
2900	MANHOLE EXTENSION, 4'-DIA.	130.00	VF	$ 167.00	$ 21,710.00	0	$ -	127.10	$21,225.70		$21,225.70	97.8%	$ 484.30
3000	MANHOLE DROP CONNECTION, TYPE A	1.00	EA	$ 3,550.00	$ 3,550.00	0	$ -	1.00	$3,550.00		$3,550.00	100.0%	$ -
3100	MANHOLE DROP CONNECTION, TYPE B	5.00	EA	$ 5,000.00	$ 25,000.00	0	$ -	5.00	$25,000.00		$25,000.00	100.0%	$ -
3200	MANHOLE BV-22, FOR TRANSITION	1.00	EA	$ 13,500.00	$ 13,500.00	0	$ -	1.00	$13,500.00		$13,500.00	100.0%	$ -
3300	MANHOLE CH-20, FOR TRANSITION	1.00	EA	$ 13,500.00	$ 13,500.00	0	$ -	1.00	$13,500.00		$13,500.00	100.0%	$ -
3400	SEWER MARKER	98.00	EA	$ 105.00	$ 10,290.00	0	$ -						$ 10,290.00
3500	CONNECTION TO EX. FACILITIES, AT MANHOLE 11V	1.00	LS	$ 7,500.00	$ 7,500.00	0	$ -	1.00	$7,500.00		$7,500.00	100.0%	$ -
3600	CONNECTION TO EX. FACILITIES, AT MANHOLE BV-03	1.00	LS	$ 7,500.00	$ 7,500.00	0	$ -	1.00	$7,500.00		$7,500.00	100.0%	$ -
3700	CONNECTION TO EX. FACILITIES, AT MANHOLE DC-02	1.00	LS	$ 7,500.00	$ 7,500.00	0	$ -	1.00	$7,500.00		$7,500.00	100.0%	$ -
3800	**PUMP STATION, WAR ADMIRAL**					0	$ -						$ -
3801	MOBILIZATION	1.00	LS	$ 21,700.00	$ 21,700.00	0	$ -	0.90	$19,530.00		$19,530.00	90.0%	$ 2,170.00
3802	EXCAVATION	1.00	LS	$ 120,000.00	$ 120,000.00	0	$ -	1.00	$120,000.00		$120,000.00	100.0%	$ -
3803	SET WET WELL	1.00	LS	$ 50,000.00	$ 50,000.00	0	$ -	1.00	$50,000.00		$50,000.00	100.0%	$ -
3804	VALVE VAULT	1.00	LS	$ 75,000.00	$ 75,000.00	0.25	$ 18,750.00	1.00	$75,000.00		$75,000.00	100.0%	$ -
3805	BACKFILL	1.00	LS	$ 25,000.00	$ 25,000.00	0	$ -	0.75	$18,750.00		$18,750.00	75.0%	$ 6,250.00
3806	WET WELL AND VALVE VAULT PIPING	1.00	LS	$ 66,000.00	$ 66,000.00	0	$ -			$2,120.40	$2,120.40	3.2%	$ 63,879.60
3807	AIR INJECTION VAULT & EQUIPMENT	1.00	LS	$ 54,675.00	$ 54,675.00	0	$ -	1.00	$54,675.00		$54,675.00	100.0%	$ -
3808	PUMPS	1.00	LS	$ 195,000.00	$ 195,000.00	0	$ -						$ 195,000.00
3809	CONTROLS	1.00	LS	$ 110,000.00	$ 110,000.00	0	$ -			$101,426.00	$101,426.00		$ 8,574.00
3810	FETTERVILLE BUILDING	1.00	LS	$ 53,100.00	$ 53,100.00	0.10	$ 5,120.00	1.00	$53,100.00		$53,100.00	100.0%	$ 0.00
3811	GENERATOR PAD	1.00	LS	$ 10,000.00	$ 10,000.00	1.00	$ 10,000.00	1.00	$10,000.00		$10,000.00	100.0%	$ -
3812	GENERATOR	1.00	LS	$ 67,500.00	$ 67,500.00		$ -			$67,500.00	$67,500.00		$ -
3813	ELECTRIC	1.00	LS	$ 167,500.00	$ 167,500.00	0	$ -			$8,172.13	$8,172.13	4.9%	$ 159,327.87
3814	START UP	1.00	LS	$ 20,000.00	$ 20,000.00	0	$ -						$ 20,000.00

© 2013 National Society of Professional Engineers for EJCDC. All rights reserved.

Progress Estimate - Unit Price Work

Contractor's Application

For (Contract):	Route 9 Sewer Project Ranson, WV	Application Number:	08
Application Period:	9/1/2020 to 9/30/2020	Application Date:	9/30/2020
Engineer's Project Number:	H-359787		

A					B	C		D		E	F		G
Bid Item Code	Description	Item Quantity	Units	Unit Price	Scheduled Value ($)	Work Completed: Quantity Installed this Period	Work Completed: Value of Work Installed This Period	Work Completed: Quantity Installed to Date	Work Completed: Value of Work Installed to Date	Materials PresentlyStored (not in C or D)	Total Completed and Stored to Date (D + E)	% (F / B)	Balance to Finish (B - F)
3815	PAVING	1.00	LS	$ 33,000.00	$ 33,000.00	0	$ -						$ 33,000.00
3816	RESTORATION	1.00	LS	$ 22,590.00	$ 22,590.00	0	$ -						$ 22,590.00
3817	FENCE	1.00	LS	$ 15,000.00	$ 15,000.00	0	$ -						$ 15,000.00
4000	RESTORATION, STATE (WVDOH) ROAD	290.00	SY	$ 76.00	$ 22,040.00	0	$ -	70.50	$5,358.00		$5,358.00	24.3%	$ 16,682.00
4100	RESTORATION, ASPHALT DRIVEWAY	320.00	SY	$ 62.00	$ 19,840.00	0	$ -	328.00	$20,336.00		$20,336.00	102.5%	$ (496.00)
4200	RESTORATION, ASPHALT BIKE PATH	140.00	SY	$ 315.00	$ 44,100.00	0	$ -	140.00	$44,100.00		$44,100.00	100.0%	$ -
4300	RESTORATION, GRAVEL ROAD OR DRIVE	2,170.00	SY	$ 15.00	$ 32,550.00	0	$ -	2170.00	$32,550.00		$32,550.00	100.0%	$ -
4400	RESTORATION, UNIMPROVED (GRASS) SURFACE	80,460.00	SY	$ 3.00	$ 241,380.00	0	$ -	74946.00	$224,838.00		$224,838.00	93.1%	$ 16,542.00
4500	CULVERT 12" TO 30", OPEN CUT	60.00	LF	$ 150.00	$ 9,000.00	0	$ -	60.00	$9,000.00		$9,000.00	100.0%	$ -
4600	ABANDONMENT OF WATER WELL	1.00	LS	$ 3,000.00	$ 3,000.00	0	$ -						$ 3,000.00
4700	EXCAVATION AND BACKFILLING BELOW SUBGRADE	500.00	CY	$ 45.00	$ 22,500.00	0	$ -						$ 22,500.00
4800	ALLOWANCE - SINKHOLE REPAIR, SOIL FOR CAP	25.00	CY	$ 30.00	$ 750.00	0	$ -						$ 750.00
4900	ALLOWANCE - SINKHOLE REPAIR, CLASS 10 AGGREGATE	25.00	CY	$ 50.00	$ 1,250.00	0	$ -						$ 1,250.00
5000	ALLOWANCE - SINKHOLE REPAIR, CLASS 1 AGGREGATE BAS	25.00	CY	$ 50.00	$ 1,250.00	0	$ -						$ 1,250.00
5100	ALLOWANCE - SINKHOLE REPAIR, SPECIAL ROCK FILL	25.00	CY	$ 50.00	$ 1,250.00	0	$ -						$ 1,250.00
5200	ALLOWANCE - SINKHOLE REPAIR, RIP-RAP	25.00	CY	$ 75.00	$ 1,875.00	0	$ -						$ 1,875.00
5300	ALLOWANCE - SINKHOLE REPAIR, IMPERVIOUS CORE	500.00	SF	$ 10.00	$ 5,000.00	0	$ -						$ 5,000.00
5400	**PUMP STATION, NORTHPORT**					0	$ -						$ -
5401	MOBILIZATION	1.00	LS	$ 20,022.00	$ 20,022.00	0	$ -	0.90	$18,019.80		$18,019.80	90.0%	$ 2,002.20
5402	EXCAVATION	1.00	LS	$ 100,000.00	$ 100,000.00	0	$ -	1.00	$100,000.00		$100,000.00	100.0%	$ -
5403	SET WET WELL	1.00	LS	$ 30,223.49	$ 30,223.49	0	$ -	1.00	$30,223.49		$30,223.49	100.0%	$ -
5404	VALVE VAULT	1.00	LS	$ 59,400.00	$ 59,400.00	0.25	$ 14,850.00	1.00	$59,400.00		$59,400.00	100.0%	$ -
5405	BACKFILL	1.00	LS	$ 50,000.00	$ 50,000.00	0	$ -	1.00	$50,000.00		$50,000.00	100.0%	$ -
5406	WET WELL AND VALVE VAULT PIPING	1.00	LS	$ 50,000.00	$ 50,000.00	0	$ -						$ 50,000.00
5407	PUMPS	1.00	LS	$ 100,000.00	$ 100,000.00	0	$ -	0.50	$50,430.00		$50,430.00	50.4%	$ 49,570.00
5408	CONTROLS	1.00	LS	$ 106,012.00	$ 106,012.00	0	$ -			$81,277.00	$81,277.00		$ 24,735.00
5409	FETTERVILLE	1.00	LS	$ 30,000.00	$ 30,000.00	0.20	$ 6,000.00	1.00	$30,000.00		$30,000.00	100.0%	$ -
5410	GENERATOR PAD	1.00	LS	$ 10,000.00	$ 10,000.00	1.00	$ 10,000.00	1.00	$10,000.00		$10,000.00	100.0%	$ -
5411	GENERATOR	1.00	LS	$ 47,039.00	$ 47,039.00	0	$ -			$39,350.00	$39,350.00		$ 7,689.00
5412	ELECTRIC	1.00	LS	$ 146,919.00	$ 146,919.00	0	$ -						$ 146,919.00
5413	ELECTRIC CONDUIT	1,335.00	LF	$ 41.00	$ 54,735.00	0	$ -	1335.00	$54,735.00		$54,735.00		$ -
5414	ELECTRIC VAULT	2.00	EA	$ 2,457.00	$ 4,914.00	0	$ -						$ 4,914.00
5415	START UP	1.00	LS	$ 4,950.00	$ 4,950.00	0	$ -						$ 4,950.00
5416	PAVING	1.00	LS	$ 16,822.00	$ 16,822.00	0	$ -						$ 16,822.00
5417	RESTORATION	1.00	LS	$ 54,970.00	$ 54,970.00	0	$ -						$ 54,970.00
5418	FENCE	1.00	LS	$ 16,400.00	$ 16,400.00	0	$ -						$ 16,400.00
CO 004	CHANGE ORDER 004 REMOVE B&O TAXES	1.00	LS	$ (75,000.00)	$ (75,000.00)	0	$ -						$ (75,000.00)
CO 005	CHANGE ORDER 005 OPEN CUT CASING	1.00	LS	$ (26,160.87)	$ (26,160.87)	0	$ -	1.00	($26,160.87)		($26,160.87)		$ -
CO 006	CHANGE ORDER 006	1.00	LS	$ 62,514.40	$ 62,514.40	1.00	$ 62,514.40	1.00	$62,514.40		$62,514.40		$ -
					$ 6,978,057.02		**$ 136,234.40**		**$ 5,737,917.52**	**$ 299,845.53**	**$ 6,037,763.05**		**$ 940,293.97**

© 2013 National Society of Professional Engineers for EJCDC. All rights reserved.

Stored Material Summary **Contractor's Application**

For (Contract):	Route 9 Sewer Project Ranson, WV	Application Number:	08
Application Period:	09/1/2020 to 9/30/2020		9/30/2020

A		B	C		D		E				F		G
					Stored Previously								
Bid Item No.	Supplier Invoice No.		Storage Location	Description of Materials or Equipment Stored	Date Placed into Storage (Month/Year)	Amount ($)	Amount Stored this Month ($)	Stored Units		Subtotal Amount Stored to Date (D + E)	Incorporated in Work	% Stored	Materials Remaining in Storage ($) (D + E - F)
100				**MOBILIZATION**						$ -			$ -
101				MOBILIZE EQUIPMENT						$ -			$ -
102				BLASTING STAKEOUT						$ -			$ -
103				CONSTRUCTION STAKEOUT						$ -			$ -
104				VIDEO DOCUMENTATION						$ -			$ -
105				SUBMITTALS						$ -			$ -
106				BONDS & INSURANCE						$ -			$ -
200				TRAFFIC CONTROL						$ -			$ -
300				EROSION AND SEDIMENT CONTROL									$ -
400				GRAVITY SEWER 6" & 8", OPEN CUT						$ -			$ -
500	3378054		on site	GRAVITY SEWER 10", OPEN CUT	3/2020	$16.00		1014.00	LF	$ 16.00	1025.00	-1%	$ -
600	3376257 3378050		on site	GRAVITY SEWER 12", OPEN CUT	3/2020	$181.00		3567.00	LF	$ 181.00	3588.00	-1%	$ -
700	3376255		on site	GRAVITY SEWER 15", OPEN CUT	3/2020	$21.00		3776.00	LF	$ 21.00	3776.00		$ -
800	3372577		on site	FORCE-MAIN (6"-4") OPEN CUT	3/2020	$24,089.00		4149.00	LF	$ 24,089.00	4122.00	1%	$ -
900				FORCE-MAIN (6"-4") IN EX. RT. 9 CASING						$ -	265.00		$ -
1000				FORCE-MAIN (6"-4") AIR VAULT & INTERNALS						$ -	8.00		$ -
1300	3375294 3375305 3375299 3373509 3373510		on site	FORCE-MAIN (8"-6"-8") OPEN CUT	3/2020	$105,363.00		11646.00	LF	$ 105,363.00	11675.00	0%	$ -
1400	3377020 3377031			FORCE-MAIN (8"-6"-8") AIR VAULT & INTERNALS	3/2020	$29.00		21.00	EA	$ 29.00	21.00		$ -
1700				FORCE-MAIN MISC. DIP FITTINGS, IF DIRECTED						$ -			$ -
1800				CONCRETE CLASS B, IF DIRECTED						$ -			$ -
1900				CASING 24" BORED, W/ 10" GRAVITY SEWER						$ -			$ -
2000				CASING 24" BORED, W/ 12" GRAVITY SEWER						$ -			$ -
2100				CASING 24" BORED, W/ 6"-4"-6" FORCE-MAINS						$ -			$ -
2200	LL223750 LL223616 13885501		on site	CASING 30" BORED, W/ 15" GRAVITY SEWER	3/2020	$21,237.82		162.00	LF	$ 21,237.82	166.00	-2%	$ -
2300	13885502		on site	CASING 36" BORED, W/ 8"-6"-8" FORCE-MAINS	3/2020	$20,250.00		141.00	LF	$ 20,250.00	205.00	-45%	$ -
2600				MANHOLE, 4'-DIA. (UP TO 6' DEEP)									$ -
2700				MANHOLE BV-03 (DOGHOUSE), 4'-DIA. (UP TO 6' DEEP)		$3.00							$ -
2800				MANHOLE DC-02 (DOGHOUSE), 4'-DIA. (UP TO 6' DEEP)									$ -
2900				MANHOLE EXTENSION, 4'-DIA.									$ -
3000				MANHOLE DROP CONNECTION, TYPE A									$ -
3100				MANHOLE DROP CONNECTION, TYPE B									$ -
3200				MANHOLE BV-22, FOR TRANSITION									$ -
3300				MANHOLE CH-20, FOR TRANSITION									$ -
3400				SEWER MARKER									$ -
3500				CONNECTION TO EX. FACILITIES, AT MANHOLE 11V									$ -
3600				CONNECTION TO EX. FACILITIES, AT MANHOLE BV-03									$ -
3700				CONNECTION TO EX. FACILITIES, AT MANHOLE DC-02									$ -
3800				**PUMP STATION, WAR ADMIRAL**									$ -
3801				MOBILIZATION									$ -

© 2013 National Society of Professional Engineers for EJCDC. All rights reserved.

Stored Material Summary **Contractor's Application**

For (Contract):	Route 9 Sewer Project Ranson, WV	Application Number:	08
Application Period:	09/1/2020 to 9/30/2020		9/30/2020

A		B	C		D		E				F		G
					Stored Previously								
Bid Item No.	Supplier Invoice No.		Storage Location	Description of Materials or Equipment Stored	Date Placed into Storage (Month/Year)	Amount ($)	Amount Stored this Month ($)	Stored Units		Subtotal Amount Stored to Date (D + E)	Incorporated in Work	% Stored	Materials Remaining in Storage ($) (D + E - F)
3802				EXCAVATION									$ -
3803				SET WET WELL									$ -
3804				VALVE VAULT									$ -
3805				BACKFILL									$ -
3806	111544		SES Shop	WET WELL AND VALVE VAULT PIPING	Sep-20		$ 2,120.40	1.00	LS	$ 2,120.40		100%	$ 2,120.40
3807				AIR INJECTION VAULT & EQUIPMENT									$ -
3808				PUMPS									
3809	200416-1 200416-3		on site	CONTROLS	Sep-20		$ 101,426.00	1.00	LS	$ 101,426.00		100%	$ 101,426.00
3810				FETTERVILLE BUILDING									
3811				GENERATOR PAD									
3812	S1-68114		SES Shop	GENERATOR	Sep-20		$ 67,500.00	1.00	LS	$ 67,500.00		100%	$ 67,500.00
3813	M761044		on site	ELECTRIC	Sep-20		$ 8,172.13	1.00	LS	$ 8,172.13		100%	$ 8,172.13
3814				START UP									
3815				PAVING									
3816				RESTORATION									
3817				FENCE									
4000				RESTORATION, STATE (WVDOH) ROAD									
4100				RESTORATION, ASPHALT DRIVEWAY		$70.50							
4200				RESTORATION, ASPHALT BIKE PATH		$258.00							
4300				RESTORATION, GRAVEL ROAD OR DRIVE									
4400				RESTORATION, UNIMPROVED (GRASS) SURFACE									
4500				CULVERT 12" TO 30", OPEN CUT		$5,014.00							
4600				ABANDONMENT OF WATER WELL									
4700				EXCAVATION AND BACKFILLING BELOW SUBGRADE									
4800				ALLOWANCE - SINKHOLE REPAIR, SOIL FOR CAP									
4900				ALLOWANCE - SINKHOLE REPAIR, CLASS 10 AGGREGATE									
5000				ALLOWANCE - SINKHOLE REPAIR, CLASS 1 AGGREGATE BAS									
5100				ALLOWANCE - SINKHOLE REPAIR, SPECIAL ROCK FILL									
5200				ALLOWANCE - SINKHOLE REPAIR, RIP-RAP									
5300				ALLOWANCE - SINKHOLE REPAIR, IMPERVIOUS CORE									
5400				**PUMP STATION, NORTHPORT**									
5401				MOBILIZATION									
5402				EXCAVATION		$0.65							
5403				SET WET WELL									
5404				VALVE VAULT									
5405				BACKFILL									
5406				WET WELL AND VALVE VAULT PIPING									
5407				PUMPS									
5408	200416-2		on site	CONTROLS	Sep-20		$ 81,277.00	1.00	LS	$ 81,277.00		100%	$ 81,277.00
5409				FETTERVILLE									
5410				GENERATOR PAD									
5411	S1-68068 S1-67061		SES Shop	GENERATOR	Sep-20		$ 39,350.00	1.00	LS	$ 39,350.00		100%	$ 39,350.00
5412				ELECTRIC									
5413				ELECTRIC CONDUIT									
5414				ELECTRIC VAULT									
5415				START UP									
5416				PAVING									

© 2013 National Society of Professional Engineers for EJCDC. All rights reserved.

Stored Material Summary **Contractor's Application**

For (Contract):	Route 9 Sewer Project Ranson, WV	Application Number:	08
Application Period:	09/1/2020 to 9/30/2020		9/30/2020

A		B	C		D		E			F			G
					Stored Previously								
Bid Item No.	Supplier Invoice No.		Storage Location	Description of Materials or Equipment Stored	Date Placed into Storage (Month/Year)	Amount ($)	Amount Stored this Month ($)	Stored Units		Subtotal Amount Stored to Date (D + E)	Incorporated in Work	% Stored	Materials Remaining in Storage ($) (D + E - F)
5417				RESTORATION									
5418				FENCE									
						$176,532.97	**$ 299,845.53**			**$ 471,032.35**			**$ 299,845.53**

© 2013 National Society of Professional Engineers for EJCDC. All rights reserved.

1600 West Carson St, Suite 1
Pittsburgh, PA 15219
Phone: (412) 497-2000

INVOICE

Charles Town Utility Board
661 South George St., Ste. 101
Charles Town, WV 25414
Attn: Kristen Stolipher

Date:	10/5/2020
Invoice No:	90758960
Period Ending:	9/25/2020
Currency:	US Dollar (USD)
Reference:	TASK ORDER 4
Terms of Payment:	Net 30 Days
Customer Number:	113985

re: H-359787 On-Call Engineering Services
Project Manager: Richard Travers

TO#4 Route 9 Sewer Project, Bid and Construction Services Progress Report – prepared PCO responses and Change Order #6 paperwork, reviewed and processed shop drawings (revised electrical panel layout, sewer marker decal, ventilation fan/damper, ARV ladders, and landscaping), coordinated on same with Snyder Environmental Services (SES), Specialized Engineering (SE) and CTUB, attended 9/2 and 9/16 progress meetings via conference call, coordinated with SE CM daily, reviewed and processed SES pay application with SE, SE performed daily coordination with SES on progress, liaison activities between SES and CTUB, and performed inspection activities including stabilization activities along the pipeline.

Employee	HOURS	RATE	AMOUNT
Severn, Guy	8.00	$ 234.00	$ 1,872.00
Travers, Richard	24.00	$ 215.00	$ 5,160.00
Keel, Andrew	0.50	$ 120.00	$ 60.00
Zhao, Yi	2.00	$ 215.00	$ 430.00
Yearley, Scott	12.00	$ 120.00	$ 1,440.00
Total Labor			**$ 8,962.00**

Vendor	INVOICE #	AMOUNT
Specialized Engineering	48556	$ 30,775.00
Total Expenses		**$ 30,775.00**

Administration	BASE	RATE	AMOUNT
Total Administration	$ 30,775.00	5%	**$ 1,538.75**

Task Order Budget	**$ 647,683.00**
Task Order Previously Billed	**$ 519,477.89**
Total Invoice	**$ 41,275.75**
Task Order Remaining	**$ 86,929.36**

SPECIALIZED ENGINEERING
Engineers • Geologists • Inspectors
Employee Owned, Client Driven
4845 International Blvd
Suite 104
Frederick, Maryland 21703

Invoice

DATE	INVOICE NO.
10/01/2020	48556

BILL TO
Luke Fischer Hatch 704 Quince Orchard Road Suite 310 Gaithersburg, MD 20878

TERMS	PROJECT	Client's Number
NET 30	197873 - Route 9 Sewer Infrastructure	Route 9 Sewer Infrastructure

DATE	QTY	DESCRIPTION	RATE	AMOUNT
		Management		
8/31/2020	5.00	Construction Manager	130.00	650.00
9/1/2020	5.00	Construction Manager	130.00	650.00
9/1/2020	1.00	PM - Site Visit	145.00	145.00
9/2/2020	5.00	Construction Manager	130.00	650.00
9/3/2020	5.00	Construction Manager	130.00	650.00
9/3/2020	1.00	PM - Site Visit	145.00	145.00
9/4/2020	5.00	Construction Manager	130.00	650.00
9/8/2020	5.00	Construction Manager	130.00	650.00
9/8/2020	1.00	PM - Site Visit	145.00	145.00
9/9/2020	5.00	Construction Manager	130.00	650.00
9/10/2020	5.00	Construction Manager	130.00	650.00
9/10/2020	1.00	PM - Site Visit	145.00	145.00
9/11/2020	4.00	Construction Manager	130.00	520.00
9/11/2020	1.00	PM - Site Visit	145.00	145.00
9/14/2020	5.00	Construction Manager	130.00	650.00
9/15/2020	5.00	Construction Manager	130.00	650.00
9/15/2020	1.00	PM - Site Visit	145.00	145.00
9/16/2020	5.00	Construction Manager	130.00	650.00
9/17/2020	5.00	Construction Manager	130.00	650.00
9/17/2020	1.00	PM - Site Visit	145.00	145.00
9/18/2020	5.00	Construction Manager	130.00	650.00
9/21/2020	5.00	Construction Manager	130.00	650.00
9/21/2020	1.00	PM - Site Visit	145.00	145.00
9/22/2020	5.00	Construction Manager	130.00	650.00
9/23/2020	5.00	Construction Manager	130.00	650.00
9/23/2020	1.00	PM - Site Visit	145.00	145.00
9/24/2020	5.00	Construction Manager	130.00	650.00
9/25/2020	5.00	Construction Manager	130.00	650.00
		Inspector I		
8/31/2020	8.00	Senior Inspector	115.00	920.00

Project	197873	Route 9 Sewer Infrastructure	Invoice	48556
9/1/2020	8.00	Senior Inspector	115.00	920.00
9/2/2020	8.00	Senior Inspector	115.00	920.00
9/3/2020	8.00	Senior Inspector	115.00	920.00
9/4/2020	8.00	Senior Inspector	115.00	920.00
9/8/2020	8.00	Senior Inspector	115.00	920.00
9/9/2020	8.00	Senior Inspector	115.00	920.00
9/10/2020	8.00	Senior Inspector	115.00	920.00
9/11/2020	8.00	Senior Inspector	115.00	920.00
9/14/2020	8.00	Senior Inspector	115.00	920.00
9/15/2020	8.00	Senior Inspector	115.00	920.00
9/16/2020	8.00	Senior Inspector	115.00	920.00
9/17/2020	8.00	Senior Inspector	115.00	920.00
9/18/2020	8.00	Senior Inspector	115.00	920.00
9/21/2020	8.00	Senior Inspector	115.00	920.00
9/22/2020	8.00	Senior Inspector	115.00	920.00
9/23/2020	8.00	Senior Inspector	115.00	920.00
9/24/2020	8.00	Senior Inspector	115.00	920.00
9/25/2020	6.00	Senior Inspector	115.00	690.00
		Total this Invoice	$30,775.00	
		Outstanding Invoices		
		Number Date		
		48403 8/31/2020	36,265.00	
		Total Due to Specialized Engineering	$67,040.00	

All Claims and discrepancies must be reported within 30 days of the date of the invoice

Total this Invoice $30,775.00

Charles Town Utility Board
Route 9 Sewer Infrastructure Project
Alternate Mainline Extension Agreement (AMEA) / Escrow Agreement

				Resolution No. C	Resolution No. 1	Resolution No. 2	Resolution No. 3	Resolution No. 4	Resolution No. 5	Resolution No. 6	Resolution No. 7	Resolution No. 8	ESCROW DEPOSIT FOR CONSTRUCTION
$10,500,000 Rockwool Escrow Agreement/(AMEA) Reimbursement Schedule B, October, 2019	REVISED BUDGET	Draw (a.) Ranson Reimbursement	Draw (b.) CTUB Reimbursement	Draw (c.) CTUB Reimbursement 10/1/19-present	Contractor's Application for Payment No. 001	Contractor's Application for Payment No. 002, Hatch Inv. 90736637, CTUB Reimbursement	Contractor's Application for Payment No. 003, Hatch Inv. No. 90739805 & 90742814, CTUB Reimbursement	Contractor's Application for Payment No. 04, Hatch Inv. No. 90746225	Contractor's Application for Payment No. 05, CTUB Reimbursement	Contractor's Application for Payment No. 06, Hatch Inv. 90752351, CTUB Reimbursement	Contractor's Application for Payment No. 07, Hatch Inv. 90755283, CTUB Reimbursement	Contractor's Application for Payment No. 08, Hatch Inv. 90758960, CTUB Reimbursement	BALANCE REMAINING
1 **CONSTRUCTION**													
a. Contract 1	6,978,057.02	0.00	0.00	0.00	90,000.00	1,236,605.34	1,894,374.89	1,114,717.05	480,775.05	180,516.31	258,917.35	402,969.65	1,319,181.38
b. Construction 5.26%	603,350.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72,008.45	42,992.55	62,919.75	58,685.95	366,744.28
c. CSX Fees	15,300.00	0.00	16,050.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		-5,750.00
d. N-S Fees	41,600.00	0.00	21,300.00	0.00	0.00	0.00	0.00	0.00	9,789.21	1,640.50	2,957.50	2,769.75	3,143.04
e. DOH Bond and Inspection Fees	119,937.00	0.00	19,550.00	0.00	0.00	84,973.05	1,288.27	0.00	0.00	0.00	0.00	0.00	14,125.68
2 **ENGINEERING SERVICES**													
Task Orders 1 - 8	1,851,567.87	1,084,987.66	102,994.82	10,289.25	0.00	38,068.37	210,109.15	93,693.87	61,197.50	42,247.25	56,752.25	41,275.75	109,952.00
Task Orders Charles Town	56,820.00	0.00	56,820.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 **LEGAL SERVICES**													
a Local Project Attorney (PSC)	100,000.00	0.00	65,836.78	25,573.71	0.00	0.00	2,730.00	0.00	260.00	0.00	0.00	0.00	5,599.51
b Permitting / Ord Attorney	215,000.00	0.00	199,514.04	0.00	0.00	0.00	15,485.96	0.00	0.00	0.00	0.00	0.00	0.00
c RA Attorney Stranko / Luttrell	12,959.40	12,959.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4 **ADMINISTRATIVE SERVICES**													
b Project Accountant	16,723.00	0.00	16,723.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c Other Administrative Costs	2,750.00	0.00	2,750.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5 **LAND COSTS**													
b Easements	324,611.85	0.00	324,611.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SOFT COST CONTINGENCY	74,667.36	0.00	0.00	0.00	0.00	0.00	74,667.36	0.00	0.00	0.00	0.00	0.00	0.00
Interest on Line of Credit	59,887.52	59,887.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amount Owed Line of Credi		1,157,834.58											
Charles Town's Cost Incurred			826,150.49										
9 Sub Total Lines 1-8	**10,473,232.00**	**1,157,834.58**	**826,150.49**	**40,862.96**	**90,000.00**	**1,359,646.76**	**2,198,655.63**	**1,208,410.92**	**624,030.21**	**267,396.61**	**381,546.85**	**505,701.10**	**1,812,995.89**
ESCROW DEPOSIT UPON AMLEA SUBMITTAL TO WV PSC (Ranson and Charles Town Costs Incurred													
ESCROW DEPOSIT FOR CONSTRUCTION													**1,812,995.89**

*The construction contingency line item has been reduced by $26,768 to reflect the installation of 120 linear feet of 16" steel casing for a sanitary sewer crossing that was funded by Rockwool during the water line project.

FIRST AMENDMENT TO LICENSE AGREEMENT

Site Name/Location: **The City of Charles Town – WV-001 Keyes Ferry Road**
Keyes Ferry Road, Jefferson County, West Virginia

This First Amendment to License Agreement (the "**First Amendment**"), dated as of _____, 2020, is made and entered into by and between TELEGIA COMMUNICATIONS INC., ("**LICENSEE**") a Delaware Corporation, with its principal offices at 5310 Spectrum Drive, Suite C, Frederick, Maryland 21703; and the CITY OF CHARLES TOWN, WEST VIRGINA ("**LICENSOR**"), a Municipal Corporation, with an address at 101 East Washington Street, Charles Town, West Virginia 25414. Licensee and Licensor are at times collectively referred to herein as the "**Parties**" and individually as a "**Party**".

RECITALS

WHEREAS Licensee and Licensor are parties to that License Agreement dated as of September 12, 2018 (the "Agreement") pursuant to which Licensee is leasing from Licensor space on Licensor's water tank (the "**Site**") and within Licensor's Property located at 475 Keyes Ferry Road, Charles Town, West Virginia for the purposes of operating certain communications antennas and related equipment thereat (collectively the "**Property**"); and

WHEREAS, Licensee desires to change the configuration of its antennas and related equipment at the Site and within the Property in accordance with the terms hereof; and

NOW, THEREFORE, in consideration of the foregoing recitals and the agreements and covenants set forth herein, and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Parties hereto agree as follows:

1. In consideration of Licensor's consent to the equipment modifications referenced in Exhibit 2 of this First Amendment, the monthly rent increased effective April 16, 2020 by Thirty Five Dollars and No Cents ($35.00) per month and is hereby affirmed for a total of Six Hundred Thirty-Five Dollars and No Cents ($635.00) per month. On September 27, 2021, or any other extension terms exercised by Lessee, the monthly rent shall be increased subject to the Extension Term monthly rental increase set forth in Section 2(a) of the Agreement.

2. **Exhibit 2** to the Agreement is hereby deleted in its entirety, and the new **Exhibit 2** to the Agreement, the Colocation Application of Tenant, is hereby incorporated into the Agreement in lieu thereof.

3. **Exhibit 3** to the Agreement is hereby deleted in its entirety, and the new **Exhibit 3** to the Agreement, the Tenant As-Built Construction Drawings, is hereby incorporated into the Agreement in lieu thereof.

4. Except as expressly amended herein, the Agreement terms and provisions thereof shall remain in full force and effect. Capitalized terms not otherwise defined herein shall have the meanings ascribed to such terms in the Agreement.

5. This Amendment may be executed in multiple counterparts, each of which, when executed, shall be deemed an original instrument, but all of which taken together shall constitute one and the same agreement.

SIGNATURES APPEAR ON THE NEXT PAGE

IN WITNESS WHEREOF, the parties have executed this Amendment as of the day and year first above written.

Witness

Pamela K. Mitchell

Print Name: Pamela K. Mitchell

LICENSOR:

TELEGIA COMMUNICATIONS INC.
a Delaware Corporation

By: _____

Name: Roan Sanders

Title: CEO

Witness

_____

Print Name: _____

LICENSEE:

CITY OF CHARLES TOWN
a Municipal Corporation

By: _____

Name: _____

Title: _____

EXHIBIT 2

CO-LOCATION APPLICATION OF TENANT

[See Attached Co-location Application of Tenant]

☐ NEW LEASE ☑ AMENDMENT TO EXISTING LEASE ☐ ANCHOR TENANT ☐ RECONTRACT

INTERNAL USE ONLY	
APP VERSION #	Initial
LEASE #	18
AMENDMENT #	1

PLEASE RETURN THIS APPLICATION VIA EMAIL TO:

Wireless Networks Group, Inc.
2926 Rohrersville Road
Rohrersville, Maryland 21779-1214
Attn: Michael Hofe
E-Mail: mhofe@wirelessnetworksgroup.com
Phone: 301-667-0001

Charles Town Site Number:	**WV-001**
Charles Town Site Name:	**Keyes Ferry Road**
Application Date:	07-26-2018
Revision Dates:	
OPS Approval:	9/29/2020

APPLICANT / CARRIER INFORMATION

Carrier Name:	**Telegia Communications Inc.**	**Contact Name:**	**Roan Saunders**
Carrier Site Number:		**Contact Number:**	**240.529.2000 x501**
Carrier Site Name:	**KFT**	**Contact Fax:**	**240.436.6229**
Carrier Legal Entity Name:	Telegia Communications Inc.	**Contact Address:**	5310 Spectrum Drive, Suite C Frederick MD 21703
State of registration:	Maryland		
Type of entity (LP, LLC, Corp) d/b/a (If applicable)	Corporation		
Notice Address for Lease:	5310 Spectrum Drive, Suite C Frederick MD 21703	**Contact E-mail:**	rsaunders@telegia.com
With copies to:		**Additional E-mail:**	
Carrier Invoice Address:	5310 Spectrum Drive, Suite C Frederick MD 21703	**Desired Install Date:**	09-26-2018
Carrier Invoice Contact - Name, Title, Phone No.	Roan Saunders CFO 240.529.2000 x501	**Carrier NOC#**	240-529-2000 - Ext #2

ADDITIONAL CONTACT INFORMATION

Leasing Contact Name/Number:	Roan Saunders 240.529.2000 x501
RF Contact Name/Number:	Scott Stambaugh 240.529.2000 x115
Construction Contact Name/Number:	Scott Stambaugh 240.529.2000 x115
Emergency Contact Name/Number:	Roan Saunders 240.529.2000 x501

SITE INFORMATION

Latitude:	**39.292967**	**N**	**Existing Structure Type:**	**Water Tank**
Longitude:	**-77.832567**	**W**	**Existing Structure Height:**	**160'**
Site Address:	**475 Keyes Ferry Road, Charles Town, WV 25414**			

FREQUENCY/TECHNOLOGY INFORMATION

Type of Technology for all equipment (i.e., 3G, LTE, CMDA, MW, WiFi, TV, etc.)		WiFi, MW
TX Frequency (MHz)	Unlicensed	5735, 5755, 5775, 5795, 5815, 5835
RX Frequency (MHz)	Unlicensed	5735, 5755, 5775, 5795, 5815, 5835
Tenants using an unlicensed band must provide exact Frequency Channels and Call Sign(s) to be utilized. (Providing the band range only will not be accepted.)		MW Licensed 11GHz

PLEASE PROVIDE A BRIEF DESCRIPTION OF GENERAL SCOPE OF WORK

Install (7) panel antennas and (1) MW dish to cat walk hand rail and run (7) Cat5 cables and (1) Coax to pole mounted cabinet at base of tank. Trench and install conduit to meter bank and BH fiber provider.

EXISTING EQUIPMENT Applicant's Existing Equipment Configuration and Specifications										
Equipment Type (ex: panel, TMA, RRU)	**RAD (feet)**	**Mount Height (feet)**	**Mount Type**	**Equip Qty**	**Equipment Manufacturer**	**Equipment Model #**	**Equip Dim (HxWxD) (ft or in)**	**Equip Weight (lbs)**	**Az**	**Remain**
Panel	137'	137'	Pipe Mount	3	Ubiquiti	AM-5AC21-60	29.53 x 6.81 x 3.07"	10.58 lbs	220-270 -330	Yes
Panel	137'	137'	Pipe Mount	3	Ubiquiti	AM-5AC21-60	29.53 x 6.81 x 3.07"	10.58 lbs	30 - 70 - 150	No
										Yes
RRU	137'	137'	Pipe Mount	6	Ubiquiti	RP-5AC-Gen2	3.47 x 1.58 x 9.06"	14.11 oz		Yes
MW Dish	120'	120'	Pipe Mount	1	Dragonwave	HP3-11	36"x36"x20"	49.6 Lbs	138.5	Yes
ODU	120'	120'	Pipe Mount	1	Dragonwave	Horizon Duo	7.8 in x 7.8 in x 3.6 in	7 Lbs		Yes

EXISTING LINES Applicant's Existing Lines and Specifications					
Line Type	**Line Size (Inches)**	**Total # of Lines**	**Coax interior or exterior (for monopoles)**	**Remain**	**Comments:**
Coax	1/2"	1			LDF4-50A to feed Dragonwave dish
Fiber	3/8"	7			Cat6 to feed Panel Antennas

PROPOSED EQUIPMENT Applicant's Proposed Equipment Configuration and Specifications									
Equipment Type (ex: panel, TMA, RRU, ice shields)	**RAD (feet)**	**Mount Height (feet)**	**Mount Type**	**Equip Qty**	**Equipment Manufacturer**	**Equipment Model #**	**Equip Dim (HxWxD) (ft or in)**	**Equip Weight (lbs)**	**Azimuth**
Panel	137'	137'	Pipe Mount	4	Ubiquiti	AM-5AC21-60	29.53 x 6.81 x 3.07"	10.58 lbs	165,220,270, 330
Panel	137'	137'	Pipe Mount	2	Ubiquiti	RD-5G30	25.6" Dia. x 11.97"	21.61 lbs	10, 150
Panel	137'	137'	Pipe Mount	1	Ubiquiti	airFIBER AF-24HD	30.24" x 23.35" x 14.57"	38.14 lbs	30
RRU	137'	137'	Pipe Mount	7	Ubiquiti	RP-5AC-Gen2	3.47 x 1.58 x 9.06"	14.11 oz	10-30-150-16 5-220-270-33
MW Dish	120'	120'	Pipe Mount	1	Dragonwave	HP3-11	36"x36"x20"	49.6 lbs	138.5
ODU	120'	120'	Pipe Mount	1	Dragonwave	Horizon Duo	7.8 in x 7.8 in x 3.6 in	7 lbs	138.5

PROPOSED LINES Applicant's Proposed Lines and Specifications				
Line Type	**Line Size (Inches)**	**Total # of Lines**	**Coax interior or exterior (for monopoles)**	**Comments:**
Coax	5/8"	1		LDF4-50A
RET Home Run Cable				
Fiber	3/8"	7		Cat6
DC Power				

PROPOSED FINAL CONFIGURATION TOTALS	
EQUIPMENT TYPE	TOTAL
Panel Antennas	7
Omni/Whip Antennas	
RRU	7
TMA	
Diplexer / Triplexer	
Bias T	
Surge Suppressor	
MW Dish	1
Ice Shield	
ODU	1
Filter	
Combiner	
Junction Box	
RET	
Equipment Cabinets	1
Other (Please specify)	
Other (Please specify)	
Other (Please specify)	
Other (Please specify)	
Other (Please specify)	

PROPOSED FINAL CONFIGURATION TOTALS	
LINE TYPE	TOTAL
Coax	1
Hybrid	
CAT5	7
DC/Power	
RET	
Fiber	

ADDITIONAL EQUIPMENT INFORMATION

- RRUs, TMAs and ODUs are required to be installed directly behind the antennas / MW dish. Otherwise there will be an additional charge.
- All equipment lines are required to be installed inside the tower when space is available. Carriers will be charged an additional $25.00 per line per month if equipment lines are installed on the outside of the tower even though there is available space inside the tower. Vertical Bridge must approve any installation of lines on the outside of the tower.
- All tenant equipment must be installed within one continuous 10 ft vertical envelope. Exceeding this vertical space will be subject to additional rent.

GROUND / INTERIOR SPACE REQUIREMENTS							
Total Ground / Interior Area Dimensions: **L' x W' = Total Square Feet Required**	3	X	3	(Including all Equipment (i.e., Shelter, Equipment Platform or Pad, Generator Pad, Generator Fuel Tank Pad, Antenna Sleds, etc. – provide details below)			
Cabinet Area Dimensions (Pad/Platform)	3	X	3	Cabinet Installation Type	Ground Platform		
Shelter Pad Dimensions		X		Shelter Manufacturer			
Rooftop Antenna Total Area Required		X		Antenna Sled Dimensions (per sector)	X	Antenna Wall Mount Dimensions (per sector)	X

EQUIPMENT CABINET REQUIREMENTS (Required for rooftops or Vertical Bridge interior space)					
Number of Cabinets Required	1	Cabinet Dimensions (L' x W' x H')	25"x34"x50"	Manufacturer:	DDB
Number of Cabinets Required		Cabinet Dimensions (L' x W' x H')		Manufacturer:	
Number of Cabinets Required		Cabinet Dimensions (L' x W' x H')		Manufacturer:	
Equipment Cabinet Comments					

GENERATOR REQUIREMENTS					
Generator Required?:		Generator Fuel Type		Generator Size	
Generator Pad Dimensions			Generator Manufacturer		
Generator Fuel Tank Pad Dimensions			Fuel Tank Manufacturer		

AC POWER REQUIREMENTS			
Meter Type	New Tenant Meter	Estimated Monthly Utility Usage Amount	5000kwh
Voltage	110	Total Amperage	20amp

FIBER / BACKHAUL					
Fiber Installation Status	Existing (No Change)	Fiber Provider	Shentel		
Cable Type	Fiber	Number of Points of Entry		Conduit/Riser Size (in inches)	2"

STRUCTURAL ANALYSIS DETAILS			
Structural Hardcopies Required?	No	If wet seals required, please provide address:	

ADDITIONAL COMMENTS

HATCH

704 Quince Orchard Road, Suite 310
Gaithersburg, MD 20878

P: 301-840-1030
F: 412-809-6611

October 7, 2020

Ms. Kristen M. Stolipher, Utility Manager
Charles Town Utility Board
661 South George Street, Suite 101
Charles Town, WV 25414

Re: Task Order #11 – Magnolia Springs Sanitary Sewer Tie-In Design
Engineering Services for Water/Wastewater Systems Upgrades Projects

Dear Kristen,

We are pleased to submit our proposal for Task Order #11 to perform the sewer design of the tie-in connection between existing PS 4-7 and the proposed Magnolia Springs manhole A82. Currently, the sewer system of Magnolia Springs is under construction and in the near future that subdivision's pump station will be operational. The sooner the older pump stations Hale Road (PS 4-4) and County Green (PS 4-7) are decommissioned, the better for CTUB.

Scope of Services

This proposal will provide the design of gravity sewer from the County Green PS to connect to new manhole A82, approximately 350-400' in length. Hatch will review the alignment alternatives and discuss the options with CTUB before moving forward with further design.

Similarly, Hatch will develop the three options outlined in the Belvedere Heights (wrong name, should have been Hale Road) Pump Station (PS 4-4) Connection memo, dated September 1, 2020, including conceptual opinions of construction cost and discuss these with CTUB before further design.

After the discussions identifying the preferred gravity sewer connections, the field survey will be performed. CTUB will mark the location of the existing force main between the Hale Road and County Green pump stations and in the vicinity of the Hale Road pump station as these need to remain in service during construction of the new gravity sewers. Hatch will gather existing pump station plans from CTUB and visit these sites to verify existing conditions and review surrounding conditions and restrictions to the construction. Hatch will also receive the easement documents (Homeowners Association of County Green, Inc. and MVB Bank for Hale Road PS) from CTUB to verify if there is sufficient room within the existing easements to construct the new gravity sewers. Preparing new easement documents, if deemed necessary, will be an extra service.

Once the survey is received, the gravity sewer plans and profiles (1" = 20' H, 1" = 5' V) of the sewers will be prepared. Schematics of each pump station will be shown with a sequence of construction outlined for the new gravity sewer installation and the decommissioning of the pump stations. A detail sheet with applicable CTUB gravity sewer details and appropriate erosion and sediment control details will be prepared. A sediment control construction sequence will indicate daily stabilization of the gravity sewer installation.

Hatch will submit the preliminary plans to CTUB for their review and comments. After their review is complete, meet with their representative(s) to review the comments and discuss the direction needed to address each comment. After the meeting, the plan set will be modified for final submission to meet the needs for the CTUB staff to construct the gravity sewer extensions and decommission the pump stations.

Schedule

The proposed schedule of tasks is anticipated as:

- Develop Options for Gravity Sewer Tie-Ins 1 week
- Present options/recommendation to CTUB 1 week
- Perform Field Survey 2 weeks
- Draft Plans & Profiles, Decommissioning Plan 3 weeks
- CTUB Review and Comment Review Meeting 2 weeks
- Final Plan Set 2 weeks

Proposed Fee

The estimated fee for Task Order #11 as outlined above is $22,800 with the effort invoiced in accordance with the attached breakdown. This includes a $5,000 survey consultant fee for full survey to cover all currently envisioned tie-in connection scenarios. This survey consultant fee will be revisited after the meeting with CTUB which will narrow the survey scope and reduce that cost. That cost reduction will be identified when commencing the survey, and passed on to CTUB through a reduction of the total fee for this task order.

Terms and Conditions

The Terms and Conditions shall be in accordance with the base contract entitled Agreement between Charles Town Utility Board and Engineer for Engineering Services for Water/Wastewater Systems Upgrades Projects, dated February 21, 2019.

Should you have any questions or require any additional information, please do not hesitate to contact me at 240.751.7002 or by email at richard.travers@hatch.com.

Very truly yours,

HATCH
Rick Travers, P.E.
Sr. Project Manager

TO#11 Fee Estimate Breakdown
Survey Limits

TO#11 Accepted – Charles Town Utility Board

Approved By: _____ Date: _____

Printed Name: _____ Title: _____

HATCH

Date: 10/7/2020

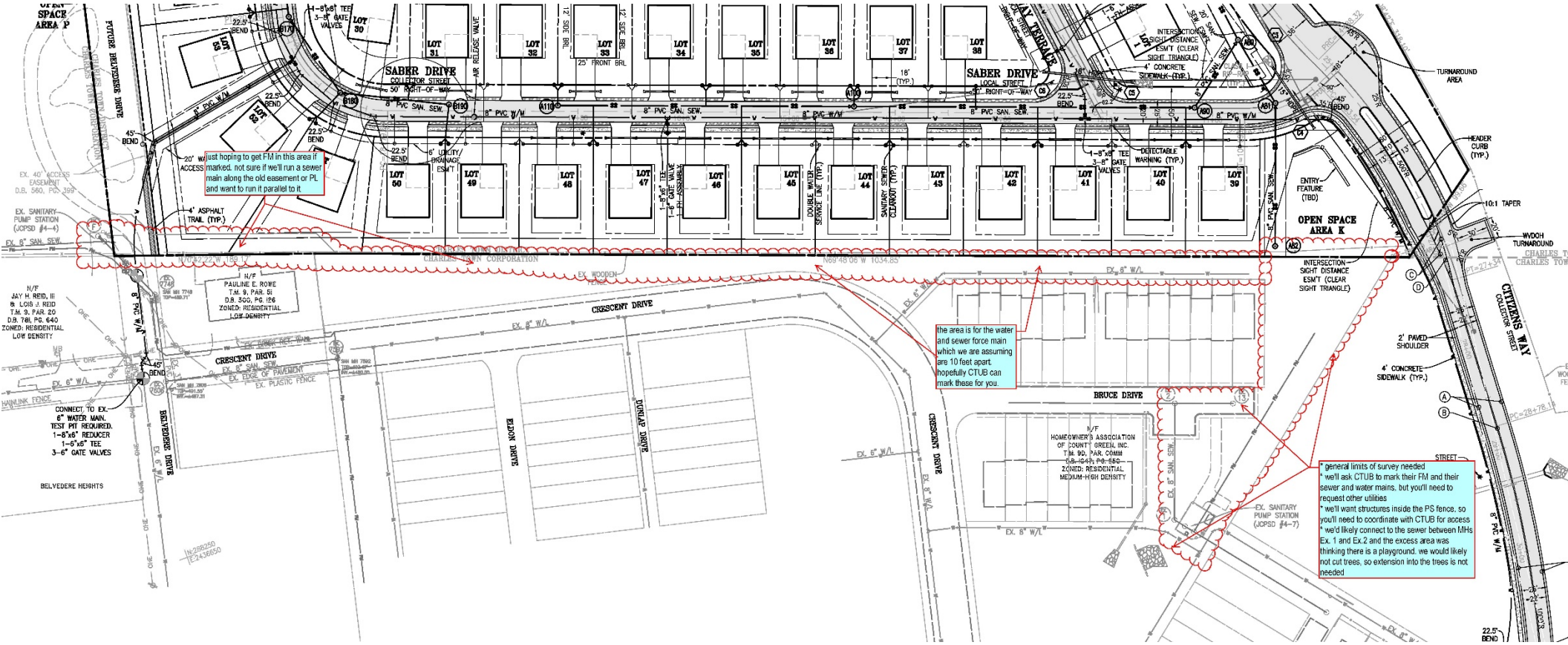
By: Travers

Project: TO#11 Hale Road and County Green Pump Station Gravity Tie-Ins

Client: Charles Town Utility Board

Task No.	Task	Principal	Sr.Project/ Technical Manager	Project/ Technical Manager	Sr. Engineer	Sr. Technician/ Designer	Total Labor	Subs	Reimb. Allowance	Total Direct	Total
		$342.00	$260.00	$221.00	$156.00	$138.00					
1	Coordination w-Surveyor, Survey Performed, QC Survey			1		2	$497	$5,000	$250	$5,250	$5,747
2	Site Visit				4		$624		$60	$60	$684
3	Options Developed w-OPCC			1	8		$1,469		$0	$0	$1,469
4	Reviewed w-CTUB				2		$312		$0	$0	$312
5	Plans & Profiles Developed			1	8	32	$5,885		$0	$0	$5,885
6	Detail Sheet				6	4	$1,488		$0	$0	$1,488
7	Pump Station Decommissioning			1	12		$2,093		$0	$0	$2,093
8	Address CTUB Comments			1	4	8	$1,949		$0	$0	$1,949
							$0		$0	$0	$0
							$0		$0	$0	$0
							$0		$0	$0	$0
							$0		$0	$0	$0
	Contingency (10% Extra Hours)	0	0	1	4	5	$1,535		$0	$0	$1,535
	Project Management	0	0	3	2	--	$975		$687	$687	$1,662
	Total Hours	0	0	9	50	51	110				
	Total Cost	$0	$0	$1,989	$7,800	$7,038	$16,827	$5,000	$997	$5,997	$22,824

SAY	**$22,800**


just hoping to get FM in this area if marked. not sure if we'll run a sewer main along the old easement or PL and want to run it parallel to it
the area is for the water and sewer force main which we are assuming are 10 feet apart. hopefully CTUB can mark these for you.
* general limits of survey needed
* we'll ask CTUB to mark their FM and their sewer and water mains, but you'll need to request other utilities
* we'll want structures inside the PS fence, so you'll need to coordinate with CTUB for access
* we'd likely connect to the sewer between MHs Ex. 1 and Ex.2 and the excess area was thinking there is a playground. we would likely not cut trees, so extension into the trees is not needed
SABER DRIVE
COLLECTOR STREET
SABER DRIVE
LOCAL STREET
CRESCENT DRIVE
BRUCE DRIVE
CITIZENS WAY
COLLECTOR STREET
OPEN SPACE AREA K
OPEN SPACE AREA P
BELVEDERE DRIVE
EATON DRIVE
DUNLAY DRIVE
TURNAROUND AREA
ENTRY FEATURE (TBD)
HEADER CURB (TYP.)
10:1 TAPER
WYDOH TURNAROUND
2' PAVED SHOULDER
4' CONCRETE SIDEWALK (TYP.)
4' ASPHALT TRAIL (TYP.)
DETECTABLE WARNING (TYP.)
INTERSECTION SIGHT DISTANCE ESM'T (CLEAR SIGHT TRIANGLE)
EX. SANITARY PUMP STATION (JCPSD #4-7)
EX. SANITARY PUMP STATION (JCPSD #4-4)
CONNECT TO EX. 6" WATER MAIN. TEST PIT REQUIRED. 1-8"x6" REDUCER 1-6"x6" TEE 3-6" GATE VALVES
N/F PAULINE E. ROWE T.M. 9, PAR. 51 D.B. 300, PG. 126 ZONED: RESIDENTIAL LOW DENSITY
N/F JAY H. REID, III & LOIS J. REID T.M. 9, PAR. 20 D.B. 781, PG. 640 ZONED: RESIDENTIAL LOW DENSITY
N/F HOMEOWNER'S ASSOCIATION OF COUNTY GREEN, INC. T.M. 9D, PAR. COMM D.B. 541, PG. 152 ZONED: RESIDENTIAL MEDIUM-HIGH DENSITY
BELVEDERE HEIGHTS
CHARLES TOWN CORPORATION
EX. 6" W/L
EX. 8" W/L
8" PVC W/M
8" PVC SAN. SEW.
EX. 8" SAN. SEW.
EX. EDGE OF PAVEMENT
EX. PLASTIC FENCE
EX. WOODEN FENCE
CHAINLINK FENCE
EX. 40' ACCESS EASEMENT D.B. 560, PG. 399
6" UTILITY/DRAINAGE ESM'T
DOUBLE WATER SERVICE LINE (TYP.)
SANITARY SEWER MANHOLE (TYP.)
AIR RELEASE VALVE
1-8"x6" TEE 3-8" GATE VALVES
1-8"x6" TEE 1-8" GATE VALVE (BY ASSEMBLY)
LOT 30
LOT 31
LOT 32
LOT 33
LOT 34
LOT 35
LOT 36
LOT 37
LOT 38
LOT 39
LOT 40
LOT 41
LOT 42
LOT 43
LOT 44
LOT 45
LOT 46
LOT 47
LOT 48
LOT 49
LOT 50
LOT 51
LOT 52
LOT 53
45° BEND
22.5° BEND
35° BEND
90° BEND
20' WIDE ACCESS
25' FRONT BRL
12' SIDE BRL
16' (TYP.)
N69°48'06"W 1034.85'
N:268250
E:2436650

Charles Town
Utility Board
661 S. George Street, Suite 101 Charles Town, WV 25414
Phone: (304) 725-2316 ♦ Fax: (304) 725-7150 ♦ Web: www.ctubwv.com

MEMORANDUM TO THE BOARD OF DIRECTORS

FROM: Kristen Stolipher, Utility General Manager
SUBJECT: Utility General Manager's Report
DATE: October 14, 2020

ADMINISTRATIVE

- PSC Report submitted September 30, 2020. Final report anticipated in November/December timeframe.
- Notice of approved audit contract received 9-19-2020 from the State Auditor's office.
- Property transfer/auction.

WATER

- 2020-2021 Local Source Water Protection Grant submitted October 1, 2020.

SEWER

- **Route 9 Sewer Project:**
  - 89% complete with remaining work at War Admiral Pump Station and Northport Pump Station.
- **Smoke Testing Efforts: See attached.**
- **Tuscawilla MBR #3 Replacement:**
  - Contractor onsite 10/14/2020.
- **NPDES Permit Renewal**
  - Final round of testing to be complete in October. Permit application renewal underway. Submission in December 2020.
- **Renewal and Replacement Project:**
  - Survey complete. Design underway.

INFORMATION

- **Capacity Improvement Fee collection: See attached.**
- **Water and Sewer Treatment Plant Flows: See attached.**

CITY OF CHARLES TOWN

CERTIFICATE OF ENGINEER FOR SALE OF REAL PROPERTY

On this 6th day of October 2020, I, John W. Cole, Registered Professional Engineer, West Virginia License No. 17949, of Rummel, Klepper & Kahl, LLP hereby certify as follows:

1. My firm is Consulting Engineer for the City of Charles Town and the Charles Town Utility Board (collectively, the "City") with respect to the City's potable water treatment, storage and distribution system (the "Water System") and sanitary sewerage collection and treatment system (the "Sewer System" and, collectively with the Water System, the "System").

2. We have been advised that the City desires to sell or transfer five pieces of real property, as described on EXHIBIT A – REAL PROPERTY, attached hereto and incorporated herein by reference (collectively, the "Real Property").

3. To the best of our knowledge, information and belief, the Real Property is not useful, necessary, usable or profitable for the operation of the System

WITNESS my signature and seal as of the date first written above.

[SEAL]



Rummel, Klepper & Khal, LLP

John W. Cole, P.E.
West Virginia License No. 17949

11781363

EXHIBIT A – REAL PROPERTY

West Ridge Hills Subdivision

A parcel of real estate situated in Harpers Ferry District, Jefferson County, West Virginia, more particularly described as follows: Lot Number 38. Section G, Westridge Hills, as referenced on a plat of Section G of Westridge Hills recorded in the aforesaid County Clerk's Office in Plat Book 1, Page 211, together with a right-of-way in common with others for all usual purposes over all lands, roads, drives and recreation areas shown on the plat.

AND BEING that same parcel of real estate conveyed to the Grantor by Westridge Hill Owners Association, Inc. dated July 2, 2012, of record in the aforesaid County Clerk's Office in Deed Book 1111, Page 664.

Patrick Henry Estates

All that certain parcel of real estate and the appurtenances thereunto belonging, situate about two (2) miles northeast of Charles Town, in the Charles Town District of Jefferson County, West Virginia, and located on the north side of the public road leading from Charles Town to Harpers Ferry known as U.S. Route 340, containing approximately three (3) acres, and being more particularly designated and described in accordance with a survey and plat thereof made by Oliver Cump & Associates, Inc. dated February 23, 1976, entitled "Outsale Lot for Shendo Limited Partnership" and recorded in the Office of the Clerk of the County Commission of Jefferson County, West Virginia, in Deed Book 403 at Page 328. TOGETHER WITH a nonexclusive easement over all of the streets and roads of Patrick Henry Subdivision as well as the existing un-platted right of way for access to and from this parcel.

Tuscawilla Hills Subdivision

Parcel 1 as the same is more particularly designated and described on a plate dated November 15, 1978, made by A. G. Hooper, Jr. entitled "Parcel 1 Shenandoah Development Corporation to Albert G. and Barbara H. Hooper, Jr.", the plat being attached to a deed from Shenandoah Development Corporation to A. G. Hooper, Jr. and Barbara H. Hooper, dated November 21, 1978, and recorded in the Office of the Clerk of the County Commission of Jefferson County, West Virginia in Deed Book 450, at Page 141.

Parcel 2 as the same is more particularly designated and described on a plat dated November 15, 1978, made by A. G. Hooper, Jr. entitled "Parcels 1 and 2 Shenandoah Development Corporation to Albert G. and Barbara Hooper, Jr.", that plat being attached to a deed from Shenandoah Development Corporation to A. G. Hooper, Jr. and Barbara H. Hooper, dated November 21, 1978 and recorded in the Office of the Clerk of the County Commission of Jefferson County, West Virginia in Deed Book 450, at Page 141.

[REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

Orchard Hills Subdivision

All that certain lot or parcel of land located in the Charles Town Magisterial District of Jefferson County, West Virginia, just north of the Town of Ranson, and being all of Lot B-16 in the Orchard Hills Subdivision, as said lot is bounded and described in a plat of said subdivision made by C. R. Atherton dated September 30, 1968 and recorded in the Office of the Clerk of the County Court of Jefferson County, West Virginia, in Plat Book 1 at page 37, as revised by three plats, the first by C. R. Atherton, C.E., dated May 18, 1971 and recorded in said Clerk's Office in Plat Book 1 at page 189, and the second by A. G Hooper, Jr., dated May 28, 1971, and recorded in said Clerk's Office in Plat Book 1 at page 193 and the third by John S. Kusner S.J.C., dated March 23, 1972, and recorded in said Clerk's Office in Plat Book 2 at page 301.

AND BEING a part of the same real estate conveyed to the said Grantor by Darwin M. Henesy, divorced, by deed dated April 30, 1968 and recorded in said Clerk'S Office in Deed Book 295 at page 20.

[REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

CTUB Smoke Testing Inspection Summary Report							Updated 10/8/2020
Smoke Testing Area	**Total**	**MH's w/ smoke coming from pick holes**	**MH's w/ Significant Issues**	**Total Inspected**	**Total Completed**	**Percent Inspected**	**Percent Completed**
Total							
Manholes	384	225	164	161	95	98%	58%
Cleanouts	200	n/a	n/a	209	163	105%	82%
Locust Hills							
Manholes	152	135	17	17	5	100%	29%
Cleanouts	62	n/a	n/a	62	46	100%	74%
Tuscawilla							
Manholes	110	57	53	52	30	98%	57%
Cleanouts	10	n/a	n/a	10	4	100%	40%
Orchard Hills							
Manholes	20	2	18	18	10	100%	56%
Cleanouts	20	n/a	n/a	20	14	100%	70%
SW Ranson							
Manholes	76	24	52	51	36	98%	69%
Cleanouts	47	n/a	n/a	47	39	100%	83%
PS 4-4							
Manholes	31	7	24	23	14	96%	58%
Cleanouts	61	n/a	n/a	70	60	115%	98%

Location	Lot Number	CIF Date Paid	Number of Sewer EDUs	Sewer CIF Amount Paid	Number of Water EDU's	Water CIF Amount Paid
Shenandoah Springs	3M	1/9/2020	1	$ 2,752.00		
Shenandoah Springs	7M	1/9/2020	1	$ 2,752.00		
Aspen Greens	29	1/17/2020	1	$ 3,207.00		
Aspen Greens	30	1/17/2020	1	$ 3,207.00		
Aspen Greens	31	1/17/2020	1	$ 3,207.00		
Aspen Greens	40	1/17/2020	1	$ 3,207.00		
Shenandoah Springs	11M	1/30/2020	1	$ 2,752.00		
Aspen Greens	35	2/5/2020	1	$ 3,207.00		
Briar Run	313-316	2/19/2020	4	$ 12,828.00		
Shenandoah Springs	12M	2/27/2020	1	$ 2,752.00		
Shenandoah Springs	14M	2/27/2020	1	$ 2,752.00		
Jefferson Ave	3A	2/28/2020	1	$ 3,207.00	1	$ 2,576.00
Briar Run	333-336	3/18/2020	4	$ 12,828.00		
Aspen Greens	5	3/18/2020	1	$ 3,207.00		
Aspen Greens	24	3/18/2020	1	$ 3,207.00		
Aspen Greens	26	3/18/2020	1	$ 3,207.00		
Aspen Greens	28	3/18/2020	1	$ 3,207.00		
Aspen Greens	33	3/18/2020	1	$ 3,207.00		
Aspen Greens	34	3/18/2020	1	$ 3,207.00		
Aspen Greens	38	3/18/2020	1	$ 3,207.00		
Aspen Greens	39	3/18/2020	1	$ 3,207.00		
Aspen Greens	43	3/18/2020	1	$ 3,207.00		
Aspen Greens	45	3/18/2020	1	$ 3,207.00		
Aspen Greens	46	3/18/2020	1	$ 3,207.00		
E. Liberty Street	32	3/25/2020	1	$ 1,127.00	1	$ 2,576.00
Aspen Greens	32	4/2/2020	1	$ 3,207.00		
8879 Charles Town Road		4/28/2020	1	$ 3,207.00		
Presidents Pointe	1-7	4/28/2020	7	$ 19,264.00		
Presidents Pointe	10-15	4/28/2020	6	$ 16,512.00		
Presidents Pointe	16-21	4/28/2020	6	$ 16,512.00		
Presidents Pointe	22-28	5/8/2020	7	$ 19,264.00		
Presidents Pointe	29-36	5/29/2020	8	$ 22,016.00		
Beallair	106	5/29/2020	1	$ 3,207.00		
Maple Avenue	4-8	6/16/2020	1	$ 1,127.00	1	$ 2,576.00
Burr West	32	6/22/2020	1	$ 641.40		
Briar Run	382-386	6/25/2020	5	$ 16,035.00		
Presidents Pointe	71-76	7/2/2020	6	$ 16,512.00		
Jefferson Terrace	16/17	7/21/2020			1	$ 2,576.00
Briar Run	317-320	7/30/2020	4	$ 12,828.00		
Briar Run	329	7/30/2020	1	$ 3,207.00		
100 Shenandoah Jct-DG		8/13/2020	0.31	$ 1,005.00		
Jefferson Ave	2	8/20/2020	1	$ 3,207.00	1	$ 2,576.00
Briar Run	328, 330-332	8/27/2020	4	$ 12,828.00		
Beallair	107	9/21/2020	1	$ 3,207.00		
Sawmill Court		9/22/2020	1	$ 3,207.00		
Presidents Pointe	37-42	9/30/2020	6	$ 16,512.00		
490 Euclid Ave, Suite 102		9/30/2020	8.26	$ 9,309.02	8.26	$ 21,277.76
Parcel 58 Sawmill Ct		9/30/2020	1	$ 3,207.00		
322 A N. Mildred St		9/30/2020	1	$ 1,127.00	1	$ 2,576.00
Lot 19 Euclid Ave		9/30/2020	1	$ 3,207.00	1	$ 2,576.00
		Totals =	**110.57**	**$ 305,417.42**	**15.26**	**$ 39,309.76**

Charles Town Utility Board
2020 Capacity Improvement Fee Collections/EDU for Sewer

Month	Commercial	Residential	Total Number of EDU's	Total Sewer CIF Collected	CIF Paid to Ranson	Total
Jan-20		7	7	$ 21,084.00	$ 4,875.00	$ 16,209.00
Feb-20		8	8	$ 24,746.00	$ 3,250.00	$ 21,496.00
Mar-20		16	16	$ 49,232.00		$ 49,232.00
Apr-20		21	21	$ 58,702.00	$ 42,250.00	$ 16,452.00
May-20		16	16	$ 44,487.00	$ 13,000.00	$ 31,487.00
Jun-20	1	6	7	$ 17,803.40		$ 17,803.40
Jul-20		11	11	$ 32,547.00		$ 32,547.00
Aug-20		5.31	5.31	$ 17,040.00		$ 17,040.00
Sep-20		19.26	19.26	$ 39,776.02	$ 9,750.00	$ 30,026.02
Oct-20						
Nov-20						
Dec-20						
Total 2020	**1**	**104**	**110.57**	**$ 305,417.42**	**$ 73,125.00**	**$ 232,292.42**

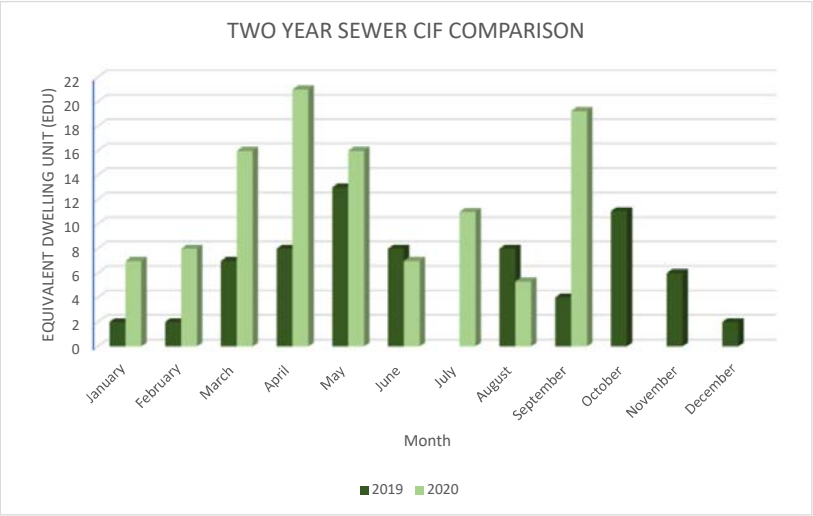
Charles Town Utility Board
2020 Capacity Improvement Fee Collections/EDU for Water

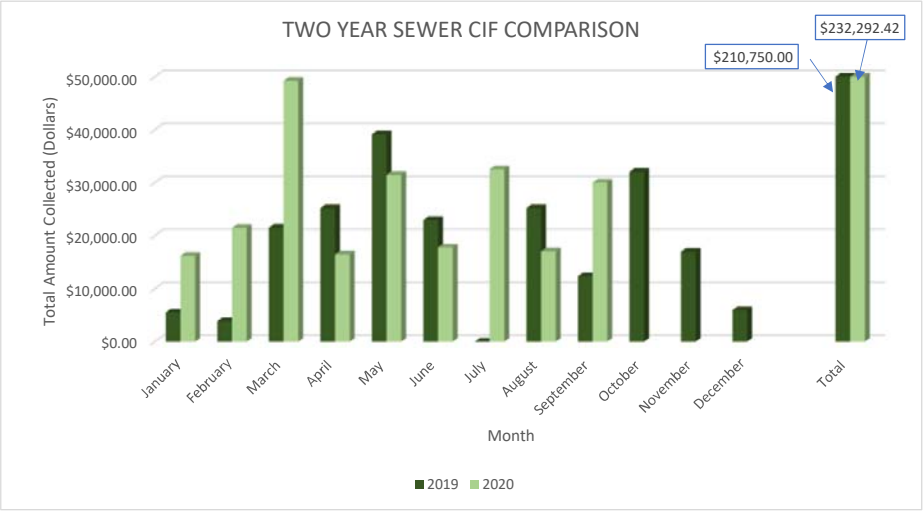
Month	Commercial	Residential	Total Number of EDU's	Total Water CIF
Jan-20				
Feb-20		1	1	$ 2,576.00
Mar-20		1	1	$ 2,576.00
Apr-20				
May-20				
Jun-20		1	1	$ 2,576.00
Jul-20		1	1	$ 2,576.00
Aug-20		1	1	$ 2,576.00
Sep-20		10.26	10.26	$ 26,429.76
Oct-20				
Nov-20				
Dec-20				
Total 2020	**0**	**15**	**15.26**	**$ 39,309.76**

October 14, 2020
Sewer CIF Tracking

Charles Town Utility Board 2019 Capacity Improvement Fee Collections/EDU for Sewer				
Month	**Commercial**	**Residential**	**Total Number of EDU's**	**Total Sewer CIF**
January		2	2	$5,504.00
February		2	2	$3,879.00
March		7	7	$21,539.00
April		8	8	$25,201.00
May		13	13	$39,156.00
June		8	8	$22,926.00
July				$0.00
August		8	8	$25,201.00
September		4	4	$12,373.00
October	1.06	10	11.06	$32,045.00
November		6	6	$16,967.00
December		2	2	$5,959.00
Total	**1.06**	**70**	**71.06**	**$ 210,750.00**

Charles Town Utility Board 2020 Capacity Improvement Fee Collections/EDU for Sewer						
Month	**Commercial**	**Residential**	**Total Number of EDU's**	**Total Sewer CIF Collected**	**CIF Paid to Ranson**	**Total**
Jan-20		7	7	$21,084.00	$4,875.00	$16,209.00
Feb-20		8	8	$24,746.00	$3,250.00	$21,496.00
Mar-20		16	16	$49,232.00		$49,232.00
Apr-20		21	21	$58,702.00	$42,250.00	$16,452.00
May-20		16	16	$44,487.00	$13,000.00	$31,487.00
Jun-20	1	6	7	$17,803.40		$17,803.40
Jul-20		11	11	$ 32,547.00		$ 32,547.00
Aug-20		5.31	5.31	$ 17,040.00		$ 17,040.00
Sep-20		19.26	19.26	$ 39,776.02	$ 9,750.00	$ 30,026.02
Oct-20						
Nov-20						
Dec-20						
Total 2020	**1**	**104**	**110.57**	**$305,417.42**	**$73,125.00**	**$232,292.42**

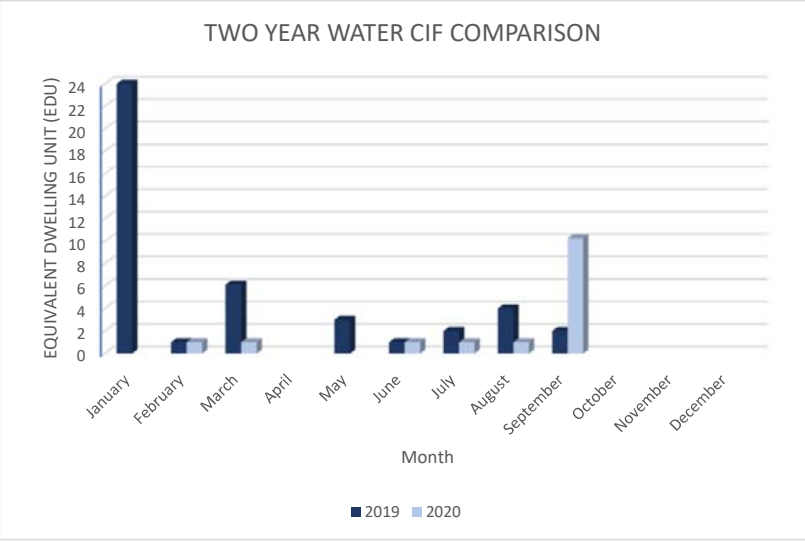


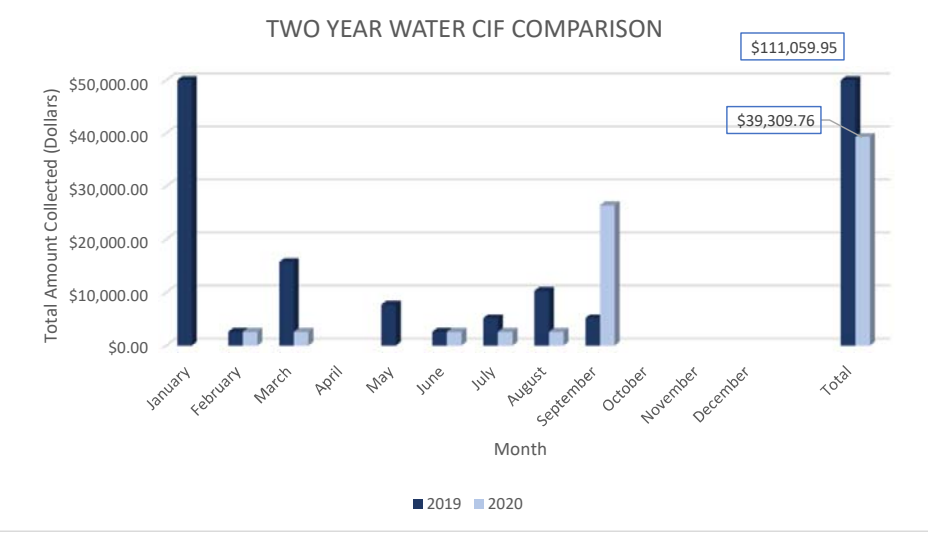


October 14, 2020
Water CIF Tracking

Charles Town Utility Board 2019 Capacity Improvement Fee Collections/EDU for Water				
Month	**Commercial**	**Residential**	**Total Number of EDU's**	**Total Water CIF**
January	24		24	$ 61,824.00
February		1	1	$ 2,576.00
March	5.11	1	6.11	$ 15,747.95
April				
May		3	3	$ 7,728.00
June	1		1	$ 2,576.00
July	2		2	$ 5,152.00
August		4	4	$ 10,304.00
September		2	2	$ 5,152.00
October				
November				
December				
Total	**32.11**	**11**	**43.11**	**$ 111,059.95**

Charles Town Utility Board 2020 Capacity Improvement Fee Collections/EDU for Water				
Month	**Commercial**	**Residential**	**Total Number of EDU's**	**Total Water CIF**
Jan-20				
Feb-20		1	1	$ 2,576.00
Mar-20		1	1	$ 2,576.00
Apr-20				
May-20				
Jun-20		1	1	$ 2,576.00
Jul-20		1	1	$ 2,576.00
Aug-20		1	1	$ 2,576.00
Sep-20		10.26	10.26	$ 26,429.76
Oct-20				
Nov-20				
Dec-20				
Total 2020	**0**	**15**	**15.26**	**$ 39,309.76**





CHARLES TOWN UTILITY BOARD
WASTEWATER TREATMENT PLANT FLOW DATA

CHARLES TOWN WATER PLANT FLOW DATA						
YEAR	Total Design (MGD)	TOTAL ANNUAL FLOW (MG)	AVERAGE DAILY (MGD)	Total Design minus Average Daily	Total Available (gpd)	Total Available (EDU's)
2015	1.75	384	1.05	0.7	700,000	4,667
2016	1.75	419	1.14	0.61	610,000	4,067
2017	1.75	393	1.08	0.67	670,000	4,467
2018	1.75	491	1.34	0.41	410,000	2,733
2019	1.75	459	1.26	0.49	490,000	3,267
2020	1.75				-	-

TUSCAWILLA WASTEWATER PLANT FLOW DATA						
YEAR	Total Design (MGD)	TOTAL ANNUAL FLOW (MG)	AVERAGE DAILY (MGD)	Total Design minus Average Daily	Total Available (gpd)	Total Available (EDU's)
2015	0.5	48	0.13	0.37	370,000	2,467
2016	0.5	49	0.13	0.37	370,000	2,467
2017	0.5	48	0.14	0.36	360,000	2,400
2018	0.5	78	0.21	0.29	290,000	1,933
2019	0.5	55.24	0.15	0.35	350,000	2,333
2020				0	-	-

Total EDU's available between CT and Tuscawilla	
2015	7,133
2016	6,533
2017	6,867
2018	4,667
2019	3,267
2020	-

2018		
	Total	AVERAGE
JANUARY	32.66	1.05
FEBRUARY	30.25	1.08
MARCH	32.34	1.04
APRIL	31.04	1.04
MAY	52.19	1.68
JUNE	39.84	1.33
JULY	39.86	1.29
AUGUST	43.63	1.41
SEPTEMBER	42.24	1.41
OCTOBER	45.50	1.47
NOVEMBER	50.36	1.68
DECEMBER	50.97	1.64
Annual Total	490.87	1.34

2019		
	Total	AVERAGE
JANUARY	51.37	1.66
FEBRUARY	43.72	1.56
MARCH	44.32	1.43
APRIL	37.29	1.24
MAY	45.1	1.45
JUNE	33.83	1.13
JULY	39.09	1.26
AUGUST	33.33	1.08
SEPTEMBER	30.89	1.03
OCTOBER	32.86	1.06
NOVEMBER	30.65	1.02
DECEMBER	36.55	1.18
Annual Total	459	1.26

2020		
	Total	AVERAGE
JANUARY	39.05	1.26
FEBRUARY	36.74	1.27
MARCH	36.76	1.19
APRIL	33.32	1.11
MAY	35.50	1.15
JUNE	33.44	1.11
JULY	34.45	1.11
AUGUST	32.65	1.05
SEPTEMBER	32.43	1.08
OCTOBER		
NOVEMBER		
DECEMBER		
Annual Total	314.34	1.15

2018		
	Total	AVERAGE
JANUARY	4.00	0.13
FEBRUARY	3.52	0.13
MARCH	3.71	0.12
APRIL	3.79	0.13
MAY	6.29	0.20
JUNE	8.27	0.28
JULY	5.97	0.19
AUGUST	7.42	0.24
SEPTEMBER	8.94	0.30
OCTOBER	7.10	0.23
NOVEMBER	10.90	0.36
DECEMBER	8.31	0.27
Annual Total	78.22	0.21

2019		
	Total	AVERAGE
JANUARY	6.25	0.2
FEBRUARY	4.98	0.18
MARCH	7.53	0.24
APRIL	5.28	0.18
MAY	7.88	0.25
JUNE	3.75	0.12
JULY	4.2	0.14
AUGUST	3.75	0.12
SEPTEMBER	3.64	0.12
OCTOBER	3.97	0.13
NOVEMBER	3.66	0.12
DECEMBER	0.35	0.01
Annual Total	55.24	0.15

2020		
	Total	AVERAGE
JANUARY		
FEBRUARY		
MARCH		
APRIL		
MAY		
JUNE		
JULY		
AUGUST	1.09	0.16
SEPTEMBER		
OCTOBER		
NOVEMBER		
DECEMBER		
Annual Total	1.09	0.16

CHARLES TOWN UTILITY BOARD
WATER TREATMENT PLANT FLOW DATA

CHARLES TOWN WASTEWATER PLANT FLOW DATA						
YEAR	Total Design (MGD)	TOTAL ANNUAL FLOW (MG)	AVERAGE DAILY (MGD)	Total Design minus Average Daily	Total Available (gpd)	Total Available (EDU's)
2019	2.8	644.32	1.77	1.03498	1,034,980	6,900
2020	2.8	465.07	1.70	1.10	1,102,812	7,352

2019		
	Total	AVERAGE
JANUARY	52,264,325	1,685,946
FEBRUARY	48,901,884	1,746,496
MARCH	52,112,735	1,681,056
APRIL	51,316,538	1,710,551
MAY	56,973,829	1,837,865
JUNE	55,111,832	1,837,061
JULY	57,587,563	1,857,663
AUGUST	58,291,878	1,880,383
SEPTEMBER	53,642,580	1,788,086
OCTOBER	54,262,184	1,750,393
NOVEMBER	50,656,056	1,688,535
DECEMBER	53,202,360	1,716,205
Annual Total	644,323,764	1,765,020

2020		
	Total	AVERAGE
JANUARY	53,689,445	1,731,918
FEBRUARY	49,700,448	1,713,809
MARCH	51,009,216	1,645,459
APRIL	46,966,864	1,565,562
MAY	50,753,036	1,637,195
JUNE	52,587,142	1,752,905
JULY	54,394,477	1,754,661
AUGUST	54,972,785	1,773,316
SEPTEMBER	50,996,141	1,699,871
OCTOBER		
NOVEMBER		
DECEMBER		
Annual Total	465,069,554	1,697,188

GLEN HAVEN WATER PLANT FLOW DATA						
YEAR	Total Design (MGD)	TOTAL ANNUAL FLOW (MG)	AVERAGE DAILY (MGD)	Total Design minus Average Daily	Total Available (gpd)	Total Available (EDU's)
2020	0.0216	0.28	0.01	0.01	12,442	83

2020		
	Total	AVERAGE
JANUARY		
FEBRUARY		
MARCH		
APRIL		
MAY		
JUNE		
JULY		
AUGUST		
SEPTEMBER	283,900	9,158
OCTOBER		
NOVEMBER		
DECEMBER		
Annual Total	283,900	9,158

CAVALAND WATER PLANT FLOW DATA						
YEAR	Total Design (MGD)	TOTAL ANNUAL FLOW (MG)	AVERAGE DAILY (MGD)	Total Design minus Average Daily	Total Available (gpd)	Total Available (EDU's)
2020	0.036	0.14	0.00	0.03	31,423	209

2020		
	Total	AVERAGE
JANUARY		
FEBRUARY		
MARCH		
APRIL		
MAY		
JUNE		
JULY		
AUGUST		
SEPTEMBER	141,900	4,577
OCTOBER		
NOVEMBER		
DECEMBER		
Annual Total	141,900	4,577

VENDOR SORT KEY	DESCRIPTION	FUND	DEPARTMENT	AMOUNT

========== FUND TOTALS ==========	
50 WATER FUND	105,367.85
60 SEWER FUND	645,975.73
GRAND TOTAL:	751,343.58

TOTAL PAGES: 7

APPROVED BY: _____

APPROVED BY: _____

This Packet: $ 751,343.58
Security Deposit Refunds: 2,207.05

Total: $ 753,550.63

Note:

Highlighted invoices to be reimbursed by the Route 9 Sewer Project Escrow Account;

Highlighted invoices to be reimbursed for the Tuscawilla MBR Project - Basin #3;

Highlighted invoices to be reimbursed for the R&R Project

VENDOR SORT KEY	DESCRIPTION	FUND	DEPARTMENT	AMOUNT
			TOTAL:	2,940.00
COMPTROLLER OF MD	UNCLAIMED PROPERTY	WATER FUND	NON-DEPARTMENTAL	45.84
			TOTAL:	45.84
DC OFFICE OF FINANCE & TREASURY	UNCLAIMED PROPERTY	WATER FUND	NON-DEPARTMENTAL	24.11
			TOTAL:	24.11
TREASURER OF VIRGINIA	UNCLAIMED PROPERTY	WATER FUND	NON-DEPARTMENTAL	2,658.01
			TOTAL:	2,658.01
WEST VIRGINIA STATE TREASURER'S OFFICE	UNCLAIMED PROPERTY	WATER FUND	NON-DEPARTMENTAL	401.53
			TOTAL:	401.53
UNIFIRST CORPORATION	WIPER DISPOSAL/REPLACEMENT	WATER FUND	WATER	29.00
	WIPER DISPOSAL/REPLACEMENT	WATER FUND	WATER	29.00
	WIPER DISPOSAL/REPLACEMENT	SEWER FUND	SEWER	29.00
	WIPER DISPOSAL/REPLACEMENT	SEWER FUND	SEWER	29.00
			TOTAL:	116.00
USA BLUEBOOK	PH7 BUFFER,YSI 5908 CAP ME	SEWER FUND	SEWER	194.25
	THICKSTER GLOVES	SEWER FUND	SEWER	1,382.88
			TOTAL:	1,577.13
VALLEY CREDIT SERVICE, INC.	SEPT COLLECTIONS	WATER FUND	WATER	161.55
	SEPT COLLECTIONS	SEWER FUND	SEWER	161.55
	PSD SEPT COLLECTIONS	SEWER FUND	SEWER	146.30
			TOTAL:	469.40
MICHAEL B VENTERS	CONSULTING FEE, OCT	SEWER FUND	SEWER	725.00
			TOTAL:	725.00
WASTE MANAGEMENT OF WEST VIRGINIA, INC	TUSC MEMBRANE REPLACEMENT	SEWER FUND	NON-DEPARTMENTAL	1,826.46
	TUSC MEMBRANE REPLACEMENT	SEWER FUND	NON-DEPARTMENTAL	1,951.44
			TOTAL:	3,777.90
WIRELESS NETWORKS GROUP, INC.	MISC SVCS, SEPT	WATER FUND	WATER	112.50
			TOTAL:	112.50
WO GRUBB	SET NEOSEPT FLTRS& WORK AS	SEWER FUND	NON-DEPARTMENTAL	4,620.00
			TOTAL:	4,620.00
WV DEPARTMENT OF TRANSPORTATION	NEW WA LINE EUCLID AVE	WATER FUND	WATER	55.25
			TOTAL:	55.25

VENDOR SORT KEY	DESCRIPTION	FUND	DEPARTMENT		AMOUNT
	BELTLINE DR: 9/22/20	WATER FUND	WATER		220.00
	NEW CASTLE DR: 9/22/20	WATER FUND	WATER		220.00
	BECKMAN PL: 9/23/20	WATER FUND	WATER		760.00
	FENWAY DR: 9/29/20	WATER FUND	WATER		490.00
	DURHAM CT: 9/30/20	WATER FUND	WATER		760.00
	TALL OAK DR: 10/01/20	WATER FUND	WATER		355.00
	S SAMUEL ST: 10/02/20	WATER FUND	WATER		575.00
				TOTAL:	5,525.00
SHENANDOAH SALES & SERVICE, INC.	TOP BRAND TRAILER	SEWER FUND	SEWER		1,521.26
	SERVICE @ TUSCAWILLA	SEWER FUND	SEWER		265.72
	SERVICE @ TUSCAWILLA	SEWER FUND	SEWER		265.72
				TOTAL:	2,052.70
LAW OFFICES OF HOY SHINGLETON, L.C.	GENERAL: 9/08 - 9/30/20	SEWER FUND	SEWER		2,177.50
				TOTAL:	2,177.50
SNYDER ENVIRONMENTAL SERVICES, INC	CNTCR AP#08 RES#8, RT 9 PR	SEWER FUND	NON-DEPARTMENTAL		402,969.65
				TOTAL:	402,969.65
SPRINT	MONTHLY CELL SERVICE	WATER FUND	WATER		243.05
	MONTHLY CELL SERVICE	SEWER FUND	SEWER		106.73
	MONTHLY CELL SERVICE	SEWER FUND	SEWER		151.90
				TOTAL:	501.68
STEPTOE & JOHNSON PLLC	CNSTRCTN STRMWTR PRMT ISSU	SEWER FUND	NON-DEPARTMENTAL		58,685.95
	GENERAL ENVIRONMENTAL	SEWER FUND	SEWER		1,272.50
	GENERAL EMPLOYER COUNSELIN	SEWER FUND	SEWER		98.75
				TOTAL:	60,057.20
GERALD TAYLOR CO., INC.	SUPERVAC/ HAUL	WATER FUND	WATER		459.55
	PUMP/ HAUL	WATER FUND	WATER		421.17
	PUMP/ HAUL	WATER FUND	WATER		227.25
	PUMP/ HAUL	WATER FUND	WATER		444.40
	SUPERVAC/ PUMP LIFT STATIO	SEWER FUND	SEWER		1,516.50
	SUPERVAC/ DISPOSE	SEWER FUND	SEWER		1,195.50
				TOTAL:	4,264.37
TEAMVIEWER GERMANY GMBH	CORPORATE SUBCRIPTION	WATER FUND	WATER		1,194.00
	CORPORATE SUBCRIPTION	SEWER FUND	SEWER		1,194.00
				TOTAL:	2,388.00
TELEDYNE INSTRUMENTS, INC	SAMPLER AT PLANT	SEWER FUND	SEWER		410.22
				TOTAL:	410.22
CI THORNBURG CO., INC.	5/8" SRII TRPL	WATER FUND	WATER		1,023.79
	CHLORINE	WATER FUND	WATER		903.00
	TRANSCEIVER UNIT W/BATT&LE	WATER FUND	WATER		3,672.48
	FLANGE,NUT,TEE,RESTRAINT,C	SEWER FUND	SEWER		1,669.00
				TOTAL:	7,268.27
TUSCAWILLA HILLS HOA INC	HOA DUES OCT 2020	WATER FUND	WATER		36.00
				TOTAL:	36.00
TYLER TECHNOLOGIES	MAINT: 11/01/20 - 10/31/20	WATER FUND	WATER		1,470.00
	MAINT: 11/01/20 - 10/31/20	SEWER FUND	SEWER		1,470.00

VENDOR SORT KEY	DESCRIPTION	FUND	DEPARTMENT	AMOUNT
JEFFERSON COUNTY HEALTH DEPARTMENT	S.WILLIAMS HEP A&B SHOT #1	WATER FUND	WATER	127.00
			TOTAL:	127.00
JEFFERSON UTILITIES, INC	12-0820-00	WATER FUND	WATER	9.02
	12-0820-00	SEWER FUND	SEWER	45.12
	12-0820-00	SEWER FUND	SEWER	135.36
	12-0820-00	SEWER FUND	SEWER	9.02
			TOTAL:	198.52
LOVE 4 GOLF LLC	110 104 407 850	SEWER FUND	SEWER	277.58
			TOTAL:	277.58
MAGAHA, INC.	WTP, LOCUST HILL WT: SEPT	WATER FUND	WATER	1,987.50
	MAINT BUILDING: 8/26/20	WATER FUND	WATER	225.00
	ASHLEY BRIN PS: SEPT '20	SEWER FUND	SEWER	187.50
	VARIOUS PS: SEPT '20	SEWER FUND	SEWER	2,062.50
	CT STATION: 8/28 - 9/09/20	SEWER FUND	SEWER	2,250.00
	TUSC: SEPT '20	SEWER FUND	SEWER	337.50
	VARIOUS PS: 8/28 - 9/04/20	SEWER FUND	SEWER	1,500.00
			TOTAL:	8,550.00
MICRO-TECH DESIGNS, INC.	TRBLSHT RADIOCOMM @ TUSC	SEWER FUND	SEWER	1,258.00
			TOTAL:	1,258.00
THOMAS NALLS	SEPT TANK LOT RENT	WATER FUND	NON-DEPARTMENTAL	3,443.48
			TOTAL:	3,443.48
LOGICAL CONCEPTS, INC	MONITORING LIFT& PUMP STAT	SEWER FUND	SEWER	468.00
			TOTAL:	468.00
PACE ANALYTICAL SERVICES, LLC	TESTING: UCMR4_SE3_AUG2020	WATER FUND	WATER	1,521.00
	TESTING: UMCR4_SE7_WK1_SEP	WATER FUND	WATER	418.00
			TOTAL:	1,939.00
QUALITY FENCE & DECK CO	FENCE REPAIRS@ BRIARRUN PS	SEWER FUND	SEWER	3,950.00
			TOTAL:	3,950.00
CORPORATION OF RANSON	SEPT GARBAGE	WATER FUND	NON-DEPARTMENTAL	103.18
	SEPT UT COLLECTIONS	WATER FUND	NON-DEPARTMENTAL	2,874.67
			TOTAL:	2,977.85
RK & K ENGINEERS	TO11 MAINTENANCE BUILDING	WATER FUND	NON-DEPARTMENTAL	3,690.50
	TO5 SEWER MODEL	SEWER FUND	NON-DEPARTMENTAL	8,504.52
	TO9 BEALLAIR DWNSTRM CAP A	SEWER FUND	NON-DEPARTMENTAL	1,150.11
	JEFFRSN MMRL PRK FRC MAIN	SEWER FUND	NON-DEPARTMENTAL	3,980.19
	TO12 FOREST AVE/FAIRFAX XI	SEWER FUND	NON-DEPARTMENTAL	1,709.10
	TO8 WILTS MHP PS DEMO	SEWER FUND	SEWER	3,186.00
	TO14 MNHLEVAL@ EVITTS/BRWN	SEWER FUND	SEWER	2,223.71
			TOTAL:	24,444.13
ROSS H BARE	DUPLEX PUMP CONTROLLER	WATER FUND	WATER	1,630.15
			TOTAL:	1,630.15
SG PLUMBING, INC.	WEST 5TH AVE: 9/03/20	WATER FUND	WATER	490.00
	HILLSIDE VET: 9/09/20	WATER FUND	WATER	895.00
	WASHINGTON & CHARLES: 9/21	WATER FUND	WATER	760.00

VENDOR SORT KEY	DESCRIPTION	FUND	DEPARTMENT		AMOUNT
	PCARD 4726	SEWER FUND	SEWER		2,081.10
	PCARD 4726	SEWER FUND	SEWER		309.97
	PCARD 4726	SEWER FUND	SEWER		1,035.38
	PCARD 4726	SEWER FUND	SEWER		476.99
	PCARD 4726	SEWER FUND	SEWER		91.48
				TOTAL:	8,280.42
FIRE SAFETY EQUIPMENT SUPPLY	SCBA CYLINDERS, HAZMAT FEE	WATER FUND	WATER		75.00
				TOTAL:	75.00
FRONTIER COMMUNICATIONS	304-876-2120-111514-4	WATER FUND	WATER		92.53
	304-876-9970-121914-4	WATER FUND	WATER		92.53
				TOTAL:	185.06
GUTTMAN ENERGY	W/E 9/20/20	WATER FUND	WATER		478.90
	W/E 9/27/20	WATER FUND	WATER		478.16
	W/E 9/20/20	SEWER FUND	SEWER		582.11
	W/E 9/27/20	SEWER FUND	SEWER		609.42
				TOTAL:	2,148.59
GAGE-IT, INC	MID-WEST 835 BACKFLOW TEST	WATER FUND	WATER		180.88
				TOTAL:	180.88
GWIN DOBSON & FOREMAN INC	WA & WW RETAINER SVCS	WATER FUND	WATER		927.85
	TUSC WWTP MBRN BIORCTR RPL	SEWER FUND	NON-DEPARTMENTAL		460.20
	WWTP UPGRDS: TUSC & CT	SEWER FUND	NON-DEPARTMENTAL		15,731.56
				TOTAL:	17,119.61
HACH COMPANY	AMINO ACID,CITRIC ACID,MOL	WATER FUND	WATER		694.37
	REAGENT SET, SILICA LR	WATER FUND	WATER		325.16
	NITRATE TNT, EE PHOSVER	SEWER FUND	SEWER		377.30
	DB NITRITE, TNT	SEWER FUND	SEWER		215.75
	AMMONIA TNT	SEWER FUND	SEWER		310.95
				TOTAL:	1,923.53
HATCH ASSOCIATES CONSULTANTS, INC.	TO4 H-359787 RT9 PROJECT	SEWER FUND	NON-DEPARTMENTAL		41,275.75
				TOTAL:	41,275.75
HIGH HORIZONS FARM, INC.	BUNDLE OF STRAW	WATER FUND	WATER		135.00
				TOTAL:	135.00
HOME DEPOT CREDIT SERVICES	6035 3220 2465 6054	WATER FUND	WATER		1,623.99
	6035 3220 2465 6054	SEWER FUND	SEWER		400.92
				TOTAL:	2,024.91
PROTOUCH COMMUNICATIONS, LLC DBA INTOU	SEPT SVCS: AFTER-HOURS EME	WATER FUND	WATER		132.50
				TOTAL:	132.50
INWOOD QUARRY, INC.	C2 PICKUPS: 9/23/20	WATER FUND	WATER		204.16
	C2 PICKUPS: 10/05/20	WATER FUND	WATER		624.58
				TOTAL:	828.74
IRON MOUNTAIN, INC	SHREDDING, STORAGE	WATER FUND	WATER		172.17
	SHREDDING, STORAGE	SEWER FUND	SEWER		172.17
				TOTAL:	344.34

VENDOR SORT KEY	DESCRIPTION	FUND	DEPARTMENT		AMOUNT
	SEPT CLEANING	SEWER FUND	SEWER		456.25
				TOTAL:	1,337.50
COMCAST BUSINESS	8299 31 008 0138502	WATER FUND	WATER		97.49
	8299 31 008 0138502	SEWER FUND	SEWER		97.48
				TOTAL:	194.97
COMPRESSED AIR SERVICES, INC.	CHAMPION 5HP DUPLEX, 60 CF	WATER FUND	WATER		9,990.00
				TOTAL:	9,990.00
CORE & MAIN	MTR TILE,MONITOR FLG,MONIT	WATER FUND	WATER		2,987.68
	COUPLING MIPXPJ	WATER FUND	WATER		748.86
	RET C900 W/ACC OD 4.50-4.8	WATER FUND	WATER		288.78
	THD CHECK 1.25" & 2"	SEWER FUND	SEWER		107.22
				TOTAL:	4,132.54
COYNE CHEMICAL	HYDROFLUSILICIC ACID 23%,	WATER FUND	WATER		2,323.90
	CP-837	WATER FUND	WATER		1,888.76
	CES PACL 2000	SEWER FUND	SEWER		10,446.30
				TOTAL:	14,658.96
C. R. SEMLER, INC.	PARKVIEW: SEWER MANHOLES	SEWER FUND	SEWER		5,120.00
				TOTAL:	5,120.00
CRYSTAL SPRINGS	MONTHLY SVC@ WWTP & MAINT	WATER FUND	WATER		105.48
	MONTHLY SVC@ 661 S GEORGE	WATER FUND	WATER		43.01
	MONTHLY SVC@ 661 S GEORGE	SEWER FUND	SEWER		43.01
				TOTAL:	191.50
DELL MARKETING L.P.	NIC	WATER FUND	WATER		75.58
				TOTAL:	75.58
WV DEPT OF HEALTH & HUMAN SERVICES	BACTERIOLOGICAL TESTING	WATER FUND	WATER		100.00
	BACTERIOLOGICAL TESTING	WATER FUND	WATER		40.00
				TOTAL:	140.00
DOOR TECH	TUSC WWTP DOOR RPLCMNT	SEWER FUND	SEWER		1,757.50
				TOTAL:	1,757.50
EJ USA, INC.	ADJ RG 22 24 DIA	SEWER FUND	SEWER		348.38
	1045Z UNDR FR7, 1040AGS UN	SEWER FUND	SEWER		3,887.84
				TOTAL:	4,236.22
ENCOVA INSURANCE	INSTALLMENT	WATER FUND	WATER		3,717.12
	INSTALLMENT	SEWER FUND	SEWER		2,090.88
				TOTAL:	5,808.00
FASTENAL	SUPPLIES FOR LIFT STATIONS	SEWER FUND	SEWER		1,188.48
				TOTAL:	1,188.48
FIFTH THIRD BANK	PCARD 4726	WATER FUND	WATER		2,142.01
	PCARD 4726	WATER FUND	WATER		16.00-
	PCARD 4726	WATER FUND	WATER		97.48
	PCARD 4726	WATER FUND	WATER		314.47
	PCARD 4726	WATER FUND	WATER		1,606.57
	PCARD 4726	WATER FUND	WATER		140.97

VENDOR SORT KEY	DESCRIPTION	FUND	DEPARTMENT		AMOUNT
AMERIGAS	TANK RENTAL: WOODLAWN	SEWER FUND	SEWER		214.00
	TANK RENTAL: OFF JEFF AVE	SEWER FUND	SEWER		242.00
	TANK RENTAL: BEALLAIR PS 3	SEWER FUND	SEWER		36.00
	TANK RENTAL: CRANES LANE	SEWER FUND	SEWER		134.00
	TANK RENTAL: 266 EDMOND RD	SEWER FUND	SEWER		134.00
				TOTAL:	760.00
JANE ARNETT	CONSULTING SVCS OCT/SEPT'2	WATER FUND	WATER		2,400.00
	CONSULTING SVCS OCT/SEPT'2	SEWER FUND	SEWER		2,400.00
				TOTAL:	4,800.00
NEAL O NILSEN	OFFICE 365 BASIC - 25 USER	WATER FUND	WATER		75.00
	OFFICE 365 BASIC - 25 USER	SEWER FUND	SEWER		75.00
				TOTAL:	150.00
ASSURED PARTNERS	2ND QTR PACKAGE INSTALLMEN	WATER FUND	WATER		12,929.01
	2ND QTR PRFSSNL INSTALLMEN	WATER FUND	WATER		1,425.00
	2ND QTR EXCESS INTALLMENT	WATER FUND	WATER		806.50
	2ND QTR PACKAGE INSTALLMEN	SEWER FUND	SEWER		12,929.00
	2ND QTR PRFSSNL INSTALLMEN	SEWER FUND	SEWER		1,425.00
	2ND QTR EXCESS INTALLMENT	SEWER FUND	SEWER		806.50
				TOTAL:	30,321.01
AUTOZONE	BOSCH WIPE, PRESTO DEICER,	WATER FUND	WATER		112.13
				TOTAL:	112.13
BUSINESS CARD	BOA 2754	WATER FUND	WATER		0.50
	BOA 2754	SEWER FUND	SEWER		0.50
				TOTAL:	1.00
JP & RF BURNS PARTNERSHIP	SEPT LOADS - 44	SEWER FUND	SEWER		7,612.00
				TOTAL:	7,612.00
CAPITAL LIGHTING & SUPPLY LLC	BRA M21-187-C-342	SEWER FUND	SEWER		177.51
	WWTP SUPPLIES	SEWER FUND	SEWER		208.56
				TOTAL:	386.07
CAVCON INC	ACTUATORS TUSC	SEWER FUND	NON-DEPARTMENTAL		(7,901.84)
				TOTAL:	7,901.84
CITY ELECTRIC SUPPLY CO	SUPPLIES FOR WTP	WATER FUND	WATER		60.20
				TOTAL:	60.20
CITY NATIONAL BANK	LOCKBOX SERVICES SEPT	WATER FUND	WATER		1,653.52
	LOCKBOX SERVICES SEPT	WATER FUND	WATER		780.92
	LOCKBOX SERVICES SEPT	SEWER FUND	SEWER		1,653.52
	LOCKBOX SERVICES SEPT	SEWER FUND	SEWER		780.92
				TOTAL:	4,868.88
CITY OF CHARLES TOWN	UB COLLECTIONS - SEPT	WATER FUND	NON-DEPARTMENTAL		16,447.90
				TOTAL:	16,447.90
CLIFFS CLEANING SERVICE	SEPT CLEANING	WATER FUND	WATER		125.00
	SEPT CLEANING	WATER FUND	WATER		456.25
	SEPT CLEANING	SEWER FUND	SEWER		200.00
	SEPT CLEANING	SEWER FUND	SEWER		100.00