Planning & Zoning Board
Monday, October 3, 2022 at 5:30 PM

City Commission Chambers
214 Sams Avenue, New Smyrna Beach, Florida 32168

1. CALL TO ORDER

A. Roll Call

2. APPROVAL OF MINUTES

3. PUBLIC PARTICIPATION

4. OLD BUSINESS

5. NEW BUSINESS

5.A SP-25-21: The Cove at New Smyrna

6. COMMENTS OR STATEMENTS BY MEMBERS OF THE BOARD

7. REPORTS AND COMMUNICATION BY THE STAFF

8. ADJOURNMENT

Pursuant to Florida Statutes 286.0105, if an individual decides to appeal any decision made by the board, agency or commission of the City of New Smyrna Beach with respect to any matter considered at this meeting, a record of the proceedings will be required and the individual will need to ensure that a verbatim transcript of the proceedings is made, which record includes the testimony and evidence upon which the appeal is based. Such person must provide a method for recording the proceedings.

In accordance with the Americans with Disabilities Act, persons needing assistance to participate in any of these proceedings should contact the City Clerk's office in person or by mail at 210 Sams Avenue, New Smyrna Beach, Florida 32168, (386) 410-2630, prior to the meeting.

THE CITY OF NEW SMYRNA BEACH - PLANNING DEPARTMENT

SP-25-21: THE COVE AT NEW SMYRNA

October 3, 2022

Background:

I. Summary:

A. Applicant and Property Owner: TEG The Cove at New Smyrna, LLC , 364 Route 59, Suite 110, Airmont, NY 10952

B. Request: Class III Site Plan approval for 47 quadplexes, a total of 188 dwelling units

C. Site Information: The subject property is zoned Planned Unit Development (PUD), and is located on the west side of Sugar Mill Drive, approximately 0.37 miles north of SR 44, across from the entrance to the Sarinna Lake subdivision, and is 18.67 acres in size. The project is part of the larger Coastal Woods PUD.

D. Exhibits:

Exhibit A: Location Map

Exhibit B: Aerial Map

Exhibit C: Site Layout

Exhibit D: Site Plan

Exhibit E: Building Elevations

E. TAX ID #: 7322-03-00-00-10

Findings:

II. Findings:

A. The Cove at New Smyrna is located on an 18.67 acre parcel located on the west side of Sugar Mill Drive. The main entrance is directly across from the Sarinna Lake entrance. To the south is the proposed future hospital and associated outbuildings. The community

will have a club house, swimming pool, dog park and playground area, There is an internal retention pond/lake, with quadplexes surrounding the lake, and another lake to the west. Each of the 188 dwelling units will have at least two parking spaces, and an additional 12 spaces are provide for guests, providing a total of 388 parking spaces for the 188 units. Forty five of the parking spaces are within five separate garages, with four of the garages having ten spaces, and one garage with five spaces.

B. **Exhibit C** includes the layout of the project. The entire Site Plan is included as **Exhibit D.** The elevations of the buildings themselves can be seen in **Exhibit E.**

C. The project is 49.1% impervious, the maximum allowed for the site is 75.0%. Building coverage is at 24.0%, the maximum allowed is 60%. In addition, there are 10.1 dwelling units per acre. Per the PUD agreement, up to 18 units per acre are allowed.

D. Along Sugar Mill Drive, a 20' wide landscape buffer is proposed, consisting mainly of Live Oak trees and Simpson Stopper shrubs and a 10' wide concrete sidewalk. The area adjacent to the hospital will also have Live Oak trees along the property line to act as a buffer, while to the west and north there is a combination of cypress, pines and elms, with palm trees scattered throughout the development as well.

E. A Class III Site Plan (SP-14-17) was approved on this same site in 2020 that allowed for 270 units in ten buildings. That approval has since expired, and the property sold, however, the previous owners had started site working, and cleared the land as part of that process.

F. This is the fourth submittal of this particular project. The initial application was made September 27, 2021. All of the members of the City's Technical Review Staff departments (Planning, Engineering, Fire, Building and Utilities) have approved the proposed Site Plan.

III. Recommendation

Staff recommends **approval.**

Fiscal Analysis:
N/A

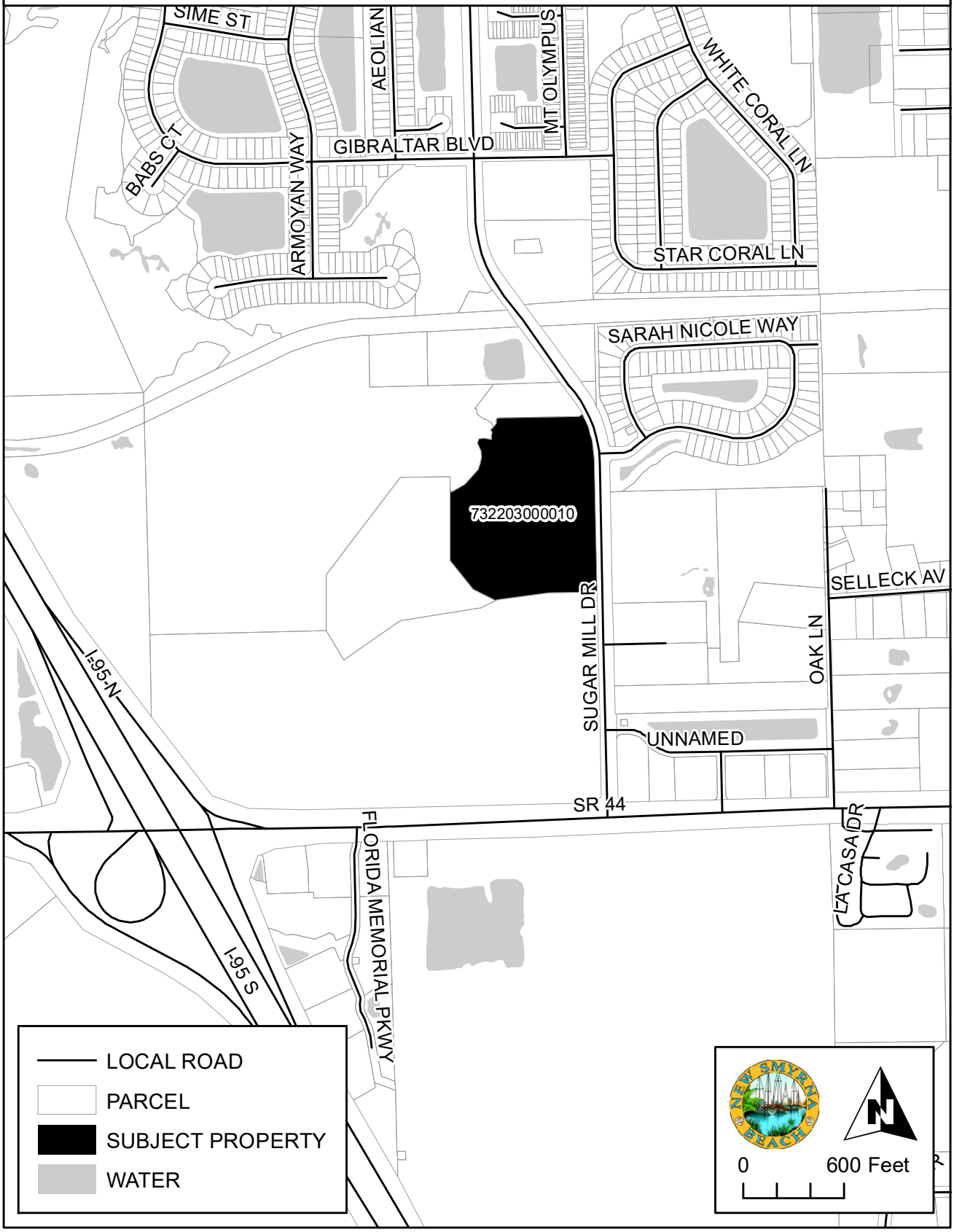
Strategic Plan Item:
No

Staff Report Created By: Jake Baker - Planner I

Attachments:

Exhibit A Location Map.pdf
Exhibit B Aerial Map.pdf
Exhibit C Layout.pdf
Exhibit D The Cove Site Plan.pdf
Exhibit E Building Type.pdf

SP-25-21: THE COVE MF - SMD - CW
PARCEL: 7322-03-00-0010 LOCATION MAP



SP-25-21: THE COVE MF - SMD - CW
PARCEL: 7322-03-00-0010 AERIAL MAP



GRAPHIC SCALE
50 0 50 100
1"=50'

LINE CHART		
L1	S29°12'56"E	19.44'
L2	N60°33'34"E	90.06'
L3	N42°57'20"E	119.34'
L4	N17°20'21"E	40.08'
L5	N08°23'08"E	37.53'
L6	N03°49'06"W	38.63'
L7	N25°29'00"W	52.30'
L8	N20°40'12"E	27.55'
L9	N87°23'38"E	31.56'
L10	S78°38'44"E	42.15'
L11	N03°06'15"E	27.31'
L12	N14°10'49"E	17.09'
L13	N32°08'25"W	16.54'
L14	N43°42'25"E	51.10'
L15	S01°26'13"E	22.72'
L16	N01°56'07"E	25.29'

BUILDING UNIT SCHEDULE					
TOTAL MF BUILDINGS	MAXIMUM UNITS PER BUILDING	TOTAL 1 BEDROOM UNITS / BLDG.	TOTAL 2 BEDROOM UNITS / BLDG.	TOTAL 3 BEDROOM UNITS / BLDG.	TOTAL NUMBER OF BUILDINGS / UNITS
47	4	84 (44.7%)	88 (46.8%)	16 (8.5%)	188

GENERAL NOTES:

1. CITY OF NEW SMYRNA BEACH BUILDING PERMITS ARE REQUIRED FOR BUILDING, CANOPIES, DUMPSTER ENCLOSURE, LIGHT POLES, FENCE AND SIGNS. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING APPROPRIATE INFORMATION (ENGINEERING, SPECIFICATIONS, SHOP DRAWINGS, ETC.) FOR LIGHT POLES AND FIXTURES AT TIME OF PERMIT.
2. ALL DIMENSIONS AND TIES ARE TO THE EDGE OF PAVEMENT AND OUTSIDE FACE OF BUILDING.
3. ALL IMPROVEMENTS SHALL BE STAKED FOR CONSTRUCTION BY MEANS OF DIGITAL COORDINATES BY SURVEYOR UTILIZING GEODETIC TOTAL STATION OR GPS. SCALING OF DRAWINGS FOR PURPOSES OF STAKING ARE AT THE SURVEYOR'S RISK.
4. THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING ADJACENT BUSINESSES TO ENSURE THERE IS NO DISRUPTION TO THEIR RESPECTIVE OPERATIONS.
5. THE CONTRACTOR AT ITS OWN DISCRETION SHALL MAINTAIN THE CONSTRUCTION SITE SECURE FROM TRESPASS.
6. SOD ALL DISTURBED AREAS IN RIGHT-OF-WAY WITH BAHIA SOD.
7. ALL CURB RAMPS SHALL COMPLY WITH SECTION 406 OF FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION (FACBC).
8. ALL PAVEMENT EDGE SHALL BE PROTECTED BY CURBING (TYPE "F" OR TYPE "D") AND THICKENED EDGE SIDEWALK UNLESS OTHERWISE NOTED ON THESE PLANS.
9. ALL WALL-MOUNTED EQUIPMENT SUCH AS ELECTRICAL METERS, IRRIGATION METERS, PHONE/CABLE BOXES, EXTERNAL VENTS AND LOUVERS, ETC., SHALL BE PAINTED TO MATCH THE WALL ON WHICH IT IS MOUNTED OR OTHERWISE CONSISTENT WITH THE COLOR(S) OF THE BUILDING.
10. ALL SIDEWALK CURB RAMPS ARE FDOT CURB RAMP "E".

PAVING LEGEND

- ASPHALT PAVEMENT: 1.5" SP-9.5 WITH TACK COAT PER FDOT SPECIFICATIONS; 6" CRUSHED CONCRETE BASE (LBR=130) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (4" MAX. LIFTS); 12" STABILIZED SUBBASE (BR 40) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (TYPE B STABILIZATION)
  - * ALTERNATE 12" STABILIZED SUBBASE: 6" CRUSHED CONCRETE (LBR=130) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (4" MAX. LIFTS)
  - *ALTERNATE PAVEMENT TO ASPHALT IS CONCRETE PAVEMENT
- CONCRETE PAVEMENT: 6" CONCRETE (4,000 P.S.I. @ 28 DAYS); 12" STABILIZED SUBGRADE (LBR 40) MIN OF 98% MODIFIED PROCTOR MAX DRY DENSITY PER ASTM D1557, AASHTO T-180 (6" LIFTS) SEE SHEET No. 33
- CONCRETE SIDEWALK: 4" THICK CLASS I CONCRETE (3,000 P.S.I. @ 28 DAYS) PER FDOT INDEX 522-001 SEE DETAILS, SHEET No. 33
- PAVER DECK: BRICK PAVER, 2-3/8" MINIMUM THICKNESS; 1" TO 1.5" COMPACTED BEDDING SAND CONFORMING TO ASTM C33 HAND SWEEP BEDDING SAND INTO JOINTS, NO GAP; 6" COMPACTED CRUSHED CONCRETE BASE MIN OF 98% MODIFIED PROCTOR MAX DRY DENSITY PER ASTM D1557, AASHTO T-180 (6" LIFTS)
- EMERGENCY ACCESS: 12' WIDE STABILIZED GRASS ACCESS SEE DETAIL, SHEET No. 33

LEGEND

- TYPE 'D' CURB
- TYPE 'F1' CURB
- TYPE DROP CURB
- TRANSITION LOCATION FROM TYPE 'D' CURB TO FLUSH
- SITE LIGHTING (21 PLACES) SEE SITE LIGHTING PLAN
- TRANSITION FROM "F1" CURB TO FLAT

DOG PARK / PLAYGROUND KEYNOTES:

- (A) GYMS FOR DOGS 6' PARK BENCH (DL-PB-6)
- (B) LIVIN THE DOG LIFE PARK WASTE RECEPTACLE (DL-PWR-FT)
- (C) ECO DOG STATION (DL-EDS100-ALUM)
- (D) GYMS FOR DOGS BRIDGE CLIMB (DL-BC-RPW)
- (E) GYMS FOR DOGS TRAINING PLATFORM (DL-TP-RPW)
- (F) GYMS FOR DOGS CLIMBING BOULDER-LARGE (DL-NCBLRG-GRC)
- (G) GYMS FOR DOGS WELCOME SIGN (DL-WELCM-SIGN)
- (H) GYMS FOR DOGS RULES SIGN (DL-RULES-SIGN)
- (I) PLAYGROUND PLAY STRUCTURE (SEE ARCHITECT PLANS)

NOTE:
ALL RIGHT-OF-WAY IMPROVEMENTS ARE BEING DESIGNED AND PERMITTED BY VOLUSIA COUNTY. IMPROVEMENTS SHOWN ON THIS PLAN ARE FOR INFORMATION PURPOSES ONLY.

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone: (386) 672-2782
www.NewkirkEngineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering, Transportation, CEI & Landscape Architecture
NEWKIRK ENGINEERING INC.

SITE LAYOUT PLAN
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 50'

DRAWING NUMBER
10

INDEX OF SHEETS	
DWG.NO.	DESCRIPTION
1	COVER
SU-1	BOUNDARY AND TOPOGRAPHIC SURVEY
3-6	DEVELOPMENT INFORMATION
7	DEMOLITION, TREE REMOVAL AND SWPPP PLAN
8	SWPPP DETAILS AND NOTES
9	OVERALL DEVELOPMENT PLAN
10	SITE LAYOUT PLAN
11	STRIPING AND SIGNAGE PLAN
12	DRAINAGE PLAN (SHT. 1 OF 3)
13	DRAINAGE PLAN (SHT. 2 OF 3)
14	DRAINAGE PLAN (SHT. 3 OF 3)
15	DRAINAGE DETAILS
16	CULTEC DETAILS
17	OVERALL GRADING PLAN
17.1	RETAINING WALL ELEVATIONS
17.2	RETAINING WALL CROSS SECTIONS
18	POND PLAN
19	GEOTEXTILE DETAILS & NOTES
20	GEOTEXTILE DETAILS & NOTES
21	CROSS SECTIONS
22	CROSS SECTIONS
23	CROSS SECTIONS
24	OVERALL UTILITY PLAN
25	UTILITY DETAILS AND NOTES
26	PLAN AND PROFILE - STATION 0+00 TO 5+00
27	PLAN AND PROFILE - STATION 5+00 TO 9+50
28	PLAN AND PROFILE - STATION 9+50 TO 13+50
29	PLAN AND PROFILE - STATION 13+50 TO 18+00
30	PLAN AND PROFILE - STATION 18+00 TO 22+00
31	PLAN AND PROFILE - STATION 22+00 TO 24+50
32	PLAN AND PROFILE - STATION 24+50 TO 27+87
33	MISCELLANEOUS DETAILS AND NOTES
34	UCNSB DETAILS AND NOTES
35	UCNSB DETAILS AND NOTES
36	RETAINING WALL DETAILS AND NOTES
37	FDOT STANDARD DETAILS
38	FDOT STANDARD DETAILS
39	FDOT STANDARD DETAILS
40	FDOT STANDARD DETAILS
41	FDOT MAINTENANCE OF TRAFFIC DETAILS
42	COMMON OPEN SPACE CALCULATION PLAN
43	INTERIOR LANDSCAPE CALCULATION
44	WETLAND IMPACT MAP
45	SITE LIGHTING PLAN
L0-00 - L1-07	LANDSCAPE PLANS
L2-01	IRRIGATION PLAN

SITE PLAN DRAWINGS FOR

THE COVE AT NEW SMYRNA

SECTION 22 TOWNSHIP 17 S, RANGE 33 E
732203000010
306 SUGAR MILL DRIVE
NEW SMYRNA BEACH, FL 32168

SEPTEMBER 2021
REVISED AUGUST 2022

PROJECT TEAM

PROPERTY OWNER / APPLICANT: TEG THE COVE AT NEW SMYRNA LLC
364 ROUTE 59, SUITE 110
AIRMONT, NY 10952
PHONE: (317) 800-0385
EMAIL: CMARSHALL@MPROPERTYSERVICESLLC.COM

CIVIL ENGINEER/ LANDSCAPE ARCHITECT: NEWKIRK ENGINEERING, INC.
1230 NORTH US HIGHWAY 1, SUITE 3
ORMOND BEACH, FL 32174
PHONE: (386) 872-7794
EMAIL: HARRY@NEWKIRK-ENGINEERING.COM

ARCHITECT: BRIAN FREDLEY, PRES.
BPF DESIGN INCORPORATED
207 FAIRVIEW AVENUE, DAYTONA BEACH, FL 32114
PHONE: (386) 257-0502
EMAIL: BFREDLEY@BPFDESIGN.COM

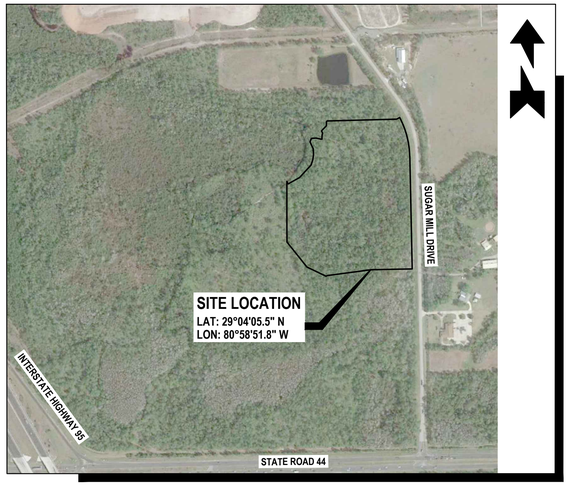
SURVEYOR: ACCURITE SURVEYS OF ORLANDO, INC
2012 E. ROBINSON STREET
ORLANDO, FL 32803
PHONE: (407) 894-6314
EMAIL: ACCU@ACCURIGHTSURVEYS.NET

GEOTECHNICAL: UNIVERSAL ENGINEERING SCIENCES
911 BEVILLE ROAD, SUITE 3
SOUTH DAYTONA BEACH, FL 32119
PHONE: (386) 756-1105
FAX: (386) 760-4067
EMAIL: BPOHL@UNIVERSALENGINEERING.COM

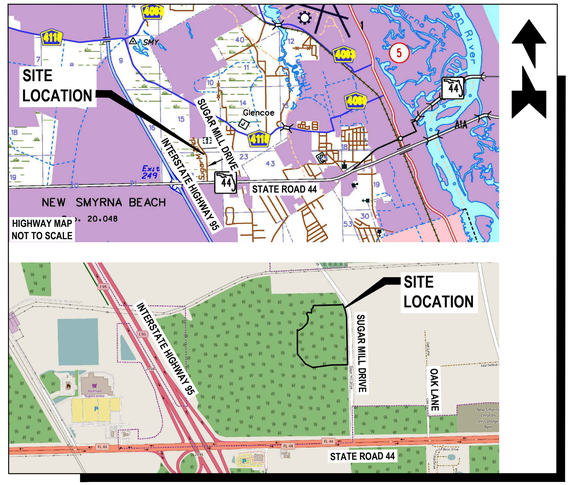
ENVIRONMENTAL: ECOLOGICAL CONSULTING SOLUTIONS, INC.
235 HUNT CLUB BOULEVARD, SUITE 202
LONGWOOD, FL 32779
PHONE: (407) 869-9434
FAX: (407) 869-9434
EMAIL: BGRIFFY@ECSFL.CC

CONTACT NUMBERS

PERMITTING SERVICES - CITY OF NEW SMYRNA BEACH (386) 410-2800
WATER - UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH (UCNSB) (386) 427-1361
WASTEWATER - UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH (UCNSB) (386) 427-1361
ELECTRIC - UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH (UCNSB) (386) 427-1361
GAS - FLORIDA PUBLIC UTILITIES CORPORATION (386) 668-9364
TELEPHONE - BELLSOUTH (386) 257-7650
CABLE - BRIGHTHOUSE NETWORKS (386) 788-4198



AERIAL MAP
SCALE: 1" = 500'



LOCATION MAP
SCALE: 1" = 1250'

LEGAL DESCRIPTION

TRACT "C", COASTAL WOODS COMMERCIAL PHASE 1, AS RECORDED IN PLAT BOOK 58 , PAGES 100 THROUGH 103 , PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA.

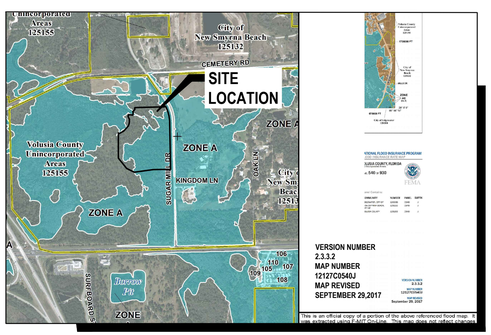
PROJECT STATEMENT

PROPOSE TO MULTI-FAMILY DEVELOPMENT AT COASTAL WOODS TRACT "C" CONSISTING OF 188 UNITS WITH 47 APARTMENT BUILDINGS, 5 GARAGE BUILDINGS, CLUBHOUSE WITH POOL , PLAYGROUND, TRASH COMPACTOR AND PASSIVE RECREATION AREA AROUND REUSE STORMWATER POND WITH FLOATING FOUNTAIN. THE SITE IS 18.67 ACRES WITH 9.168 ACRES OF IMPERVIOUS SURFACE.

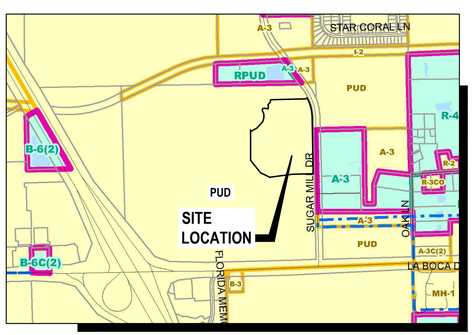
JURISDICTIONAL AGENCY	PERMIT No.
CITY OF NEW SYMRNA BEACH (SITE PLAN)	SP-25-21
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT (STORMWATER)	109884-9
FDEP (WASTEWATER)	-
FDEP (NPDES NOI)	FLR
VOLUSIA COUNTY HEALTH DEPARTMENT (WATER)	-
VOLUSIA COUNTY USE (RIGHT-OF-WAY)	2018-P-USE-0022

THE GENERAL CONTRACTOR SHALL ENSURE THAT ANY SUBCONTRACTOR HAS A COMPLETE SET OF CONSTRUCTION DRAWINGS FOR ITS RESPECTIVE WORK. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR SUBCONTRACTORS ONLY UTILIZING INDIVIDUAL DRAWINGS FOR ITS WORK WHERE ADDITIONAL INFORMATION MAY BE CONTAINED ON OTHER DRAWINGS WITHIN THE SET.

THESE DRAWINGS ARE THE PROPERTY OF NEWKIRK ENGINEERING, INC. ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING, INC. COPYRIGHT 2013 ALL RIGHTS RESERVED.

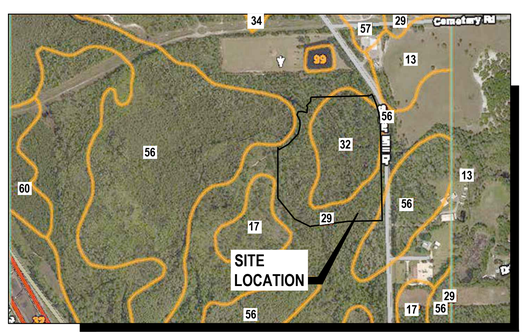


FLOOD ZONE MAP
FLOOD ZONE "A" (EL. 25.9) & "X"
SCALE: 1" = 1200'



ZONING MAP
SCALE: 1" = 500'

PROJECT ZONING DISTRICT:
PUD - PLANNED UNIT DEVELOPMENT



SOILS MAP
SCALE: 1" = 600'

SOIL TYPES:
(29) IMMOKALEE SAND (TYPE A/D)
(32) MYAKKA-MYAKKA, WET, FINE SANDS, OTO 2 PERCENT SLOPES (TYPE D)
(56) SAMSULA MUCK, FREQUENTLY PONDED, 0 TO 1 PERCENT SLOPES (TYPE D)

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7794
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

Harry Newkirk

Digitally signed by Harry Newkirk
DN: c=US, o=NEWKIRK ENGINEERING INC, ou=Staff, serialNumber=A01410D000001748E9DE000009916, cn=Harry Newkirk
Date: 2022.08.22 11:42:02 -04'00'

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

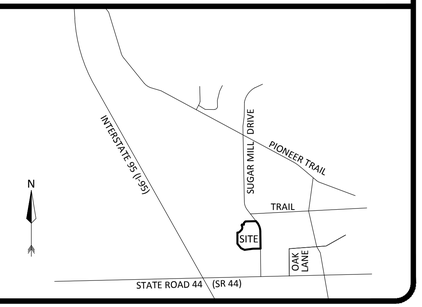
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

DRAWING NUMBER
1

PROJECT No. 2021-12

ALTA/NSPS LAND TITLE SURVEY

VICINITY MAP (NOT TO SCALE)



LEGAL DESCRIPTION

A PARCEL OF LAND LYING IN TRACT "C", COASTAL WOODS COMMERCIAL PHASE 1, AS RECORDED IN PLAT BOOK 58, PAGES 100 THROUGH 103, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA LYING IN SECTION 22, TOWNSHIP 17 SOUTH, RANGE 33 EAST VOLUSIA COUNTY, FLORIDA BEING DESCRIBED AS FOLLOWS:

BEGIN AT THE NORTHEASTERLY CORNER OF TRACT "A", COASTAL WOODS COMMERCIAL PHASE 1, PLAT BOOK 58, PAGES 100 THROUGH 103, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA; RUN THENCE S88°58'17"W ALONG THE NORTHERLY LINE OF SAID TRACT "A" A DISTANCE OF 289.07 FEET; THENCE S82°21'14"W ALONG SAID NORTHERLY LINE A DISTANCE OF 308.01 FEET; THENCE S63°41'21"W ALONG SAID NORTHERLY LINE A DISTANCE OF 8.98 FEET TO THE SOUTHEASTERLY MOST CORNER OF TRACT "B" (STORM WATER/DRAINAGE), COASTAL WOODS COMMERCIAL PHASE 1, PLAT BOOK 58, PAGES 101 THROUGH 103, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA; THENCE N64°18'29"W ALONG THE NORTHEASTERLY LINE OF SAID TRACT "B", A DISTANCE OF 148.09 FEET; THENCE N38°40'49"W ALONG THE EASTERLY LINE OF SAID TRACT "B", A DISTANCE OF 222.48 FEET; THENCE N00°25'11"W ALONG SAID EASTERLY LINE A DISTANCE OF 123.29; THENCE N00°00'00"E ALONG SAID EASTERLY LINE A DISTANCE OF 300.77 FEET; THENCE S29°12'56"E A DISTANCE OF 19.44 FEET; THENCE N60°33'34"E A DISTANCE OF 90.06 FEET; THENCE N42°57'26"E A DISTANCE OF 119.34 FEET; THENCE N17°20'21"E A DISTANCE OF 40.08 FEET; THENCE N08°23'08"E A DISTANCE OF 37.53 FEET; THENCE N03°49'06"W A DISTANCE OF 38.63 FEET; THENCE N25°29'00"W A DISTANCE OF 52.30 FEET; THENCE N20°40'12"E A DISTANCE OF 27.55 FEET; THENCE N87°23'38"E A DISTANCE OF 31.96 FEET; THENCE S78°38'44"E A DISTANCE OF 42.15 FEET; THENCE N03°06'15"E A DISTANCE OF 27.31 FEET; THENCE N14°10'49"E A DISTANCE OF 17.09 FEET; THENCE N32°08'25"W A DISTANCE OF 16.54 FEET; THENCE N43°42'25"E A DISTANCE OF 51.10 FEET; THENCE N01°26'13"W A DISTANCE OF 22.72 TO A POINT OF CURVATURE CONCAVE SOUTHEASTERLY, HAVING A RADIUS OF 10.40 FEET, A CHORD BEARING OF N43°33'47"E, A CHORD DISTANCE OF 14.71 FEET, RUN THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 90°00'00", A DISTANCE OF 16.34 FEET TO A POINT OF TANGENCY; THENCE N88°33'47"E A DISTANCE OF 480.45 FEET; THENCE N61°56'07"E A DISTANCE OF 25.29 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF SUGARMILL DRIVE AND BEING A NON-TANGENT POINT ON A CURVE CONCAVE WESTERLY, HAVING A RADIUS OF 600.00 FEET, A CHORD BEARING OF S14°37'41"E, A CHORD DISTANCE OF 278.84 FEET, RUN THENCE SOUTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 26°52'24", A DISTANCE OF 281.42 FEET TO A POINT OF TANGENCY; THENCE S01°11'30"E ALONG SAID WESTERLY RIGHT-OF-WAY LINE A DISTANCE OF 788.96 FEET TO THE POINT OF BEGINNING.

CONTAINS 813,342 SQUARE FEET OR 18.672 ACRES MORE OR LESS.

(WRITTEN BY SURVEYOR)
A PARCEL OF LAND LYING IN TRACT "C", COSTAL WOODS COMMERCIAL PHASE 1, AS RECORDED IN PLAT BOOK 58, PAGES 100 THROUGH 103, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA LYING IN SECTION 22, TOWNSHIP 17 SOUTH, RANGE 33 EAST VOLUSIA COUNTY, FLORIDA BEING DESCRIBED AS FOLLOWS:

BEGIN AT THE NORTHEASTERLY CORNER OF TRACT "A", COASTAL WOODS COMMERCIAL PHASE 1, PLAT BOOK 58, PAGES 100 THROUGH 103, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA; RUN THENCE S88°58'17"W ALONG THE NORTHERLY LINE OF SAID TRACT "A" A DISTANCE OF 289.07 FEET; THENCE S82°21'14"W ALONG SAID NORTHERLY LINE A DISTANCE OF 308.01 FEET; THENCE S63°41'21"W ALONG SAID NORTHERLY LINE A DISTANCE OF 8.98 FEET TO THE SOUTHEASTERLY MOST CORNER OF TRACT "B" (STORM WATER/DRAINAGE), COASTAL WOODS COMMERCIAL PHASE 1, PLAT BOOK 58, PAGES 101 THROUGH 103, PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA; THENCE N64°18'29"W ALONG THE NORTHEASTERLY LINE OF SAID TRACT "B", A DISTANCE OF 148.09 FEET; THENCE N38°40'49"W ALONG THE EASTERLY LINE OF SAID TRACT "B", A DISTANCE OF 222.48 FEET; THENCE N00°25'11"W ALONG SAID EASTERLY LINE A DISTANCE OF 123.29; THENCE N00°00'00"E ALONG SAID EASTERLY LINE A DISTANCE OF 300.77 FEET; THENCE S29°12'56"E A DISTANCE OF 19.44 FEET; THENCE N60°33'34"E A DISTANCE OF 90.06 FEET; THENCE N42°57'26"E A DISTANCE OF 119.34 FEET; THENCE N17°20'21"E A DISTANCE OF 40.08 FEET; THENCE N08°23'08"E A DISTANCE OF 37.53 FEET; THENCE N03°49'06"W A DISTANCE OF 38.63 FEET; THENCE N25°29'00"W A DISTANCE OF 52.30 FEET; THENCE N20°40'12"E A DISTANCE OF 27.55 FEET; THENCE N87°23'38"E A DISTANCE OF 31.96 FEET; THENCE S78°38'44"E A DISTANCE OF 42.15 FEET; THENCE N03°06'15"E A DISTANCE OF 27.31 FEET, THENCE N14°10'49"E A DISTANCE OF 17.09 FEET; THENCE N32°08'25"W A DISTANCE OF 16.54 FEET; THENCE N43°42'25"E A DISTANCE OF 51.10 FEET; THENCE N01°26'13"W A DISTANCE OF 22.72 TO A POINT OF CURVATURE CONCAVE SOUTHEASTERLY, HAVING A RADIUS OF 10.40 FEET, A CHORD BEARING OF N43°33'47"E, A CHORD DISTANCE OF 14.71 FEET, RUN THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 90°00'00", A DISTANCE OF 16.34 FEET TO A POINT OF TANGENCY; THENCE N88°33'47"E A DISTANCE OF 480.45 FEET; THENCE N61°56'07"E A DISTANCE OF 25.29 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF SUGARMILL DRIVE AND BEING A NON-TANGENT POINT ON A CURVE CONCAVE WESTERLY, HAVING A RADIUS OF 600.00 FEET, A CHORD BEARING OF S14°37'41"E, A CHORD DISTANCE OF 278.84 FEET, RUN THENCE SOUTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 26°52'24", A DISTANCE OF 281.42 FEET TO A POINT OF TANGENCY; THENCE S01°11'30"E ALONG SAID WESTERLY RIGHT-OF-WAY LINE A DISTANCE OF 788.96 FEET TO THE POINT OF BEGINNING.

CONTAINS 813,342 SQUARE FEET OR 18.672 ACRES MORE OR LESS.

SCHEDULE B-2 - EXCEPTIONS

7. RESTRICTIONS, COVENANTS, CONDITIONS, EASEMENTS AND OTHER MATTERS AS CONTAINED ON THE PLAT OF COASTAL WOODS COMMERCIAL PHASE I, RECORDED IN MAP BOOK 58, PAGES 100 THROUGH 103, OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA. **(NO EASEMENTS TO DEPICT.)**

8. EASEMENTS GRANTED TO UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH, FLORIDA RECORDED IN OFFICIAL RECORDS BOOK 3633, PAGE 1759 AND IN OFFICIAL RECORDS BOOK 3633, PAGE 1778, OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA. **(DOES NOT LIE WITHIN NOR TOUCH SUBJECT PROPERTY.)**

9. EASEMENT GRANTED TO FLORIDA POWER & LIGHT COMPANY RECORDED IN OFFICIAL RECORDS BOOK 3146, PAGE 601, OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA. **(DOES NOT LIE WITHIN NOR TOUCH SUBJECT PROPERTY.)**

10. EASEMENT DEED GRANTED TO UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH RECORDED SEPTEMBER 17, 2008 IN OFFICIAL RECORDS BOOK 6277, PAGE 2037, OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA. **(DOES NOT LIE WITHIN NOR TOUCH SUBJECT PROPERTY.)**

11. EASEMENT DEED GRANTED TO UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH RECORDED SEPTEMBER 17, 2008 IN OFFICIAL RECORDS BOOK 6277, PAGE 2044, OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA. **(DEPICTED HEREON.)**

12. TERMS AND PROVISIONS OF RESOLUTION NO. 2010-226 BY THE COUNTY COUNCIL OF VOLUSIA COUNTY, FLORIDA, RECORDED FEBRUARY 11, 2011 IN OFFICIAL RECORDS BOOK 6563, PAGE 4245, OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA. **(NOT A SURVEY MATTER.)**

13. TERMS AND PROVISIONS OF ORDINANCE NO. 75-15 BY THE COUNTY COUNCIL OF VOLUSIA COUNTY, FLORIDA, RECORDED DECEMBER 18, 2015 IN OFFICIAL RECORDS BOOK 7197, PAGE 1946, OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA. **(NOT A SURVEY MATTER.)**

14. TERMS AND PROVISIONS OF ORDINANCE NO. 80-15 PLANNED UNIT DEVELOPMENT AGREEMENT BY AND BETWEEN THE CITY COMMISSION OF THE CITY OF NEW SMYRNA BEACH, FLORIDA AND GEOSAM CAPITAL US (VENETIAN BAY) LP, RECORDED JANUARY 19, 2016 IN OFFICIAL RECORDS BOOK 7207, PAGE 4743; AS AFFECTED BY ORDINANCE NO. 24-18 FIRST AMENDMENT TO THE AMENDED AND RESTATED PLANNED UNIT DEVELOPMENT (PUD) MASTER DEVELOPMENT AGREEMENT (MDA) FOR COASTAL WOODS (F/K/A PIONEER TRAILS) RECORDED SEPTEMBER 27, 2018 IN OFFICIAL RECORDS BOOK 7900, PAGE 1902, OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA. **(NOT A SURVEY MATTER.)**

15. DEED OF CONSERVATION EASEMENT GRANTED TO ST JOHNS RIVER WATER MANAGEMENT DISTRICT RECORDED DECEMBER 30, 2016 IN OFFICIAL RECORDS BOOK 7343, PAGE 4623, OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA. **(DEPICTED HEREON.)**

NOTES

1. BEARINGS SHOWN HEREON ARE RELATIVE TO ASSUMED DATUM, BASED ON THE WEST RIGHT-OF-WAY LINE OF SUGARMILL DRIVE BEING N01°11'30"E.

2. THIS SURVEY REFLECTS ONLY MATTERS OF RECORD AS PROVIDED BY THE CLIENT OR CLIENTS REPRESENTATIVE.

3. THIS SURVEY WAS MADE ON THE GROUND. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

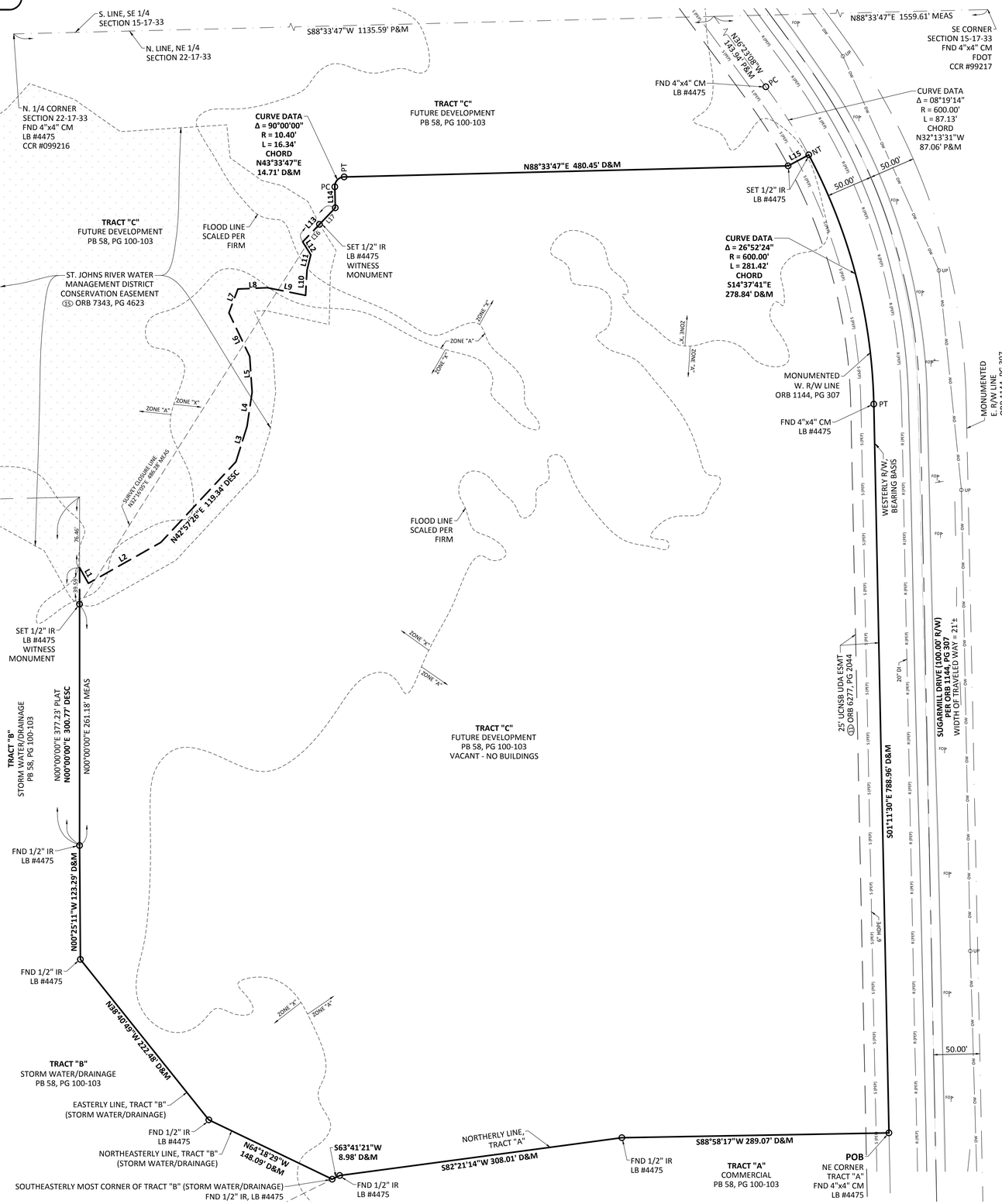
4. THIS BUILDING/LOT LIES IN ZONES "A" AND "X", BASED ON FLOOD INSURANCE RATE MAP NO. 12127C0540H AND 12127C0517J, COMMUNITY NO. 125155, VOLUSIA COUNTY, FLORIDA, EFFECTIVE FEBRUARY 19, 2014.

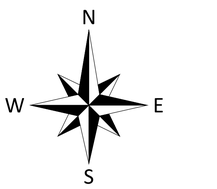
5. ACCORDING TO FLORIDA STATUTES, CHAPTER 472.025, A LAND SURVEYOR SHALL NOT AFFIX HIS SEAL OR NAME TO ANY PLAN OR DRAWING WHICH DEPICTS WORK WHICH HE IS NOT LICENSED TO PERFORM OR WHICH IS BEYOND HIS PROFESSION OR SPECIALTY THEREIN. THEREFORE, WE ARE UNABLE TO CERTIFY AS TO MUNICIPAL ZONING COMPLIANCE, INTERPRETATION OF ZONING CODES OR THE DETERMINATION OF VIOLATIONS THEREOF.

6. THIS SURVEY MADE WITH OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY'S FILE NO. 19098688, HAVING A EFFECTIVE DATE OF JANUARY 27, 2020, WITH A REVISED DATE OF FEBRUARY 6, 2020.

7. THIS SURVEY IS VALID ONLY FOR THE PARTIES TO WHOM IT IS CERTIFIED.

8. THIS SURVEY EXCEEDS THE ACCURACY REQUIREMENTS SET FORTH IN FLORIDA STATUTES.





ACCURIGHT
ACCURIGHT SURVEYS OF ORLANDO INC., LB 4475
2012 E. Robinson Street, Orlando, Florida 32803
www.AccurightSurveys.net
ACCU@AccurightSurveys.net
PHONE: (407) 894-6314

SCALE: 1" = 60' | JOB #51830 | SHEET 1 OF 1
ORIGINAL DATE: 10/15/19 | DRAWN BY: SNH

PREPARED FOR:
MARSHALL PROPERTY SERVICES, LLC
SUBDIVISION NAME: COASTAL WOODS COMMERCIAL PHASE 1
LOCATION:
SUGAR MILL DRIVE
NEW SMYRNA BEACH, FL 32168

LEGEND

BB	- BOTTOM OF BANK	ML	- METAL LID
BC	- BACK OF CURB	MS	- METAL SHED
	- BACK FLOW PREVENTER		- MITERED END SECTION
	- BENCHMARK		- MONITORING WELL
	- BOLLARD	N&D	- NAIL & DISK
-E-	- BURIED ELECTRIC	NAVD	- NORTH AMERICAN VERTICAL DATUM
BWF	- BARBED WIRE FENCE		
TV	- CABLE TV RISER	NGVD	- NATIONAL GEODETIC VERTICAL DATUM
-C-	- BURIED CABLE TV		
CALC	- CALCULATED	NTS	- NOT TO SCALE
C&M	- CALCULATED & MEASURED	OHE	- OVERHEAD ELECTRIC
Δ	- CENTRAL ANGLE	ORB	- OFFICIAL RECORDS BOOK
CBW	- CONCRETE BLOCK WALL	-OW-	- OVERHEAD WIRE
CC	- COVERED CONCRETE	PB	- PLAT BOOK
CF	- CONCRETE FLUME	PC	- POINT OF CURVATURE
CHW	- CONCRETE HEAD WALL	PEP	- PER ENGINEERING PLANS
CLF	- CHAIN LINK FENCE	PF	- PLASTIC FENCE
℄	- CENTERLINE	PG	- PAGE
CM	- CONCRETE MONUMENT	PI	- POINT OF INTERSECTION
CMP	- CORRUGATED METAL PIPE	P&M	- PLAT & MEASURED
+CO	- CLEAN OUT	POB	- POINT OF BEGINNING
CONC	- CONCRETE	POC	- POINT OF COMMENCEMENT
COVD	- COVERED	PRC	- POINT OF REVERSE CURVATURE
CP	- CONCRETE PAD		
CW	- CONCRETE WALKWAY	# PS	- PARKING SPACES
D&M	- DEED/DESC & MEASURED	PSM	- PROFESSIONAL SURVEYOR AND MAPPER
DE	- DRAINAGE EASEMENT		
DESC	- DESCRIPTION	PT	- POINT OF TANGENCY
	- DOT INLET	PVC	- PLASTIC PIPE
DOC #	- DOCUMENT #	R	- CURVE RADIUS
DP	- DUMPSTER PAD	RCP	- REINFORCED CONCRETE PIPE
DW	- DRIVEWAY	R/W	- RIGHT OF WAY
E	- EASEMENT NUMBER	S	- SANITARY MANHOLE
ELEC	- ELECTRIC METER	-S-	- SANITARY LINE
EB	- ELECTRICAL BOX	SDO	- SHOWN FOR DIRECTION ONLY
EL	- ELEVATION	SWF	- STOCK WIRE FENCE
ESMT	- EASEMENT	x00.00	- SPOT ELEVATION
EP	- EDGE OF PAVEMENT	-D-	- STORM/DRAIN LINE
FIRM	- FLOOD INSURANCE RATE MAP	SEW	- SEWER VALVE
		D	- STORM MANHOLE
FFE	- FINISHED FLOOR ELEVATION	-T-	- UNDERGROUND TELEPHONE
FH	- FIRE HYDRANT		- STORM INLET
-FM-	- FORCE MAIN	TB	- TOP OF BANK
FND	- FOUND	TP	- TRAFFIC POLE
FOC	- FIBER OPTIC BOX		- TRAFFIC SIGN
-FO-	- FIBER OPTIC LINE		- TRANSFORMER/JUNCTION BOX
-G-	- GAS LINE	TR	- TELEPHONE RISER
GM	- GAS METER	TSB	- TRAFFIC SIGNAL BOX
	- GUY WIRE ANCHOR	TYP	- TYPICAL
	- HANDICAP PARKING	UCNSB	- UTILITY COMMISSION NEW SYMRNA BEACH
HDPE	- HIGH DENSITY POLYETHYLENE	UDA	- UTILITY DRAINAGE EASEMENT
INV	- INVERT ELEVATION	UE	- UTILITY EASEMENT
IP	- IRON PIPE	UP	- UTILITY POLE
IR	- IRON ROD	-W-	- WATER LINE
IRR	- IRRIGATION VALVE	WF	- WOOD FENCE
L	- ARC LENGTH	WS	- WOOD SHED
LB	- LICENSED BUSINESS		- WATER VALVE
	- LIGHT POLE		- WATER METER
LSA	- LANDSCAPE AREA		- YARD DRAIN
LS	- LICENSE SURVEYOR		
MEAS	- MEASURED		
MF	- METAL FENCE		

BOUNDARY SURVEY DATE: 10/15/19

per 5J-17.051(3)(b)3 Florida Administrative Code

DATE:	JOB #	REVISION	BY:
11/19/19	51830	REVISED BOUNDARY & LEGAL DESCRIPTION	SNH
12/16/19	51830	REVISED BOUNDARY & LEGAL DESCRIPTION	SNH
2/13/20	51830	UPDATE TITLE	ANT

BOUNDARY AND LOCATION SURVEY

TO: MARSHALL PROPERTY SERVICES, LLC; OLD REPUBLIC NATIONAL TITLE COMPANY; TEG ACQUISTIONS A NEW JERSEY LIMITED LIABILITY COMPANY; SAUL EWING ARNSTEIN & LEHR LLP;

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 8, 9, 11 AND 13 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON OCTOBER 15, 2019.

RONALD K. SMITH, PSM 5797
"THE DATE OF SIGNATURE DOES NOT REVISE OR SUPERSEDE THE BOUNDARY SURVEY DATE OR REVISION DATE."

THIS SURVEY MEETS THE "STANDARDS OF PRACTICE" AS REQUIRED BY CHAPTER 5J-17 FLORIDA BOARD OF LAND SURVEYORS, PURSUANT TO SECTION 472.027 OF THE FLORIDA STATUTES.

"NOT VALID WITHOUT THE ORIGINAL SIGNATURE AND SEAL OF THIS FLORIDA LICENSED SURVEYOR AND MAPPER." -OR-
THE DIGITAL SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RONALD K. SMITH, PSM 5797.

COPYRIGHT © 1986 - 2020, ACCURIGHT SURVEYS

GENERAL CONSTRUCTION NOTES

1. GOVERNING SPECIFICATIONS: CITY OF NEW SMYRNA BEACH LAND DEVELOPMENT CODE, CITY OF NEW SMYRNA BEACH STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS, CURRENT EDITION. UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH (UCNSB) STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS, CURRENT EDITION.
2. ALL CONSTRUCTION WITHIN THE FDOT RIGHT-OF-WAY SHALL CONFORM TO THE 2021 / 2022 EDITION OF THE FDOT DESIGN STANDARD INDEXES, THE 2017 EDITION OF THE FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION AND THE 2010 EDITION OF THE FDOT UTILITY ACCOMMODATIONS MANUAL.
3. ALL UTILITY MATERIAL CONSTRUCTION AND TESTING COVERED BY THESE DRAWINGS SHALL COMPLY WITH THE UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH (UCNSB) STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS, LATEST EDITION. ALL UTILITY WORK AND CONNECTIONS SHALL BE COORDINATED WITH THE CITY OF NEW SMYRNA BEACH INSPECTORS.
4. CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL REQUIRED PERMITS. THE CONTRACTOR SHALL MAINTAIN COPIES OF ALL PERMITS AVAILABLE ON THE JOB SITE AT ALL TIMES.
5. THE CONTRACTOR SHALL MAINTAIN AT THE JOB SITE A RECORD COPY OF ALL CONSTRUCTION DRAWINGS AND SPECIFICATIONS ON WHICH ALL FIELD CHANGES ARE TO BE SHOWN. ALL CHANGES TO PLANS SHALL BE INCORPORATED IN THE "AS-BUILT" RECORD DRAWINGS SURVEY PROVIDED BY CONTRACTOR FOR REVIEW AND APPROVAL FROM ENGINEER OF RECORD.
6. THE UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH WILL OWN AND MAINTAIN ALL ELECTRIC, WATER, SEWER AND RECLAIM SERVICES LOCATED WITHIN THE RIGHT-OF-WAY AND UTILITY COMMISSION EASEMENTS.
7. THE CONTRACTOR SHALL PAY FOR AND OBTAIN A SITE ENGINEERING BUILDING PERMIT. THE ENGINEER WILL SCHEDULE THE PRE-CONSTRUCTION CONFERENCE BEFORE THE CONTRACTOR'S START OF WORK. THE CONTRACTOR SHALL CONTACT THE BUILDING DEPARTMENT AT (386) 410-2800 FOR INFORMATION ON ISSUANCE OF CITY PERMITS AND / OR OTHER REQUIREMENTS.
8. ALL WATER SERVICE CONSTRUCTION SHALL BE IN ACCORDANCE WITH "WATER SERVICE RULES, DESIGN AND CONSTRUCTION STANDARDS", UTILITIES COMMISSION AND CITY OF NEW SMYRNA BEACH, AUGUST 2015 EDITION.
9. ALL SANITARY SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH "WASTEWATER RULES, DESIGN AND CONSTRUCTION STANDARDS", UTILITIES COMMISSION AND CITY OF NEW SMYRNA BEACH, AUGUST 2015 EDITION.
10. ALL RECLAIMED WATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH "RECLAIMED WATER RULES, DESIGN AND CONSTRUCTION STANDARDS", UTILITIES COMMISSION AND CITY OF NEW SMYRNA BEACH, AUGUST 2015 EDITION.
11. ALL ELECTRICAL CONSTRUCTION SHALL BE IN ACCORDANCE WITH "ELECTRIC RULES AND STANDARDS", UTILITIES COMMISSION AND CITY OF NEW SMYRNA BEACH, OCTOBER 2010 EDITION.
12. ALL ROADWAY SIGNAGE AND MARKINGS SHALL BE IN CONFORMANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.
13. THE CONTRACTOR SHALL CONTACT ALL CONCERNED UTILITIES AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS.
14. LAND CLEARING OF THE PROJECT IS NOT ALLOWED UNTIL THE CITY ENGINEER AND/OR PLANNING DEPARTMENT ISSUES A LAND CLEARING PERMIT.
15. SHOP DRAWINGS AND CERTIFICATIONS FOR ALL MATERIALS AND STRUCTURES ARE REQUIRED. THE CONTRACTOR SHALL REVIEW AND SIGN ALL SHOP DRAWINGS. THE CONTRACTOR TO SUBMIT REVIEWED SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING THE MATERIALS REQUIRED FOR CONSTRUCTION.
16. THE LOCATION OF EXISTING UTILITIES HAS BEEN OBTAINED FROM THE MOST RELIABLE INFORMATION AVAILABLE TO THE ENGINEER. THIS INFORMATION IS NOT GUARANTEED AND IT SHALL BE EACH CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT NATURE OF ALL UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND TO NOTIFY NEWKIRK ENGINEERING, INC. AS TO DISCREPANCIES, IF ANY EXIST.
17. ALL SURVEY AND TOPOGRAPHICAL INFORMATION BASED ON SURVEY INFORMATION PROVIDED BY ALTAMAX SURVEYING; CONTRACTOR TO COORDINATE WITH SURVEYOR FOR ALL CONSTRUCTION BENCHMARK INFORMATION.
18. ALL SURVEY AND TOPOGRAPHICAL INFORMATION IS BASED ON THE NAVD 1988 DATUM. ALL PROPOSED CONSTRUCTION ELEVATIONS ARE BASED ON THE NAVD 1988 DATUM. ALL PROPOSED ELEVATIONS REFER TO FINISH GRADES.
19. THESE DRAWINGS AND THE PROJECT MANUAL ARE COMPLEMENTARY, AND ANY REQUIREMENT OF ONE SHALL BE A REQUIREMENT OF THE OTHER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CAREFULLY EXAMINE THE DRAWINGS AND SPECIFICATIONS AND TO COMPARE THE REQUIREMENTS OF EACH DIVISION AND ENSURE THAT EACH TRADE OR SUBCONTRACTOR IS MAKING THE ALLOWANCES NECESSARY TO PROVIDE THE OWNER A COMPLETE FACILITY, OPERATIONAL IN ALL RESPECTS, UNLESS OTHERWISE SPECIFICALLY STATED IN THE DRAWINGS.
20. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR INSTRUCTING THE CONTRACTOR IN THE METHODS OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE METHOD TO CONSTRUCT THE IMPROVEMENTS AS SHOWN ON THE PLANS.
21. ANY CHANGES TO THE APPROVED PLANS REQUIRE COMPLETION OF A CHANGE ORDER PROCESS.
22. LITTER CONTROL MEASURES TO PREVENT WIND-DRIVEN DEBRIS SHALL BE IMPLEMENTED THROUGHOUT THE DURATION OF CONSTRUCTION. ALL DEBRIS SHALL BE REMOVED AND THE PROJECT SITE CLEANED WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION.
23. AT NO TIME SHALL EXCAVATIONS BE LEFT UNCOVERED AFTER WORKING HOURS. CONTRACTOR SHALL SECURE THE WORK AREA AT THE END OF EACH DAY'S WORK.
24. AT ALL TIMES, THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT UNDERGROUND UTILITIES, STRUCTURES AND OTHER ASSOCIATED FACILITIES FROM DAMAGE DURING CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE MEASURES OF PROTECTION. ANY DAMAGED FACILITIES SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE CITY OR ENGINEER AT THE CONTRACTORS EXPENSE.
25. THERE SHALL BE NO DEVIATIONS FROM THESE PLANS UNLESS APPROVED IN WRITING BY THE ENGINEER AND THE OWNER.
26. ALL DISTURBED AREAS SHALL BE FULLY SODDED WITH BAHIA OR SEEDED AND MULCHED.
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CERTIFIED MATERIAL TEST RESULTS TO THE ENGINEER OF THE RECORD PRIOR TO THE RELEASE OF FINAL CERTIFICATION BY THE ENGINEER. TEST RESULTS MUST INCLUDE, BUT MAY NOT BE LIMITED TO, DENSITIES FOR SUBGRADE AND BASE DENSITIES AT UTILITY CROSSINGS, MANHOLES, INLETS, STRUCTURES. TEST SHALL INCLUDE ASPHALT GRADATION REPORTS, CONCRETE CYLINDERS, WATER MAIN TESTING, SANITARY SEWER TESTING, RECLAIM MAIN TESTING, ETC.
28. A MINIMUM OF 13'-6" OF VERTICAL CLEARANCE IS TO BE PROVIDED AND MAINTAINED FOR ALL ROADWAYS.
29. ALL ROADWAYS MUST HAVE A MINIMUM 25-FEET INSIDE AND 50-FEET OUTSIDE TURNING RADIUS.
30. WHERE NEW ASPHALT MEETS EXISTING ASPHALT, THE EXISTING ASPHALT SHALL BE SAW CUT TO PROVIDE A STRAIGHT EVEN LINE.
31. PRIOR TO REMOVING CURB OR GUTTER, THE ADJACENT ASPHALT SHALL BE SAW CUT TO PROVIDE A STRAIGHT EVEN LINE.
32. IF ANY MUCK-LIKE MATERIAL IS DISCOVERED, IT WILL BE REQUIRED TO BE REMOVED, BACKFILLED WITH APPROPRIATE FILL, COMPACTED, AND TESTED USING AASHTO T-180 MODIFIED PROCTOR METHOD.
33. FILL MATERIAL IS TO BE PLACED IN ONE FOOT LIFTS AND COMPACTED TO THE APPROPRIATE DENSITY (98% FOR PAVED AREAS AND 95% FOR BUILDING PADS AND ALL OTHER AREAS AS PER AASHTO T-180).
34. ROAD CLOSURES ARE SEPARATE FROM THE PERMIT AND REQUIRE PLAN REVIEW AND APPROVAL WITH 7 DAY ADVANCE NOTICE FROM THE OWNER OF THE AFFECTED RIGHT-OF-WAY PRIOR TO ANY ROAD CLOSURES. A MAINTENANCE OF TRAFFIC PLAN IS REQUIRED FOR ALL SITE CONSTRUCTION JOBS.
35. DURING CONSTRUCTION, AN H-20 LOAD RATED ALL WEATHER ACCESSIBLE ROADWAY SHALL BE MAINTAINED AT ALL TIMES FOR FIRE ACCESS AND EMERGENCY SERVICES.
36. ALL REQUIRED FIRE MAINS AND HYDRANTS SHALL BE INSTALLED AND OPERATIONAL PRIOR TO THE START OF VERTICAL BUILDING CONSTRUCTION.
37. NO BURYING OF ANY ORGANIC MATERIALS ALLOWED.
38. THERE WILL BE NO PROPOSED OVERHEAD UTILITY AND SERVICE LINES ASSOCIATED WITH THIS PROJECT. ALL UTILITY LINES AND SERVICES WILL BE INSTALLED UNDERGROUND.

EROSION CONTROL AND DEMOLITION CONSTRUCTION NOTES:

1. CONTRACTOR SHALL SCHEDULE A PRE-CONSTURCITON MEETING AT THE CITY PRIOR TO COMMENCE OF CONSTRUCTION.
2. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE SWPPP DURING CONSTRUCTION OPERATIONS.
3. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL DEVICES HAVE BEEN INSTALLED.
4. ALL REASONABLE EFFORT SHALL BE TAKEN DURING CONSTRUCTION TO CONTROL AND PREVENT EROSION AND TRANSPORT OF SEDIMENT MATERIAL TO INLETS, SURFACE DRAINS, WETLAND AND LAKE AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RESTORATION EFFORTS THAT MAY BE REQUIRED.
5. THE INSTALLATION OF TEMPORARY EROSION CONTROL BARRIERS SHALL BE COORDINATED WITH THE CONSTRUCTION OF THE PERMANENT EROSION CONTROL FEATURES TO THE EXTENT NECESSARY TO ASSURE ECONOMICAL, EFFECTIVE AND CONTINUOUS CONTROL OF EROSION AND WATER POLLUTION THROUGHOUT THE LIFE OF THE CONSTRUCTION PHASE.
6. THE TYPE OF EROSION CONTROL BARRIERS USED SHALL BE GOVERNED BY THE NATURE OF THE CONSTRUCTION OPERATION AND SOIL TYPE THAT WILL BE EXPOSED. SILTY AND CLAYEY MATERIAL USUALLY REQUIRE SOLID SEDIMENT BARRIERS TO PREVENT TURBID WATER DISCHARGE, WHILE SANDY MATERIAL MAY NEED ONLY SILT SCREENS TO PREVENT EROSION. DIVERSION DITCHES OR SWALES MAY BE REQUIRED TO PREVENT TURBID STORMWATER RUNOFF FROM BEING DISCHARGED TO OTHER WATER BODIES. IT MAY BE NECESSARY TO EMPLOY A COMBINATION OF BARRIERS, DITCHES, AND OTHER EROSION/TURBIDITY CONTROL MEASURES IF CONDITIONS WARRANT.
7. THE CONTRACTOR SHALL PROVIDE ROUTINE MAINTENANCE OF PERMANENT AND TEMPORARY EROSION CONTROL FEATURES UNTIL THE PROJECT IS COMPLETE AND ALL BARED SOIL STABILIZED. SILTATION ACCUMULATIONS GREATER THAN THE LESSER OF 12 INCHES OR ONE-HALF THE DEPTH OF THE SILTATION CONTROL BARRIER SHALL BE IMMEDIATELY REMOVED AND REPLACED IN UPLAND AREAS.
8. THE CONTRACTOR SHALL SWEEP ALL ADJACENT ROADWAYS AND PARKING AREAS THAT ARE AFFECTED BY THE CONSTRUCTION PROCESS ON A DAILY BASIS OR AS REQUIRED.
9. THE CONTRACTOR IS TO CONTROL ALL FUGITIVE DUST ORIGINATING ON THIS PROJECT BY WATERING OR OTHER METHODS AS REQUIRED.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT AND MAINTAIN ALL EROSION CONTROL DEVICES AND KEEP THEM IN GOOD CONDITION. ANY IMPACTS DUE TO EROSION OR FAILURE OF ANY EROSION CONTROL DEVICES SHALL BE REPORTED TO THE ENGINEER OF RECORD IMMEDIATELY. CORRECTIVE MEASURES WILL BE THE CONTRACTOR'S RESPONSIBILITY.
11. ANY DISCHARGE OF STORMWATER RUNOFF FROM THIS SITE SHALL BE THROUGH A CONTROL DEVICE TO CONTROL TURBIDITY AND SEDIMENT TRANSPORT. THIS INCLUDES THE DISCHARGE FROM ANY DEWATERING OPERATIONS.
12. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING ALL CRITERIA AS SET FORTH UNDER THE NPDES PERMITTING PROGRAM FOR CONSTRUCTION SITES OF THIS SIZE INCLUDING BUT NOT LIMITED TO THE ADHERENCE TO THE APPROVED POLLUTION PREVENTION CONTROL PLAN, TIMELY INSPECTIONS, PROJECT REPORTING AND DOCUMENTATION.
13. NO DEBRIS SHALL BE ALLOWED TO ENTER THE EXISTING STORM OR SANITARY SEWER SYSTEMS.
14. THE CONTRACTOR SHALL BECOME FAMILIAR WITH AND COMPLY WITH ALL REQUIREMENTS OF THE STATE PERMITS FOR THIS PROJECT. THE CONTRACTOR SHALL COMPLY WITH THE STORMWATER POLLUTION PREVENTION PLAN OF BOTH ON-SITE AND OFF-SITE IMPROVEMENTS. A SIGNED COPY OF THE STORMWATER POLLUTION PREVENTION PLAN IS TO BE KEPT ON THE PROJECT PREMISES AT ALL TIMES.
15. NO WORK WITHIN THE CITY RIGHT-OF-WAY, VOLUSIA COUNTY OR FLORIDA DEPARTMENT OF TRANSPORTATION SHALL BE COMMENCED WITHOUT 48 HOURS ADVANCE NOTICE TO THE CITY, COUNTY OR FDOT.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE UTILITIES COMMISSION NEW SMYRNA BEACH, "811" AND EMERGENCY SERVICES FOR RESPECTIVE UTILITY LOCATIONS AND "NOTICE" OF CONSTRUCTION ACTIVITY.
17. THE CONTRACTOR SHALL POST "NO TRESPASSING" SIGNAGE AT ALL SITE ENTRANCES PRIOR TO CONSTRUCTION.
18. THE CONTRACTOR SHALL OBTAIN A TREE REMOVAL PERMIT FROM THE LOCAL JURISDICTION PRIOR TO REMOVING ANY TREES FROM THIS PROJECT.
19. ALL REMOVED MATERIAL SHALL BE HAULED OFF-SITE TO AN APPROVED LANDFILL. TREES MAY BE LOGGED OR MULCHED FOR OFF-SITE DISPOSAL AT THE CONTRACTOR'S DISCRETION.
20. THE CONTRACTOR SHALL NOT ALLOW DEBRIS AND RUBBISH TO ACCUMULATE ONT THE SITE.
21. THE CONTRACTOR SHALL CLEAN UP THE JOB SITE IN AREAS WHERE NO WORK IS TO BE PERFORMED UNDER THIS CONTRACT FOLLOWING DEMOLITION. THE CONTRACTOR SHALL REMOVE ALL DEBRIS, RUBBISH, TEMPORARY FACILITIES, AND EQUIPMENT. THE CONTRACTOR SHALL LEVEL SURFACE IRREGULARITIES AND LEAVE THE WORK IN A NEAT AND PRESENTABLE CONDITION.
22. CONTRACTOR SHALL ROUGH GRADE STORMWATER SWALES AND RETENTION PONDS PRIOR TO CONSTRUCTION OF SITE IMPROVEMENTS.
23. SITE PREPARATION AND FILL OPERATIONS SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT AND RECOMMENDATIONS.
24. EXISTING STORM DRAINAGE TO REMAIN IN OPERATION AT ALL TIMES. CONTRACTOR TO MAINTAIN THE EXISTING, NEW OR TEMPORARY PIPING.
25. RELOCATION OF UTILITY POLES AND LINES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANY AND SHALL BE INCLUDED AS PART OF THE PROJECT SCOPE AND COST.
26. ALL ASPHALT PAVEMENT REMOVALS SHALL BE VERTICAL SAWCUT. ALL CONCRETE PAVEMENT REMOVALS SHALL BE EITHER AT EXISTING JOINTS OR VERTICAL SAWCUT. ACTIVE SERVICES SHALL BE SEVERED WITH PROPER NOTICE GIVEN TO LOCAL UTILITY COMPANIES HAVING JURISDICTION.
27. THE CONTRACTOR SHALL PROVIDE THE ENGINEER, CITY A MOT PLAN AT PRECONSTRUCTION MEETING. TRAFFIC SHALL BE ALLOWED TO CONTINUE DURING WORK. PROVIDE MEASURES TO DETOUR TRAFFIC AROUND OPEN EXCAVATION WITH ADEQUATE BARRICADES, SIGNAGE AND FLAGPERSON TO DIRECT TRAFFIC. EMERGENCY SERVICES SHALL BE NOTIFIED 48 HOUR IN ADVANCE.
28. IF ANY DEWATERING IS TO OCCUR DURING ANY PHASE OF CONSTRUCTION THEN DEWATERING ACTIVITY SHALL ADHERE TO CHAPTER 40C-22 FAC MORE SPECIFICALLY AS FOLLOWS. PER 40C-22.030(3) A "NOTICED GENERAL SHORT-TERM DEWATERING PERMIT" IS REQUIRED "ONLY IF" DEWATERING EXCEEDS 4 MILLION GALLONS PER DAY, EXCEPT DURING THE FIRST 120 HOURS OF DEWATERING WHEN THE DAILY AND INSTANTANEOUS PUMPAGE RATES SHALL NOT EXCEED 6 MILLION GALLONS PER DAY. AVERAGE DAILY WITHDRAWAL SHALL NOT EXCEED 2 MILLION GALLONS PER DAY FOR THE FIRST 60 DAYS OF THE DEWATERING ACTIVITY AND SHALL NOT EXCEED ONE MILLION GALLONS PER DAY OF A 180 DAY DURATION. EACH SPECIFIC DEWATERING PROJECT SHALL NOT EXCEED 180 DAYS. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE ANY DEWATERING ACTIVITY IS BELOW THE SPECIFIED THRESHOLD. OTHERWISE A PERMIT WILL BE REQUIRED AT THE EXPENSE OF THE CONTRACTOR. THE CONTRACTOR SHALL FAMILIARIZE ITSELF WITH CHAPTER 40C-22 FAC AND BE SOLELY RESPONSIBLE FOR OBTAINING AND SUBMITTING FORM RDS-50 TO SJRWMD A MINIMUM OF 10 DAYS PRIOR TO ANY DEWATERING ACTIVITY. SUBMITTAL OF FORM RDS-50 IS NOT REQUIRED IF DEWATERING IS 300,000 GALLONS PER DAY OR LESS AND WILL NOT EXCEED 30 DAYS IN DURATION.

SWPPP INSPECTIONS AND RECORD KEEPING:

INSPECTIONS ARE REQUIRED AT LEAST EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS FOLLOWING A RAINFALL EVENT OF ONE-HALF (½) OF AN INCH OF RAINFALL OR GREATER AND SHALL CONTINUE UNTIL THE SITE COMPLIES WITH FINAL STABILIZATION (NOTICE OF TERMINATION). INSPECTIONS MUST BE CONDUCTED BY A "QUALIFIED" INSPECTOR. "QUALIFIED" IS DEFINED AS A PERSON THAT A). HAS SUCCESSFULLY COMPLETED AND MET ALL REQUIREMENTS NECESSARY TO BE FULLY CERTIFIED THROUGH THE FDEP STORMWATER, EROSION AND SEDIMENTATION CONTROL INSPECTOR TRAINING PROGRAM; B). HAS SUCCESSFULLY COMPLETED AN EQUIVALENT FORMAL TRAINING PROGRAM; OR C). THAT IS QUALIFIED BY OTHER TRAINING OR PRACTICAL EXPERIENCE IN THE FIELD OF STORMWATER POLLUTION PREVENTION AND EROSION AND SEDIMENTATION CONTROL. EACH INSPECTION MUST BE FOLLOWED UP BY A REPORT DOCUMENTING THE INSPECTOR'S FINDINGS AND REQUEST THE REQUIRED MAINTENANCE AND/OR REPAIR FOR THE EROSION AND SEDIMENTATION CONTROL MEASURES. THESE RECORDS ARE USED TO PROVE THAT THE REQUIRED INSPECTION AND MAINTENANCE WERE PERFORMED AND SHALL BE PLACED IN THE SWPPP LEDGER. IN ADDITION TO INSPECTION AND MAINTENANCE REPORTS, RECORDS SHOULD BE KEPT OF CONSTRUCTION ACTIVITIES THAT OCCUR ON THE SITE. THE CONTRACTOR SHALL RETAIN COPIES OF THE SWPPP, ALL REPORTS AND DATA FOR A MINIMUM OF FIVE (5) YEARS AFTER THE PROJECT IS COMPLETE IN PAPER AND CD FORMAT.

SITE CLEARING AND GRADING CONSTRUCTION NOTES:

THE FOLLOWING MEASURES REPRESENT MINIMUM STANDARDS TO BE ADHERED TO BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION OF A PROJECT. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO BE EMPLOYED WHEN WARRANTED BY EXTREME CONDITIONS AND/OR THE FAILURE OF THE CONTRACTOR TO EMPLOY THE APPROPRIATE EROSION CONTROL BEST MANAGEMENT PRACTICES. FAILURE TO COMPLY WITH THESE PROVISIONS SHALL RESULT IN THE ISSUANCE OF A "STOP WORK ORDER".

1. NO DISTURBANCE OF PROPOSED CONSERVATION EASEMENTS, NATURAL BUFFERS, OR WATER BODIES IS PERMITTED. THE CONTRACTOR SHALL LOCATE THESE AREAS ON SITE AND BARRICADE THEM TO AVOID ANY UNAUTHORIZED CLEARING. BARRICADES AND OTHER PROTECTIVE FENCING ARE TO BE LOCATED AT THE DRIP LINE OF EXISTING NATIVE TREES OR AT THE EDGE OF THE NATIVE UNDER- STORY HABITAT, WHICHEVER IS NEAREST TO THE CONSTRUCTION ACTIVITY.
2. SPECIMEN AND HISTORIC TREES, CONSERVATION EASEMENTS, NATURAL VEGETATION BUFFERS, AND SIMILAR AREAS MUST BE PROTECTED BY BARRICADES OR FENCING PRIOR TO CLEARING. BARRICADES ARE TO BE SET AT THE DRIP LINE OF THE TREES AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. BARBED WIRE IS NOT PERMITTED AS A PROTECTIVE BARRIER.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL PROTECTIVE VEGETATION BARRICADES AND EROSION CONTROL STRUCTURES AND MEASURES IN PLACE PRIOR TO THE COMMENCEMENT OF ANY EARTHWORK, INCLUDING PRELIMINARY GRUBBING. THESE MEASURES INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY CONSTRUCTION FENCES, SYNTHETIC JUTE BALES, SILT FENCES, FLOATING TURBIDITY BARRIERS AND OTHER APPROVED BEST MANAGEMENT PRACTICES (BMP's). FURTHER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL EROSION CONTROL DEVICES THROUGHOUT THE DURATION OF THE ENTIRE PROJECT. MAINTENANCE SHALL INCLUDE PERIODIC INSPECTION AND REMOVAL OF DEBRIS ABUTTING EROSION CONTROL DEVICES.
4. PRIOR TO THE INSTALLATION OF ANY FILL MATERIALS ON SUBJECT SITE, SILT FENCES SHALL BE INSTALLED (1) ALONG SUBJECT SITE BOUNDARY AND PROPERTY LINES, (2) AT THE EDGE OF CONSERVATION EASEMENTS AND WETLANDS, (3) ADJACENT TO NATURAL LANDSCAPE BUFFERS, (4) AROUND THE PERIMETER OF EXISTING STORM WATER TREATMENT FACILITIES. THESE CONDITIONS SHALL APPLY IN ALL INSTANCES WHERE FILL MATERIAL IS BEING INSTALLED WITHIN 25 FEET OF ANY OF THE AFOREMENTIONED LOCATIONS.
5. WHERE FILL MATERIAL IS INTENDED TO BE INSTALLED ADJACENT TO EXISTING VEGETATION WHICH IS INTENDED TO REMAIN NATURAL. THE CONTRACTOR MAY INSTALL SILT FENCING AS A TREE PROTECTION MEASURE, IN LIEU OF INSTALLING EITHER WOOD BRACING OR ORANGE MESH FENCING. THIS PRACTICE IS ENCOURAGED BY THE CITY. IF THE SILT FENCE FAILS TO PROVIDE ADEQUATE PROTECTION FROM IMPACT DUE TO CONSTRUCTION, THEN ADDITIONAL CONSTRUCTION FENCING OR WOOD BRACING SHALL BE REQUIRED.
6. AT A MINIMUM, THE CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED AREAS. SUFFICIENT GRASS COVERAGE IS TO BE ESTABLISHED WITHIN TWO WEEKS.
7. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR THROUGH SCHEDULING, TO MINIMIZE THE DISTURBANCE OF SITE AREAS THAT HAVE BEEN BROUGHT TO THEIR PROPOSED FINAL GRADE. WITHIN SEVEN (7) DAYS OF BRINGING A SUBJECT AREA TO ITS FINAL GRADE OR INACTIVITY IN CONSTRUCTION, THE CONTRACTOR SHALL INSTALL SEED AND MULCH OR SOD, AS REQUIRED.
8. ONCE AN AREA IS SEEDED OR SODDED, IT MUST BE MAINTAINED BY THE CONTRACTOR TO ALLOW THE GRASS TO BECOME ESTABLISHED.IF THE GRASS IS NOT ESTABLISHED WITHIN TWO WEEKS THE CITY MAY REQUIRE THE CONTRACTOR TO RE-SEED OR A NON-VEGETATIVE OPTION MAY BE EMPLOYED.
9. ABSOLUTELY NO BURYING OF CLEARED MATERIALS IS PERMITTED.
10. THE REMOVAL OF ALL VEGETATION AND TOPSOIL ON THE FUTURE ROADWAY, PARKING AND BUILDING LOT AREAS IS REQUIRED TO BE COMPLETED PRIOR TO THE PLACEMENT OF FILL ON THOSE AREAS. THE TOPSOIL MAY BE TEMPORARILY STOCKPILED AND USED AS TOPSOIL OVER OVER PROPOSED GREEN AREAS SUCH AS PLANT BEDS, SODDED AREAS, AND WHERE TREES ARE TO BE INSTALLED OR RELOCATED.
11. A SIGNED, DATED, AND SEALED LETTER FROM A SOILS ENGINEER OR THE ENGINEER OF RECORD CERTIFYING THAT THE AREAS TO BE FILLED HAVE BEEN STRIPPED OF ORGANIC MATERIALS, MUST BE SUBMITTED TO THE CITY PRIOR TO FILLING.
12. FILL MATERIAL IS TO BE PLACED IN ONE FOOT LIFTS AND COMPACTED TO THE APPROPRIATE DENSITY 98% FOR PAVED AREAS AND 95% FOR BUILDING PADS AND ALL OTHER AREAS AS PER AASHTO T-180).
13. IF ANY MUCK MATERIAL IS DISCOVERED, IT SHALL BE REQUIRED TO BE REMOVED AND REPLACED WITH A SUITABLE MATERIAL THAT IS PROPERLY BACKFILLED, COMPACTED AND TESTED USING AASHTO T-180 MODIFIED PROCTOR METHOD.
14. STOCKPILING IS NOT GENERALLY PERMITTED BY THE CITY. WHEN ALLOWED, STOCKPILES SHALL NOT EXCEED SIX FEET IN HEIGHT MEASURED FROM THE ORIGINAL GRADE. AT A MINIMUM, STOCK PILES THAT WILL REMAIN IN PLACE IN EXCESS OF TWENTY DAYS SHOULD BE SEEDED AND MULCHED IMMEDIATELY UPON PLACEMENT OF THE FINAL LIFT.
15. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION AND THE IMPACT TO NEIGHBORING COMMUNITIES. ADEQUATE WATERING METHODS SHOULD BE EMPLOYED TO ALLOW DAILY COVERAGE OF THE ENTIRE LIMITS OF ALL AREAS THAT DO NOT HAVE AN ESTABLISHED VEGETATIVE COVER. METHODS TO BE EMPLOYED INCLUDE, BUT ARE NOT LIMITED TO, WATER TRUCKS, PERMANENT IRRIGATION SYSTEMS, TEMPORARY SPRINKLER SYSTEMS OPERATED BY PUMPING UNITS CONNECTED TO WET RETENTION PONDS, WATER CANNONS, TEMPORARY IRRIGATION SYSTEMS MOUNTED ATOP STOCKPILE AREAS, AND OTHER METHODS AS DEEMED NECESSARY BY THE CITY.
16. ALL FILL MATERIALS LOCATED BENEATH STRUCTURES AND PAVEMENT SHALL CONSIST OF CLEAN GRANULAR SAND FREE FROM ORGANICS AND SIMILAR MATERIAL 'THAT COULD DECOMPOSE.
17. FILL TO BE PLACED IN LANDSCAPED AREAS SHALL HAVE A Ph RANGE BETWEEN 5.5 AND 7.5, BE ORGANIC IN NATURE, FREE OF ROCKS AND DEBRIS, OR MATCH NATIVE EXISTING SOILS.

ROADWAY CONSTRUCTION NOTES:

ALL MATERIALS AND INSTALLATION METHODS USED FOR LAND DEVELOPMENT CODE REQUIRED IMPROVEMENTS FOR SUBDIVISIONS AND SITE PLANS SHALL BE IN CONFORMANCE WITH THE CITY, FOOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION), AND THE FOOT ROADWAY AND TRAFFIC DESIGN STANDARDS (LATEST EDITION).

1. ALL RIGHT-OF-WAY OTHER THAN ROADWAY AREAS SHALL BE GRASSED AND MULCHED OR SODDED. ALL SLOPES STEEPER THAN 6:1 SHALL REQUIRE SODDING.
2. THE FOLLOWING WILL BE THE STANDARD PROTECTION FOR DITCHES UNLESS DRAINAGE CALCULATIONS INDICATE OTHERWISE:

SWALE PROFILE GRADES	PROTECTION REQUIRED
0.2% - 1.0%	GRASSING AND MULCHING
1.0% - 4.0%	SODDING
4.0% AND GREATER	DITCH PAVING

3. THE PAVEMENT, BASE, AND SUBBASE THICKNESS PRESENTED ON DETAILS REPRESENTS THE MINIMUM REQUIREMENTS FOR LOCAL PUBLIC STREETS AND PRIVATE PARKING LOTS. THE CITY RESERVES THE RIGHT AT IT'S DISCRETION TO INCREASE THESE REQUIREMENTS FOR COLLECTOR AND ARTERIAL ROADWAYS AND PRIVATE PARKING LOTS SUBJECTED TO HEAVY VEHICULAR COMMERCIAL TRAFFIC.
4. THE DEVELOPER SHALL PROVIDE AT THEIR OWN EXPENSE A CERTIFIED SOILS ENGINEERING LABORATORY TO PERFORM ALL FIELD AND LABORATORY TESTING REQUIRED TO VERIFY THAT THE CONSTRUCTION IS IN COMPLIANCE WITH THE CITY'S MINIMUM STANDARDS. IT IS THE RESPONSIBILITY OF THE DEVELOPER TO ENSURE THAT COPIES OF ALL TEST REPORTS ARE PROVIDED TO THE CITY'S DESIGNATED SITE INSPECTOR PRIOR TO THE PROJECT FINAL INSPECTION IN ORDER TO ALLOW PROJECT ACCEPTANCE BY THE CITY.
5. THE LIMITS OF STABILIZATION SHALL EXTEND A DISTANCE OF SIX INCHES (6") BELOW THE BOTTOM OF THE BASE AND OUTWARD TO TWELVE INCHES (12in) BEYOND THE CURB.
6. THE STABILIZING MATERIAL, IF REQUIRED, SHOULD BE A HIGH BEARING VALUE SOIL, SAND-CLAY, LIMEROCK, RECYCLED CONCRETE, SHELL, OR OTHER MATERIAL AS APPROVED BY THE CITY'S DESIGNATED SITE INSPECTOR AND A LICENSED SOILS ENGINEER.
7. THE SUBBASE SHALL BE STABILIZED NOT LESS THAN FORTY (40) POUNDS LIMEROCK BEARING RATIO (LBR). A COMPACTION OF NO LESS THAN NINETY-EIGHT (98%) PERCENT DENSITY BASED ON AASHTO T-180 SHALL BE REQUIRED.
8. FOR ROADWAYS, TESTS FOR SUBBASE BEARING CAPACITY AND COMPACTION SHALL BE DONE AT A MINIMUM OF EVERY 300 FEET AND SHALL BE STAGGERED TO THE LEFT, RIGHT, AND AT CENTER LINE OF

UCNSB POTABLE WATER CONSTRUCTION SPECIFICATIONS

SECTION 3 - MATERIALS

ALL MATERIALS USED IN POTABLE WATER FACILITIES, OR THAT COME INTO CONTACT WITH POTABLE WATER, SHALL:

- COMPLY WITH THE LATEST REQUIREMENTS OF THE FEDERAL SAFE DRINKING WATER ACT;
- COMPLY WITH NSF/ANSI STANDARD 61: DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS;
- BE ADEQUATELY IDENTIFIED BY THE COLOR BLUE;
- BE LEAD-FREE BRASS;
- BE MARKED WITH THE MANUFACTURER, BATCH NUMBER AND STRENGTH DESIGNATION;
- CONFORM TO DUCTILE IRON PIPE SIZE (D.I.P.S.) STANDARDS AND
- HAVE STAINLESS STEEL NUTS AND BOLTS PER ASTM F593, WHERE APPLICABLE.

3.1 PIPE

A. DUCTILE IRON

DUCTILE IRON PIPE, INCLUDING FITTINGS AND RESTRAINTS, SHALL CONFORM TO ASTM A536 AND AWWA C104, C110, C111, C115, C116, C153 AND C600. DUCTILE IRON PIPE SHALL BE PRESSURE CLASS 350.

B. POLYVINYL CHLORIDE (PVC)

PVC PIPE SHALL CONFORM TO ASTM D1784 AND AWWA C900, C905 AND C605 AND SHALL HAVE MINIMUM DIMENSION RATIO (DR) 18. PVC PIPE MUST BE CAPABLE OF CONNECTING TO STANDARD DUCTILE IRON VALVES AND FITTINGS USING MECHANICAL JOINTS.

C. HIGH DENSITY POLYETHYLENE (HDPE)

HDPE PIPE SHALL HAVE MINIMUM STANDARD DIMENSION RATIO (SDR) 11. HDPE SHALL MATCH THE INSIDE PIPE DIAMETER TO WHICH IT IS CONNECTED.

D. FUSIBLE PVC

FUSIBLE PVC MAY BE USED WITH UCNSB ENGINEERING DEPARTMENT APPROVAL AS SHOWN IN DRAWINGS APPROVED BY THE ENGINEERING MANAGER.

E. STEEL

BLACK OR GALVANIZED STEEL (GS) PIPE IS PROHIBITED.

3.2 FIRE HYDRANTS

FIRE HYDRANTS SHALL CONFORM TO AWWA C502 AND BE MANUFACTURED BY AMERICAN FLOW CONTROL OR MUELLER COMPANY. FIRE HYDRANTS SHALL BE TRAFFIC BREAKAWAY TYPE DESIGNED TO BREAK UPON TRAFFIC IMPACT TO PREVENT FURTHER DAMAGE TO THE HYDRANT AND PIPING AND PAINTED OSHA YELLOW.

FIRE HYDRANTS SHALL HAVE:

- 6" (MINIMUM) DUCTILE IRON PIPING, GATE VALVE AND MECHANICAL JOINT BASE;
- 5 ¼" BARREL, ONE 4 ½" PUMPER NOZZLE AND TWO 2 ½" HOSE NOZZLES (WITH CAPS AND CHAINS);
- OPERATING NUT OPENING IN THE COUNTERCLOCKWISE DIRECTION WITH AN ARROW CAST ON THE OPEN DIRECTION;
- CLOSED WEEP HOLE AND
- STAINLESS STEEL BOLTS ON TOP AND BOTTOM FLANGE (ASTM F593).

3.3 VALVES

THE VALVE TYPE, SIZE, RATING, FLOW DIRECTION ARROW AND MANUFACTURER SHALL BE CLEARLY MARKED ON EACH UNIT, AS APPLICABLE. VALVES SHALL OPEN IN THE COUNTERCLOCKWISE DIRECTION WITH AN ARROW CAST ON THE OPERATING NUT IN THE OPEN DIRECTION. HAND WHEELS REQUIRE UCNSB ENGINEERING DEPARTMENT APPROVAL. VALVE BOXES SHALL BE CAST IRON WITH A ROUND COVER LABELED WATER.

A. GATE VALVES

GATE VALVES SHALL BE USED FOR POTABLE WATER MAINS 24" OR LESS AND CONFORM TO AWWA C509 AND C515. GATE VALVES SHALL HAVE A DUCTILE IRON BODY, NON-RISING STEM TYPE, RESILIENT SEAT AND SHALL BE EQUIPPED WITH 2" SQUARE CAST IRON WRENCH NUTS.

B. BUTTERFLY VALVES

BUTTERFLY VALVES SHALL BE USED FOR POTABLE WATER MAINS 26" OR LARGER AND CONFORM TO AWWA C504. VALVES SHALL BE CAST OR DUCTILE IRON BODY, ALLOY CAST IRON OR DUCTILE IRON DISC, BODY MOUNTED SEAT, ONE-PIECE STAINLESS STEEL SHAFT (SHORT OR LONG BODY TYPE) AND THE VALVE CLASS, SHAFT SIZE AND OTHER SPECIAL REQUIREMENTS SELECTED IN ACCORDANCE WITH THE SPECIFIC DESIGN. VALVE OPERATION SHALL BE BY APPROVED GEAR ACTUATORS, WITH SEALED ENCLOSURES FOR BURIED OR SUBMERGED SERVICE. POSITION INDICATORS SHALL BE FURNISHED, AS REQUIRED. UNITS SHALL BE EQUIPPED WITH ACTUATING NUTS, CAST IRON HAND-WHEELS OR CHAIN OPERATORS, WITH GALVANIZED STEEL CHAINS, AS APPROPRIATE FOR THE INSTALLATION. APPURTENANCES SHALL BE FURNISHED BY THE VALVE MANUFACTURER.

C. AIR RELEASE VALVES

AIR RELEASE VALVES SHALL BE A.R.I. FLOW CONTROL ACCESSORIES D-040 2" COMBINATION AIR VALVE, OR APPROVED EQUAL.

D. TAPPING VALVES AND SLEEVES

TAPPING SLEEVES SHALL BE FULL LENGTH, STAINLESS STEEL, MECHANICAL TYPE, WITH TEST PORT, AND SUITABLE FOR EITHER WET OR DRY INSTALLATION. TAPPING VALVES SHALL BE RESILIENT SEAT GATE VALVES.

E. BLOW OFF VALVES

BLOW OFF VALVES SHALL BE A 2" LOCK TYPE VALVE (CURB STOP) AND SHALL BE INSTALLED IN AN 11" X 18" FLARED WALL METER BOX WITH TIER 22 RATING.

3.4 SERVICES

POTABLE WATER SERVICES 1" OR 2" SHALL BE POLYETHYLENE (PE) TUBING, PE4710 PRESSURE PIPE AND CONFORM TO AWWA C901, ASTM D2737 & ASTM D2239. SERVICE SADDLES SHALL BE DOUBLE BANDED WITH EPOXY COATED DUCTILE IRON BODY WITH STAINLESS STEEL STRAPS AND BOLTS.

CORPORATION STOPS SHALL CONFORM TO AWWA C800 AND BE BALL VALVE TYPE WITH A COMPRESSION OUTLET AND A CC THREADED INLET.

CURB STOPS SHALL CONFORM TO AWWA C800, BE BALL VALVE TYPE AND HAVE PADLOCK WING AND COMPRESSION CONNECTIONS.

POTABLE WATER SERVICES 3" AND LARGER AND FIRE SERVICES SHALL CONFORM TO SECTIONS 3.01 AND 3.03.

3.5 VAULTS

SEE SECTION 2.04.

3.6 CASINGS

A. DUCTILE IRON

SEE SECTION 3.01.

B. PVC

PVC CASINGS FOR 1" OR 2" POTABLE WATER SERVICES SHALL BE SCHEDULE 40. PVC CASINGS FOR WATER MAINS SHALL BE DR 25, MINIMUM.

C. HDPE

HDPE CASINGS SHALL BE DR 13.5, MINIMUM.

D. FUSIBLE PVC

FUSIBLE PVC CASINGS REQUIRE UCNSB ENGINEERING DEPARTMENT APPROVAL.

E. STEEL

STEEL SHALL CONFORM TO ASTM A139 GRADE B AND HAVE A BLACK PROTECTIVE BITUMINOUS COATING, MINIMUM OF 5 MILS THICK, INSIDE AND OUT.

SECTION 4 - CONSTRUCTION

PRIOR TO CONSTRUCTION:

- A PRECONSTRUCTION MEETING SHALL BE SCHEDULED BY THE DEVELOPER OR ENGINEER OF RECORD. IN ATTENDANCE SHALL BE THE UCNSB, THE LICENSED CONTRACTOR, INCLUDING ALL SUB-CONTRACTORS, THE DEVELOPER AND THE ENGINEER OF RECORD.
- SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE UCNSB ENGINEERING DEPARTMENT. SHOP DRAWINGS WILL NOT BE ACCEPTED UNLESS STAMPED WITH APPROVAL BY THE ENGINEER OF RECORD AND THE CONTRACTOR.
- A MINIMUM NOTICE OF 48 HOURS SHALL BE PROVIDED TO THE UCNSB ENGINEERING DEPARTMENT INSPECTOR.

DURING CONSTRUCTION:

- ALL PERMITS, SHOP DRAWINGS AND CONSTRUCTION PLANS SHALL BE RETAINED BY THE CONTRACTOR ON-SITE. FAILURE TO PRODUCE SUCH ITEMS ON-SITE WILL RESULT IN WORK STOPPAGE.
- THE CONTRACTOR, UNDER NO CIRCUMSTANCES, SHALL OPERATE AN EXISTING UCNSB POTABLE WATER VALVE AND/OR ALLOW FLOW INTO AN EXISTING POTABLE WATER MAIN WITHOUT FINAL ACCEPTANCE AND APPROVAL FROM THE UCNSB ENGINEERING DEPARTMENT.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL WATER USED DURING CONSTRUCTION AND SETTING UP AN ACCOUNT TO USE A UCNSB CONSTRUCTION METER. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CONSTRUCTION METER UNTIL RETURNED TO THE UCNSB AND THE DEPOSIT IS REFUNDED. USE OF A PRIVATE METER IS PROHIBITED.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.

4.1 INSTALLATION

A. POTABLE WATER MAINS

PIPE SHALL REMAIN FREE OF DIRT AND FOREIGN MATERIALS DURING CONSTRUCTION. WHEN WORK IS STOPPED, FOR ANY REASON, THE CONTRACTOR SHALL SECURELY SEAL THE OPEN ENDS OF THE PIPE. BELL AND SPIGOT SURFACES SHALL BE WIPED FREE OF DEBRIS PRIOR TO APPLYING LUBRICANT SEALER AND JOINTED WITHIN 5 MINUTES OF APPLICATION. THE SPIGOT END SHALL BE CENTERED INTO THE BELL AND PROPERLY SEATED BY MODERATE FORCE BY HAND OR PUSH BAR WITH A CUSHION BLOCK.

OVER-HOMED PIPES WILL BE REJECTED. IT IS RECOMMENDED THAT HUMAN FORCE BE USED TO HOME BELL AND SPIGOTS FOR PIPE SIZES 12" OR LESS. IF MECHANICAL EQUIPMENT IS USED TO HOME BELL AND SPIGOT PIPE, AN INSERTION LIMITING DEVICE WILL BE REQUIRED AT EACH JOINT TO PREVENT OVER-HOMING, E.G., EBBA MEGA STOP SERIES 5000 OR APPROVED EQUAL.

CONCRETE ENCASEMENT AT UTILITY CROSSINGS MUST BE APPROVED BY THE UCNSB ENGINEERING DEPARTMENT.

THE CONTRACTOR SHALL INSTALL BLUE COATED COPPER 14 GAUGE LOCATE WIRE ADHERED TO THE TOP OF ALL NEW PIPE AND APPURTENANCES. THE WIRE SHALL BE BUNDLED IN EACH VALVE BOX TO EXTEND 2' ABOVE FINISHED GRADE AND 6' WITHIN VAULTS. A DUPLICATE WIRE SHALL BE INSTALLED ON ALL PIPE DIRECTIONALLY DRILLED. UPON CONSTRUCTION COMPLETION, THE CONTRACTOR WILL BE REQUIRED TO TEST THE LOCATE WIRE FOR CONTINUITY.

THE CONTRACTOR SHALL INSTALL DETECTABLE UNDERGROUND UTILITY MARKING TAPE 18" BELOW FINISHED GRADE LABELED CAUTION WATER MAIN BELOW.

THE CONTRACTOR SHALL INSTALL BLUE VALVE MARKERS, 3' ABOVE AND 3' BELOW FINISHED GRADE, WHERE REQUIRED BY THE UCNSB ENGINEERING DEPARTMENT.

FITTINGS AND APPURTENANCES MUST NOT BEAR ON THE PIPE WHEN INSTALLED AND MUST BE FULLY AND INDEPENDENTLY SUPPORTED ON THE TRENCH BEDDING. THE MAXIMUM DEFLECTION OF PIPES AND FITTINGS SHALL NOT EXCEED THE MANUFACTURER'S RECOMMENDATIONS. FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH AWWA C600 AND C605, ALONG WITH THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL INSTALL ELECTRONIC MARKERS AT EACH:

- MAIN CONNECTION;
- FITTING;
- IN-LINE VALVE AND
- BLOW OFF VALVE ASSEMBLY.

B. FIRE HYDRANTS

FIRE HYDRANTS SHALL BE INSTALLED:

- PLUMB;
- WITH THE PUMPER NOZZLE FACING THE STREET, ACCESS OR FIRE LANE;
- RESTRAINED TO THE POTABLE WATER MAIN SUPPLYING IT;
- WITH THE MANUFACTURER'S BURY/GROUND LINE VISIBLE;
- WITH THE BASE FLANGE 12" ABOVE FINISHED GRADE MAXIMUM;
- WITH THE PUMPER NOZZLE BETWEEN 18" AND 30" ABOVE SOD AND
- WITH 6" OF FDOT #57 STONE UNDER THE BASE AND VALVE.

UCNSB POTABLE WATER CONSTRUCTION SPECIFICATIONS (cont.)

C. VALVES

VALVES SHALL BE CLEARED OF ALL FOREIGN MATTER BEFORE INSTALLATION AND INSTALLED TO PREVENT DEBRIS FROM BECOMING LODGED IN THE SEAT. VALVES SHALL BE INSTALLED WITH STEMS VERTICALLY ABOVE THE CENTERLINE OF THE PIPE. UNDER EACH VALVE AND AT THE PIPE CONNECTION 6" OF FDOT #57 STONE SHALL BE INSTALLED. VALVES SHALL BE INSPECTED IN THE OPENED AND CLOSED POSITION.

VALVE BOXES SHALL BE CENTERED OVER THE OPERATING NUT. VALVE BOXES SHALL NOT TRANSMIT SURFACE LOADS DIRECTLY TO EITHER THE PIPE OR VALVE. VALVE BOX EXTENSIONS SHALL BE PVC SDR 35.

VALVE BOXES IN PAVED AREAS SHALL BE FLUSH WITH FINISHED GRADE. IN UNPAVED AREAS, VALVE LIDS SHALL BE 2" ABOVE FINISHED GRADE AND HAVE PRECAST CONCRETE COLLARS.

VALVE COVERS SHALL BE PAINTED BLUE. AFTER FINAL ACCEPTANCE, TERMINAL VALVES SHALL BE PERMANENTLY CLOSED WITH THE COVER PAINTED RED.

D. SERVICES

1" OR 2" POTABLE WATER SERVICES SHALL TERMINATE WITH A CURB STOP STUBBED 2' TO 3' ABOVE FINISHED GRADE SUPPORTED BY A 6' LONG 4" DIAMETER PVC PIPE SECURED WITH CABLE TIE

STRAPS, BE MARKED WITH A 'A' IN CURBS OR AT EDGE OF PAVEMENT PAINTED BLUE AND BE INSTALLED IN A CASING UNDER ROADWAYS.

POTABLE WATER SERVICES 3" AND LARGER AND FIRE SERVICES SHALL CONFORM TO SECTIONS 3.01 AND 3.03.

E. VAULTS

VAULTS SHALL BE INSTALLED PLUMB ON 6" OF FDOT #57 STONE. RINGS AND COVERS IN PAVED AREAS SHALL BE FLUSH WITH FINISHED GRADE. IN UNPAVED AREAS, RINGS AND COVERS SHALL BE 4" ABOVE FINISHED GRADE.

SEE SECTION 2.04 FOR SUPPLEMENTAL INFORMATION.

4.2 DELIVERY AND HANDLING OF MATERIALS

THE UCNSB ENGINEERING DEPARTMENT INSPECTOR HAS THE RIGHT TO REFUSE ANY DAMAGED OR DROPPED MATERIALS. ALL MATERIALS SHALL BE DELIVERED AND DISTRIBUTED AT THE SITE BY THE CONTRACTOR. ALL PIPE, FITTINGS, VALVES AND APPURTENANCES SHALL BE LOADED AND UNLOADED BY HOISTS OR SKIDDING SO AS TO PREVENT SHOCK OR DAMAGE TO THE MATERIAL. UNDER NO CIRCUMSTANCES SHALL MATERIAL BE DROPPED. PIPE THAT IS MISSHAPED AND/OR HAS LINING/COATING DAMAGE WILL BE REJECTED. CONCRETE STRUCTURES WITH HOLES OR HONEYCOMBS WILL BE REJECTED.

4.3 EXCAVATION AND TRENCHING

TRENCHES SHALL BE A DEPTH WHICH WILL PROVIDE COVER FROM TOP OF PIPE TO FINISHED GRADE AS SHOWN ON APPROVED CONSTRUCTION DRAWINGS. EXCESS EXCAVATED MATERIAL, UNSALVAGEABLE MATERIAL, AND DEBRIS SHALL BE WASTED AND DISPOSED OF BY THE CONTRACTOR.

ALL EXCAVATED MATERIAL RETAINED FOR BACKFILL SHALL BE PILED IN SUCH A MANNER AS NOT TO ENDANGER THE WORK OR OBSTRUCT SIDEWALKS, DRIVEWAYS OR DRAINAGE. FIRE HYDRANTS, VALVE COVERS, VAULT HATCHES AND OTHER UTILITY CONTROLS SHALL NOT BE OBSTRUCTED AND SHALL REMAIN ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION.

THE CONTRACTOR SHALL EXERCISE SOUND CONSTRUCTION PRACTICES IN EXCAVATING AND MAINTAINING THE PIPE TRENCH TO PREVENT DAMAGE TO ANY FOUNDATION, STRUCTURE, POLE LINE, PIPELINE OR OTHER FACILITY. IF, AS A RESULT OF THE EXCAVATION, A FOUNDATION, STRUCTURE, POLE LINE, PIPELINE OR OTHER FACILITY IS ENDANGERED, THE CONTRACTOR SHALL IMMEDIATELY TAKE REMEDIAL ACTION AT HIS OWN EXPENSE. NO ACT OF THE UCNSB SHALL IN ANY WAY AFFECT THE LIABILITY OF THE CONTRACTOR FOR DAMAGES, EXPENSES OR COSTS THAT MAY RESULT FROM TRENCH EXCAVATION.

SHEET PILING, SHORING, SHEETING, BRACING OR OTHER SUPPORTS REQUIRED FOR CONSTRUCTION SHALL BE DESIGNED, FURNISHED, PLACED, MAINTAINED AND REMOVED BY THE CONTRACTOR. SHEET PILING AND TIMBERS USED IN TRENCH EXCAVATIONS SHALL BE WITHDRAWN IN SUCH A MANNER SO AS TO PREVENT SUBSEQUENT SETTLEMENT OF THE PIPE OR ADDITIONAL BACKFILL LOADINGS WHICH MIGHT OVERLOAD THE PIPE.

ALL EXISTING UNDERGROUND UTILITIES, WHETHER OR NOT THEY ARE SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS OR THEIR LOCATIONS ARE MADE KNOWN TO THE CONTRACTOR PRIOR TO EXCAVATION, SHALL BE PROTECTED FROM DAMAGE AND, IF DAMAGED, SHALL BE REPAIRED TO EQUAL THE PRIOR SERVICEABILITY OR REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE. THE UCNSB DOES NOT ASSUME RESPONSIBILITY FOR THE CORRECTNESS OF THE APPROVED CONSTRUCTION DRAWINGS. REPAIRS OR REPLACEMENTS SHALL BE MADE AT THE EARLIEST PRACTICABLE TIME AND IN NO CASE SHALL THE CONTRACTOR LEAVE THE JOB AT THE END OF THE DAY WITHOUT MAKING ALL SUCH REPAIRS OR SATISFACTORY ARRANGEMENTS FOR SUBSEQUENT REPAIRS.

WHEREVER EXCAVATION EXPOSES UNSUITABLE MATERIALS SUCH AS MUCK, THE CONTRACTOR SHALL REMOVE AND REPLACE WITH SUITABLE BEDDING AND BACKFILL MATERIAL. MUCK SHALL BE REMOVED FULL DEPTH FROM TRENCH LIMITS. TREES, STUMPS AND ROOTS WITHIN THE LIMITS OF THE TRENCH EXCAVATION SHALL BE REMOVED TO A DEPTH OF AT LEAST 12" BELOW THE BOTTOM OF THE TRENCH. STUMP AND ROOT HOLES SHALL BE REFILLED TO EXISTING GRADE AND COMPACTED. NO STUMPS, ROOTS, OR ORGANIC MATTER OF ANY DESCRIPTION SHALL REMAIN. ROCK EXCAVATION SHALL BE CARRIED TO A DEPTH OF AT LEAST 6" BELOW THE REQUIRED PIPE INVERT. BLASTING IS PROHIBITED.

NO PIPE OR STRUCTURES SHALL BE INSTALLED IN A WET TRENCH, ALL BEDDING MATERIAL MUST BE DRY AND FIRM. THE FREE WATER SURFACE SHALL BE LOWERED TO AT LEAST 6" BELOW THE BEDDING SURFACE BEFORE INSTALLING PIPE OR STRUCTURES. THE UCNSB ENGINEERING DEPARTMENT INSPECTOR'S JUDGEMENT SHALL BE USED TO DETERMINE IF THE TRENCH IS ACCEPTABLE, WHICH INCLUDES REQUIRING ROCK OR STOPPING WORK.

THE BOTTOM OF THE TRENCH SHALL BE SHAPED TO GIVE SUFFICIENT UNIFORM CIRCUMFERENTIAL SUPPORT TO THE LOWER ONE-FOURTH OF EACH PIPE. IN ADDITION, BELL HOLES SHALL BE EXCAVATED SO THAT AFTER PLACEMENT ONLY THE BARREL OF THE PIPE RECEIVES BEARING PRESSURE FROM, AND IS UNIFORMLY SUPPORTED BY, THE BOTTOM OF THE TRENCH.

THE USE OF HORIZONTAL STRUTS BELOW THE BARREL OF THE PIPE OR THE USE OF THE PIPE AS SUPPORT FOR TRENCH BRACING WILL NOT BE PERMITTED. IN PIPELINE CONSTRUCTION THE USE OF THE SOLDIER PILE AND HORIZONTAL LAGGING METHOD OF SUPPORT OR THE USE OF A TRAVELING SHIELD SHALL REQUIRE UCNSB ENGINEERING DEPARTMENT APPROVAL.

4.4 BACKFILL

ALL BACKFILL AND BEDDING MATERIAL SHALL BE IN ACCORDANCE WITH ASTM D422 AND SHALL MEET UCNSB ENGINEERING DEPARTMENT APPROVAL. BEDDING MATERIAL IN AREAS ABOVE THE NATURAL GROUND WATER TABLE SHALL BE FINE SAND OR SHELL, OR A MIXTURE OF BOTH. BEDDING MATERIAL IN AREAS WHERE TRENCH BOTTOM IS BELOW NATURAL GROUND WATER TABLE SHALL BE FDOT #57 STONE.

BACKFILL MATERIAL FROM TRENCH BOTTOM TO 12" ABOVE TOP OF PIPE SHALL BE SELECT GRANULAR MATERIAL FREE OF ORGANIC MATTER. BACKFILL MATERIAL FROM 12" ABOVE TOP OF PIPE TO FINISHED GRADE SHALL BE COMMON FILL MATERIAL FREE OF ORGANIC MATTER. BACKFILL MATERIAL SHALL NOT BE OBTAINED FROM THE TRENCH WALLS.

AFTER THE PIPE HAS BEEN PROPERLY LAID AND INSPECTED, BACKFILL MATERIAL SHALL BE COMPACTED IN 12" LIFTS TO PREVENT SETTLEMENT. THE CONTRACTOR SHALL ACHIEVE THE SPECIFIED MAXIMUM DRY DENSITY/OPTIMUM MOISTURE CONTENT PER THE APPROVED CONSTRUCTION DRAWINGS. THE CONTRACTOR SHALL SUBMIT ALL FIELD DENSITY TESTS TO THE UCNSB ENGINEERING DEPARTMENT PRIOR TO FINAL ACCEPTANCE. ANY DEPRESSION THAT FORMS ADJACENT TO OR WITHIN THE TRENCH LINE WILL BE REJECTED.

4.5 GROUNDWATER

THE CONTRACTOR SHALL FURNISH, INSTALL AND OPERATE ALL NECESSARY MACHINERY, APPLIANCES, AND EQUIPMENT TO KEEP EXCAVATIONS FREE FROM WATER DURING CONSTRUCTION AND SHALL DEWATER AND DISPOSE OF THE WATER SO AS NOT TO CAUSE INJURY TO PUBLIC OR PRIVATE PROPERTY OR TO CAUSE A NUISANCE OR A MENACE TO THE PUBLIC. THE CONTRACTOR SHALL AT ALL TIMES HAVE ON HAND SUFFICIENT PUMPING EQUIPMENT AND MACHINERY IN GOOD WORKING CONDITION FOR EMERGENCIES.

THE CONTROL OF GROUNDWATER SHALL BE SUCH THAT SOFTENING OF THE BOTTOM OF THE EXCAVATIONS OR FORMATION OF QUICK CONDITIONS OR BOILS SHALL BE PREVENTED. DEWATERING SYSTEMS SHALL BE DESIGNED AND OPERATED SO AS TO PREVENT THE REMOVAL OF THE NATURAL SOILS. THE STATIC WATER LEVEL SHALL BE DRAWN DOWN BELOW THE BOTTOM OF THE EXCAVATION SO AS TO MAINTAIN THE UNDISTURBED STATE OF THE NATURAL SOILS AND ALLOW THE PLACEMENT OF BACKFILL TO THE REQUIRED DENSITY.

THE UCNSB ENGINEERING DEPARTMENT WILL NOT ACCEPT PIPE THAT FLOATS DUE TO LACK OF GROUNDWATER CONTROL AND SHALL REQUIRE THE CONTRACTOR TO REINSTALL ANY PIPE THAT IS REJECTED.

4.6 MAINTENANCE OF TRAFFIC (MOT)

MOT MUST FOLLOW THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE FDOT DESIGN STANDARDS (CURRENT EDITION) AND ALL APPLICABLE RIGHT-OF-WAY USE PERMIT REQUIREMENTS.

4.7 RESTORATION

A. PAVEMENT RESTORATION

ROAD SURFACES, CURB AND GUTTER, DRIVEWAYS, SIDEWALKS, PARKING LOCATIONS AND ANY OTHER TYPE OF SURFACE MATERIALS THAT REQUIRE REMOVAL FOR THE PURPOSE OF INSTALLATION OF UNDERGROUND UTILITIES SHALL BE REPLACED AS SOON AS PRACTICABLE AFTER COMPACTION OF THE BACKFILL AND IN ACCORDANCE WITH CITY, COUNTY OR FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS OR AS INDICATED ON THE RESPECTIVE PERMIT. THESE SURFACE MATERIALS SHALL BE SEPARATED FROM OTHER EXCAVATED MATERIALS AND WILL NOT BE PERMITTED TO BE INCLUDED IN THE BACKFILL BUT SHALL BE SATISFACTORILY DISPOSED OF BY THE CONTRACTOR. SURFACE MATERIAL TO BE REMOVED SHALL BE CUT, IF NECESSARY, VERTICALLY WITH A POWER-DRIVEN FRICTION SAW PRIOR TO REMOVAL. THE SURFACE SHALL BE SCORED IN SUFFICIENT DEPTH TO PROVIDE UNIFORM STRAIGHT BREAK LINES.

UNDER NO CONDITION SHALL PAVEMENT BE CUT WITH A TRENCHING MACHINE, POWER SHOVEL OR BACKHOE. THE WIDTH OF CUT OF THE PAVEMENT OR SIDEWALK SHALL BE THE WIDTH OF THE TRENCH

PLUS ONE-HALF THE TRENCH WIDTH, OR A MINIMUM OF 2' ON EITHER SIDE. IN THE EVENT THAT THE TRENCH EXCAVATION BECOMES WIDER THAN THE INITIAL CUT, THE PAVEMENT OR SIDEWALK SHALL BE RE-CUT TO AT LEAST 2' BACK FROM ALL EDGES OF THE ACTUAL EXCAVATION BY THE CONTRACTOR AT HIS OWN EXPENSE. UTILITY CROSSING AND INSTALLATIONS ALONG STATE HIGHWAYS SHALL BE MADE IN FULL COMPLIANCE WITH FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) REQUIREMENTS.

B. OPEN SPACE RESTORATION

THE CONTRACTOR SHALL SOD OR SEED AND MULCH THE DISTURBED WORK AREA PER THE APPROVED CONSTRUCTION DRAWINGS AND SHALL PROTECT ROAD SHOULDERS, DITCH BANKS, AND OTHER NATURAL OR ARTIFICIAL SLOPES SUBJECT TO RAPID EROSION.

C. CLEAN-UP

THE CONTRACTOR IS RESPONSIBLE TO PRESENT A CLEAN WORK AREA TO THE UCNSB ENGINEERING DEPARTMENT INSPECTOR PRIOR TO FINAL ACCEPTANCE.

4.8 BORING METHODS

THE CONTRACTOR SHALL MANAGE AND CONTROL ALL DRILLING PRACTICES TO PREVENT DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL MAKE A DILIGENT EFFORT TO LOCATE EVIDENCE OF ANY OTHER POTENTIAL SUBSURFACE OBSTRUCTIONS, E.G. PILES. SUBSIDENCE AND HEAVE WITHIN THE CONSTRUCTION LIMITS OF THE PROJECT SHALL BE LIMITED TO VALUES THAT AVOID DAMAGE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE AND REPAIRS AS A RESULT OF DRILLING OPERATIONS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNDERGROUND UTILITY LOCATES VIA SOFT DIGS PRIOR TO BORING SO THAT ADJUSTMENTS CAN BE MADE IF NECESSARY.

BORE LOGS SHALL BE PROVIDED TO THE UCNSB ENGINEERING DEPARTMENT IN 10-FOOT SEGMENTS. DURING CONSTRUCTION, ANY DEVIATIONS GREATER THAN 5' IN ANY DIRECTION SHALL IMMEDIATELY BE REPORTED TO THE UCNSB ENGINEERING DEPARTMENT. PIPE TESTING SHALL FOLLOW THE REQUIREMENTS OF THESE SPECIFICATIONS.

A. JACK AND BORE

THE CASING PIPE SHALL HAVE THE NOMINAL DIAMETER AND WALL THICKNESS AS SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS.

FIELD AND SHOP WELDS OF THE CASING PIPES SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STANDARD SPECIFICATIONS. FIELD WELDS SHALL BE COMPLETE PENETRATION, SINGLE-VEE GROOVE OR SINGLE-BEVEL GROOVE TYPE JOINTS.

THE CARRIER PIPE SHALL BE DUCTILE IRON PIPE PER THESE SPECIFICATIONS. CARRIER PIPES TO BE INSTALLED WITHIN THE SPECIFIED CASINGS SHALL BE EQUIPPED WITH RESTRAINED JOINT CONNECTORS.

THE CASING SHALL BE JACKED IN ONE CONTINUOUS OPERATION AT THE LOCATIONS SPECIFIED. IN NO EVENT SHALL JACKING BE DISCONTINUED FOR SUFFICIENT PERIOD TO CAUSE THE PARTIALLY JACKED SLEEVE TO FREEZE IN PLACE. PROPER ALIGNMENT AND ELEVATION OF THE SLEEVE SHALL BE CONSISTENTLY MAINTAINED THROUGHOUT THE JACKING OPERATION.

JACKING PITS SHALL BE SHORED WITH SHEETING OR OTHER SUCH MATERIALS AS REQUIRED. SHEETING SHALL BE DRIVEN TO A SUFFICIENT DEPTH BELOW THE INVERT OF THE CASING TO RESIST ANY PRESSURE DEVELOPED BY THE SOIL OUTSIDE THE JACKING PIT. SHEETING SHALL TERMINATE NOT LESS THAN 3.5' ABOVE EXISTING GRADE. AT THE COMPLETION OF THE JACKING OPERATIONS, THE CONTRACTOR WILL BE REQUIRED TO LEAVE ALL SHEETING IN PLACE; HOWEVER, THE TOP OF THE SHEETING SHALL BE CUT OFF 30" BELOW FINISHED GRADE UPON COMPLETION OF THE JACK AND BORE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING THE OCCURRENCE OF VOIDS OUTSIDE THE CASING AND IF THEY DO OCCUR, THE CONTRACTOR MAY BE DIRECTED TO FILL THEM WITH GROUT IN A METHOD APPROVED BY THE UCNSB ENGINEERING DEPARTMENT. THE CONTRACTOR SHALL CONSTANTLY EXERCISE CARE IN THE REMOVAL OF THE EARTH FROM WITHIN THE SLEEVE SUFFICIENTLY CLOSE TO THE FORWARD END TO PREVENT VOIDS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY TYPE OF MATERIAL OR EQUIPMENT USED FOR BACKING UP THE JACK.

A MASONRY BULKHEAD 8" WIDE SHALL BE PLACED IN THE ENDS OF THE CASING.

THE CARRIER PIPE SHALL BE SUPPORTED BY SPACERS AS SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS AND PER MANUFACTURER'S RECOMMENDATIONS.

B. DIRECTIONAL DRILLING

PRIOR TO DRILLING, THE CONTRACTOR SHALL UTILIZE ALL VERIFIED LOCATE INFORMATION TO DETERMINE THE DRILL PATHWAY IN CONJUNCTION WITH THE APPROVED CONSTRUCTION DRAWINGS.

THE ENTRY AND EXIT POINT SHALL BE WITHIN 5' OF THE LOCATION SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS. AFTER SUCCESSFULLY REAMING THE BORE HOLE TO THE REQUIRED DIAMETER, THE PIPE SHALL BE PULLED WITH A SWIVEL AND REAMER IN FRONT OF THE PIPE TO COMPACT THE BORE HOLE WALLS.

THE PULLBACK SECTION OF THE PIPE SHALL BE SUPPORTED DURING PULLBACK OPERATIONS SO THAT IT MOVES FREELY AND DOES NOT DAMAGE THE PIPE. THE CONTRACTOR SHALL CEASE OPERATIONS IF THE PIPE IS DAMAGED AND SHALL REMOVE THE PIPE FROM THE BORE HOLE AND REPAIR THE PIPE USING THE MANUFACTURER'S RECOMMENDED PROCEDURE OR REPLACE THE DAMAGED PIPE BEFORE RESUMING INSTALLATION.

4.9 ASBESTOS

ANY ASBESTOS-CEMENT PIPE IDENTIFIED SHALL BE REPORTED TO THE UCNSB ENGINEERING DEPARTMENT INSPECTOR IMMEDIATELY.

A CONTRACTOR THAT DISTURBS, MAINTAINS, REPAIRS OR DEMOLISHES SHALL COMPLY WITH:

- ENVIRONMENTAL PROTECTION AGENCY'S (EPA) 40 CFR PART 61, SUBPART M AND 40 CFR PART 763, SUBPART E
- FLORIDA ADMINISTRATIVE CODE (FAC) 62-257
- OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARD 1910.1001 AND 1926.1101

THE FOLLOWING ARE UCNSB GUIDELINES FOR ASBESTOS-CEMENT PIPE DISPOSAL:

1) NOTIFY THE UCNSB ENGINEERING PROJECT MANAGER:
   a. LOCATION OF JOB SITE.
   b. PIPE SIZE.
   a. PROPOSED OPERATION.
1) FILE A FDEP NOTICE OF DEMOLITION OR ASBESTOS RENOVATION FORM.
2) MARK AREA TO MINIMIZE THE NUMBER OF PERSONS EXPOSED.
3) POST WARNING SIGNS DEMARCATING THE AREA THAT READS "DANGER - ASBESTOS - CANCER AND LUNG DISEASE HAZARD".
4) PUT ON PERSONAL PROTECTIVE EQUIPMENT SUCH AS COVERALLS, GLOVES, EYE WEAR, ETC.
5) PUT ON FACE MASK OR RESPIRATOR.
6) ADEQUATELY WET PIPE DURING AND AFTER REMOVAL OPERATION.
7) USE EQUIP

UCNSB SANITARY SEWER CONSTRUCTION SPECIFICATIONS (cont.)

SECTION 4 - CONSTRUCTION

PRIOR TO CONSTRUCTION:

- A PRECONSTRUCTION MEETING SHALL BE SCHEDULED BY THE DEVELOPER OR ENGINEER OF RECORD. IN ATTENDANCE SHALL BE THE UCNSB, THE LICENSED CONTRACTOR, INCLUDING ALL SUB-CONTRACTORS, THE DEVELOPER AND THE ENGINEER OF RECORD.
- SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE UCNSB ENGINEERING DEPARTMENT. SHOP DRAWINGS WILL NOT BE ACCEPTED UNLESS STAMPED WITH APPROVAL BY THE ENGINEER OF RECORD AND THE CONTRACTOR.
- A MINIMUM NOTICE OF 48 HOURS SHALL BE PROVIDED TO THE UCNSB ENGINEERING DEPARTMENT INSPECTOR.

DURING CONSTRUCTION:

- ALL PERMITS, SHOP DRAWINGS AND CONSTRUCTION PLANS SHALL BE RETAINED BY THE CONTRACTOR ON-SITE. FAILURE TO PRODUCE SUCH ITEMS ON-SITE WILL RESULT IN WORK STOPPAGE.
- THE CONTRACTOR, UNDER NO CIRCUMSTANCES, SHALL OPERATE AN EXISTING UCNSB PLUG VALVE, NEW PLUG VALVE AND/OR ALLOW FLOW INTO AN EXISTING GRAVITY SANITARY SEWER MAIN OR MANHOLE WITHOUT FINAL ACCEPTANCE AND APPROVAL FROM THE UCNSB ENGINEERING DEPARTMENT.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL WATER USED DURING CONSTRUCTION AND SETTING UP AN ACCOUNT TO USE A UCNSB CONSTRUCTION METER. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CONSTRUCTION METER UNTIL RETURNED TO THE UCNSB AND THE DEPOSIT IS REFUNDED. USE OF A PRIVATE METER IS PROHIBITED.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.

4.1 INSTALLATION

A. PIPE

PIPE SHALL REMAIN FREE OF DIRT AND FOREIGN MATERIALS DURING CONSTRUCTION. WHEN WORK IS STOPPED, FOR ANY REASON, THE CONTRACTOR SHALL SECURELY SEAL THE OPEN ENDS OF THE PIPE. BELL AND SPIGOT SURFACES SHALL BE WIPED FREE OF DEBRIS PRIOR TO APPLYING LUBRICANT SEALER AND JOINTED WITHIN 5 MINUTES OF APPLICATION. THE SPIGOT END SHALL BE CENTERED INTO THE BELL AND PROPERLY SEATED BY MODERATE FORCE BY HAND OR PUSH BAR WITH A CUSHION BLOCK.

OVER-HOMED PIPES WILL BE REJECTED. IT IS RECOMMENDED THAT HUMAN FORCE BE USED TO HOME BELL AND SPIGOTS FOR PIPE SIZES 12" OR LESS. IF MECHANICAL EQUIPMENT IS USED TO HOME BELL AND SPIGOT PIPE, AN INSERTION LIMITING DEVICE WILL BE REQUIRED AT EACH JOINT TO PREVENT OVER-HOMING, E.G., EBBA MEGA STOP SERIES 5000 OR APPROVED EQUAL.

CONCRETE ENCASEMENT AT UTILITY CROSSINGS MUST BE APPROVED BY THE UCNSB ENGINEERING DEPARTMENT.

1) GRAVITY SANITARY SEWER MAINS

THE CONTRACTOR SHALL UTILIZE A LASER INSTRUMENT WITH TARGET TO INSTALL PIPE STRAIGHT WITH A CONSISTENT SLOPE PER THE APPROVED CONSTRUCTION DRAWINGS.

CONNECTIONS TO EXISTING GRAVITY SANITARY SEWER MAINS OR MANHOLES, APPROVED BY THE UCNSB ENGINEERING DEPARTMENT, SHALL BE MADE BY A POWER DRIVEN ABRASIVE WHEEL OR SAW WITH INSPECTION BY THE UCNSB ENGINEERING DEPARTMENT INSPECTOR. NO HAMMER TAPS ARE ALLOWED.

2) FORCE MAINS

THE CONTRACTOR SHALL INSTALL GREEN COATED COPPER 14 GAUGE LOCATE WIRE ADHERED TO THE TOP OF ALL NEW PIPE AND APPURTENANCES. THE WIRE SHALL BE BUNDLED IN EACH VALVE BOX TO EXTEND 2' ABOVE FINISHED GRADE AND 6' WITHIN VAULTS. A DUPLICATE WIRE SHALL BE INSTALLED ON ALL PIPE DIRECTIONALLY DRILLED. UPON CONSTRUCTION COMPLETION, THE CONTRACTOR WILL BE REQUIRED TO TEST THE LOCATE WIRE FOR CONTINUITY.

THE CONTRACTOR SHALL INSTALL DETECTABLE UNDERGROUND UTILITY MARKING TAPE 18" BELOW FINISHED GRADE LABELED CAUTION FORCE MAIN BELOW.

THE CONTRACTOR SHALL INSTALL GREEN VALVE MARKERS, 3' ABOVE AND 3' BELOW FINISHED GRADE, WHERE REQUIRED BY THE UCNSB ENGINEERING DEPARTMENT.

FITTINGS AND APPURTENANCES MUST NOT BEAR ON THE PIPE WHEN INSTALLED AND MUST BE FULLY AND INDEPENDENTLY SUPPORTED ON THE TRENCH BEDDING. THE MAXIMUM DEFLECTION OF PIPES AND FITTINGS SHALL NOT EXCEED THE MANUFACTURER'S RECOMMENDATIONS. FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH AWWA C600 AND C605, ALONG WITH THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL INSTALL ELECTRONIC MARKERS AT EACH:

- MAIN CONNECTION;
- FITTING AND
- IN-LINE PLUG VALVE.

B. CONCRETE STRUCTURES

CONCRETE STRUCTURES SHALL BE INSTALLED PLUMB ON 6" OF FDOT #57 STONE. PIPE SHALL BE CONNECTED TO MANHOLES USING KOR-N-SEAL RUBBER BOOTS, OR APPROVED EQUAL, WITH STAINLESS STEEL BANDS.

MANHOLE INVERTS AND BENCHES SHALL BE CONSTRUCTED WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI CONCRETE AT 28 DAYS. MANHOLE CHIMNEYS SHALL BE GROUTED AND HAVE A SMOOTH FINISH. INVERT AND FLOW CHANNELS SHALL BE SMOOTH AND SEMICIRCULAR IN SHAPE.

RINGS AND COVERS IN PAVED AREAS SHALL BE FLUSH WITH FINISHED GRADE. IN UNPAVED AREAS, RINGS AND COVERS SHALL BE 4" ABOVE FINISHED GRADE. ONLY PRECAST CONCRETE RINGS MAY BE USED TO ADJUST MANHOLE RING AND COVER TO FINISHED GRADE.

SEE SECTION 2.03 FOR SUPPLEMENTAL INFORMATION.

C. SANITARY SEWER LATERALS

LATERAL TERMINATIONS SHALL HAVE AN AIR-TIGHT CLEAN OUT CAP AND MARKED WITH A PVC STAKE 3' TO 4' ABOVE FINISHED GRADE. LATERALS SHALL BE MARKED WITH A "V" IN CURBS OR AT EDGE OF PAVEMENT AND PAINTED GREEN.

CLEAN OUTS IN PAVED AREAS SHALL BE FLUSH WITH FINISHED GRADE. IN UNPAVED AREAS, CLEAN OUTS SHALL BE 3" ABOVE FINISHED GRADE.

D. VALVES

VALVES SHALL BE CLEARED OF ALL FOREIGN MATTER BEFORE INSTALLATION AND INSTALLED TO PREVENT DEBRIS FROM BECOMING LODGED IN THE SEAT. VALVES SHALL BE INSTALLED WITH STEMS VERTICALLY ABOVE THE CENTERLINE OF THE PIPE. UNDER EACH VALVE AND AT THE PIPE CONNECTION 6" OF FDOT #57 STONE SHALL BE INSTALLED. VALVES SHALL BE INSPECTED IN THE OPENED AND CLOSED POSITION.

VALVE BOXES SHALL BE CENTERED OVER THE OPERATING NUT. VALVE BOXES SHALL NOT TRANSMIT SURFACE LOADS DIRECTLY TO EITHER THE PIPE OR VALVE. VALVE BOX EXTENSIONS SHALL BE PVC SDR 35.

VALVE BOXES IN PAVED AREAS SHALL BE FLUSH WITH FINISHED GRADE. IN UNPAVED AREAS, VALVE LIDS SHALL BE 2" ABOVE FINISHED GRADE AND HAVE PRECAST CONCRETE COLLARS.

VALVE COVERS SHALL BE PAINTED GREEN. AFTER FINAL ACCEPTANCE, TERMINAL VALVES SHALL BE PERMANENTLY CLOSED WITH THE COVER PAINTED RED.

4.2 DELIVERY and HANDLING OF MATERIALS

THE UCNSB ENGINEERING DEPARTMENT INSPECTOR HAS THE RIGHT TO REFUSE ANY DAMAGED OR DROPPED MATERIALS. ALL MATERIALS SHALL BE DELIVERED AND DISTRIBUTED AT THE SITE BY THE CONTRACTOR. ALL PIPE, FITTINGS, VALVES AND APPURTENANCES SHALL BE LOADED AND UNLOADED BY HOISTS OR SKIDDING SO AS TO PREVENT SHOCK OR DAMAGE TO THE MATERIAL. UNDER NO CIRCUMSTANCES SHALL MATERIAL BE DROPPED. PIPE THAT IS MISSHAPED AND/OR HAS LINING/COATING DAMAGE WILL BE REJECTED. CONCRETE STRUCTURES WITH HOLES OR HONEYCOMBS WILL BE REJECTED.

4.3 EXCAVATION and TRENCHING

TRENCHES SHALL BE A DEPTH WHICH WILL PROVIDE COVER FROM TOP OF PIPE TO FINISHED GRADE AS SHOWN ON APPROVED CONSTRUCTION DRAWINGS. EXCESS EXCAVATED MATERIAL, UNSALVAGEABLE MATERIAL, AND DEBRIS SHALL BE WASTED AND DISPOSED OF BY THE CONTRACTOR.

ALL EXCAVATED MATERIAL RETAINED FOR BACKFILL SHALL BE PILED IN SUCH A MANNER AS NOT TO ENDANGER THE WORK OR OBSTRUCT SIDEWALKS, DRIVEWAYS OR DRAINAGE. FIRE HYDRANTS, VALVE COVERS, VAULT HATCHES AND OTHER UTILITY CONTROLS SHALL NOT BE OBSTRUCTED AND SHALL REMAIN ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION.

THE CONTRACTOR SHALL EXERCISE SOUND CONSTRUCTION PRACTICES IN EXCAVATING AND MAINTAINING THE PIPE TRENCH TO PREVENT DAMAGE TO ANY FOUNDATION, STRUCTURE, POLE LINE, PIPELINE OR OTHER FACILITY. IF, AS A RESULT OF THE EXCAVATION, A FOUNDATION, STRUCTURE, POLE LINE, PIPELINE OR OTHER FACILITY IS ENDANGERED, THE CONTRACTOR SHALL IMMEDIATELY TAKE REMEDIAL ACTION AT HIS OWN EXPENSE. NO ACT OF THE UCNSB SHALL IN ANY WAY AFFECT THE LIABILITY OF THE CONTRACTOR FOR DAMAGES, EXPENSES OR COSTS THAT MAY RESULT FROM TRENCH EXCAVATION.

SHEET PILING, SHORING, SHEETING, BRACING OR OTHER SUPPORTS REQUIRED FOR CONSTRUCTION SHALL BE DESIGNED, FURNISHED, PLACED, MAINTAINED AND REMOVED BY THE CONTRACTOR. SHEET PILING AND TIMBERS USED IN TRENCH EXCAVATIONS SHALL BE WITHDRAWN IN SUCH A MANNER SO AS TO PREVENT SUBSEQUENT SETTLEMENT OF THE PIPE OR ADDITIONAL BACKFILL LOADINGS WHICH MIGHT OVERLOAD THE PIPE.

ALL EXISTING UNDERGROUND UTILITIES, WHETHER OR NOT THEY ARE SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS OR THEIR LOCATIONS ARE MADE KNOWN TO THE CONTRACTOR PRIOR TO EXCAVATION, SHALL BE PROTECTED FROM DAMAGE AND, IF DAMAGED, SHALL BE REPAIRED TO EQUAL THE PRIOR SERVICEABILITY OR REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE. THE UCNSB DOES NOT ASSUME RESPONSIBILITY FOR THE CORRECTNESS OF THE APPROVED CONSTRUCTION DRAWINGS. REPAIRS OR REPLACEMENTS SHALL BE MADE AT THE EARLIEST PRACTICABLE TIME AND IN NO CASE SHALL THE CONTRACTOR LEAVE THE JOB AT THE END OF THE DAY WITHOUT MAKING ALL SUCH REPAIRS OR SATISFACTORY ARRANGEMENTS FOR SUBSEQUENT REPAIRS.

WHEREVER EXCAVATION EXPOSES UNSUITABLE MATERIALS SUCH AS MUCK, THE CONTRACTOR SHALL REMOVE AND REPLACE WITH SUITABLE BEDDING AND BACKFILL MATERIAL. MUCK SHALL BE REMOVED FULL DEPTH, FROM TRENCH LIMITS. TREES, STUMPS AND ROOTS WITHIN THE LIMITS OF THE TRENCH EXCAVATION SHALL BE REMOVED TO A DEPTH OF AT LEAST 12" BELOW THE BOTTOM OF THE TRENCH. STUMP AND ROOT HOLES SHALL BE REFILLED TO EXISTING GRADE AND COMPACTED. NO STUMPS, ROOTS, OR ORGANIC MATTER OF ANY DESCRIPTION SHALL REMAIN. ROCK EXCAVATION SHALL BE CARRIED TO A DEPTH OF AT LEAST 6" BELOW THE REQUIRED PIPE INVERT. BLASTING IS PROHIBITED.

NO PIPE OR STRUCTURES SHALL BE INSTALLED IN A WET TRENCH. ALL BEDDING MATERIAL MUST BE DRY AND FIRM. THE FREE WATER SURFACE SHALL BE LOWERED TO AT LEAST 6" BELOW THE BEDDING SURFACE BEFORE INSTALLING PIPE OR STRUCTURES. THE UCNSB ENGINEERING DEPARTMENT INSPECTOR'S JUDGEMENT SHALL BE USED TO DETERMINE IF THE TRENCH IS ACCEPTABLE, WHICH INCLUDES REQUIRING ROCK OR STOPPING WORK.

THE BOTTOM OF THE TRENCH SHALL BE SHAPED TO GIVE SUFFICIENT UNIFORM CIRCUMFERENTIAL SUPPORT TO THE LOWER ONE-FOURTH OF EACH PIPE. IN ADDITION, BELL HOLES SHALL BE EXCAVATED SO THAT AFTER PLACEMENT ONLY THE BARREL OF THE PIPE RECEIVES BEARING PRESSURE FROM, AND IS UNIFORMLY SUPPORTED BY, THE BOTTOM OF THE TRENCH.

THE USE OF HORIZONTAL STRUTS BELOW THE BARREL OF THE PIPE OR THE USE OF THE PIPE AS SUPPORT FOR TRENCH BRACING WILL NOT BE PERMITTED. IN PIPELINE CONSTRUCTION THE USE OF THE SOLDIER PILE AND HORIZONTAL LAGGING METHOD OF SUPPORT OR THE USE OF A TRAVELING SHIELD SHALL REQUIRE UCNSB ENGINEERING DEPARTMENT APPROVAL.

4.4 BACKFILL

ALL BACKFILL AND BEDDING MATERIAL SHALL BE IN ACCORDANCE WITH ASTM D422 AND SHALL MEET UCNSB ENGINEERING DEPARTMENT APPROVAL. BEDDING MATERIAL IN AREAS ABOVE THE NATURAL GROUND WATER TABLE SHALL BE FINE SAND OR SHELL, OR A MIXTURE OF BOTH. BEDDING MATERIAL IN AREAS WHERE TRENCH BOTTOM IS BELOW NATURAL GROUND WATER TABLE SHALL BE FDOT #57 STONE.

BACKFILL MATERIAL FROM TRENCH BOTTOM TO 12" ABOVE TOP OF PIPE SHALL BE SELECT GRANULAR MATERIAL FREE OF ORGANIC MATTER. BACKFILL MATERIAL FROM 12" ABOVE TOP OF PIPE TO FINISHED GRADE SHALL BE COMMON FILL MATERIAL FREE OF ORGANIC MATTER. BACKFILL MATERIAL SHALL NOT BE OBTAINED FROM THE TRENCH WALLS.

AFTER THE PIPE HAS BEEN PROPERLY LAID AND INSPECTED, BACKFILL MATERIAL SHALL BE COMPACTED IN 12" LIFTS TO PREVENT SETTLEMENT. THE CONTRACTOR SHALL ACHIEVE THE SPECIFIED MAXIMUM DRY DENSITY/OPTIMUM MOISTURE CONTENT PER THE APPROVED CONSTRUCTION DRAWINGS. THE CONTRACTOR SHALL SUBMIT ALL FIELD DENSITY TESTS TO THE UCNSB ENGINEERING DEPARTMENT PRIOR TO FINAL ACCEPTANCE. ANY DEPRESSION THAT FORMS ADJACENT TO OR WITHIN THE TRENCH LINE WILL BE REJECTED.

4.5 GROUNDWATER

THE CONTRACTOR SHALL FURNISH, INSTALL AND OPERATE ALL NECESSARY MACHINERY, APPLIANCES, AND EQUIPMENT TO KEEP EXCAVATIONS FREE FROM WATER DURING CONSTRUCTION AND SHALL DEWATER AND DISPOSE OF THE WATER SO AS NOT TO CAUSE INJURY TO PUBLIC OR PRIVATE PROPERTY OR TO CAUSE A NUISANCE OR A MENACE TO THE PUBLIC. THE CONTRACTOR SHALL AT ALL TIMES HAVE ON HAND SUFFICIENT PUMPING EQUIPMENT AND MACHINERY IN GOOD WORKING CONDITION FOR EMERGENCIES.

THE CONTROL OF GROUNDWATER SHALL BE SUCH THAT SOFTENING OF THE BOTTOM OF THE EXCAVATIONS OR FORMATION OF QUICK CONDITIONS OR BOILS SHALL BE PREVENTED. DEWATERING SYSTEMS SHALL BE DESIGNED AND OPERATED SO AS TO PREVENT THE REMOVAL OF THE NATURAL SOILS. THE STATIC WATER LEVEL SHALL BE DRAWN DOWN BELOW THE BOTTOM OF THE EXCAVATION SO AS TO MAINTAIN THE UNDISTURBED STATE OF THE NATURAL SOILS AND ALLOW THE PLACEMENT OF BACKFILL TO THE REQUIRED DENSITY.

THE UCNSB ENGINEERING DEPARTMENT WILL NOT ACCEPT PIPE THAT FLOATS DUE TO LACK OF GROUNDWATER CONTROL AND SHALL REQUIRE THE CONTRACTOR TO REINSTALL ANY PIPE THAT IS REJECTED.

4.6 MAINTENANCE OF TRAFFIC (MOT)

MOT MUST FOLLOW THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE FDOT DESIGN STANDARDS (CURRENT EDITION) AND ALL APPLICABLE RIGHT-OF-WAY USE PERMIT REQUIREMENTS.

4.7 RESTORATION

A. PAVEMENT RESTORATION

ROAD SURFACES, CURB AND GUTTER, DRIVEWAYS, SIDEWALKS, PARKING LOCATIONS AND ANY OTHER TYPE OF SURFACE MATERIALS THAT REQUIRE REMOVAL FOR THE PURPOSE OF INSTALLATION OF UNDERGROUND UTILITIES SHALL BE REPLACED AS SOON AS PRACTICABLE AFTER COMPACTION OF THE BACKFILL AND IN ACCORDANCE WITH CITY, COUNTY OR FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS OR AS INDICATED ON THE RESPECTIVE PERMIT. THESE SURFACE MATERIALS SHALL BE SEPARATED FROM OTHER EXCAVATED MATERIALS AND WILL NOT BE PERMITTED TO BE INCLUDED IN THE BACKFILL BUT SHALL BE SATISFACTORILY DISPOSED OF BY THE CONTRACTOR. SURFACE MATERIAL TO BE REMOVED SHALL BE CUT, IF NECESSARY, VERTICALLY WITH A POWER-DRIVEN FRICTION SAW PRIOR TO REMOVAL. THE SURFACE SHALL BE SCORED IN SUFFICIENT DEPTH TO PROVIDE UNIFORM STRAIGHT BREAK LINES.

UNDER NO CONDITION SHALL PAVEMENT BE CUT WITH A TRENCHING MACHINE, POWER SHOVEL OR BACKHOE. THE WIDTH OF CUT OF THE PAVEMENT OR SIDEWALK SHALL BE THE WIDTH OF THE TRENCH

PLUS ONE-HALF THE TRENCH WIDTH, OR A MINIMUM OF 2' ON EITHER SIDE. IN THE EVENT THAT THE TRENCH EXCAVATION BECOMES WIDER THAN THE INITIAL CUT, THE PAVEMENT OR SIDEWALK SHALL BE RE-CUT TO AT LEAST 2' BACK FROM ALL EDGES OF THE ACTUAL EXCAVATION BY THE CONTRACTOR AT HIS OWN EXPENSE. UTILITY CROSSING AND INSTALLATIONS ALONG STATE HIGHWAYS SHALL BE MADE IN FULL COMPLIANCE WITH FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) REQUIREMENTS.

UCNSB SANITARY SEWER CONSTRUCTION SPECIFICATIONS (cont.)

A. OPEN SPACE RESTORATION

THE CONTRACTOR SHALL SOD OR SEED AND MULCH THE DISTURBED WORK AREA PER THE APPROVED CONSTRUCTION DRAWINGS AND SHALL PROTECT ROAD SHOULDERS, DITCH BANKS, AND OTHER NATURAL OR ARTIFICIAL SLOPES SUBJECT TO RAPID EROSION.

B. CLEAN-UP

THE CONTRACTOR IS RESPONSIBLE TO PRESENT A CLEAN WORK AREA TO THE UCNSB ENGINEERING DEPARTMENT INSPECTOR PRIOR TO FINAL ACCEPTANCE.

SECTION 5 - LIFT STATIONS

LIFT STATION DESIGN CALCULATIONS SHALL BE SUBMITTED BY THE ENGINEER OF RECORD FOR UCNSB ENGINEERING DEPARTMENT APPROVAL. ALL LIFT STATIONS SHALL BE DUPLEX TYPE STATIONS.

FOR MULTIPLE ADJACENT PROPERTIES OWNED BY ONE PERSON OR ENTITY, A LIFT STATION SHALL BE BUILT TO THE UCNSB'S SPECIFICATIONS AND TRANSFERRED TO THE UCNSB FOR OWNERSHIP AND MAINTENANCE; THEREFORE, A PRIVATE LIFT STATION AND FORCE MAIN WILL NOT BE ALLOWED. LIFT STATIONS SHALL BE LOCATED NEAR THE RIGHT-OF-WAY LINE, PROPERTY LINE OR EASEMENT LINE AND BE CONSTRUCTED FOR MAXIMUM ACCESS AND EASE OF INSPECTION AND MAINTENANCE. EASEMENTS SHALL BE REQUIRED WHERE NEEDED TO PROVIDE ACCESS TO THE LIFT STATION.

UNDER CERTAIN CIRCUMSTANCES, A PRIVATE LIFT STATION AND FORCE MAIN MAY BE ALLOWED IF ONE INDIVIDUAL OWNER OWNS ONE STAND-ALONE PARCEL WITH ONE TENANT, WHICH WILL REQUIRE UCNSB ENGINEERING DEPARTMENT APPROVAL.

A PERMANENT IN-PLACE BACK-UP GENERATOR SUPPLYING EMERGENCY PUMPING CAPABILITIES SHALL BE PROVIDED FOR NEW AND EXISTING LIFT STATIONS THAT COMPLY WITH ONE OR MORE OF THE FOLLOWING:

- RECEIVE FLOW FROM ONE OR MORE LIFT STATIONS THROUGH A FORCE MAIN;
- DISCHARGE THROUGH A FORCE MAIN 12" OR GREATER;
- SERVE 500 ERU'S OR MORE;
- OR OTHERWISE SPECIFIED IN F.A.C. 62-604.400 AND RSWF CHAPTER 47.

SEE SECTION 2, SECTION 3, SECTION 4 AND THE SUBMERSIBLE PUMP STATION DETAIL(S) FOR SUPPLEMENTAL INFORMATION.

5.1 SITE

THE LIFT STATION SITE SHALL HAVE A FINISHED ELEVATION SO THAT IT IS INCLUDED IN THE DRAINAGE DESIGN AND HAS POSITIVE DRAINAGE TO ADJACENT STORMWATER SYSTEM. LIFT STATION SITES SHALL BE A 40' X 40' EASEMENT AT A MINIMUM. THE LIFT STATION SHALL HAVE A FENCED AREA WITH FDOT #57 STONE ENCLOSING ALL OF THE EQUIPMENT. OUTSIDE THE FENCED AREA SHALL BE A VEGETATION BUFFER SODDED WITH BAHIA. NO OTHER VEGETATION WILL BE PERMITTED IN THE EASEMENT. A MINIMUM 12' WIDE CONCRETE DRIVEWAY WITH A GATE IS REQUIRED SO THAT UTILITY VEHICLES AND LIFTING EQUIPMENT HAVE UNOBSTRUCTED ACCESS TO THE WET WELL AND VALVE VAULT.

5.2 WET WELL, VAULT, PIPE AND VALVES

THE INFLUENT PIPE, FROM THE FIRST MANHOLE TO THE WET WELL, SHALL BE HEAVY WALL PVC (C900, SDR 26) OR DUCTILE IRON PIPE. THE PUMP DISCHARGE PIPING, FROM THE WET WELL TO THE LAST FITTING DOWNSTREAM OF THE VALVE VAULT SHALL BE DUCTILE IRON PIPE.

THE WET WELL SHALL BE DESIGNED TO AVOID FLOTATION DURING SEASONAL HIGH GROUND WATER LEVEL CONDITIONS AS AN EMPTY TANK. THE WET WELL, AT A MINIMUM, SHALL HAVE A 6' DIAMETER AND SHALL HAVE SMOOTH CONCRETE FILLETS CONSTRUCTED WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI CONCRETE AT 28 DAYS TO PROVIDE SLOPING TOWARDS THE PUMP INTAKE.

THE WET WELL, THE FIRST MANHOLE TO THE WET WELL AND ANY MANHOLE RECEIVING FLOW FROM A FORCE MAIN SHALL BE LINED WITH AGRU AMERICA SURE-GRIP CONCRETE LINER, OR APPROVED EQUAL.

A VAULT FOR THE PLUG VALVES, CHECK VALVES, PRESSURE GAUGES AND BYPASS CONNECTION SHALL BE CONSTRUCTED BELOW FINISHED GRADE ADJACENT TO THE WET WELL. CONCRETE PIPE STANDS SHALL BE INSTALLED TO SUPPORT THE PIPE IN THE VAULT.

THE WET WELL AND VALVE VAULT SHALL HAVE AN ACCESS HATCH. THE HATCH SHALL BE RECTANGULAR, HEAVY-DUTY DIAMOND PLATED ALUMINUM CAPABLE OF WITHSTANDING AASHTO H-20 VERTICAL, DYNAMIC WHEEL LOAD RATING. THE FRAME SHALL HAVE RECESSED HINGES WITH STAINLESS STEEL HINGE PIN OR BUTT TYPE STAINLESS STEEL HINGE. THE HATCH OPENINGS SHALL BE SIZED TO PROVIDE ADEQUATE SPACE FOR THE REMOVAL AND MAINTENANCE OF THE PUMPS, VALVES, ETC. THE HATCH OPENING SHALL BE GASKET SEALED AND EQUIPPED WITH A LOCKING DEVICE TO HOLD A UCNSB LOCK. BOLTS IN THE LOCKING DEVICE SHALL BE TYPE 316 STAINLESS STEEL.

5.3 EQUIPMENT

THE PUMPING EQUIPMENT SHALL BE CAPABLE OF HANDLING RAW, UNSCREENED, SANITARY SEWERAGE CONTAINING HEAVY SLUDGE AND FIBROUS MATERIALS WITHOUT INJURIOUS DAMAGE DURING NORMAL OPERATION. PUMPS SHALL BE SUBMERSIBLE SEWAGE TYPE WITH DOUBLE GUIDERAIL SYSTEM TO PERMIT RISING AND LOWERING OF THE PUMP(S). GUIDERAILS SHALL BE TYPE 316 STAINLESS STEEL, OF ADEQUATE LENGTH, TO EXTEND FROM THE LOWER GUIDE HOLDERS ON THE PUMP DISCHARGE CONNECTION TO THE UPPER HOLDERS MOUNTED ON THE ACCESS FRAME. THE PUMP SHALL BE CAPABLE OF PASSING A THREE-INCH SPHERE.

APPROVED PUMPS AND GUIDERAILS SHALL BE MANUFACTURED BY FLYGT, EBARA, GRUNDFOS AND HYDROMATIC.

FLOAT SYSTEMS SHALL BE USED TO AUTOMATICALLY OPERATE THE PUMPS AND SHALL BE POSITIONED PER MANUFACTURER SPECIFICATIONS AND THE APPROVED CONSTRUCTION DRAWINGS. THE RISE AND FALL OF THE SEWAGE LEVEL IN THE WET WELL SHALL AUTOMATICALLY START AND STOP THE PUMPS. CAPABILITY SHALL BE PROVIDED FOR MANUAL START-STOP CONTROL FOR ALL PUMPING UNITS, AS WELL AS THE NORMAL AUTOMATIC CONTROL. AN AUTOMATIC ALTERNATOR SHALL CHANGE THE STARTING SEQUENCE ON EACH PUMP CYCLE. EACH SEWAGE PUMP SHALL BE PROVIDED WITH AN ELAPSED TIME METER TO INDICATE PUMP RUNNING TIME.

EACH PUMP MOTOR ELECTRIC FEED SHALL BE SUITABLE FOR SUBMERSIBLE PUMP APPLICATIONS. THE ELECTRIC FEED SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC), CURRENT EDITION. THE ELECTRIC FEED SHALL BE INSTALLED IN A SEPARATE CONDUIT THROUGH THE WET WELL AND SHALL HAVE A GAS TIGHT SEAL. A LIFT STATION WITH PUMPS LESS THAN 25 HP SHALL HAVE SOFT START MOTOR CONTROLS. LIFT STATIONS WITH PUMPS GREATER THAN OR EQUAL TO 25 HP SHALL HAVE A VARIABLE FREQUENCY DRIVE (VFD) MOTOR CONTROLS. THE EMERGENCY ELECTRIC CONNECTION SHALL BE LOCATED ON THE PUMP CONTROL PANEL FOR LIFT STATIONS WITHOUT AN ON-SITE BACK-UP GENERATOR.

THE PUMPS SHALL BE EASILY REMOVABLE WITH LIFTING EQUIPMENT FOR INSPECTION OR SERVICE, REQUIRING NO BOLTS, NUTS OR OTHER FASTENERS TO BE REMOVED FOR THIS PURPOSE, NOR SHOULD PERSONNEL NEED TO ENTER THE WET WELL. THE PUMPS SHALL BE EQUIPPED WITH LIFTING RINGS AND STAINLESS STEEL WIRE ROPE OF ADEQUATE STRENGTH TO PERMIT RAISING THE PUMP FOR INSPECTION AND REMOVAL. THE WORKING LOAD RATING SHALL BE NOT LESS THAN THREE TIMES THE WEIGHT OF THE PUMP. AN EYE SHALL BE PROVIDED IN THE UPPER END FOR HOOKING ONTO THE BRACKET. A BRACKET, SEPARATE FROM THE LEVEL REGULATOR CABLE BRACKET, SHALL BE MOUNTED ON THE WALL OF THE STATION BELOW THE LID TO SUPPORT EACH PUMP POWER AND LIFTING CABLE. ALL MOUNTING HARDWARE INCLUDING ANCHORS, BRACKETS AND SUPPORTS SHALL BE TYPE 316 STAINLESS STEEL.

PRIOR TO SHIPMENT, EACH PUMP SHALL BE INSPECTED AND TESTED AS FOLLOWS:

- PUMP MODEL;
- PUMP SERIAL NUMBER;
- IMPELLER PATTERN AND SIZE;
- MOTOR RATINGS (HP, LINE VOLTS, FULL LOAD AMPS) AND
- MOTOR AND CABLE INSULATION TEST.

AN ULTRASONIC FLOW METER, HAVING A DISPLAY SHOWING FLOW RATE AND TOTALIZING DIAL, SHALL BE INSTALLED IN A SEPARATE VAULT AS REQUIRED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) AND RSWF CHAPTER 42. TELEMETRY SHALL BE PROVIDED FOR EACH LIFT STATION PROVIDED BY DATA FLOW SYSTEMS, OR APPROVED EQUAL.

5.4 START-UP

THE INITIAL START-UP SHALL BE PERFORMED BY A COMPETENT FACTORY TRAINED REPRESENTATIVE OF ALL EQUIPMENT BEING SUPPLIED. THE REPRESENTATIVE SHALL INSTRUCT UCNSB PERSONNEL IN THE OPERATION, MAINTENANCE, ADJUSTMENT, ETC., OF THE EQUIPMENT. A COPY OF THE START-UP TEST REPORT SHALL BE SUBMITTED TO THE UCNSB ENGINEERING DEPARTMENT PRIOR TO FINAL ACCEPTANCE. ONE COPY OF THE OPERATION AND MAINTENANCE MANUALS SHALL BE PLACED IN THE CONTROL PANEL ON-SITE ALONG WITH A COPY OF THE START-UP TEST REPORT. A LIFT STATION START-UP ON A TEMPORARY POWER SUPPLY IS PROHIBITED. THE CONTRACTOR IS RESPONSIBLE FOR ALL ELECTRIC AND WATER USED DURING THE LIFT STATION START-UP.

SECTION 6 - TESTING

THE CONTRACTOR SHALL PERFORM ALL TESTS ON NEWLY CONSTRUCTED PIPE AND APPURTENANCES IN THE PRESENCE OF THE UCNSB ENGINEERING DEPARTMENT INSPECTOR, INCLUDING A LOCATE WIRE CONTINUITY TEST.

ALL REQUIRED TESTS SHALL BE SATISFACTORILY COMPLETED PRIOR TO FINAL ACCEPTANCE. ALL LABOR, EQUIPMENT AND MATERIALS REQUIRED TO COMPLETE TESTS SHALL BE FURNISHED BY THE CONTRACTOR AND APPROVED BY THE UCNSB ENGINEERING DEPARTMENT INSPECTOR.

TESTING SHALL NOT PROCEED UNTIL NEW CONSTRUCTION IS COMPLETE, INCLUDING ADEQUATE COVER (PIPE IN PAVED AREAS WILL REQUIRE BASE MATERIAL) AND PIPE IS THOROUGHLY CLEANED OF ALL FOREIGN MATTER.

CRACKED OR DEFECTIVE PIPES, FITTINGS OR VALVES, LEAKS, BELLIES, ETC. WILL NOT BE ACCEPTED AND THE REPAIR OR REPLACEMENT SHALL BE AT THE CONTRACTOR'S EXPENSE.

ALL TEMPORARY CONNECTIONS, APPROVED BY THE UCNSB ENGINEERING DEPARTMENT, NECESSARY TO TEST PIPE AND APPURTENANCES SHALL BE INSTALLED BY THE CONTRACTOR.

NEW CONSTRUCTION AND EXISTING FACILITIES SHALL NOT BE INTERCONNECTED UNTIL FINAL ACCEPTANCE. THE CONTRACTOR IS RESPONSIBLE FOR PLUGGING/CAPPING PIPE AND APPURTENANCES, WHERE NECESSARY.

6.1 GRAVITY SANITARY SEWER MAINS

A. LAMP TEST

PIPE SHALL BE VISUALLY INSPECTED BY LAMPING BETWEEN MANHOLES IN ORDER TO ASCERTAIN THAT THE PIPE IS CLEAR AND TO CORRECT ALIGNMENT. THE CONCENTRICITY OF THE LAMP IMAGE RECEIVED SHALL BE SUCH THAT THE DIAMETER OF SAID IMAGE SHALL HAVE NO VERTICAL OR HORIZONTAL REDUCTION FROM THAT OF THE PIPE INSIDE DIAMETER.

B. TELEVISED INSPECTION

ALL GRAVITY SANITARY SEWER MAINS SHALL BE TELEVISED AND RECORDED. THE VIDEO SHALL BE PROVIDED TO THE UCNSB ENGINEERING DEPARTMENT FOR REVIEW/APPROVAL. THE UCNSB ENGINEERING DEPARTMENT MAY ALSO REQUIRE THE LATERALS TO BE TELEVISED.

C. DEFLECTION TEST

DEFLECTION TESTS SHALL BE CONDUCTED USING A MANDREL. MANDRELS SHALL BE RIGID AND NONADJUSTABLE. THE MANDREL SHALL BE FABRICATED OF METAL, F

UCNSB RECLAIM WATER CONSTRUCTION SPECIFICATIONS (cont.)

SECTION 5 - TESTING

THE CONTRACTOR SHALL PERFORM ALL TESTS ON NEWLY CONSTRUCTED PIPE AND APPURTENANCES IN THE PRESENCE OF THE UCNSB ENGINEERING DEPARTMENT INSPECTOR, INCLUDING A LOCATE WIRE CONTINUITY TEST.

ALL REQUIRED TESTS SHALL BE SATISFACTORILY COMPLETED PRIOR TO FINAL ACCEPTANCE. ALL LABOR, EQUIPMENT AND MATERIALS REQUIRED TO COMPLETE TESTS SHALL BE FURNISHED BY THE CONTRACTOR AND APPROVED BY THE UCNSB ENGINEERING DEPARTMENT INSPECTOR.

TESTING SHALL NOT PROCEED UNTIL NEW CONSTRUCTION IS COMPLETE, INCLUDING ADEQUATE COVER (PIPE IN PAVED AREAS WILL REQUIRE BASE MATERIAL) AND PIPE IS THOROUGHLY CLEANED OF ALL FOREIGN MATTER.

CRACKED OR DEFECTIVE PIPES, FITTINGS OR VALVES, LEAKS, BELLIES, ETC. WILL NOT BE ACCEPTED AND THE REPAIR OR REPLACEMENT SHALL BE AT THE CONTRACTOR'S EXPENSE.

ALL TEMPORARY CONNECTIONS, APPROVED BY THE UCNSB ENGINEERING DEPARTMENT, NECESSARY TO TEST PIPE AND APPURTENANCES SHALL BE INSTALLED BY THE CONTRACTOR.

NEW CONSTRUCTION AND EXISTING FACILITIES SHALL NOT BE INTERCONNECTED UNTIL FINAL ACCEPTANCE. THE CONTRACTOR IS RESPONSIBLE FOR PLUGGING/CAPPING PIPE AND APPURTENANCES, WHERE NECESSARY.

5.1 FLUSHING

RECLAIMED WATER PIPE AND APPURTENANCES SHALL BE THOROUGHLY FLUSHED TO REMOVE ALL SAND, DEBRIS, AND OTHER FOREIGN MATERIAL WHICH MAY BE IN THE PIPE. FLUSHING SHALL CONTINUE UNTIL CLEAN, CLEAR WATER FLOWS FROM A BLOW OFF OR CURB STOP. THE ENGINEER OF RECORD SHALL SUBMIT A PLAN FOR FLUSHING TO OBTAIN 2.5 FEET PER SECOND TO THE UCNSB ENGINEERING DEPARTMENT FOR REVIEW AND APPROVAL. FLUSHING WATER SHALL BE DISCHARGED IN A MANNER THAT WILL NOT CAUSE EROSION OR STRUCTURAL DAMAGE ON-SITE OR OFF SITE, NOR CAUSE POLLUTION AS DETERMINED BY STATE WATER QUALITY STANDARDS IN RECEIVING SURFACE WATERS. THE CONTRACTOR SHALL PROVIDE ADEQUATE EXTENSION PIPE, SEDIMENTATION BASINS AND/OR DIFFUSION DEVICES NECESSARY TO PREVENT SUCH DAMAGE.

FDEP POTABLE WATER CONSTRUCTION NOTES

1. ALL PIPE, PIPE FITTINGS, PIPE JOINT PACKING AND JOINTING MATERIALS, VALVES, FIRE HYDRANTS, AND METERS INSTALLED UNDER THIS PROJECT WILL CONFORM TO APPLICABLE AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARDS.
2. ALL PUBLIC WATER SYSTEM COMPONENTS, EXCLUDING FIRE HYDRANTS, THAT WILL BE INSTALLED UNDER THIS PROJECT AND THAT WILL COME INTO CONTACT WITH DRINKING WATER WILL CONFORM TO NSF INTERNATIONAL STANDARD 61.
3. ALL PROPOSED WATER MAINS SHALL BE FLUSHED, DISINFECTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE IN ACCORDANCE WITH AWWA SPECIFICATIONS C-651 AND THE FDEP PROTECTION REQUIREMENTS.
4. POTABLE WATER PIPES SHALL BE HYDROSTATICALLY TESTED FOR PRESSURE AND LEAKAGE IN ACCORDANCE WITH AWWA STANDARD C600 FOR DUCTILE IRON PIPES AND C605 FOR PVC PIPES, RESPECTIVELY.
5. ALL PIPE AND PIPE FITTINGS INSTALLED UNDER THIS PROJECT WILL CONTAIN NO LEAD, AND ANY SOLDER OR FLUX USED IN THIS PROJECT WILL CONTAIN NO MORE THAN 0.2% LEAD.
6. ALL PIPE AND PIPE FITTINGS INSTALLED UNDER THIS PROJECT WILL BE COLOR CODED OR MARKED IN ACCORDANCE WITH SUBPARAGRAPH 62-555.320(21)(B)3, F.A.C., USING BLUE AS A PREDOMINANT COLOR. (UNDERGROUND PLASTIC PIPE WILL BE SOLID-WALL BLUE PIPE, WILL HAVE A CO-EXTRUDED BLUE EXTERNAL SKIN, OR WILL BE WHITE OR BLACK PIPE WITH BLUE STRIPES INCORPORATED INTO, OR APPLIED TO, THE PIPE WALL; AND UNDERGROUND METAL OR CONCRETE PIPE WILL HAVE BLUE STRIPES APPLIED TO THE PIPE WALL. PIPE STRIPED DURING MANUFACTURING OF THE PIPE WILL HAVE CONTINUOUS STRIPES THAT RUN PARALLEL TO THE AXIS OF THE PIPE, THAT ARE LOCATED AT NO GREATER THAN 90-DEGREE INTERVALS AROUND THE PIPE, AND THAT WILL REMAIN INTACT DURING AND AFTER INSTALLATION OF THE PIPE. IF TAPE OR PAINT IS USED TO STRIPE PIPE DURING INSTALLATION OF THE PIPE, THE TAPE OR PAINT WILL BE APPLIED IN A CONTINUOUS LINE THAT RUNS PARALLEL TO THE AXIS OF THE PIPE AND THAT IS LOCATED ALONG THE TOP OF THE PIPE; FOR PIPE WITH AN INTERNAL DIAMETER OF 24 INCHES OR GREATER, TAPE OR PAINT WILL BE APPLIED IN CONTINUOUS LINES ALONG EACH SIDE OF THE PIPE AS WELL AS ALONG THE TOP OF THE PIPE. ABOVEGROUND PIPE WILL BE PAINTED BLUE OR WILL BE COLOR CODED OR MARKED LIKE UNDERGROUND PIPE.)
7. POTABLE WATER PIPES MUST BE MANUFACTURED IN ACCORDANCE WITH THE FOLLOWING AWWA SPECIFICATIONS:
   A. DUCTILE IRON PIPE (3 INCHES TO 54 INCHES) - AWWA C150 AND AWWA C151;
   B. PVC PIPE
      (1) AWWA C900/ASTM 1784 (1 INCH TO 12 INCHES) WITH CL200 MINIMUM:
      (2) AWWA C905 (14 INCHES TO 48 INCHES);
8. ALL FIRE HYDRANTS THAT WILL BE INSTALLED UNDER THIS PROJECT AND THAT WILL HAVE UNPLUGGED, UNDERGROUND DRAINS WILL BE LOCATED AT LEAST THREE FEET FROM ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, PIPELINE CONVEYING RECLAIMED WATER OR VACUUM-TYPE SANITARY SEWER; AT LEAST SIX FEET FROM ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-10, F.A.C.; AND AT LEAST TEN FEET FROM ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM."
9. NEW OR ALTERED WATER MAINS INCLUDED IN THIS PROJECT WILL BE INSTALLED IN ACCORDANCE WITH APPLICABLE AWWA STANDARDS OR IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDED PROCEDURES.
10. A CONTINUOUS AND UNIFORM BEDDING WILL BE PROVIDED IN TRENCHES FOR UNDERGROUND PIPE INSTALLED UNDER THIS PROJECT; BACKFILL MATERIAL WILL BE TAMPED IN LAYERS AROUND UNDERGROUND PIPE INSTALLED UNDER THIS PROJECT AND TO A SUFFICIENT HEIGHT ABOVE THE PIPE TO ADEQUATELY SUPPORT AND PROTECT THE PIPE; AND UNSUITABLY SIZED STONES (AS DESCRIBED IN APPLICABLE AWWA STANDARDS OR MANUFACTURERS' RECOMMENDED INSTALLATION PROCEDURES) FOUND IN TRENCHES WILL BE REMOVED FOR A DEPTH OF AT LEAST SIX INCHES BELOW THE BOTTOM OF UNDERGROUND PIPE INSTALLED UNDER THIS PROJECT.
11. ALL WATER MAIN TEES, BENDS, PLUGS, AND HYDRANTS INSTALLED UNDER THIS PROJECT WILL BE PROVIDED WITH THRUST BLOCKS OR RESTRAINED JOINTS TO PREVENT MOVEMENT.
12. NEW OR ALTERED WATER MAINS THAT ARE INCLUDED IN THIS PROJECT AND THAT WILL BE CONSTRUCTED OF ASBESTOS-CEMENT OR POLYVINYL CHLORIDE PIPE WILL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA STANDARD C603 OR C605, RESPECTIVELY, AND ALL OTHER NEW OR ALTERED WATER MAINS INCLUDED IN THIS PROJECT WILL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA STANDARD C600.
13. NEW OR RELOCATED, UNDERGROUND WATER MAINS INCLUDED IN THIS PROJECT WILL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER, STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.; A HORIZONTAL DISTANCE OF AT LEAST SIX FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY-TYPE SANITARY SEWER (OR A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY-TYPE SANITARY SEWER IF THE BOTTOM OF THE WATER MAIN WILL BE LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER); A HORIZONTAL DISTANCE OF AT LEAST SIX FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.; AND A HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM."
14. NEW OR RELOCATED, UNDERGROUND WATER MAINS THAT ARE INCLUDED IN THIS PROJECT AND THAT WILL CROSS ANY EXISTING OR PROPOSED GRAVITY- OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER WILL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES ABOVE THE OTHER PIPELINE OR AT LEAST 12 INCHES BELOW THE OTHER PIPELINE; AND NEW OR RELOCATED, UNDERGROUND WATER MAINS THAT ARE INCLUDED IN THIS PROJECT AND THAT WILL CROSS ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER WILL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OTHER PIPELINE.
15. AT THE UTILITY CROSSINGS DESCRIBED ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE WILL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE OR THE PIPES WILL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY- OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
16. IF CONNECTION OF THE PROPOSED ACTIVITY TO THE WATER MAIN WILL RESULT IN A DEPRESSURIZATION OF THE EXISTING SYSTEM BELOW 20 POUNDS PER SQUARE INCH, ONE OF THE FOLLOWING MUST OCCUR;
   A. PRECAUTIONARY BOIL WATER NOTICES MUST BE ISSUED IN CASES OF PLANNED DISTRIBUTION INTERRUPTIONS, WHICH ARE DEEMED AN IMMINENT PUBLIC HEALTH THREAT BY THE FDEP CENTRAL DISTRICT OR WILL AFFECT THE BACTERIOLOGICAL QUALITY OF THE DRINKING WATER UNLESS THE PUBLIC WATER SYSTEM CAN DEMONSTRATE, BY SOUND ENGINEERING JUDGMENT, THAT THE INTEGRITY OF THE WATER SYSTEM HAS BEEN MAINTAINED; OR
   B. IN CASE OF BRIEF INTERRUPTION IN SERVICE, ADVISORIES (NOT BOIL WATER NOTICES) SHOULD BE ISSUED IF TEMPORARY CHANGES IN WATER QUALITY ARE EXPECTED TO OCCUR AND NOT DEEMED AN IMMINENT PUBLIC HEALTH RISK.

FDEP WASTEWATER CONSTRUCTION NOTES

1. APPROPRIATE DEFLECTION TEST ARE SPECIFIED FOR ALL FLEXIBLE PIPE. TESTING IS REQUIRED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS TO PERMIT STABILIZATION OF THE SOIL-PIPE SYSTEM. TESTING REQUIREMENTS SPECIFY: 1) NO PIPE SHALL EXCEED A DEFLECTION OF 5%; 2) USING RIGID BALL OR MANDREL FOR THE DEFLECTION TEST WITH A DIAMETER NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER OR AVERAGE INSIDE DIAMETER OF THE PIPE, DEPENDING ON WHICH IS SPECIFIED IN THE ASTM SPECIFICATIONS, INCLUDING THE APPENDIX, TO WHICH THE PIPE IS MANUFACTURE; AND 3) PERFORMING THE TEST WITHOUT MECHANICAL PULLING DEVICES.
2. LEAKAGE TEST ARE SPECIFIED REQUIRING THAT: 1) THE LEAKAGE EXFILTRATION OR INFILTRATION DOES NOT EXCEED 200 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY FOR ANY SECTION OF THE SYSTEM; 2) EXFILTRATION OR INFILTRATION TEST BE PERFORMED WITH A MINIMUM POSITIVE HEAD OF 2 FEET; AND 3) AIR TEST, AS A MINIMUM, CONFORM TO THE TEST PROCEDURE DESCRIBED IN ASTM C-828 FOR CLAY PIPE, ASTM C 924 FOR CONCRETE PIPE, ASTM F-1417 FOR PLASTIC PIPE, AND OTHER MATERIAL APPROPRIATE TEST PROCEDURES.
3. MANHOLE INSPECTION AND TESTING FOR WATERTIGHTNESS OR DAMAGE PRIOR TO PLACING INTO SERVICE ARE REQUIRED. AIR TESTING SPECIFIED FOR CONCRETE SEWER MANHOLES, SHALL CONFORM TO THE TEST PROCEDURES DESCRIBED IN ASTM C-1244.
4. SUITABLE COUPLINGS COMPLYING WITH ASTM SPECIFICATIONS ARE REQUIRED FOR JOINING DISSIMILAR MATERIALS.
5. CONCRETE MANHOLES SHALL HAVE THE FOLLOWING: 1) MANHOLE LIFT HOLES AND GRADE ADJUSTMENT RINGS SEALED WITH NON-SHRINK MORTAR OR OTHER APPROPRIATE MATERIAL; 2) INLET AND OUTLET PIPES BE JOINED TO THE MANHOLE WITH A GASKETED FLEXIBLE WATERTIGHT CONNECTION OR ANOTHER WATERTIGHT CONNECTION ARRANGEMENT THAT ALLOWS DIFFERENTIAL SETTLEMENT OF THE PIPE AND MANHOLE WALL; 3) WATERTIGHT MANHOLE COVERS BE USED WHEREVER THE TOPS MAY BE FLOODED BY STREET RUNOFF OR HIGH WATER.

VOLUSIA COUNTY NOTES:

1. NOTIFY VOLUSIA COUNTY DEVELOPMENT ENGINEERING DIVISION AT (386) 736-5926 A MINIMUM OF 24 HOURS PRIOR TO THE START OF CONSTRUCTION. FAILURE OF THE PERMITTEE TO OBTAIN THE APPROPRIATE INSPECTIONS PRIOR TO PROCEEDING WITH WORK SHALL NOT RELIEVE THE PERMITTEE FROM REEXCAVATION OR OTHER MEASURES NECESSARY FOR THE INSPECTION OF WORK.
2. VOLUSIA COUNTY TRAFFIC ENGINEERING (386) 736-5968 IS NOT A MEMBER OF SUNSHINE ONE CALL. WHEN REQUESTING LOCATES, PLEASE PROVIDE A MINIMUM ADVANCED NOTIFICATION OF TWO (2) BUSINESS DAYS PRIOR TO PROPOSED WORK.
3. COORDINATION WITH VOLUSIA COUNTY TRAFFIC OPERATIONS (386) 239-6535 IS REQUIRED WITH A MINIMUM ADVANCED NOTICE OF SEVEN (7) DAYS PRIOR TO ANY SIDEWALK, LANE OR ROAD CLOSURE (INCLUDING FLAGGING OPERATIONS).
4. OPERATIONS WITHIN THE COUNTY RIGHT-OF-WAY SHALL NORMALLY BE CONDUCTED 7:00 AM TO 7:00 PM, MONDAY THROUGH FRIDAY. ANY DEVIATION FROM THESE HOURS REQUIRES PRIOR APPROVAL FROM THE COUNTY DEVELOPMENT ENGINEER. EMERGENCY REPAIRS ARE EXCLUDED FROM THIS TIME RESTRICTION.
5. ALL EXISTING SIDEWALKS WITHIN COUNTY RIGHT-OF-WAY SHALL EITHER REMAIN OPEN OR BE PROVIDED A TEMPORARY WALKWAY IN ACCORDANCE WITH THE CURRENT VERSION OF FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD INDEX NO. 660. ANY DAMAGE TO SIDEWALKS SHALL BE REPAIRED AND/OR REPLACED IN LIKE KIND BY THE CONTRACTOR. NEW SIDEWALKS AND SECTIONS THROUGH DRIVEWAYS MUST BE AT A 1.5% CROSS SLOPE AND 2% MAXIMUM CROSS SLOPE PER ADA STANDARDS.
6. DRIVING OR STAGING OF CONSTRUCTION VEHICLES OR MATERIALS IS NOT PERMITTED WITHIN THE COUNTY RIGHT-OF-WAY OR ON PEDESTRIAN WALKWAYS AND PATHS. THERE SHALL BE NO OVERNIGHT CONSTRUCTION VEHICLE RELATED PARKING, CONSTRUCTION MATERIAL PLACEMENT OR STORAGE OF ANY KIND PERMITTED WITHIN THE COUNTY RIGHT-OF-WAY.
7. NO TRENCH OR EXCAVATION SHALL BE LEFT OPEN OR UNATTENDED OVERNIGHT, UNLESS APPROVED BY THE COUNTY DEVELOPMENT ENGINEERING INSPECTOR. EXCAVATIONS SHALL MEET THE DROP OFF PROTECTION REQUIREMENTS OF THE LATEST FDOT DESIGN STANDARD INDEX NO. 600.
8. RESTORATION SHALL BE REQUIRED FOR ANY DAMAGE TO SIDEWALKS, CURBS, OR OTHER EXISTING STRUCTURES IN THE RIGHT-OF-WAY. ALL DISTURBED AREAS WITHIN THE COUNTY RIGHT OF WAY SHALL BE RE-GRADED AND SODDED. SEED AND MULCH IS NOT AN ACCEPTABLE ALTERNATIVE TO SODDING.

VOLUSIA COUNTY IRRIGATION NOTES:

1. AUTOMATIC IRRIGATION CONTROLLERS, WHEN UTILIZED, SHALL CONTAIN A FUNCTIONAL RAIN SENSOR DEVICE, CAPABLE OF BEING SET TO ONE MINUTE RUN TIMES, AND BATTERY BACKUP CAPABILITY TO RETAIN PROGRAMMING IN THE EVENT OF A POWER FAILURE.
2. A RAIN SENSOR PLACED ON A STATIONARY STRUCTURE, FREE AND CLEAR OF ANY OVERHEAD OBSTRUCTIONS AND ABOVE THE HEIGHT OF THE SPRINKLER COVERAGE.
3. EQUIPMENT WITH CHECK VALVES USED IN LOW-LYING AREAS TO PREVENT LOW HEAD DRAINAGE.
4. BACKFLOW PREVENTION METHODS AND OTHER PROVISIONS PRESCRIBED IN SECTION 74-42.
5. IRRIGATION DESIGN WITH THE APPROPRIATE UNIFORMITY FOR THE TYPE OF PLANT BEING GROWN AND FOR THE TYPE OF SOIL.
6. IRRIGATION SYSTEM EQUIPMENT INSTALLED AS DESIGNED.
7. IRRIGATION ZONES DIVIDED ACCORDING TO: AVAILABLE FLOW RATE, VEGETATED GROUPINGS (I.E., TURF, SHRUBS, NATIVE PLANTS, ETC.), SPRINKLER TYPES (I.E., SPRINKLERS WITH MATCHING PRECIPITATION RATES) AND SOIL CHARACTERISTICS.
8. SPRAY HEADS AND ROTORS NOT MIXED IN SAME ZONE.
9. DISTRIBUTION EQUIPMENT IN A GIVEN ZONE HAVING MATCHED PRECIPITATION RATES.
10. APPLICATION RATES THAT AVOID RUNOFF AND PERMIT UNIFORM WATER INFILTRATION INTO THE SOIL, CONSIDERING LAND SLOPE, SOIL HYDRAULIC PROPERTIES, VEGETATIVE GROUND COVER AND PREVAILING WINDS.
11. A MINIMUM SEPARATION OF FOUR INCHES BETWEEN DISTRIBUTION EQUIPMENT AND PAVEMENT.
12. A MINIMUM SEPARATION OF 12 INCHES BETWEEN DISTRIBUTION EQUIPMENT AND BUILDINGS AND OTHER VERTICAL STRUCTURES.
13. NO DIRECT SPRAY ONTO WALKWAYS, BUILDINGS, ROADWAYS AND DRIVES.
14. LAWN SPRAY PATTERNS PROVIDING HEAD TO HEAD COVERAGE.
15. WATER CONVEYANCE SYSTEMS WITH A FLOW VELOCITY OF FIVE FEET PER SECOND OR LESS.
16. PIPELINES DESIGNED TO PROVIDE THE SYSTEM WITH THE APPROPRIATE PRESSURE REQUIRED FOR MAXIMUM IRRIGATION UNIFORMITY.
17. PRESSURE REGULATING HEADS.
18. A MAINTENANCE CHECKLIST PROVIDED TO THE PROPERTY OWNER BY THE IRRIGATION CONTRACTOR ACCOMPANIED BY A RECOMMENDED MAINTENANCE SCHEDULE, PROPER IRRIGATION SYSTEM SETTINGS ACCORDING TO SEASON, RECOMMENDATIONS FOR CHECKING RAIN SENSOR DEVICE, FILTER CLEANING RECOMMENDATIONS AND INFORMATION ON THE CURRENT WATER RESTRICTIONS.
19. IRRIGATION SYSTEM DESIGN WILL BE PERMITTED THROUGH VOLUSIA COUNTY.

VOLUSIA COUNTY LANDSCAPE REQUIREMENTS:

1. A HIGH VOLUME IRRIGATION AREA SHALL NOT EXCEED 50 PERCENT OF THE LANDSCAPED AREA. LOW OR MEDIUM VOLUME IRRIGATION AREAS MAY BE UTILIZED IN LIEU OF ANY HIGH VOLUME IRRIGATION AREA.
2. A MEDIUM VOLUME IRRIGATION AREA SHALL NOT EXCEED 25 PERCENT OF THE LANDSCAPED AREA. HOWEVER, THE LANDSCAPED AREA MAY CONTAIN UP TO 75 PERCENT MEDIUM VOLUME IRRIGATION AREA, IF NO HIGH VOLUME IRRIGATION AREA IS UTILIZED ON SITE.
3. A LOW VOLUME IRRIGATION AREA MAY BE UTILIZED FOR AN ENTIRE LANDSCAPED AREA WITH THE EXCEPTION OF NATIVE VEGETATION AREAS REGULATED BY SECTION 50-373(b)(4).
4. IN THE ALTERNATIVE TO (1), (2), AND (3) ABOVE, IF 25 PERCENT OF THE PRE-EXISTING NATIVE VEGETATION IS RETAINED ON SITE, THE REMAINING 75 PERCENT OF THE LANDSCAPED AREA MAY BE A HIGH VOLUME IRRIGATION AREA. FOR ALL PRE-EXISTING NATIVE VEGETATION RETAINED ON A PARCEL:
   - NO SUPPLEMENTAL WATER SHALL BE APPLIED TO THE NATIVE VEGETATION AREA.
   - ONLY HAND PRUNING OF NATIVE VEGETATION IS ALLOWED.
   - MECHANICAL MOWING OR CLEARING IS PROHIBITED.

VOLUSIA COUNTY CONTRACTOR LICENSE REQUIREMENTS:

NO PERSON MAY INSTALL OR REPAIR AN IRRIGATION SYSTEM IN VOLUSIA COUNTY UNLESS THEY POSSESS A VALID IRRIGATION CERTIFICATE OF COMPETENCY FROM THE DEPARTMENT. THE FOLLOWING PERSONS ARE EXEMPTED FROM HAVING TO POSSESS A CERTIFICATE OF COMPETENCY:

- LICENSED FLORIDA WATER WELL CONTRACTORS AND FLORIDA STATE CERTIFIED PLUMING CONTRACTORS.
- FLORIDA STATE REGISTERED PLUMBING CONTRACTORS.
- PROPERTY OWNERS WHO PERSONALLY PERFORM CONSTRUCTION, MAINTENANCE OR REPAIRS ON AN IRRIGATION SYSTEM THAT SERVES HIS OR HER OWNER-OCCUPIED SINGLE FAMILY RESIDENCE.

ABBREVIATIONS

AWWA	AMERICAN WATER WORKS ASSOCIATION	FM	FORCE MAIN	R	RADIUS
CMP	CORRUGATED METAL PIPE	FPD	FEET PER DAY	RCP	REINFORCED CONCRETE PIPE
CPP	CORRUGATED PLASTIC PIPE	G	GAS	RPM	REFLECTIVE PAVEMENT MARKER
CTV	CABLE TELEVISION	GW	GROUND WATER	R/W	RIGHT-OF-WAY
DIP	DUCTILE IRON PIPE	H/C	HANDICAP	SAN	SANITARY
D.M.A.E.	DRIANAGE/MAINTENANCE/ ACCESS EASEMENT	HDPE	HIGH DENSITY POLYETHYLENE	SH	SEASONAL HIGH
ESMT	EASEMENT	INV	INVERT	SJRWMD	ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
EXIST	EXISTING	K_H	HORIZONTAL PERMEABILITY	SMH	SANITARY MANHOLE
FAC	FLORIDA ADMINISTRATIVE CODE	K_V	VERTICAL PERMEABILITY	SS	SANITARY SEWER
FACBC	FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION	KO	KNOCK OUT	SWPPP	STORMWATER POLLUTION PREVENTION PLAN
FDEP	FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	LF	LINEAL FEET	TSB	TEMPORARY SEDIMENT BASIN
FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION	MB	MAP BOOK	TYP	TYPICAL
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY	MES	MITERED END SECTION	UGE	UNDERGROUND ELECTRIC
FH	FIRE HYDRANT	MJ	MECHANICAL JOINT	UGT	UNDERGROUND TELEPHONE
FOC	FIBER OPTIC CABLE	N/A	NOT APPLICABLE	UCNSB	UTILITIES COMMISION, CITY OF NEW SMYRNA BEACH
FF EL	FINISH FLOOR ELEVATION	NIC	NOT IN CONTRACT	USACOE	UNITED STATES ARMY CORP OF ENGINEERS
		NGVD	NATIONAL GEODETIC VERTICAL DATUM	W	WATER (POTABLE)
		OHE	OVERHEAD ELECTRIC		
		OR	OFFICIAL RECORD		
		PG	PAGE		
		PSI	POUNDS PER SQUARE INCH		
		PVC	POLYVINYL CHLORIDE		
		PVMT	PAVEMENT		

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

DEVELOPMENT INFORMATION
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	

DRAWING NUMBER

6

VOLUSIA COUNTY RIGHT-OF-WAY NOTES:

1. NOTIFY VOLUSIA COUNTY DEVELOPMENT ENGINEERING OFFICE AT (386-736-5926) ONE BUSINESS DAY PRIOR TO BEGINNING ANY PERMITTED WORK AND REQUEST INSPECTIONS.
2. THE VOLUSIA COUNTY-STAMPED "APPROVED" PERMIT PLANS MUST BE ONSITE AT ALL TIMES.
3. NO TRENCH/EXCAVATIONS SHALL BE LEFT OPEN OR UNATTENDED OVERNIGHT.
4. CONTRACTOR SHALL RESPONSIBLE FOR PER/POST CONSTRUCTION VIDEO-PHOTOS OF EXISTING ROADWAYS, DRIVEWAYS, SIDEWALKS, DITCH SWALES, CULVERTS, AND ABOVE GROUND UTILITIES.
5. ALL PAVEMENT STRIPING/MARKINGS MUST BE THERMOPLASTIC AND MUST BE LOCATED AND INSTALLED IN ACCORDANCE WITH THE LATEST FDOT STANDARD INDEX # 17346.
6. REFLECTIVE PAVEMENT MARKERS (RPM'S) SHALL BE INSTALLED WITHIN THE LIMITS OF NEW PAVING AND INSTALLED IN ACCORDANCE TO THE LATEST FDOT STANDARD INDEX # 17352.
7. NEW SIDEWALKS WITHIN THE COUNTY RIGHT-OF-WAY MUST BE AT A TARGET OF 1.5% CROSS SLOPE, 2% MAXIMUM CROSS SLOPE PER ADA STANDARDS. ALL SIDEWALK TRUNCATED MUST BE BRICK RED IN COLOR AND PLACED AS SHOWN IN THE LATEST FDOT INDEX 304. STRIPING AND MARKINGS MUST BE THERMOPLASTIC AND MUST BE LOCATED AND INSTALLED IN ACCORDANCE WITH THE LATEST FDOT STANDARD INDEX #17346. ONE FULL SIDEWALK SECTION ADJACENT TO ROADS/DRIVEWAYS MUST BE 6 INCHES OF CONCRETE.
8. ALL ROAD CLOSURES ARE SEPARATE FROM THE USE PERMIT AND REQUIRE MOT PLAN REVIEW AND APPROVAL WITH 7 DAY ADVANCE NOTICE FROM VOLUSIA COUNTY TRAFFIC OPERATIONS AT 9386) 239-6535.
9. THE CONTRACTOR SHALL SOD ALL DISTURBED AREAS WITHIN THE RIGHT-OF-WAY.

LAND ALTERATION / TREE PRESERVATION NOTES:

1. ALL TREES TO REMAIN MUST BE PROTECTED BY TREE PRESERVATION BARRICADES MEETING THE MINIMUM STANDARDS. PROTECTIVE BARRICADES SHALL REMAIN IN PLACE UNTIL LAND ALTERATION AND CONSTRUCTION ACTIVITIES ARE COMPLETED.
2. ALL TRIMMING SHALL BE UNDERTAKEN ON A TREE PROTECTED BY THE PROVISIONS OF THE LAND DEVELOPMENT CODE SHALL BE IN ACCORDANCE WITH THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A-300 PRUNING STANDARDS.
3. OAK TREES LARGER THAN 36-INCHES AND ABOVE (HISTORIC) PRUNING SHALL BE PERFORMED BY AN ARBORIST CERTIFIED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE OR A REGISTERED CONSULTING ARBORIST WITH THE AMERICAN SOCIETY OF CONSULTING ARBORISTS. THE ARBORIST SHALL UNDERSTAND THAT THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A300 PRUNING STANDARDS IS A STANDARD OF DIVISION 4.0.
4. ALL TREE ROOTS EXISTING WITHIN APPROVED IMPROVEMENT AREAS AND ORIGINATING FROM A PROTECTED TREE, SHALL BE SEVERED CLEAN AT THE LIMITS OF THE PRESERVED AREA WHERE INDICATED ON THIS PLAN.
5. SEE TREE PROTECTION DETAILS, SHEET No. 5.

EROSION CONTROL NOTES:

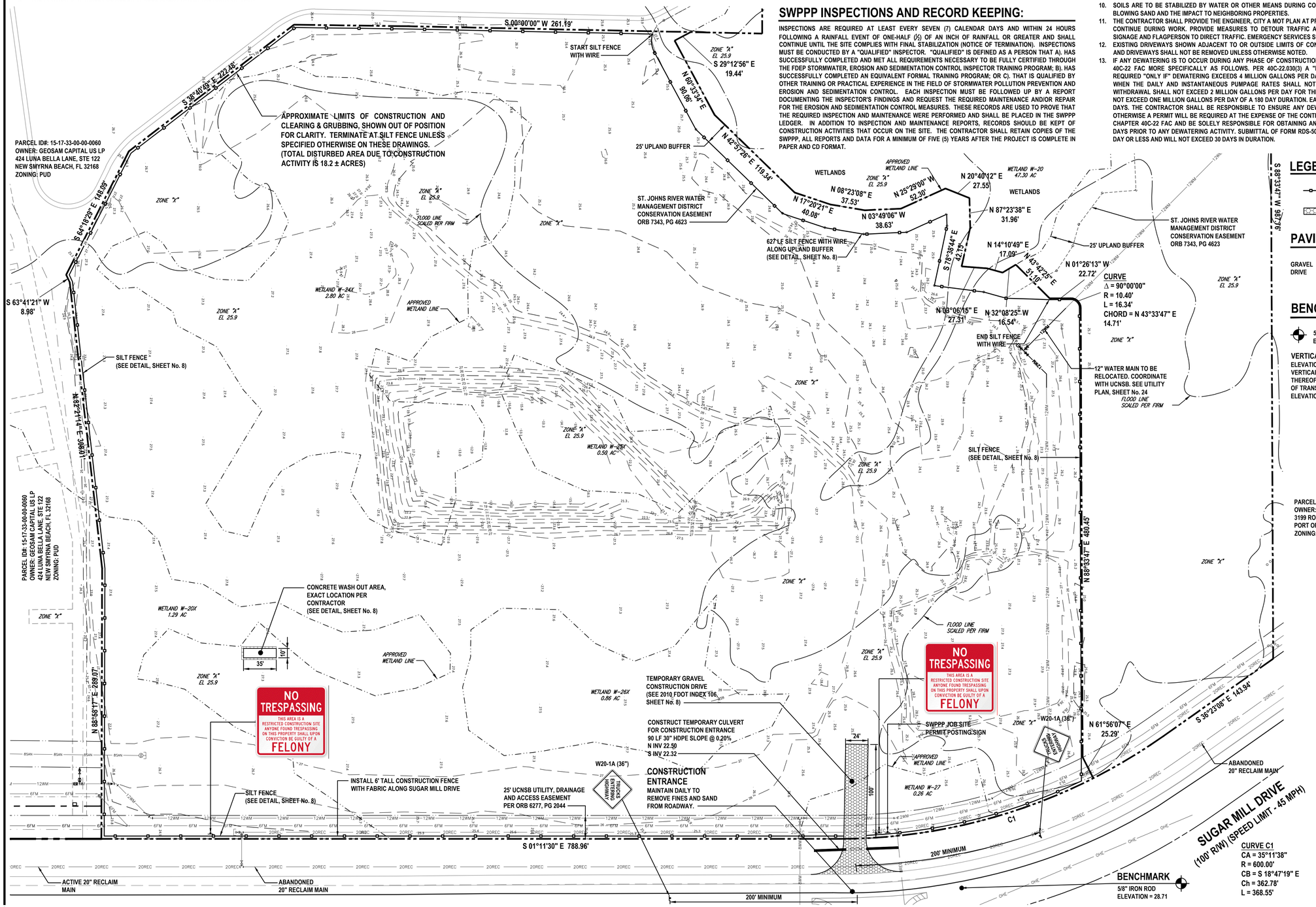
1. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE SWPPP DURING CONSTRUCTION OPERATIONS.
2. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL DEVICES HAVE BEEN INSTALLED.
3. THE CONTRACTOR SHALL POST "NO TRESPASSING" SIGNAGE AT ALL SITE ENTRANCES PRIOR TO CONSTRUCTION.
4. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN AND AT LEAST ONCE A WEEK.
5. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
6. GENERAL CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
7. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION.
8. NO TURBID WATER SHALL BE DISCHARGED OFF-SITE FROM THE DEWATERING OPERATION. CONTRACTOR SHALL TAKE MEASURES TO CONTROL TURBIDITY.
9. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OF NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
11. PROVIDE DUST CONTROL FOR ALL EARTHWORK OPERATIONS. COVER AREA WITH LIGHT COATING OF WATER OR OTHER APPROVED METHOD.

DEMOLITION AND SWPPP NOTES:

1. ALL EROSION CONTROL DEVICES AND VISIBLE BARRICADES SHALL BE INSTALLED AND APPROVED BY THE ENGINEER PRIOR TO THE START OF CLEARING AND GRUBBING.
2. THE CONTRACTOR SHALL SCHEDULE A PRECONSTRUCTION MEETING WITH THE CITY AS SPECIFIED PRIOR TO START OF CONSTRUCTION.
3. THE SITE SHALL BE CLEARED AND GRUBBED OF ALL VEGETATION AND DEBRIS WITHIN THE APPROXIMATE LIMITS OF CLEARING AS INDICATED ON THE DRAWING.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE CITY OF NEW SMYRNA BEACH UTILITY DEPARTMENT, FLORIDA SUNSHINE AND EMERGENCY SERVICES FOR RESPECTIVE UTILITY LOCATIONS AND "NOTICE" OF CONSTRUCTION ACTIVITY.
5. ALL REMOVED MATERIAL SHALL BE HAULED OFF-SITE TO AN APPROVED LANDFILL. TREES MAY BE LOGGED OR MULCHED FOR OFF-SITE DISPOSAL AT THE CONTRACTOR'S DISCRETION.
6. ALL EROSION CONTROL DEVICES SHALL BE PLACED PRIOR TO THE START OF WORK AND REMAIN IN PLACE UNTIL ALL WORK IS COMPLETE.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PERIODIC INSPECTION AND REMOVAL OF DEBRIS AND SILT BEHIND EROSION CONTROL DEVICES..
8. ALL INLETS AND PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY INLET PROTECTION MEASURES TO PREVENT SILTATION IN THE DRAINAGE SYSTEM (SEE DETAILS THIS DRAWING). THE ENTIRE DRAINAGE SYSTEM SHALL BE CLEANED OF ALL DEBRIS PRIOR TO FINAL ACCEPTANCE.
9. ALL OFF-SITE AREAS DISTURBED DURING CONSTRUCTION ACTIVITY SHALL BE IMMEDIATELY RESTORED TO PRIOR CONDITION UPON COMPLETION OF WORK.
10. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION, BLOWING SAND AND THE IMPACT TO NEIGHBORING PROPERTIES.
11. THE CONTRACTOR SHALL PROVIDE THE ENGINEER, CITY A MOT PLAN AT PRECONSTRUCTION MEETING. TRAFFIC SHALL BE ALLOWED TO CONTINUE DURING WORK. PROVIDE MEASURES TO DETOUR TRAFFIC AROUND OPEN EXCAVATION WITH ADEQUATE BARRICADES, SIGNAGE AND FLAGPERSON TO DIRECT TRAFFIC. EMERGENCY SERVICES SHALL BE NOTIFIED 48 HOUR IN ADVANCE.
12. EXISTING DRIVEWAYS SHOWN ADJACENT TO OR OUTSIDE LIMITS OF CONSTRUCTION SHALL REMAIN IN-SERVICE. EXISTING UTILITIES AND DRIVEWAYS SHALL NOT BE REMOVED UNLESS OTHERWISE NOTED.
13. IF ANY DEWATERING IS TO OCCUR DURING ANY PHASE OF CONSTRUCTION THEN DEWATERING ACTIVITY SHALL ADHERE TO CHAPTER 40C-22 FAC MORE SPECIFICALLY AS FOLLOWS. PER 40C-22.030(3) A "NOTICED GENERAL SHORT-TERM DEWATERING PERMIT" IS REQUIRED "ONLY IF" DEWATERING EXCEEDS 4 MILLION GALLONS PER DAY, EXCEPT DURING THE FIRST 120 HOURS OF DEWATERING WHEN THE DAILY AND INSTANTANEOUS PUMPAGE RATES SHALL NOT EXCEED 6 MILLION GALLONS PER DAY. AVERAGE DAILY WITHDRAWAL SHALL NOT EXCEED 2 MILLION GALLONS PER DAY FOR THE FIRST 60 DAYS OF THE DEWATERING ACTIVITY AND SHALL NOT EXCEED ONE MILLION GALLONS PER DAY OF A 180 DAY DURATION. EACH SPECIFIC DEWATERING PROJECT SHALL NOT EXCEED 180 DAYS. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE ANY DEWATERING ACTIVITY IS BELOW THE SPECIFIED THRESHOLD. OTHERWISE A PERMIT WILL BE REQUIRED AT THE EXPENSE OF THE CONTRACTOR. THE CONTRACTOR SHALL FAMILIARIZE ITSELF WITH CHAPTER 40C-22 FAC AND BE SOLELY RESPONSIBLE FOR OBTAINING AND SUBMITTING FORM RDS-50 TO SJRWMD A MINIMUM OF 10 DAYS PRIOR TO ANY DEWATERING ACTIVITY. SUBMITTAL OF FORM RDS-50 IS NOT REQUIRED IF DEWATERING IS 300,000 GALLONS PER DAY OR LESS AND WILL NOT EXCEED 30 DAYS IN DURATION.

SWPPP INSPECTIONS AND RECORD KEEPING:

INSPECTIONS ARE REQUIRED AT LEAST EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS FOLLOWING A RAINFALL EVENT OF ONE-HALF (½) OF AN INCH OF RAINFALL OR GREATER AND SHALL CONTINUE UNTIL THE SITE COMPLIES WITH FINAL STABILIZATION (NOTICE OF TERMINATION). INSPECTIONS MUST BE CONDUCTED BY A "QUALIFIED" INSPECTOR. "QUALIFIED" IS DEFINED AS A PERSON THAT A). HAS SUCCESSFULLY COMPLETED AND MET ALL REQUIREMENTS NECESSARY TO BE FULLY CERTIFIED THROUGH THE FDEP STORMWATER, EROSION AND SEDIMENTATION CONTROL INSPECTOR TRAINING PROGRAM; B). HAS SUCCESSFULLY COMPLETED AN EQUIVALENT FORMAL TRAINING PROGRAM; OR C). THAT IS QUALIFIED BY OTHER TRAINING OR PRACTICAL EXPERIENCE IN THE FIELD OF STORMWATER POLLUTION PREVENTION AND EROSION AND SEDIMENTATION CONTROL. EACH INSPECTION MUST BE FOLLOWED UP BY A REPORT DOCUMENTING THE INSPECTOR'S FINDINGS AND REQUEST THE REQUIRED MAINTENANCE AND/OR REPAIR FOR THE EROSION AND SEDIMENTATION CONTROL MEASURES. THESE RECORDS ARE USED TO PROVE THAT THE REQUIRED INSPECTION AND MAINTENANCE WERE PERFORMED AND SHALL BE PLACED IN THE SWPPP LEDGER. IN ADDITION TO INSPECTION AND MAINTENANCE REPORTS, RECORDS SHOULD BE KEPT OF CONSTRUCTION ACTIVITIES THAT OCCUR ON THE SITE. THE CONTRACTOR SHALL RETAIN COPIES OF THE SWPPP, ALL REPORTS AND DATA FOR A MINIMUM OF FIVE (5) YEARS AFTER THE PROJECT IS COMPLETE IN PAPER AND CD FORMAT.



LEGEND:

- PROPOSED SILT FENCE (SEE DETAIL, SHEET No. 8)
- PROPOSED AGGREGATE

PAVING LEGEND

GRAVEL DRIVE — MILL 1" AVERAGE DEPTH AND RESURFACE WITH 1" SP-9.5 TL-C @ MAX. 30% RECYCLED MATERIALS

BENCHMARK INFORMATION:

5/8" IRON ROD (TRAVERSE CAP)
ELEVATION = 28.71

VERTICAL DATA
ELEVATIONS REFER TO (NAVD) NORTH AMERICAN VERTICAL DATUM 1988. FEET AND DECIMAL PART THEREOF. ELEVATIONS BASED ON FLORIDA DEPARTMENT OF TRANSPORTATION BENCHMARK #NGAQ1337. ELEVATION 53.291 FEET, (NAVD 88).

GRAPHIC SCALE 1"=50'
50 0 50 100

One Nation... One Number... 811 Know what's below. Call before you dig.

WARNING !!
CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

DEMOLITION, TREE REMOVAL AND SWPP PLAN
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

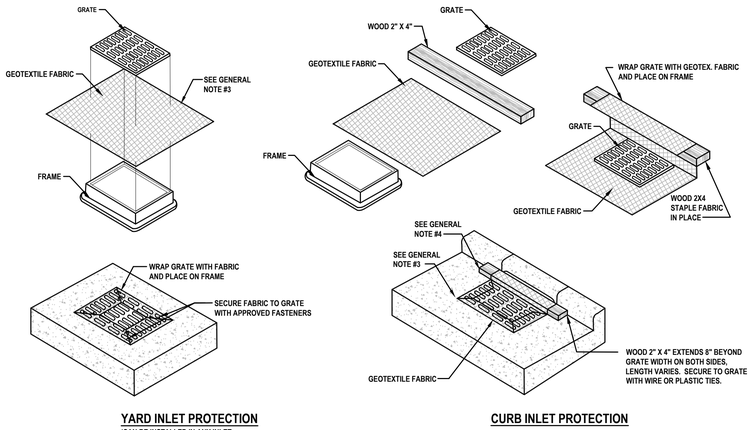
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 50'

DRAWING NUMBER

7



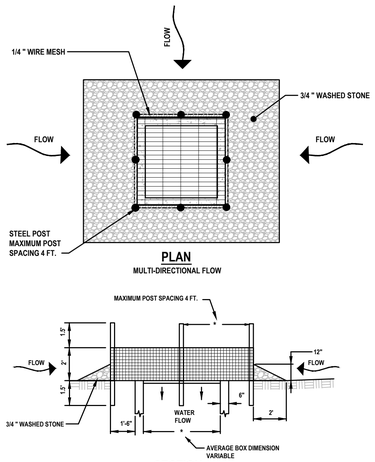
YARD INLET PROTECTION
(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)

CURB INLET PROTECTION

GENERAL NOTES:

1. GEOTEXTILE TO BE MIRAFI FILTERWEAVE 402 OR GEOTEX 111F. ALTERNATIVES INCLUDE APPROVED EQUAL ASTM D4491 OR 100 TO 150 GALLON PER MINUTE PER SQUARE FOOT.
2. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.
3. FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
4. FOR CURB INLET PROTECTION AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
5. TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.
6. THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS, OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

GEOTEXTILE FABRIC INLET PROTECTION
NOT TO SCALE



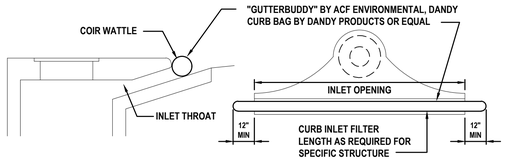
PLAN
MULTI-DIRECTIONAL FLOW

SECTION
MULTI-DIRECTIONAL FLOW

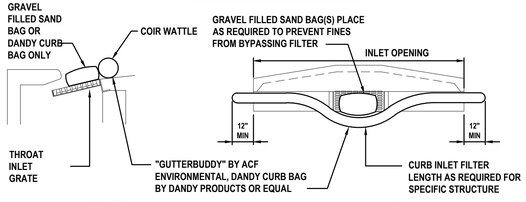
NOTE:

1. SEDIMENT CONTROL STONE SHALL BE 3/4" WASHED STONE.
2. WIRE MESH SHALL BE HARDWARE CLOTH 23 GAUGE MIN. AND SHALL HAVE 1/4 INCH MESH
3. TOP OF WIRE MESH SHALL BE A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR ANY DIVERSION POINT.
4. STEEL POST SHALL BE 5 FT. IN LENGTH, BE INSTALLED 1.5 FT. DEEP MINIMUM, AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
5. WOOD POST SHALL BE 5 FT. IN HEIGHT, BE INSTALLED TO 1.5 FT. DEEP MINIMUM, AND BE 3 INCHES IN DIAMETER.
6. POST SPACING SHALL BE A MAXIMUM OF 4 FT.

HARDWARE CLOTH INLET PROTECTION
NOT TO SCALE



SECTION **PLAN**
CURB INLET WITHOUT GRATE

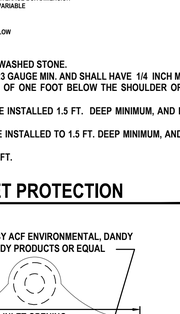


SECTION **PLAN**
CURB INLET WITH GRATE

NOTES:

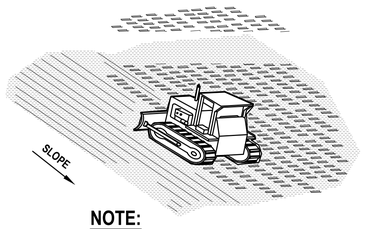
1. INSTALL FILTER PRIOR TO BEGINNING CONSTRUCTION.
2. INSPECT ONCE EACH WEEK AND AFTER ANY RAIN EVENT. REMOVE ANY FINES AND DEBRIS THAT MAY HAVE ACCUMULATED AND DISPOSE OF PROPERLY.

CURB INLET SEDIMENT PREVENTION DETAIL
NOT TO SCALE



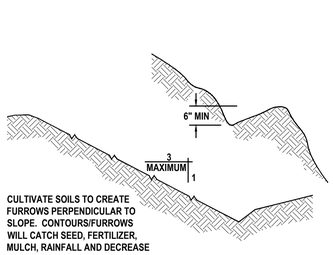
1. NOTICE OF INTENT (NOI) (APPLICATION FOR PERMIT COVERAGE) AND NOTICE OF COVERAGE (NOC) (OR APPROVAL FROM REGULATORY AGENCY) ARE TO BE POSTED.
2. ALL POSTING IS TO BE AT JOB SITE ENTRANCE WHERE IT MAY BE VIEWED BY AUTHORITIES HAVING JURISDICTION AND THE PUBLIC.
3. POSTING IS REQUIRED FROM THE DAY CONSTRUCTION ACTIVITIES START UNTIL THE NOTICE OF TERMINATION (NOT) IS FILED.
4. PROJECT MUST BE POSTED IN TWO LOCATIONS; AT THE JOB SITE ENTRANCE AND INSIDE WALL OF JOB TRAILER.

JOB SITE PERMIT POSTING DETAIL
NOT TO SCALE



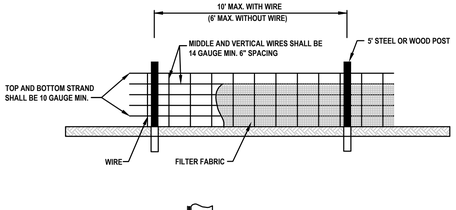
NOTE:
USE DOZER TRACKS TO CREATE GROOVES PERPENDICULAR TO THE SLOPE. GROOVES WILL CATCH SEED, FERTILIZER, MULCH, RAINFALL AND DECREASE SEDIMENT IN RUNOFF.

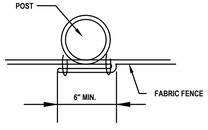
TRACKING DETAIL
NOT TO SCALE



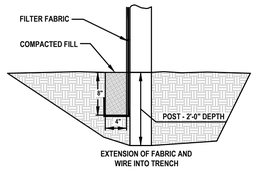
CULTIVATE SOILS TO CREATE FURROWS PERPENDICULAR TO SLOPE. CONTOURS/FURROWS WILL CATCH SEED, FERTILIZER, MULCH, RAINFALL AND DECREASE RUNOFF.

SURFACE ROUGHENING
(NOT TO SCALE)





JOINING FENCE SECTIONS



SLOPE LENGTH CHART

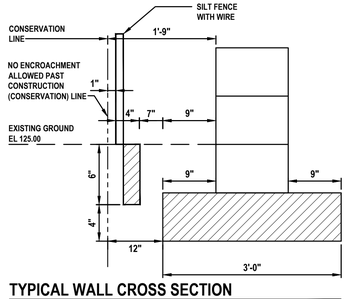
SLOPE	SLOPE LENGTH (FT)*	MAXIMUM AREA (FT^2)
< 2%	100	10,000
2 TO 5%	75	7,500
5 TO 10%	50	5,000
10 TO 20%	25	2,500
> 20%	15	1,500

*MAXIMUM LENGTH OF SLOPE BEHIND FENCE

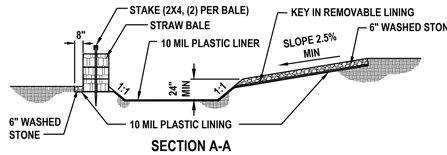
NOTES:

1. WWM MINIMUM 32" WIDTH WITH A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
2. FILTER FABRIC SHALL BE 36" WIDE AND SHALL BE FASTENED ADEQUATELY TO THE WIRE.
3. STEEL POST SHALL BE 5'-0" IN LENGTH AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
4. WOOD POST SHALL BE 5'-0" IN LENGTH AND 2" IN DIAMETER.
5. SUPPORT POSTS SHALL BE INSTALLED ON THE DOWNHILL SIDE OF THE SEDIMENT FENCE (DOWNSTREAM FROM EXPECTED FLOWS)
6. ACCUMULATED SEDIMENT SHALL REMOVED WHEN 25% THE HEIGHT OF FENCE.
7. MAXIMUM DRAINAGE AREA 10,000 SF PER 100' OF FENCE.
8. MAXIMUM LENGTH UPSLOPE FROM FENCE PER CHART.

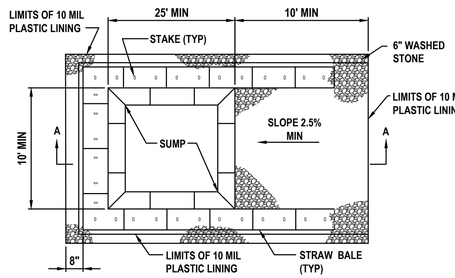
SEDIMENT FENCE DETAIL
NOT TO SCALE



TYPICAL WALL CROSS SECTION
NOT TO SCALE

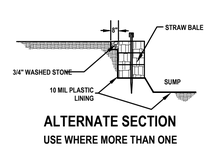


SECTION A-A



PLAN

CONCRETE WASHOUT AREA
NOT TO SCALE



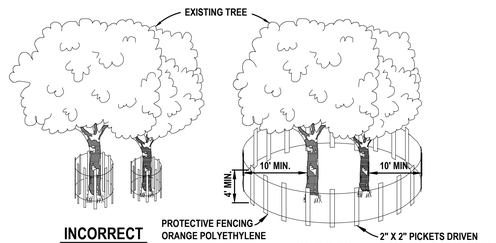
ALTERNATE SECTION
USE WHERE MORE THAN ONE ACCESSIBLE SIDE IS NEEDED



WASHOUT SIGN

NOTES:

1. PIT IS SPECIFICALLY DESIGNATED, DIKED AND IMPERVIOUS CONTAINMENT TO PREVENT CONTACT BETWEEN CONCRETE WASH AND STORMWATER.
2. WASH WATER SHALL NOT BE ALLOWED TO FLOW TO SURFACE WATER.
3. FACILITY MUST HOLD SUFFICIENT VOLUME TO CONTAIN CONCRETE WASTE WITH A MINIMUM FREEBOARD OF 12."
4. FACILITY SHALL NOT BE FILLED BEYOND 95% CAPACITY UNLESS A NEW FACILITY IS CONSTRUCTED.
5. SAW CUT PORTLAND CEMENT CONCRETE, RESIDUE FROM SAWCUT & GRINDING TO BE DISPOSED OF IN THE PIT.
6. CONCRETE WASHOUTS SHALL BE LOCATED A MINIMUM OF 100' FROM DRAINAGE WAYS, INLETS, & SURFACE WATERS.
7. MANUFACTURED CONCRETE WASHOUT DEVICES MAY BE USED IF REMOVED FROM THE SITE WHEN 95% FULL CAPACITY.



BARRIER TO BE INSTALLED AT DRIP LINE OF TREE BRANCHES OR 10' MINIMUM. USE HIGHLY VISIBLE "HAZARD" FENCE IN VIBRANT COLOR (YELLOW OR ORANGE).

TREE PROTECTION NOTES:

1. TREE BARRICADES ARE REQUIRED AROUND ALL TREES WHICH HAVE BEEN DESIGNATED ON THE SITE PLAN TO BE RETAINED AND PROTECTED. PRIOR TO ANY CLEARING OR CONSTRUCTION ACTIVITY OCCURRING ON THE SITE, TREE BARRICADES SHALL BE CONSTRUCTED BY THE CONTRACTOR AND APPROVED BY THE CITY.
2. TREE PROTECTION BARRIER MUST REMAIN IN PLACE UNTIL GRADING AND CONSTRUCTION ACTIVITY IS COMPLETE OR UNTIL COMMENCEMENT OF FINISH GRADING AND SODDING.
3. BARRIERS SHALL BE PLACED AROUND TREES AT THE DRIPLINE EXCEPT WHERE LAND ALTERATION OR CONSTRUCTION ACTIVITIES ARE APPROVED WITHIN THE DRIPLINE.
4. THE DRIPLINE OF A TREE IS THE IMAGINARY VERTICAL LINE THAT EXTENDS DOWNWARD FROM THE OUTERMOST TIPS OF THE TREE'S BRANCHES TO THE GROUND.
5. AREAS SURROUNDED BY THE TREE PROTECTION BARRIERS SHALL BE PROTECTED FROM VEGETATION REMOVAL, PLACEMENT OF SOIL, DEBRIS, SOLVENTS, CONSTRUCTION MATERIAL, MACHINERY OR OTHER EQUIPMENT OF ANY KIND.
6. ALL TREE ROOTS WITHIN AREA TO BE GRADED AND ORIGINATING FROM A PROTECTED TREE SHALL BE SEVERED CLEANLY AT THE LIMITS OF THE PROTECTED AREA.
7. ALL TREE PRUNING AND TRIMMING ON ANY TREE TO BE RETAINED SHALL BE PERFORMED BY AN ARBORIST CERTIFIED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA).
8. 2'x2' TREE PROTECTION SIGNS SPACED A MINIMUM OF ON SIGN EVERY 300' SHALL CONTAIN THE WORDING "TREE PROTECTION ZONE - KEEP OUT".

TREE PROTECTION BARRIER
(NOT TO SCALE)

TEMPORARY SEEDING SPECIFICATION:

GENERAL
SEEDING CAN BE USED FOR TEMPORARY STABILIZATION. DISTURBED AREAS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS CEASED FOR MORE THAN 7 DAYS SHALL BE TEMPORARILY SEEDED AND WATERED. AREAS WHERE FINAL GRADING HAS BEEN COMPLETED FOR MORE THAN 7 DAYS SHALL BE TEMPORARILY SEEDED. TEMPORARY SEED MIXTURE IS SPECIFIED BELOW.

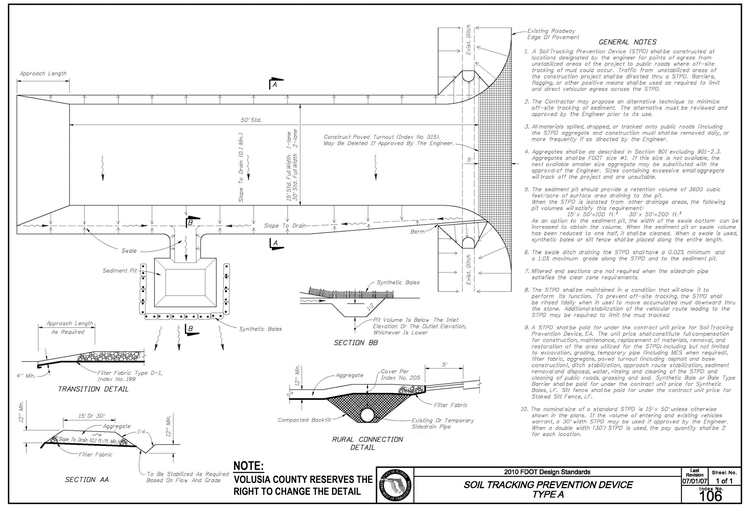
SEEDING MIXTURES
SEED MIXTURE SHALL BE BERMUDA COMMON 90 LB PURE LIVE SEED PER ACRE, FIBER 2000 LB PER ACRE, STABILIZER 120 LB PER ACRE AND FERTILIZER 300 LB PER ACRE.

ALL SLOPES AND FLAT GRADE
APPLY 6:20:20 COMMERCIAL ORGANIC FERTILIZER AT A RATE OF 300 LB PER ACRE AND SEED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

TEMPORARY SEEDING PLANTING DATES	SEED VARIETY	APPLICATION RATE
MARCH 15 - OCTOBER 15	PENSACOLA BAHIA (SCARIFIED)	90
	BERMUDA COMMON (50% HULLED)	25
OCTOBER 16 - MARCH 14	PENSACOLA BAHIA (SCARIFIED)	100
	BERMUDA COMMON (50% HULLED)	35
	ANNUAL RYE GRASS	10
	RYE GRAIN	30

MULCH SEEDED AREA WITH 2 TONS PER ACRE CLEAN GRAIN STRAW. ANCHOR STRAW WITH HYDRAULIC WOOD FIBER MULCH AT THE RATE OF 1000 LB PER ACRE, OR 150-200 POUNDS OF ORGANIC MULCH TACKIFIER PER ACRE, OR USE NETTING.

HYDRO FIBER MULCH MIXTURE SHALL BE PERFORMED IN A TANK WITH A CONTINUOUS AGITATION AND RECIRCULATION SYSTEM WITH SUFFICIENT OPERATING CAPACITY TO PRODUCE A HOMOGENOUS SLURRY AND DISCHARGE SYSTEM WHICH WILL APPLY THE SLURRY AT A CONTINUOUS AND UNIFORM RATE. MIXTURE SHALL CONTAIN A GREEN FUGITIVE DYE AS AN APPLICATION INDICATOR.



NOTE:
VOLUSIA COUNTY RESERVES THE RIGHT TO CHANGE THE DETAIL

2010 FDOT Design Standards
Last Revised 07/01/07 | Sheet No. 1 of 1
SOIL TRACKING PREVENTION DEVICE TYPE A
FDOT No. 106

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

DEMOLITION, TREE REMOVAL SWPP DETAILS AND NOTES

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

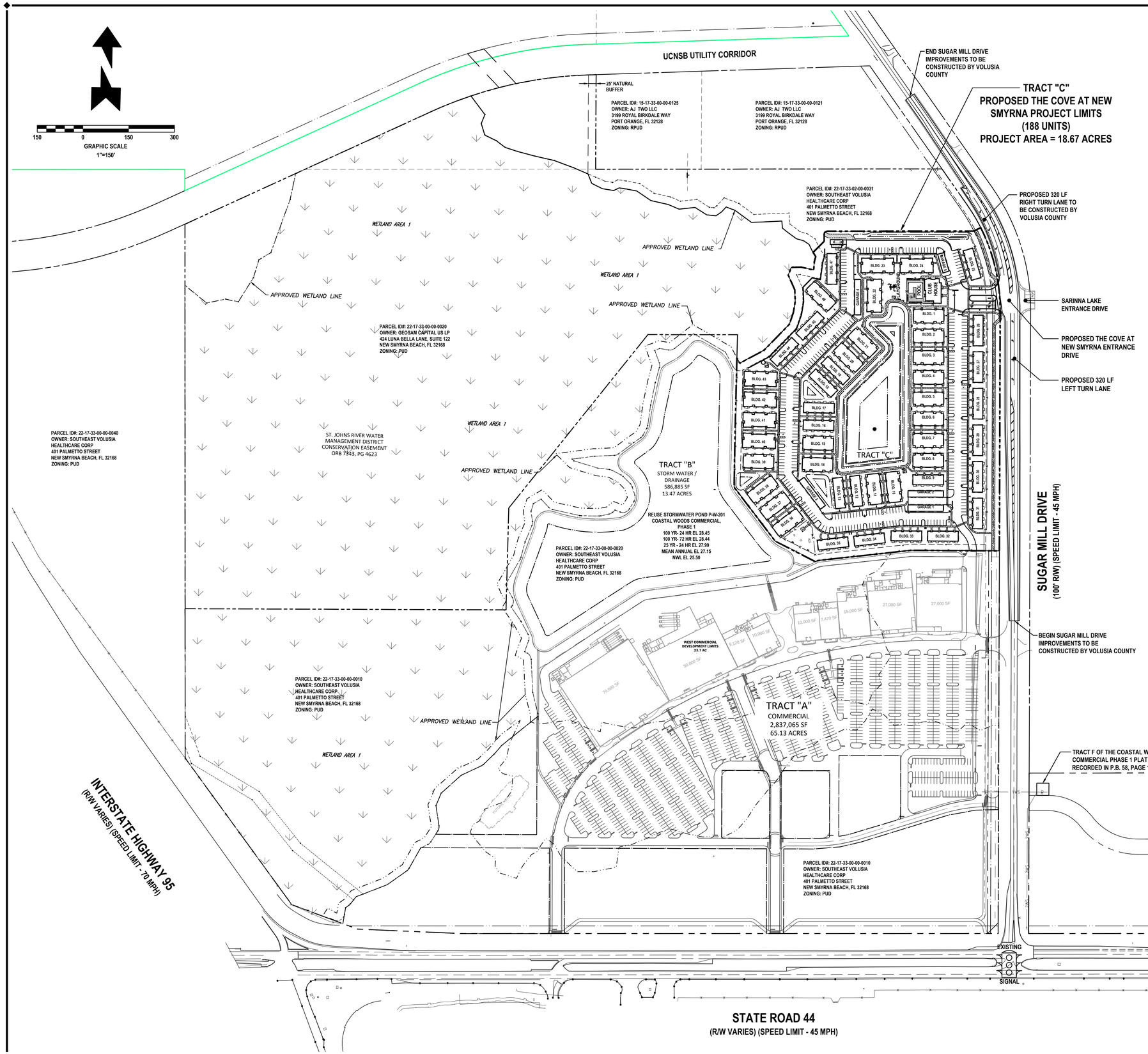
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

8



SITE DATA

1. ZONING: PUD (PLANNED UNIT DEVELOPMENT
2. PROPERTY AREA = 843,342 SF / 18.672 ACRES
3. NUMBER OF UNITS = 188
4. GROSS DENSITY = 188 / 18.67 (DRA AREA) = 10.1 DU PER ACRE (18 MAX.)
5. NET DENSITY = 188 / 18.67 = 10.1 DU PER ACRE
6. NUMBER OF BUILDINGS = MULTIFAMILY BUILDINGS = 47
7. NUMBER OF GARAGE BUILDINGS = 5 BUILDINGS

GARAGE 1	10 SPACES
GARAGE 2	10 SPACES
GARAGE 3	10 SPACES
GARAGE 4	10 SPACES
GARAGE 5	5 SPACES
TOTAL	45 SPACES

8. MAXIMUM BUILDING HEIGHT = NO HEIGHT RESTRICTIONS
9. SETBACKS (PER PUD AGREEMENT):

FRONT	20 FEET
REAR	20 FEET
SIDE	20 FEET
SIDE CORNER	20 FEET

10. LANDSCAPE BUFFERS (DEVELOPMENT PERIMETER):

SUGAR MILL DRIVE (EAST)	25 FEET
NORTH PROPERTY LINE	20 FEET
SOUTH PROPERTY LINE	20 FEET
WEST PROPERTY LINE	20 FEET

11. PROPOSED SITE COVERAGE:

	SQ. FT	ACRE	%
BUILDING (APARTMENT)	181,162	4.159	22.3
BUILDING (AMENITY)	3,372	0.077	0.4
BUILDING (GARAGE)	10,825	0.249	1.3
PAVEMENT	129,638	2.976	15.9
CONCRETE SIDEWALKS / PADS	74,361	1.707	9.2
STORMWATER POND	90,130	2.069	11.1
INTERIOR LANDSCAPE	279,258	6.411	34.3
EXTERIOR LANDSCAPE	44,596	1.024	5.5
TOTAL SITE	813,342	18.672	100.00
TOTAL IMPERVIOUS	399,358	9.168	49.1

12. MINIMUM OPEN SPACE REQUIRED =
    60% OF PROJECT AREA = 18.67 x 0.60 = 11.20 ACRES
    OPEN SPACE PROVIDED = 11.21 ACRES (60.0%)
    "SEE SHEET 42 FOR CALCULATION EXHIBIT"

    35% OF REQUIRED OPEN SPACE (PER LDC) = 11.20 x 0.35 = 3.92 ACRES
    COMMON OPEN SPACE PROVIDED = 5.19 ACRES (46.3%)
    "SEE SHEET 42 FOR CALCULATION EXHIBIT"
14. MAXIMUM IMPERVIOUS AREA = 75% (49.1% PROVIDED)
15. MAXIMUM BUILDING COVERAGE = 60% (24.0% PROVIDED)
16. REQUIRED VEHICLE PARKING:
    2 SPACES PER UNIT = 2 x 188 UNITS = 376 SPACES
    GUEST = 376 x 0.03 = 11 SPACES
    TOTAL PARKING REQUIRED = 387 SPACES
17. PROVIDED VEHICLE PARKING:

	TOTAL	PERCENT
HANDICAP	12	3.1%
GARAGE	45	11.6%
STANDARD	331	85.3%
TOTAL	388	100.0%

18. PUD MAXIMUM RESIDENTIAL UNITS
    PUD ALLOWED = 1,330 UNITS
19. PUD PROVIDED UNITS

SINGLE FAMILY UNITS	= 1,030 UNITS
MULTI-FAMILY UNITS	= 188 UNITS
TOTAL PROVIDED UNITS	= 1,218 UNITS

LEGEND

PROJECT AREA BOUNDARY (813,342 SF / 18.672 AC)

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

OVERALL DEVELOPMENT PLAN
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 150'

DRAWING NUMBER

9

GRAPHIC SCALE
1"=50'
50 0 50 100

LINE CHART		
L1	S29°12'56"E	19.44'
L2	N60°33'34"E	90.06'
L3	N42°57'26"E	119.34'
L4	N17°20'21"E	40.08'
L5	N08°23'08"E	37.53'
L6	N03°49'06"W	38.63'
L7	N25°29'00"W	52.30'
L8	N20°40'12"E	27.55'
L9	N87°23'38"E	31.96'
L10	S78°39'44"E	42.15'
L11	N03°06'15"E	27.31'
L12	N14°10'49"E	17.09'
L13	N32°08'25"W	16.54'
L14	N43°42'25"E	51.10'
L15	S01°26'13"E	22.72'
L16	N61°56'07"E	25.29'

BUILDING UNIT SCHEDULE

TOTAL MF BUILDINGS	MAXIMUM UNITS PER BUILDING	TOTAL 1 BEDROOM UNITS / BLDG.	TOTAL 2 BEDROOM UNITS / BLDG.	TOTAL 3 BEDROOM UNITS / BLDG.	TOTAL NUMBER OF BUILDINGS / UNITS
47	4	84 (44.7%)	88 (46.8%)	16 (8.5%)	188

GENERAL NOTES:

1. CITY OF NEW SMYRNA BEACH BUILDING PERMITS ARE REQUIRED FOR BUILDING, CANOPIES, DUMPSTER ENCLOSURE, LIGHT POLES, FENCE AND SIGNS. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING APPROPRIATE INFORMATION (ENGINEERING, SPECIFICATIONS, SHOP DRAWINGS, ETC.) FOR LIGHT POLES AND FIXTURES AT TIME OF PERMIT.
2. ALL DIMENSIONS AND TIES ARE TO THE EDGE OF PAVEMENT AND OUTSIDE FACE OF BUILDING.
3. ALL IMPROVEMENTS SHALL BE STAKED FOR CONSTRUCTION BY MEANS OF DIGITAL COORDINATES BY SURVEYOR UTILIZING GEODETIC TOTAL STATION OR GPS. SCALING OF DRAWINGS FOR PURPOSES OF STAKING ARE AT THE SURVEYOR'S RISK.
4. THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING ADJACENT BUSINESSES TO ENSURE THERE IS NO DISRUPTION TO THEIR RESPECTIVE OPERATIONS.
5. THE CONTRACTOR AT ITS OWN DISCRETION SHALL MAINTAIN THE CONSTRUCTION SITE SECURE FROM TRESPASS.
6. SOD ALL DISTURBED AREAS IN RIGHT-OF-WAY WITH BAHIA SOD.
7. ALL CURB RAMPS SHALL COMPLY WITH SECTION 406 OF FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION (FACBC).
8. ALL PAVEMENT EDGE SHALL BE PROTECTED BY CURBING (TYPE "F" OR TYPE "D") AND THICKENED EDGE SIDEWALK UNLESS OTHERWISE NOTED ON THESE PLANS.
9. ALL WALL-MOUNTED EQUIPMENT SUCH AS ELECTRICAL METERS, IRRIGATION METERS, PHONE/CABLE BOXES, EXTERNAL VENTS AND LOUVERS, ETC., SHALL BE PAINTED TO MATCH THE WALL ON WHICH IT IS MOUNTED OR OTHERWISE CONSISTENT WITH THE COLOR(S) OF THE BUILDING.
10. ALL SIDEWALK CURB RAMPS ARE FDOT CURB RAMP "E".

PAVING LEGEND

ASPHALT PAVEMENT
1.5" SP-9.5 WITH TACK COAT PER FDOT SPECIFICATIONS
6" CRUSHED CONCRETE BASE (LBR=130) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (4" MAX. LIFTS)
12" STABILIZED SUBBASE (BR 40) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (TYPE B STABILIZATION)

* ALTERNATE 12" STABILIZED SUBBASE: 6" CRUSHED CONCRETE (LBR=130) MIN OF 98% MODIFIED PROCTOR MAX DENSITY PER AASHTO T-180 (4" MAX. LIFTS)

*ALTERNATE PAVEMENT TO ASPHALT IS CONCRETE PAVEMENT

CONCRETE PAVEMENT
6" CONCRETE (4,000 P.S.I. @ 28 DAYS)
12" STABILIZED SUBGRADE (LBR 40) MIN OF 98% MODIFIED PROCTOR MAX DRY DENSITY PER ASTM D1557, AASHTO T-180 (6" LIFTS)
SEE SHEET No. 33

CONCRETE SIDEWALK
4" THICK CLASS I CONCRETE (3,000 P.S.I. @ 28 DAYS)
PER FDOT INDEX 522-001
SEE DETAILS, SHEET No. 33

PAVER DECK
BRICK PAVER, 2-3/8" MINIMUM THICKNESS
1" TO 1.5" COMPACTED BEDDING SAND CONFORMING TO ASTM C33
HAND SWEEP BEDDING SAND INTO JOINTS, NO GAP
6" COMPACTED CRUSHED CONCRETE BASE MIN OF 98% MODIFIED PROCTOR MAX DRY DENSITY PER ASTM D1557, AASHTO T-180 (6" LIFTS)

EMERGENCY ACCESS
12' WIDE STABILIZED GRASS ACCESS
SEE DETAIL, SHEET No. 33

LEGEND

- TYPE 'D' CURB
- TYPE 'F1' CURB
- TYPE DROP CURB
- TRANSITION LOCATION FROM TYPE 'D' CURB TO FLUSH
- SITE LIGHTING (21 PLACES) SEE SITE LIGHTING PLAN
- TRANSITION FROM "F1" CURB TO FLAT

DOG PARK / PLAYGROUND KEYNOTES:

- (A) GYMS FOR DOGS 6' PARK BENCH (DL-PB-6)
- (B) LIVIN THE DOG LIFE PARK WASTE RECEPTACLE (DL-PWR-FT)
- (C) ECO DOG STATION (DL-EDS100-ALUM)
- (D) GYMS FOR DOGS BRIDGE CLIMB (DL-BC-RPW)
- (E) GYMS FOR DOGS TRAINING PLATFORM (DL-TP-RPW)
- (F) GYMS FOR DOGS CLIMBING BOULDER-LARGE (DL-NCBLRG-GRC)
- (G) GYMS FOR DOGS WELCOME SIGN (DL-WELCM-SIGN)
- (H) GYMS FOR DOGS RULES SIGN (DL-RULES-SIGN)
- (I) PLAYGROUND PLAY STRUCTURE (SEE ARCHITECT PLANS)

NOTE:
ALL RIGHT-OF-WAY IMPROVEMENTS ARE BEING DESIGNED AND PERMITTED BY VOLUSIA COUNTY. IMPROVEMENTS SHOWN ON THIS PLAN ARE FOR INFORMATION PURPOSES ONLY.

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

SITE LAYOUT PLAN
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 50'

DRAWING NUMBER
10

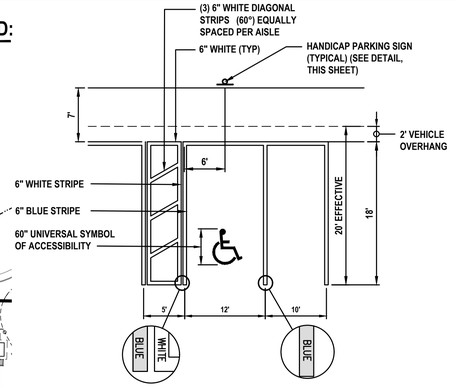
GRAPHIC SCALE
1"=50'

STRIPING LEGEND:

1. 6" SOLID WHITE LINE (TYPICAL)
2. 6" SOLID DOUBLE YELLOW LINE (THERMOPLASTIC)
3. 24" WHITE STOP BAR (THERMOPLASTIC)
4. WHITE DIRECTIONAL ARROW (TYPICAL)
5. 12"x6' WHITE SPECIAL EMPHASIS CROSSWALK (THERMOPLASTIC)
6. STANDARD CROSSWALK (THERMOPLASTIC)

CURB RAMP LEGEND:

- (A) SIDEWALK CURB RAMP (CR-C) PER FDOT INDEX 522-002
- (B) SIDEWALK CURB RAMP (CR-E) PER FDOT INDEX 522-002
- (C) SIDEWALK CURB RAMP (CR-G) PER FDOT INDEX 522-002



HANDICAP PARKING STRIPING

(UNIVERSAL SPACES PER FLORIDA ADA)

SCALE: 1" = 10'

PARKING CALCULATIONS

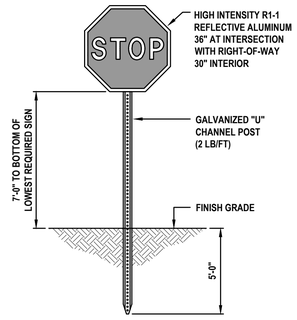
1. REQUIRED VEHICLE PARKING:
   2 SPACES PER UNIT = 2 x 188 UNITS = 376 SPACES
   GUEST = 376 x 0.03 = 11 SPACES
   TOTAL PARKING REQUIRED = 387 SPACES
2. PROVIDED VEHICLE PARKING:

	TOTAL	PERCENT
HANDICAP	12	3.1%
GARAGE	45	11.6%
STANDARD	331	85.3%
TOTAL	388	100.0%

3. REQUIRED BICYCLE PARKING: NONE REQUIRED PER CITY LDC.

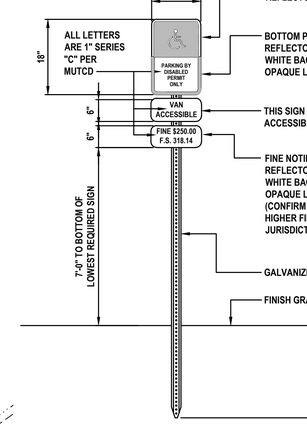
PAVEMENT MARKING NOTES:

1. PAINTED PAVEMENT MARKINGS SHALL BE APPLIED AFTER PAVEMENT SURFACE HAS CURED. SURFACE SHALL BE FREE OF FINE SAND AND DEBRIS PRIOR TO APPLICATIONS.
2. APPLY PAINTED PAVEMENT MARKINGS AT LAST STAGE OF CONSTRUCTION AFTER LANDSCAPE PLANTINGS ARE INSTALLED.
3. PAINT SHALL BE SHERWIN WILLIAMS LOW-VOC ACRYLIC PRO PARK PAINT, APPLY PER MANUFACTURER'S RECOMMENDATIONS. REFER TO DRAWINGS FOR LOCATIONS OF SPECIFIC COLORS.
4. ALL STOP BARS SHALL BE THERMOPLASTIC.
5. ALL REFLECTIVE PAVEMENT MARKERS ARE TO BE PLACED IN ACCORDANCE WITH FDOT STANDARD INDEX NO. 17352.
6. ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH INDEX NO. 17301 AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
7. LOCATION OF SIGNS IS APPROXIMATE ONLY AND IS SUBJECT TO CHANGE AS DIRECTED BY THE ENGINEER.
8. FOR ADDITIONAL DETAILS SEE INDEX NO. 11860, 11863, 17302, 17344 AND 17346.
9. ALL TRAFFIC CONTROL SIGNS SHALL BE FABRICATED USING 3M BRAND "SCOTCHLITE" SHEETING (ENGINEER GRADE) ON MINIMUM .08 GA ALUMINUM BLANKS. ALL 36"x48" SIGNS SHALL BE .100 GA MINIMUM AND SHALL BE INSTALLED USING 3"x12" ROUND ALUMINUM POST. ALL STOP SIGNS SHALL BE 36" OCTAGON INSTALLED ON 12.3 LBS/FT "U" CHANNEL POST RAIL STEEL ONLY OR 3"x12' ROUND ALUMINUM POSTS. "U" CHANNEL POSTS MAY BE USED FOR SIGNS SMALLER THAN 36"x36". ALL SPEED LIMIT SIGNS SHALL BE 24"x30".



STOP SIGN DETAIL

NOT TO SCALE



HANDICAP PARKING SIGN

ONE AT EACH HANDICAP SPACE.

NOT TO SCALE

NOTE:
ALL RIGHT-OF-WAY IMPROVEMENTS ARE BEING DESIGNED AND PERMITTED BY VOLUSIA COUNTY. IMPROVEMENTS SHOWN ON THIS PLAN ARE FOR INFORMATION PURPOSES ONLY.

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.NewkirkEngineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

STRIPING AND SIGNAGE PLAN
THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

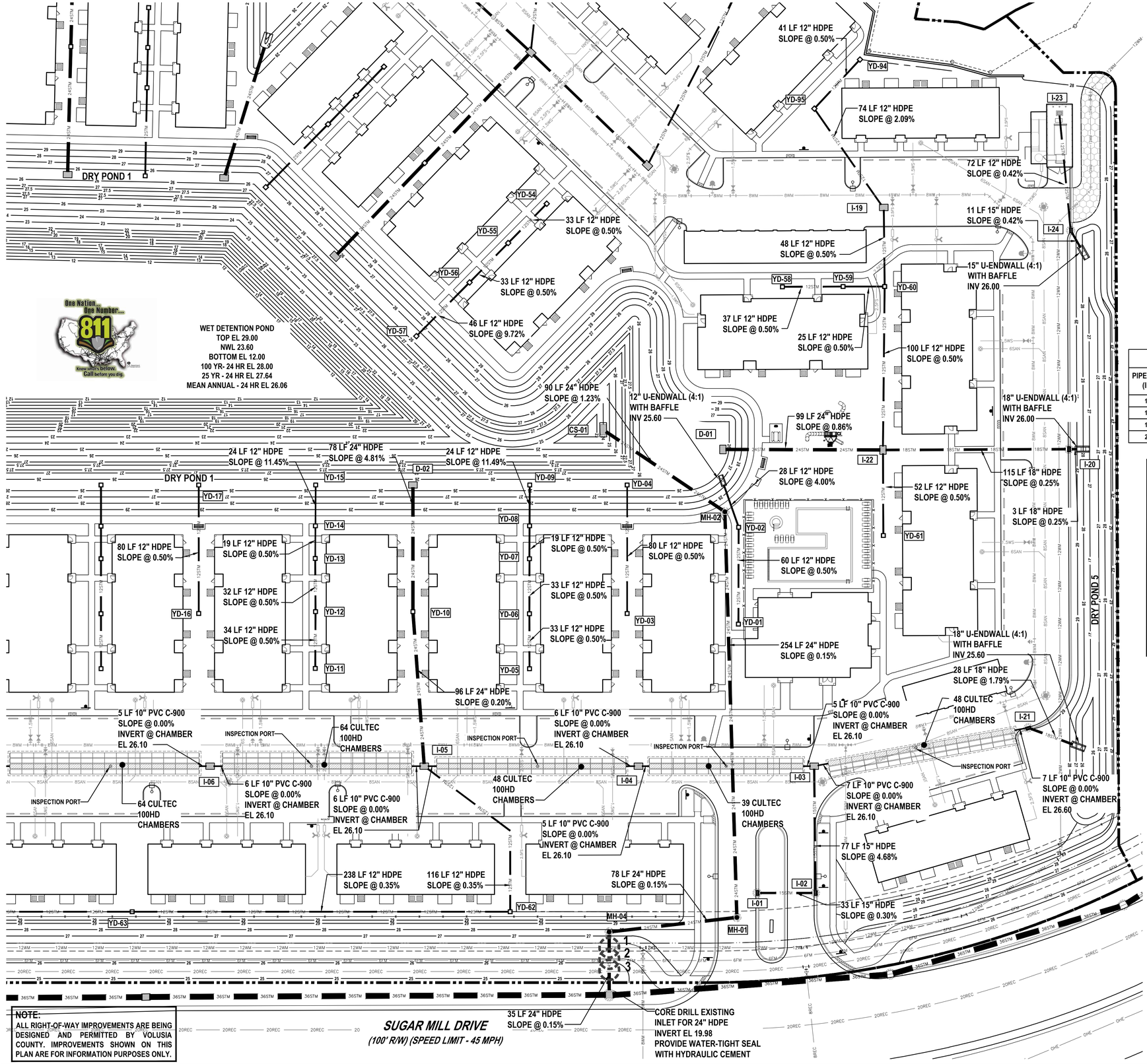
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 50'

DRAWING NUMBER

11



One Nation... One Number... 811 Know what's below. Call before you dig.

STORMWATER LEGEND

- PROPOSED TYPE "C" DITCH BOTTOM INLET
- PROPOSED TYPE "E" DITCH BOTTOM INLET
- PROPOSED TYPE 9 CURB INLET
- PROPOSED MITERED END SECTION
- PROPOSED U - TYPE CONCRETE ENDWALL
- PROPOSED STORM PIPE
- PROPOSED STORMWATER MANHOLE
- CULTEC 100 HD EXFILTRATION CHAMBERS
- CULTEC 100 HD SEPERATOR ROW

30 20 10 0 30 60
GRAPHIC SCALE
1"=30'

GENERAL DRAINAGE NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO DRAINAGE SYSTEM AND SHALL RESTORE ANY DAMAGED STRUCTURES.
2. ALL STORM PIPE SHALL BE CONSTRUCTED OF REINFORCED CONCRETE PIPE (RCP). ALL PIPE JOINTS SHALL BE WRAPPED PER FDOT DESIGN STANDARD INDEX No. 280.
3. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL MATERIAL AND STRUCTURES TO THE ENGINEER (NEWKIRK ENGINEERING, INC.) FOR APPROVAL PRIOR TO THE PRECONSTRUCTION MEETING.
4. CONTRACTOR TO PLACE FILTER FABRIC BETWEEN DRAINAGE STRUCTURES AND TOPS TO PREVENT SOIL INTRUSION. THE FABRIC SHALL BE PERIODICALLY CLEANED OF SAND A DEBRIS FABRIC SHALL REMAIN IN PLACE UNTIL PAVING IS COMPLETE.
5. ALL EXISTING STRUCTURES, UNLESS OTHERWISE NOTED TO REMAIN. FENCING TREES, & ETC., WITHIN THE CONSTRUCTION AREA SHALL BE REMOVED AND DISPOSED OF OFFSITE.
6. ALL DRAINAGE STRUCTURES SHALL BE PRE-CAST PER FDOT SPECIFICATIONS.
7. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC (H20) LOADING AND BE INSTALLED ACCORDINGLY PER FDOT STANDARD SPECIFICATIONS AND MANUFACTURES SPECIFICATIONS RESPECTIVELY.
8. ALL DRAINAGE STRUCTURES AND PIPES SHALL BE CLEANED OF SAND AT THE LAST STAGE OF CONSTRUCTION PRIOR TO THE FINAL INSPECTION.
9. ALL STORM INLET GRATES SHALL BE STEEL (TRAFFIC RATED).
10. PROPERTY OWNER / OPERATION & MAINTENANCE ENTITY IS RESPONSIBLE FOR MAINTAINING THE STORMWATER MANAGEMENT SYSTEM IN PERPETUITY TO FUNCTION AS DESIGNED AND SHALL COMPLY WITH SJRWMD RECORD KEEPING REQUIREMENTS.

STORM PIPE MINIMUM SLOPE REQUIREMENTS

PIPE SIZE (IN)	SELF-CLEANSING VELOCITY (FPS)	MANNINGS (N)	RADIUS (FT)	CROSS-SECTIONAL AREA (FT)	WETTED PERIMETER	MINIMUM SLOPE (FT / 100 FT)
12	3.0	0.012	0.50	0.785	FULL & ½ FULL	0.0038
15	3.0	0.012	0.625	1.227	FULL & ½ FULL	0.0028
18	3.0	0.012	0.75	1.767	FULL & ½ FULL	0.0022
24	3.0	0.012	1.00	3.142	FULL & ½ FULL	0.0015

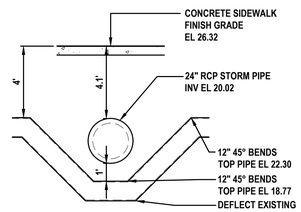
SUMMARY OF DRAINAGE:

THE MINIMUM WATER QUALITY TREATMENT VOLUME REQUIRED IS EQUAL TO 2.5-INCHES OVER THE IMPERVIOUS SURFACE RUNOFF OVER THE DRAINAGE BASIN. STORMWATER TREATMENT IS PROVIDED BY AN EXFILTRATION CHAMBER / DRY POND TO WET POND SYSTEM. THE TREATMENT SYSTEM IS DESIGNED SO THAT THE POST DEVELOPMENT DISCHARGE RATE AND VOLUME DOES NOT EXCEED THE PRE-DEVELOPMENT DISCHARGE RATE AND VOLUME FOR THE MEAN ANNUAL, 25 YEAR, 24 HOUR AND 100 YEAR, 24 HOUR STORM EVENTS.

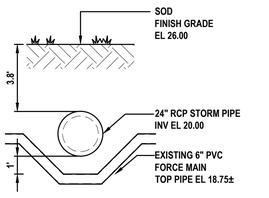
Design Storm		Rainfall (inches)	Discharge Rate (cfs)	Outflow Volume (ft³)	Peak Stage (ft)
Mean Annual, 24-Hour	PRE	5.0	21.90	214,420	26.06
	POST		0.65	25,425	
25 Year, 24-Hour	PRE	9.5	48.44	484,972	27.64
	POST		22.77	230,679	
100 Year, 24-Hour	PRE	11.0	57.24	577,060	28.00
	POST		23.90	319,413	

Half-Treatment Volume Recovery (25.21) Occurs in 27.1 Hours

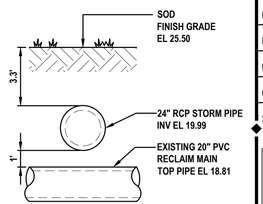
TREATMENT VOLUME REQUIRED (AC-FT)	TREATMENT VOLUME PROVIDED (AC-FT)
2.834	2.834



CONFLICT POINT 1



CONFLICT POINT 2



CONFLICT POINT 3

UTILITY CONFLICT DETAIL

NOT TO SCALE

NOTE:
ALL RIGHT-OF-WAY IMPROVEMENTS ARE BEING DESIGNED AND PERMITTED BY VOLUSIA COUNTY. IMPROVEMENTS SHOWN ON THIS PLAN ARE FOR INFORMATION PURPOSES ONLY.

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

DRAINAGE PLAN (SHT. 1 OF 3)

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

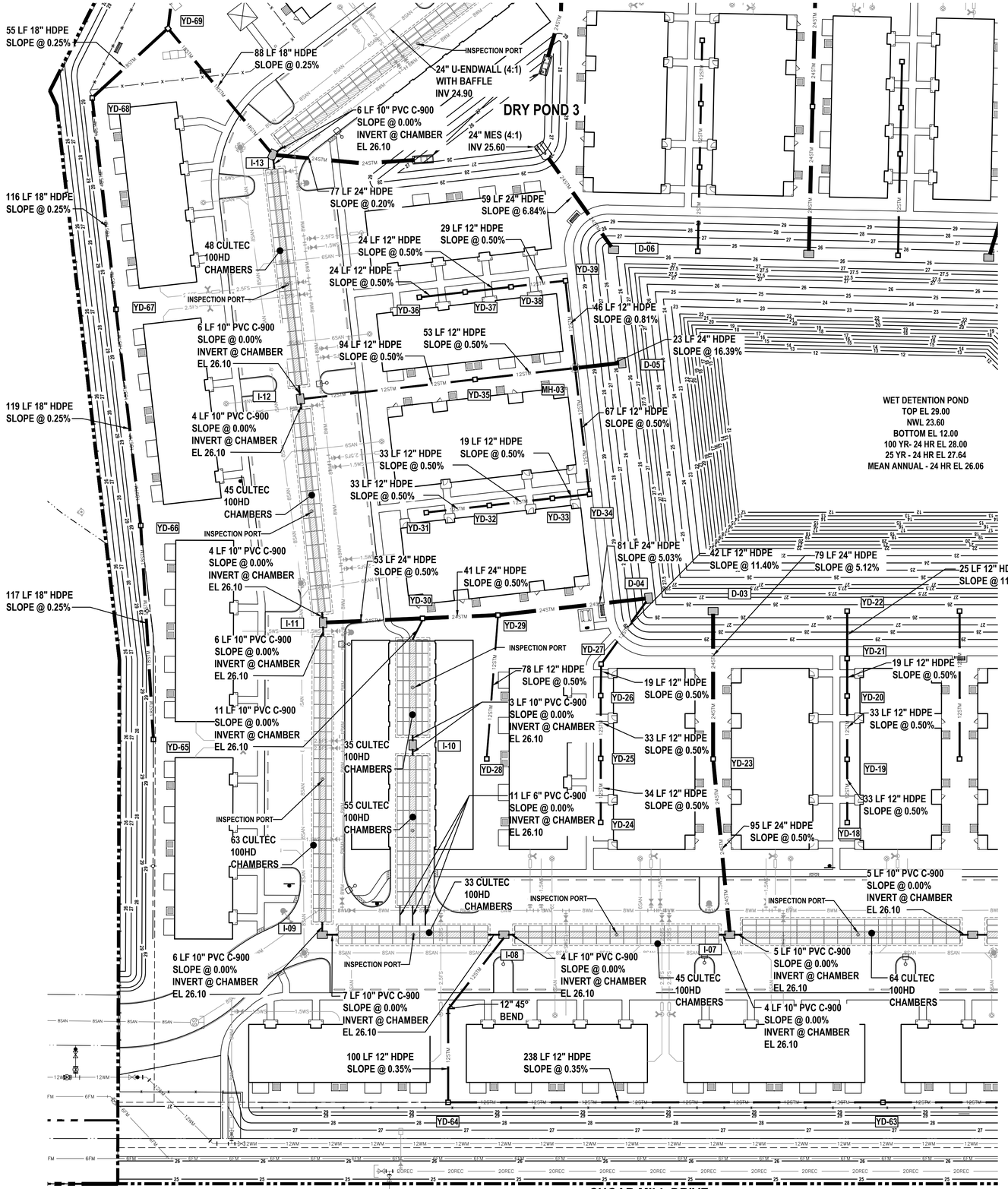
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 30'

DRAWING NUMBER

12



STORMWATER LEGEND

- PROPOSED TYPE "C" DITCH BOTTOM INLET
- PROPOSED TYPE "E" DITCH BOTTOM INLET
- PROPOSED TYPE 9 CURB INLET
- PROPOSED MITERED END SECTION
- PROPOSED U - TYPE CONCRETE ENDWALL
- PROPOSED STORM PIPE
- PROPOSED STORMWATER MANHOLE
- CULTEC 100 HD EXFILTRATION CHAMBERS
- CULTEC 100 HD SEPERATOR ROW

30 20 10 0 30 60
GRAPHIC SCALE
1"=30'

GENERAL DRAINAGE NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO DRAINAGE SYSTEM AND SHALL RESTORE ANY DAMAGED STRUCTURES.
2. ALL STORM PIPE SHALL BE CONSTRUCTED OF REINFORCED CONCRETE PIPE (RCP). ALL PIPE JOINTS SHALL BE WRAPPED PER FDOT DESIGN STANDARD INDEX No. 280.
3. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL MATERIAL AND STRUCTURES TO THE ENGINEER (NEWKIRK ENGINEERING, INC.) FOR APPROVAL PRIOR TO THE PRECONSTRUCTION MEETING.
4. CONTRACTOR TO PLACE FILTER FABRIC BETWEEN DRAINAGE STRUCTURES AND TOPS TO PREVENT SOIL INTRUSION. THE FABRIC SHALL BE PERIODICALLY CLEANED OF SAND A DEBRIS FABRIC SHALL REMAIN IN PLACE UNTIL PAVING IS COMPLETE.
5. ALL EXISTING STRUCTURES, UNLESS OTHERWISE NOTED TO REMAIN. FENCING TREES, & ETC., WITHIN THE CONSTRUCTION AREA SHALL BE REMOVED AND DISPOSED OF OFFSITE.
6. ALL DRAINAGE STRUCTURES SHALL BE PRE-CAST PER FDOT SPECIFICATIONS.
7. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC (H20) LOADING AND BE INSTALLED ACCORDINGLY PER FDOT STANDARD SPECIFICATIONS AND MANUFACTURES SPECIFICATIONS RESPECTIVELY.
8. ALL DRAINAGE STRUCTURES AND PIPES SHALL BE CLEANED OF SAND AT THE LAST STAGE OF CONSTRUCTION PRIOR TO THE FINAL INSPECTION.
9. ALL STORM INLET GRATES SHALL BE STEEL (TRAFFIC RATED).
10. PROPERTY OWNER / OPERATION & MAINTENANCE ENTITY IS RESPONSIBLE FOR MAINTAINING THE STORMWATER MANAGEMENT SYSTEM IN PERPETUITY TO FUNCTION AS DESIGNED AND SHALL COMPLY WITH SJRWMD RECORD KEEPING REQUIREMENTS.

STORM PIPE MINIMUM SLOPE REQUIREMENTS

PIPE SIZE (IN)	SELF-CLEANSING VELOCITY (FPS)	MANNINGS (N)	RADIUS (FT)	CROSS-SECTIONAL AREA (FT)	WETTED PERIMETER	MINIMUM SLOPE (FT / 100 FT)
12	3.0	0.012	0.50	0.785	FULL & ½ FULL	0.0038
15	3.0	0.012	0.625	1.227	FULL & ½ FULL	0.0028
18	3.0	0.012	0.75	1.767	FULL & ½ FULL	0.0022
24	3.0	0.012	1.00	3.142	FULL & ½ FULL	0.0015

SUMMARY OF DRAINAGE:

THE MINIMUM WATER QUALITY TREATMENT VOLUME REQUIRED IS EQUAL TO 2.5-INCHES OVER THE IMPERVIOUS SURFACE RUNOFF OVER THE DRAINAGE BASIN. STORMWATER TREATMENT IS PROVIDED BY AN EXFILTRATION CHAMBER / DRY POND TO WET POND SYSTEM. THE TREATMENT SYSTEM IS DESIGNED SO THAT THE POST DEVELOPMENT DISCHARGE RATE AND VOLUME DOES NOT EXCEED THE PRE-DEVELOPMENT DISCHARGE RATE AND VOLUME FOR THE MEAN ANNUAL, 25 YEAR, 24 HOUR AND 100 YEAR, 24 HOUR STORM EVENTS.

Design Storm		Rainfall (inches)	Discharge Rate (cfs)	Outflow Volume (ft³)	Peak Stage (ft)
Mean Annual, 24-Hour	PRE	5.0	21.90	214,420	26.06
	POST		0.65	25,425	
25 Year, 24-Hour	PRE	9.5	48.44	484,972	27.64
	POST		22.77	230,679	
100 Year, 24-Hour	PRE	11.0	57.24	577,060	28.00
	POST		23.90	319,413	

Half-Treatment Volume Recovery (25.21) Occurs in 27.1 Hours

TREATMENT VOLUME REQUIRED (AC-FT)	TREATMENT VOLUME PROVIDED (AC-FT)
2.834	2.834

One Nation... One Number... 811 Know what's below. Call before you dig.

WARNING !!

CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES, GAS MAINS AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.NewkirkEngineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

DRAINAGE PLAN (SHT. 2 OF 3)

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

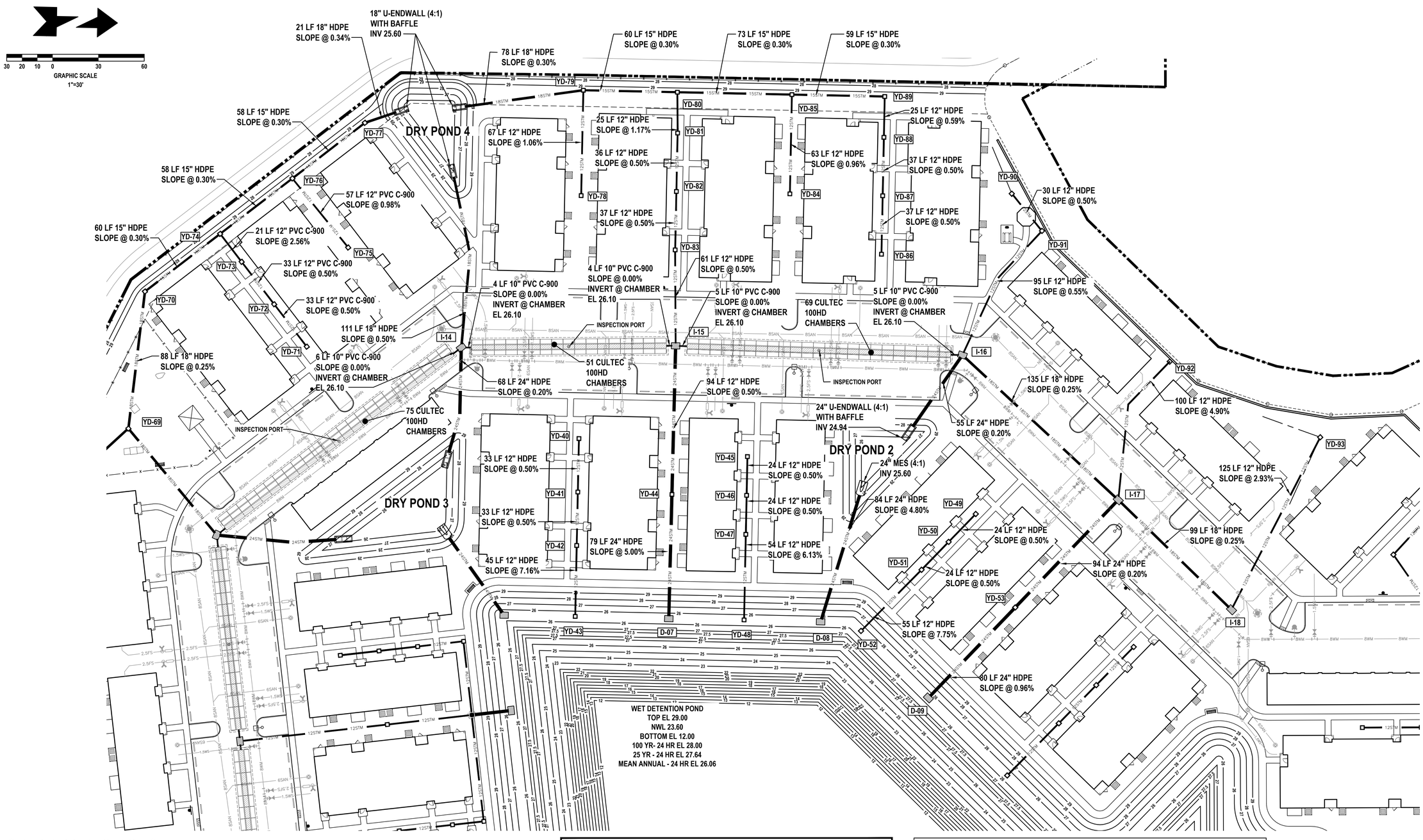
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 30'

DRAWING NUMBER

13



GENERAL DRAINAGE NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO DRAINAGE SYSTEM AND SHALL RESTORE ANY DAMAGED STRUCTURES.
2. ALL STORM PIPE SHALL BE CONSTRUCTED OF REINFORCED CONCRETE PIPE (RCP). ALL PIPE JOINTS SHALL BE WRAPPED PER FDOT DESIGN STANDARD INDEX No. 280.
3. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL MATERIAL AND STRUCTURES TO THE ENGINEER (NEWKIRK ENGINEERING, INC.) FOR APPROVAL PRIOR TO THE PRECONSTRUCTION MEETING.
4. CONTRACTOR TO PLACE FILTER FABRIC BETWEEN DRAINAGE STRUCTURES AND TOPS TO PREVENT SOIL INTRUSION. THE FABRIC SHALL BE PERIODICALLY CLEANED OF SAND A DEBRIS FABRIC SHALL REMAIN IN PLACE UNTIL PAVING IS COMPLETE.
5. ALL EXISTING STRUCTURES, UNLESS OTHERWISE NOTED TO REMAIN. FENCING TREES, & ETC., WITHIN THE CONSTRUCTION AREA SHALL BE REMOVED AND DISPOSED OF OFFSITE.
6. ALL DRAINAGE STRUCTURES SHALL BE PRE-CAST PER FDOT SPECIFICATIONS.
7. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC (H20) LOADING AND BE INSTALLED ACCORDINGLY PER FDOT STANDARD SPECIFICATIONS AND MANUFACTURES SPECIFICATIONS RESPECTIVELY.
8. ALL DRAINAGE STRUCTURES AND PIPES SHALL BE CLEANED OF SAND AT THE LAST STAGE OF CONSTRUCTION PRIOR TO THE FINAL INSPECTION.
9. ALL STORM INLET GRATES SHALL BE STEEL (TRAFFIC RATED).
10. PROPERTY OWNER / OPERATION & MAINTENANCE ENTITY IS RESPONSIBLE FOR MAINTAINING THE STORMWATER MANAGEMENT SYSTEM IN PERPETUITY TO FUNCTION AS DESIGNED AND SHALL COMPLY WITH SJRWMD RECORD KEEPING REQUIREMENTS.

STORMWATER LEGEND

- PROPOSED TYPE "C" DITCH BOTTOM INLET
- PROPOSED TYPE "E" DITCH BOTTOM INLET
- PROPOSED TYPE 9 CURB INLET
- PROPOSED MITERED END SECTION
- PROPOSED U - TYPE CONCRETE ENDWALL
- PROPOSED STORM PIPE
- PROPOSED STORMWATER MANHOLE
- CULTEC 100 HD EXFILTRATION CHAMBERS
- CULTEC 100 HD SEPERATOR ROW

SUMMARY OF DRAINAGE:

THE MINIMUM WATER QUALITY TREATMENT VOLUME REQUIRED IS EQUAL TO 2.5-INCHES OVER THE IMPERVIOUS SURFACE RUNOFF OVER THE DRAINAGE BASIN. STORMWATER TREATMENT IS PROVIDED BY AN EXFILTRATION CHAMBER / DRY POND TO WET POND SYSTEM. THE TREATMENT SYSTEM IS DESIGNED SO THAT THE POST DEVELOPMENT DISCHARGE RATE AND VOLUME DOES NOT EXCEED THE PRE-DEVELOPMENT DISCHARGE RATE AND VOLUME FOR THE MEAN ANNUAL, 25 YEAR, 24 HOUR AND 100 YEAR, 24 HOUR STORM EVENTS.

Design Storm		Rainfall (inches)	Discharge Rate (cfs)	Outflow Volume (ft^3)	Peak Stage (ft)
Mean Annual, 24-Hour	PRE	5.0	21.90	214,420	26.06
	POST		0.65	25,425	
25 Year, 24-Hour	PRE	9.5	48.44	484,972	27.64
	POST		22.77	230,679	
100 Year, 24-Hour	PRE	11.0	57.24	577,060	28.00
	POST		23.90	319,413	

Half-Treatment Volume Recovery (25.21) Occurs in 27.1 Hours

TREATMENT VOLUME REQUIRED (AC-FT)	TREATMENT VOLUME PROVIDED (AC-FT)
2.834	2.834

STORM PIPE MINIMUM SLOPE REQUIREMENTS

PIPE SIZE (IN)	SELF-CLEANSING VELOCITY (FPS)	MANNINGS (N)	RADIUS (FT)	CROSS-SECTIONAL AREA (FT)	WETTED PERIMETER	MINIMUM SLOPE (FT / 100 FT)
12	3.0	0.012	0.50	0.785	FULL & ½ FULL	0.0038
15	3.0	0.012	0.625	1.227	FULL & ½ FULL	0.0028
18	3.0	0.012	0.75	1.767	FULL & ½ FULL	0.0022
24	3.0	0.012	1.00	3.142	FULL & ½ FULL	0.0015

One Nation... One Number... 811 Know what's below. Call before you dig.

WARNING !!

CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES, GAS MAINS AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013

Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

DRAINAGE PLAN (SHT. 3 OF 3)

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

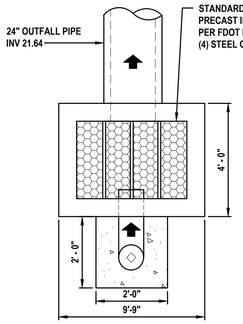
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

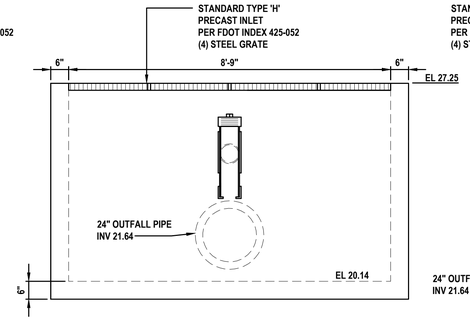
PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 30'

DRAWING NUMBER

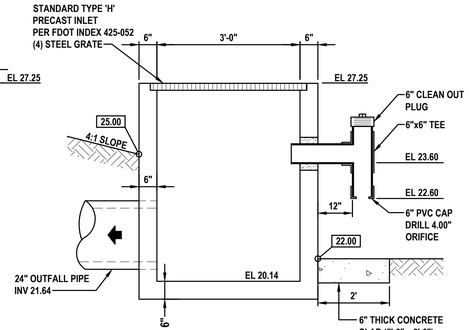
14



PLAN VIEW



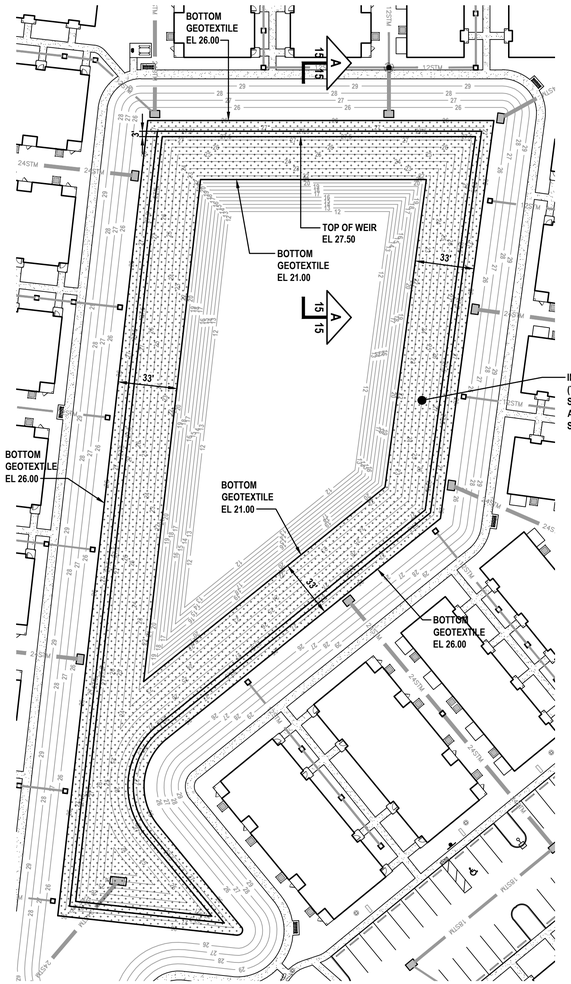
LONGITUDINAL SECTION



CROSS SECTION

CONTROL STRUCTURE CS-01 DETAIL

NOT TO SCALE



GRASS WEIR DETAIL

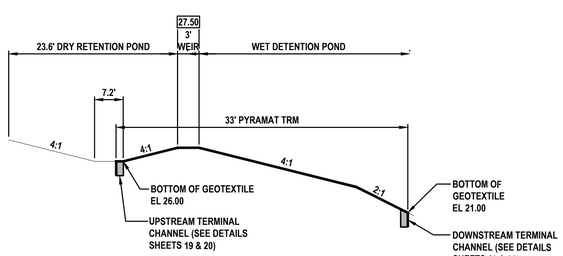
SCALE: 1" = 40'

LEGEND

PYRAMAT TRM
SEE DETAIL, SHEETS 19 & 20

SYSTEM MAINTENANCE NOTE:

PROPERTY OWNER / OPERATION & MAINTENANCE ENTITY IS RESPONSIBLE FOR MAINTAINING THE STORMWATER MANAGEMENT SYSTEM IN PERPETUITY TO FUNCTION AS DESIGNED AND SHALL COMPLY WITH SJRWMD RECORD KEEPING REQUIREMENTS.



SECTION A-A GRASS WEIR

NOT TO SCALE

STORM STRUCTURE SCHEDULE

I.D.	SIZE	TYPE BOT	TYPE TOP	TOP ELEV	BOT ELEV	N INV	S INV	E INV	W INV
I-01	4' DIA	P	9	28.30	23.30	15" 24.30	---	---	---
I-02	4' DIA	P	9	28.30	23.20	15" 24.20	---	---	15" 24.20
I-03	ALT-B	ALT-B	E	28.30	19.59	10" 26.10	10" 26.10	15" 20.59	---
I-04	ALT-B	ALT-B	E	28.30	25.10	10" 26.10	10" 26.10	---	---
I-05	---	ALT-B	E	28.30	24.52	10" 26.10	10" 26.10	12" 25.52	24" 25.52
I-06	---	ALT-B	E	28.30	25.10	10" 26.10	10" 26.10	---	---
I-07	---	ALT-B	E	28.30	25.10	10" 26.10	10" 26.10	---	24" 26.10
I-08	---	ALT-B	E	28.30	24.57	10" 26.10	10" 26.10	12" 25.57	---
I-09	---	ALT-B	E	28.30	25.10	10" 26.10	---	---	10" 26.10
I-10	---	ALT-B	E	29.00	25.10	---	---	---	10" 26.10
I-11	---	ALT-B	E	28.30	25.10	24" 26.10	---	24" 26.10	10" 26.10
I-12	---	ALT-B	E	28.30	25.10	10" 26.10	---	10" 26.10	10" 26.10
I-13	---	ALT-B	E	28.30	24.05	24" 25.05	18" 25.05	10" 26.10	10" 26.10
I-14	---	ALT-B	E	28.30	24.05	10" 26.10	10" 26.10	24" 25.05	18" 25.05
I-15	---	ALT-B	E	28.30	3.40	10" 26.10	10" 26.10	24" 4.40	12" 26.00
I-16	---	ALT-B	E	29.00	22.26	18" 23.26	10" 26.10	24" 25.05	12" 26.33
I-17	---	ALT-B	E	30.05	21.55	18" 22.92	18" 22.92	24" 22.55	12" 22.55
I-18	---	ALT-B	E	30.05	22.17	---	18" 23.17	---	12" 23.17
I-19	---	ALT-B	E	30.28	25.10	---	---	12" 26.10	12" 26.10
I-20	4' DIA	P	9	29.10	21.16	18" 26.01	18" 22.16	---	---
I-21	4' DIA	P	9	28.83	25.10	18" 26.10	10" 26.10	---	---
I-22	---	ALT-B	E	29.00	21.45	18" 22.45	24" 22.45	12" 25.36	12" 25.36
I-23	---	ALT-B	C	29.35	25.35	---	---	12" 26.35	---
I-24	4' DIA	P	9	29.20	25.05	---	---	15" 26.05	12" 26.05
D-01	---	ALT-B	E	25.60	20.60	24" 21.60	---	---	---
D-02	---	ALT-B	E	25.60	20.60	---	---	24" 21.60	---
D-03	---	ALT-B	E	25.60	20.60	---	---	24" 21.60	---
D-04	---	ALT-B	E	25.60	20.60	---	24" 21.60	12" 21.60	---
D-05	---	ALT-B	E	25.60	20.60	---	24" 21.60	---	---
D-06	---	ALT-B	E	25.60	20.60	---	---	24" 21.60	---
D-07	---	ALT-B	E	25.60	20.60	---	---	---	24" 21.60
D-08	---	ALT-B	E	25.60	20.60	---	---	---	24" 21.60
D-09	---	ALT-B	E	25.60	20.60	24" 21.60	---	---	---
MH-01	4' DIA	P	MH	28.54	19.15	---	24" 20.15	---	24" 20.15
MH-02	4' DIA	P	MH	29.10	19.53	---	24" 20.53	24" 20.53	---
MH-03	4' DIA	P	MH	29.30	-1.00	24" 23.00	12" 23.00	12" 0.00	12" 56.79
MH-04	4' DIA	P	MH	27.50	19.03	24" 20.03	---	24" 20.03	---

STORM STRUCTURE NOTES:

1. ROUND STRUCTURE BOTTOMS ARE FDOT ALTERNATE 'A'.
2. SQUARE/RECTANGULAR STRUCTURE BOTTOMS ARE FDOT ALTERNATE 'B'.
3. 4'-0" DIAMETER AND SMALLER AND 3'-6" SQUARE STANDARD STRUCTURE BOTTOMS ARE FDOT TYPE DESIGNATED 'P' LARGER STANDARD STRUCTURE BOTTOMS ARE DESIGNATED TYPE 'J'.
4. ALL STRUCTURES TO HAVE A 1' SUMP WITH NO WEEP HOLES AT BOTTOM.

STORM STRUCTURE SCHEDULE

I.D.	SIZE	TYPE BOT	TYPE TOP	TOP ELEV	BOT ELEV	N INV	S INV	E INV	W INV
YD-01	12"	---	---	29.30	27.02	---	---	---	27.02
YD-02	12"	---	---	29.20	26.72	---	---	26.72	26.72
YD-03	12"	---	---	29.10	23.04	---	---	---	23.04
YD-04	12"	---	---	25.60	23.44	---	---	23.44	---
YD-05	12"	---	---	29.15	26.60	---	---	---	26.60
YD-06	12"	---	---	29.15	26.44	---	---	26.44	26.44
YD-07	12"	---	---	29.15	26.28	---	---	26.28	26.28
YD-08	12"	---	---	29.30	26.19	---	26.19	26.19	---
YD-09	12"	---	---	25.60	23.44	---	---	23.44	---
YD-10	24"	---	---	29.10	25.33	---	---	25.33	25.33
YD-11	12"	---	---	29.15	26.60	---	---	---	26.60
YD-12	12"	---	---	29.15	26.43	---	---	26.43	26.43
YD-13	12"	---	---	29.15	26.27	---	---	26.27	26.27
YD-14	12"	---	---	29.30	26.18	26.18	---	26.18	---
YD-15	12"	---	---	25.60	23.44	---	---	23.44	---
YD-16	12"	---	---	29.10	23.04	---	---	23.04	---
YD-17	12"	---	---	25.60	23.44	---	---	23.44	---
YD-18	12"	---	---	29.15	26.60	---	---	---	26.60
YD-19	12"	---	---	29.15	26.44	---	---	26.44	26.44
YD-20	12"	---	---	29.15	26.28	---	---	26.28	26.28
YD-21	12"	---	---	29.30	26.19	---	26.19	26.19	---
YD-22	12"	---	---	25.60	23.44	---	---	23.44	---
YD-23	12"	---	---	29.10	25.63	---	---	25.63	25.63
YD-24	12"	---	---	29.15	26.60	---	---	---	26.60
YD-25	12"	---	---	29.15	26.43	---	---	26.43	26.43
YD-26	12"	---	---	29.15	26.27	---	---	26.27	26.27
YD-27	12"	---	---	29.30	26.18	26.18	---	26.18	---
YD-28	12"	---	---	29.00	26.03	---	---	---	26.03
YD-29	12"	---	---	28.50	25.64	25.64	25.64	25.64	---
YD-30	12"	---	---	28.50	25.84	25.84	25.84	26.10	---
YD-31	12"	---	---	29.50	26.60	26.60	---	---	---
YD-32	12"	---	---	29.50	26.44	26.44	26.44	---	---
YD-33	12"	---	---	29.50	26.28	26.28	26.28	---	---
YD-34	12"	---	---	29.30	26.19	---	26.19	---	26.19
YD-35	12"	---	---	29.10	25.63	25.63	25.63	---	---
YD-36	12"	---	---	29.50	26.60	26.60	---	---	---
YD-37	12"	---	---	29.50	26.48	26.48	26.48	---	---
YD-38	12"	---	---	29.50	26.36	26.36	26.36	---	---
YD-39	12"	---	---	29.30	26.22	---	26.22	26.22	---
YD-40	12"	---	---	29.15	26.99	---	---	---	26.99
YD-41	12"	---	---	29.15	26.82	---	---	26.82	26.82
YD-42	12"	---	---	29.15	26.66	---	---	26.66	26.66
YD-43	12"	---	---	25.60	23.44	---	---	---	23.44
YD-44	12"	---	---	29.00	25.53	---	---	25.53	25.53
YD-45	12"	---	---	29.15	26.99	---	---	---	26.99
YD-46	12"	---	---	29.15	26.87	---	---	26.87	26.87
YD-47	12"	---	---	29.15	26.75	---	---	26.75	26.75
YD-48	12"	---	---	25.60	23.44	---	---	---	23.44
YD-49	12"	---	---	30.10	27.94	---	---	27.94	---
YD-50	12"	---	---	30.10	27.82	---	---	27.82	27.82
YD-51	12"	---	---	30.10	27.70	---	---	27.70	27.70
YD-52	12"	---	---	25.60	23.44	---	---	---	23.44
YD-53	12"	---	---	30.00	22.36	---	---	22.36	22.36
YD-54	12"	---	---	30.40	28.24	---	---	28.24	---
YD-55	12"	---	---	30.40	28.07	---	---	28.07	28.07
YD-56	12"	---	---	30.40	27.91	---	---	27.91	27.91
YD-57	12"	---	---	25.60	23.44	---	---	---	23.44
YD-58	12"	---	---	29.85	26.18	26.18	---	---	---
YD-59	12"	---	---	29.85	25.99	25.99	25.99	---	---
YD-60	12"	---	---	30.00	25.86	---	25.86	25.86	25.86
YD-61	12"	---	---	29.20	25.62	---	---	---	25.62
YD-62	12"	---	---	28.50	25.87	---	25.87	---	25.87
YD-63	12"	---	---	28.50	26.58	26.58	26.58	---	---
YD-64	12"	---	---	28.50	25.87	25.87	---	---	25.87
YD-65	12"	---	---	28.50	26.29	---	---	---	26.29
YD-66	12"	---	---	28.50	26.00	---	---	26.00	26.00
YD-67	12"	---	---	28.50	25.70	---	---	25.70	25.70
YD-68	12"	---	---	28.50	25.41	25.41	---	25.41	---
YD-69	12"	---	---	28.50	25.27	---	25.27	25.27	26.10
YD-70	12"	---	---	28.50	25.49	25.49	25.49	---	---
YD-71	12"	---	---	29.30	26.55	---	---	---	26.55
YD-72	12"	---	---	29.30	26.38	---	---	26.38	26.38
YD-73	12"	---	---	29.30	26.21	---	---	26.21	26.21
YD-74	15"	---	---	28.50	25.67	25.67	25.67	25.67	---
YD-75	12"	---	---	28.90	26.39	---	---	---	26.39
YD-76	15"	---	---	28.50	25.84	25.84	25.84	25.84	---
YD-77	18"	---	---	28.50	25.67	25.67	25.67	---	---
YD-78	12"	---	---	28.70	26.54	---	---	---	26.54
YD-79	18"	---	---	28.50	26.10	26.10	26.10	26.10	---
YD-80	15"	---	---	28.70	26.10	26.10	26.10	26.10	---
YD-81	12"	---	---	28.65	26.30	---	---	26.30	26.30
YD-82	12"	---	---	28.65	26.48	---	---	26.48	26.48
YD-83	12"	---	---	28.65	26.30	---	---	26.30	26.30
YD-84	12"	---	---	29.00	26.84	---	---	---	26.84
YD-85	15"	---	---	28.50	26.10	26.10	26.10	26.10	---
YD-86	12"	---	---	29.30	27.14	---	---	---	27.14
YD-87	12"	---	---	29.30	26.96	---	---	26.96	26.96
YD-88	12"	---	---	29.30	26.78	---	---	26.78	26.78
YD-89	15"	---	---	28.90	26.10	---	26.10	26.10	---
YD-90	12"	---	---	29.20	26.98	---	---	26.98	---
YD-91	12"	---	---	29.00	26.84	---	---	26.84	---
YD-92	12"	---	---	29.60	27.44	---	---	27.44	---
YD-93	12"	---	---	29.00	26.84	---	---	26.84	---
YD-94	12"	---	---	30.00	27.84	---	---	27.84	---
YD-95	12"	---	---	30.30	27.63	27.63	---	---	27.63

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

DRAINAGE DETAILS
THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

15

CULTEC CONTACTOR® 100HD CHAMBER PRODUCT SPECIFICATIONS

GENERAL
CULTEC CONTACTOR 100HD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS
1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN BOTTOMED.
5. THE CHAMBER SHALL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS.
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC CONTACTOR 100HD SHALL BE 12.5 INCHES (318 mm) TALL, 30 INCHES (914 mm) WIDE AND 8 FEET (2.44 m) LONG. THE INSTALLED LENGTH OF A JOINED CONTACTOR 100HD SHALL BE 7.5 FEET (2.29 m).
7. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 10 INCHES (250 mm).
8. THE CHAMBER SHALL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® SFCX2 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL INSIDE DIMENSIONS OF EACH SIDE PORTAL SHALL BE 5.75 INCHES (146 mm) HIGH BY 7.5 INCHES (191 mm) WIDE. MAXIMUM ALLOWABLE OUTER DIAMETER (O.D.) PIPE SIZE IN THE SIDE PORTAL IS 6.9 INCHES (175 mm).
9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV SFCX2 FEED CONNECTOR SHALL BE 7.6 INCHES (194 mm) TALL, 12 INCHES (305 mm) WIDE AND 19.7 INCHES (500 mm) LONG.
10. THE NOMINAL STORAGE VOLUME OF THE CONTACTOR 100HD CHAMBER SHALL BE 1.866 FT³ / FT (0.173 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED CONTACTOR 100HD SHALL BE 13.995 FT³ / UNIT (0.396 m³ / UNIT) - WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV SFCX2 FEED CONNECTOR SHALL BE 0.294 FT³ / FT (0.027 m³ / m) - WITHOUT STONE.
12. THE CONTACTOR 100HD CHAMBER SHALL HAVE FORTY-FOUR DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
13. THE CONTACTOR 100HD CHAMBER SHALL HAVE 16 CORRUGATIONS.
14. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, SHALL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE CONTACTOR 100HD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS.
16. THE CONTACTOR 100HD MIDDLE/END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
17. THE HVLV SFCX2 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CONTACTOR 100HD AND ACT AS CROSS FEED CONNECTIONS.
18. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
19. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
20. HEAVY DUTY UNITS ARE DESIGNATED BY A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
21. THE CHAMBER SHALL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
22. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
23. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2015 CERTIFIED FACILITY.
24. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED TO MEET THE MATERIAL AND STRUCTURAL REQUIREMENTS OF IAPMO PS 63-2019, INCLUDING RESISTANCE TO AASHTO H-10 AND H-20 HIGHWAY LIVE LOADS, WHEN INSTALLED IN ACCORDANCE WITH CULTEC'S INSTALLATION INSTRUCTIONS.
25. MAXIMUM ALLOWED COVER ON TOP OF UNIT SHALL BE 12.0 FEET [3.66 m]

CULTEC HVLV® SFCX2 FEED CONNECTOR

GENERAL
CULTEC HVLV SFCX2 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC CONTACTOR 100HD STORMWATER CHAMBERS.

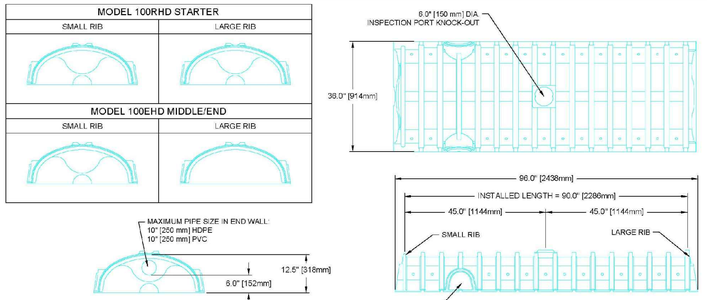
CHAMBER PARAMETERS
1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV SFCX2 FEED CONNECTOR SHALL BE 7.6 INCHES (194 mm) TALL, 12 INCHES (305 mm) WIDE AND 19.7 INCHES (500 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV SFCX2 FEED CONNECTOR SHALL BE 0.294 FT3 / FT (0.027 m3 / m) - WITHOUT STONE.
7. THE HVLV SFCX2 FEED CONNECTOR CHAMBER SHALL HAVE 3 CORRUGATIONS.
8. THE HVLV SFCX2 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CONTACTOR 100HD STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

CULTEC NO. 410™ NON-WOVEN GEOTEXTILE
CULTEC NO. 410™ NON-WOVEN GEOTEXTILE MAY BE USED WITH CULTEC CONTACTOR® AND RECHARGER® STORMWATER INSTALLATIONS TO PROVIDE A BARRIER THAT PREVENTS SOIL INTRUSION INTO THE STONE.

GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TYPICAL WEIGHT OF 4.5 OZ/SY (142 G/M).
4. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH VALUE OF 120 LBS (533 N) PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE AN ELONGATION @ BREAK VALUE OF 50% PER ASTM D4632 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A MULLEN BURST VALUE OF 225 PSI (1551 KPA) PER ASTM D3786 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE STRENGTH VALUE OF 65 LBS (289 N) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE VALUE OF 340 LBS (1513 N) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A TRAPEZOID TEAR VALUE OF 50 LBS (222 N) PER ASTM D4533 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A AOS VALUE OF 70 U.S. SIEVE (0.212 MM) PER ASTM D4751 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY VALUE OF 1.7 SEC-1 PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATE VALUE OF 135 GAL/MIN/SF (5500 L/MIN/SM) PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A UV STABILITY @ 500 HOURS VALUE OF 70% PER ASTM D4355 TESTING METHOD.

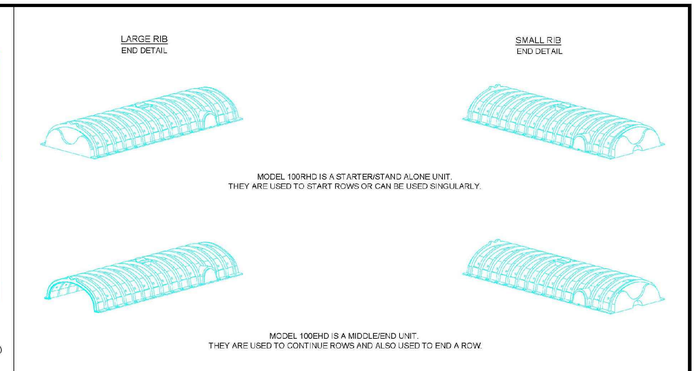
CULTEC NO. 4800™ WOVEN GEOTEXTILE
CULTEC NO. 4800 WOVEN GEOTEXTILE IS DESIGNED AS A UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE. IT MAY ALSO BE USED AS A COMPONENT OF THE CULTEC SEPARATOR ROW TO ACT AS A BARRIER TO PREVENT SOIL/CONTAMINANT INTRUSION INTO THE STONE WHILE ALLOWING FOR MAINTENANCE.

GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 550 X 550 LBS (2,448 X 2,448 N) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A ELONGATION @ BREAK RESISTANCE OF 20 X 20% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE OF 5,070 X 5,070 LBS/FT (74 X 74 KN/M) PER ASTM D4595 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 2% STRAIN OF 960 X 1,096 LBS/FT (14 X 16 KN/M) PER ASTM D4595 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 5% STRAIN OF 2,740 X 2, 740 LBS/FT (40 X 40 KN/M) PER ASTM D4595 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 10% STRAIN OF 4,800 X 4,800 LBS/FT (70 X 70 KN/M) PER ASTM D4595 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 1,700 LBS (7,560 N) PER ASTM D6241 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A TRAPEZOIDAL TEAR RESISTANCE OF 180 X 180 LBS (801 X 801 N) PER ASTM D4533 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.15 SEC-1 PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 11.5 GPM/FT2 (470 LPM/M2) PER ASTM D4491 TESTING METHOD.
14. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 80% @ 500 HRS. PER ASTM D4355 TESTING METHOD.

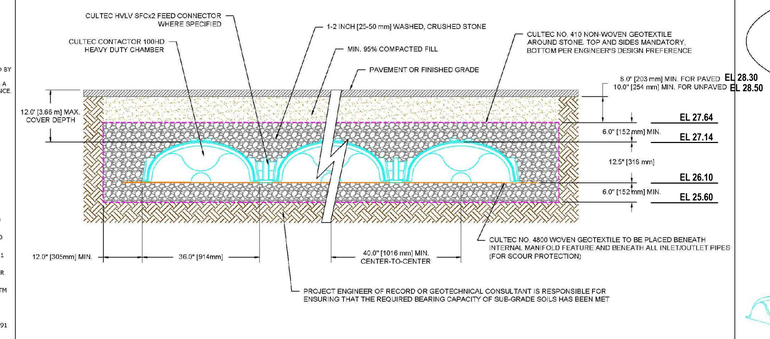


CULTEC CONTACTOR 100HD CHAMBER STORAGE = 1.866 CF/FT [0.173 m³/m]
INSTALLED LENGTH ADJUSTMENT = 0.5' [0.15 m]

100HD 2.0 **CULTEC CONTACTOR 100HD HEAVY DUTY THREE VIEW**

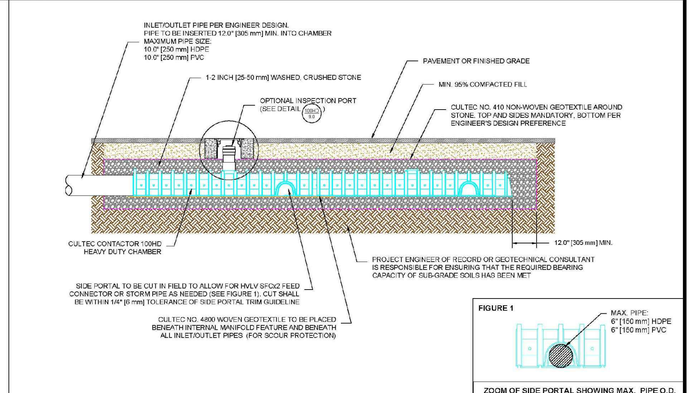


100HD 3.0 **CULTEC CONTACTOR 100HD HEAVY DUTY END DETAIL INFORMATION**

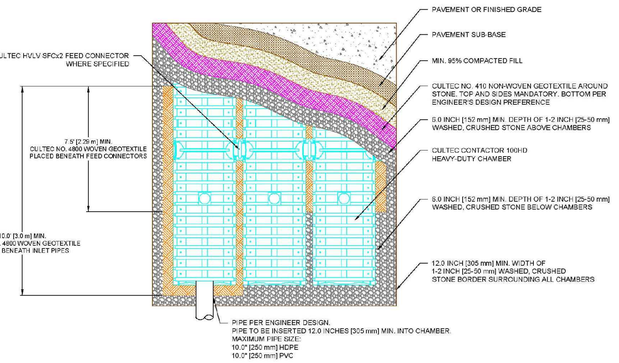


100HD 1.0 **GENERAL NOTES**

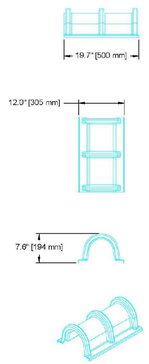
100HD 5.0 **CULTEC CONTACTOR 100HD HEAVY DUTY SYSTEM CROSS SECTION**



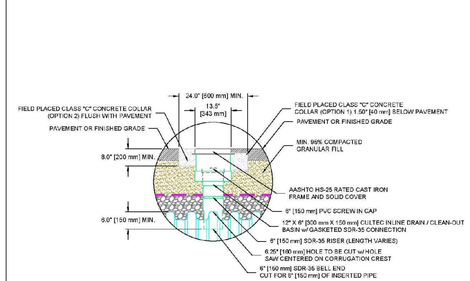
100HD 6.0 **CULTEC CONTACTOR 100HD HEAVY DUTY TYPICAL INTERLOCK**



100HD 7.0 **CULTEC CONTACTOR 100HD HEAVY DUTY PLAN VIEW**



100HD 8.0 **CULTEC HVLV SFCx2 FEED CONNECTOR**



100HD 9.0 **OPTIONAL INSPECTION PORT - ZOOM DETAIL**

100HD 10.0 **CULTEC MANIFOLD - OPTIONAL INSPECTION PORT DETAIL**

CULTEC™
CULTEC, Inc.
Subsurface Stormwater Management Systems
P.O. Box 280
878 Federal Road
Brookfield, CT 06804
www.cultec.com
PH: (203) 775-4416
PH: (800) 4-CULTEC
FX: (203) 775-1462
tech@cultec.com

THIS DRAWING WAS PREPARED TO SUPPORT THE PROJECT ENGINEER OF RECORD FOR THE PROPOSED SYSTEM. IT IS THE ULTIMATE RESPONSIBILITY OF THE PROJECT ENGINEER OF RECORD TO ENSURE THAT THE CULTEC SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IT IS THE PROJECT ENGINEER OF RECORD'S RESPONSIBILITY TO ENSURE THAT THE CULTEC PRODUCTS ARE DESIGNED IN ACCORDANCE WITH CULTEC'S MINIMUM REQUIREMENTS. CULTEC DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS.

CONTACTOR 100HD
DETAIL SHEET
TRAFFIC APPLICATION

CULTEC STORMWATER CHAMBER

PROJECT NO:		DATE:	2019
DRAWN BY:	CULTEC, INC	CHECKED BY:	TECH
SCALE:	N.T.S.	SHEET NO:	1 OF 1

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584

© 2013

Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

CULTEC DETAILS
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

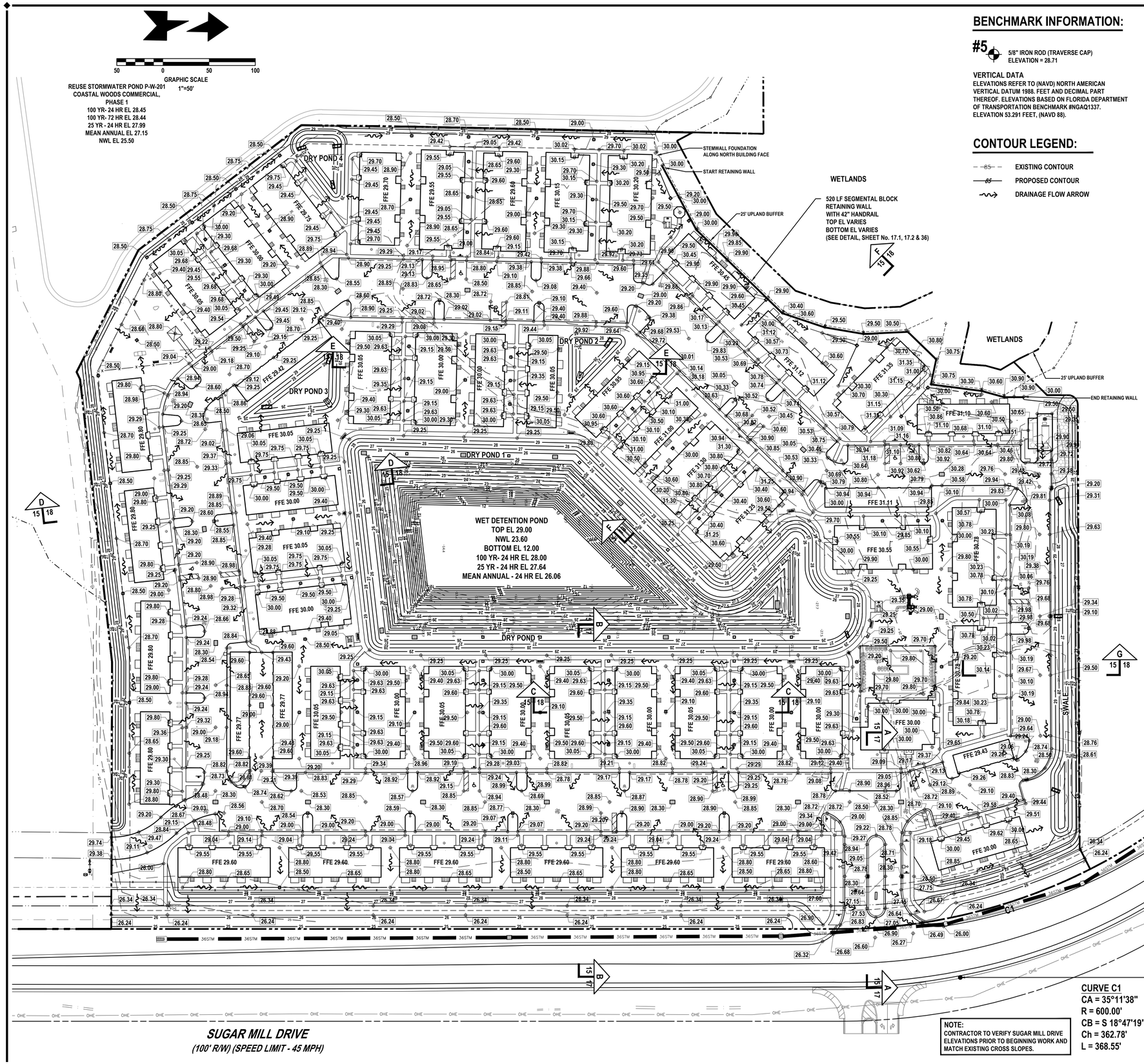
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

16



BENCHMARK INFORMATION:

#5 5/8" IRON ROD (TRAVERSE CAP)
ELEVATION = 28.71

VERTICAL DATA
ELEVATIONS REFER TO (NAVD) NORTH AMERICAN VERTICAL DATUM 1988. FEET AND DECIMAL PART THEREOF. ELEVATIONS BASED ON FLORIDA DEPARTMENT OF TRANSPORTATION BENCHMARK #NGAQ1337. ELEVATION 53.291 FEET, (NAVD 88).

CONTOUR LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- DRAINAGE FLOW ARROW

GENERAL EARTHWORK NOTES:

1. REMOVE ALL ORGANIC OR UNSUITABLE MATERIALS. IF ANY MUCK OR MUCK-LIKE MATERIAL IS DISCOVERED, IT WILL BE REQUIRED TO BE REMOVED, BACKFILLED WITH APPROPRIATE FILL, COMPACTED, AND TESTED USING AASHTO T-180 MODIFIED PROCTOR METHOD.
2. ALL FILLING IS TO BE PERFORMED IN ONE-FOOT LIFTS. THE COMPACTION REQUIREMENT IS 98% FOR PAVED AREAS AND 95% FOR UNPAVED AREAS PER AASHTO T-180 MODIFIED PROCTOR TEST.
3. TEMPORARY FILL STOCKPILING IS NOT PERMITTED IN LIFTS GREATER THAN SIX FEET.
4. SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION AND THE IMPACT TO NEIGHBORING COMMUNITIES.
5. ONCE AN AREA IS SEEDED OR SODDED, IT MUST BE MAINTAINED TO ALLOW THE GRASS TO GROW.
6. ALL NON-PAVED AREAS MUST BE PLANTED, GRASSED, OR MULCHED.

GENERAL GRADING NOTES:

1. CROSS SLOPES OF ACCESSIBLE PARKING SPACES AND ACCESS AISLE SHALL NOT EXCEED 1:48 IN ACCORDANCE WITH SECTION 502.4 OF FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION (FACBC).
2. THE MAXIMUM ELEVATION CHANGE AT THE ENTRANCE DOOR MAY NOT EXCEED 1/2 INCH.
3. ALL SIDEWALK LANDINGS SHALL HAVE SLOPES NO GREATER THAN 1/4 INCH / 1 FOOT IN MANEUVERING SPACES AT ALL DOORWAYS.
4. ALL SIDEWALKS SHALL HAVE A 1.0% CROSS SLOPE (2.0% MAXIMUM).
5. ALL CURB RAMPS SHALL COMPLY WITH SECTION 406 OF FACBC.
6. ALL IMPROVEMENTS SHALL BE STAKED FOR CONSTRUCTION BY MEANS OF DIGITAL COORDINATES BY SURVEY OR UTILIZING GEODETIC TOTAL STATION. SCALING OF DRAWINGS FOR PURPOSES OF STAKING ARE AT THE SURVEYOR.

NOTE:
ALL RIGHT-OF-WAY IMPROVEMENTS ARE BEING DESIGNED AND PERMITTED BY VOLUSIA COUNTY. IMPROVEMENTS SHOWN ON THIS PLAN ARE FOR INFORMATION PURPOSES ONLY.

BENCHMARK #5
5/8" IRON ROD
ELEVATION = 28.71

CURVE C1
CA = 35°11'38"
R = 600.00'
CB = S 18°47'19" E
Ch = 362.78'
L = 368.55'

NOTE:
CONTRACTOR TO VERIFY SUGAR MILL DRIVE ELEVATIONS PRIOR TO BEGINNING WORK AND MATCH EXISTING CROSS SLOPES.

One Nation... One Number... 811 Know what's below. Call before you dig.

WARNING !!
CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES, GAS MAINS AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

OVERALL GRADING PLAN
THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

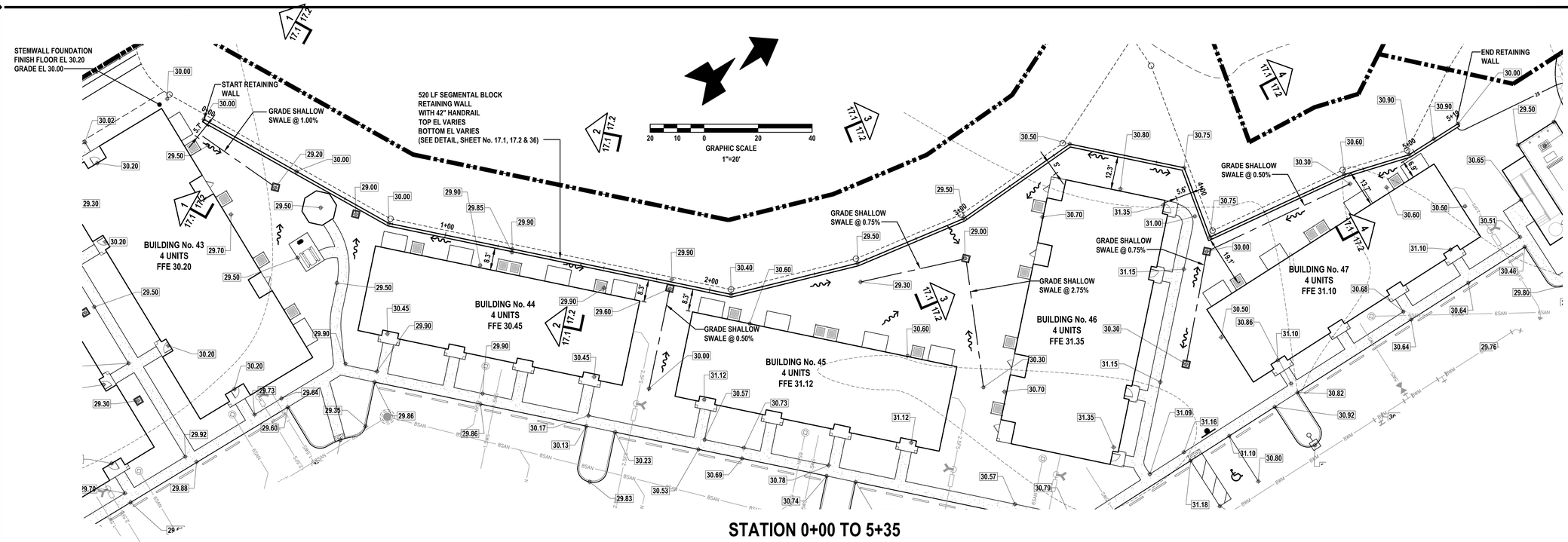
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

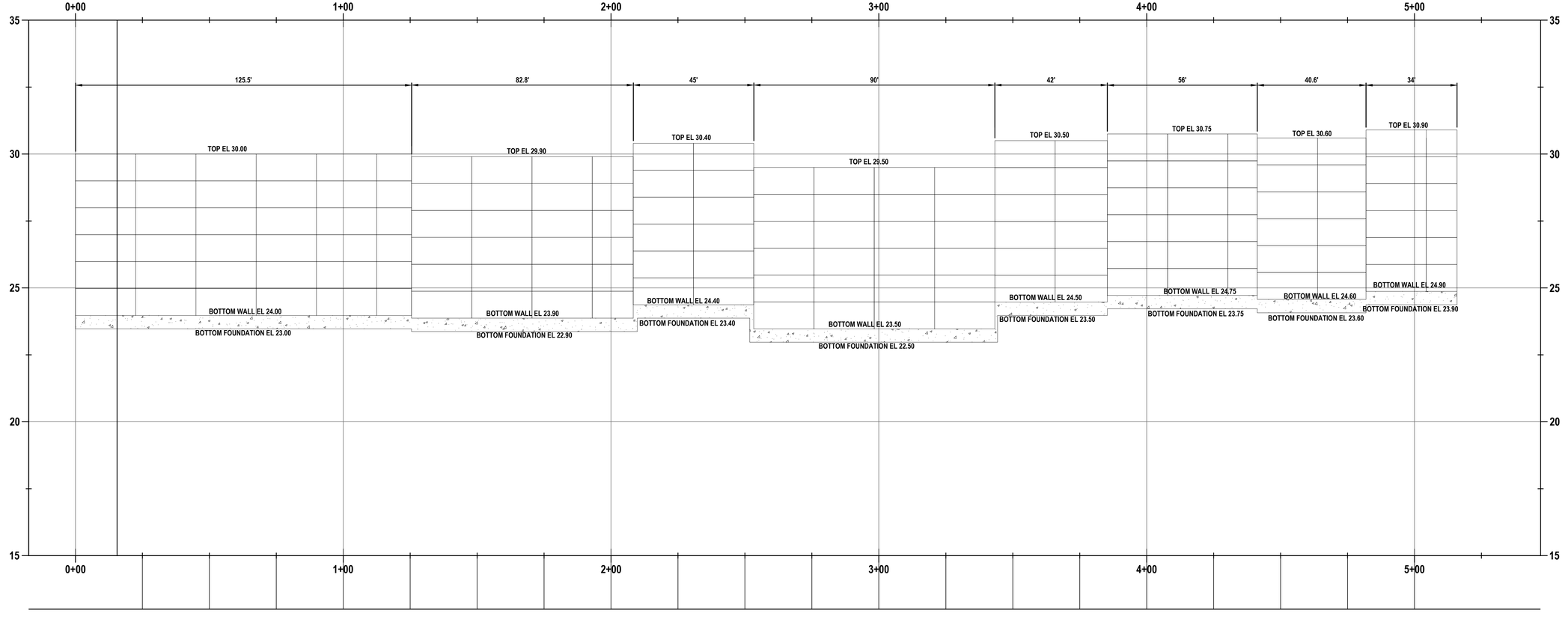
PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 50'

DRAWING NUMBER

17



HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

RETAINING WALL ELEVATIONS
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

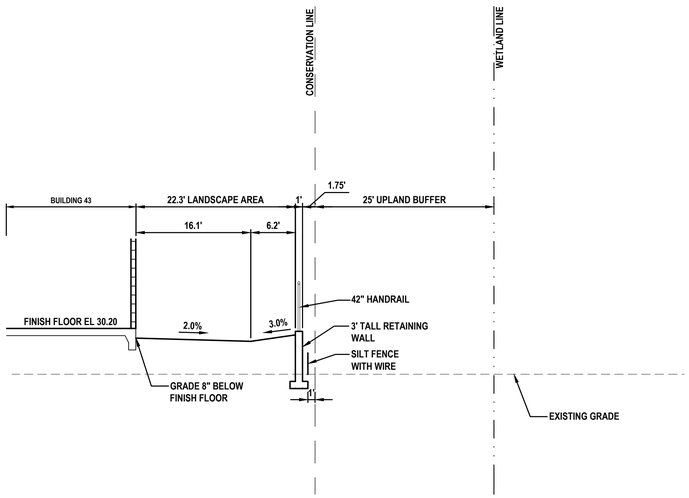
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

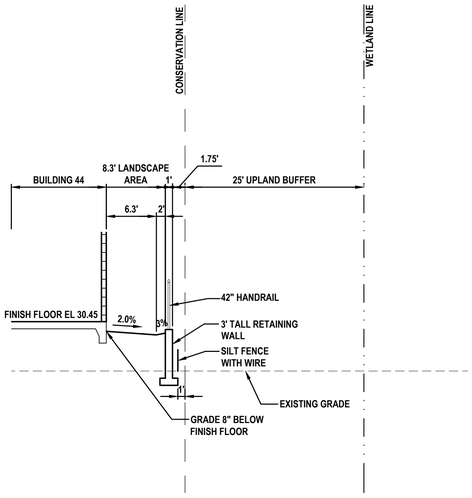
PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

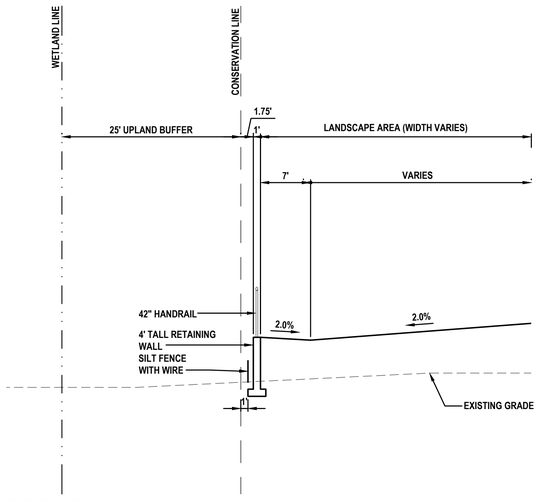
17.1



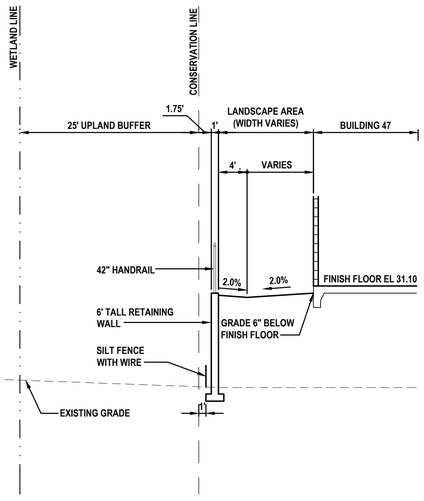
SECTION 1
NOT TO SCALE



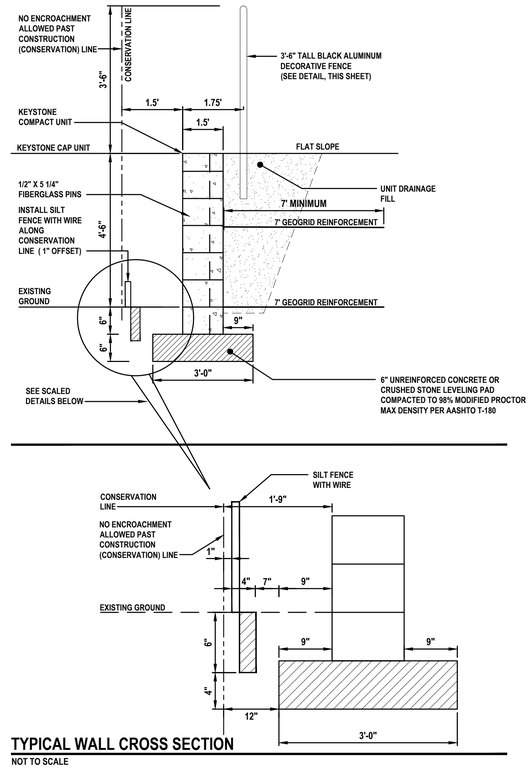
SECTION 2
NOT TO SCALE



SECTION 3
NOT TO SCALE



SECTION 4
NOT TO SCALE



TYPICAL WALL CROSS SECTION
NOT TO SCALE

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

RETAINING WALL CROSS SECTIONS
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

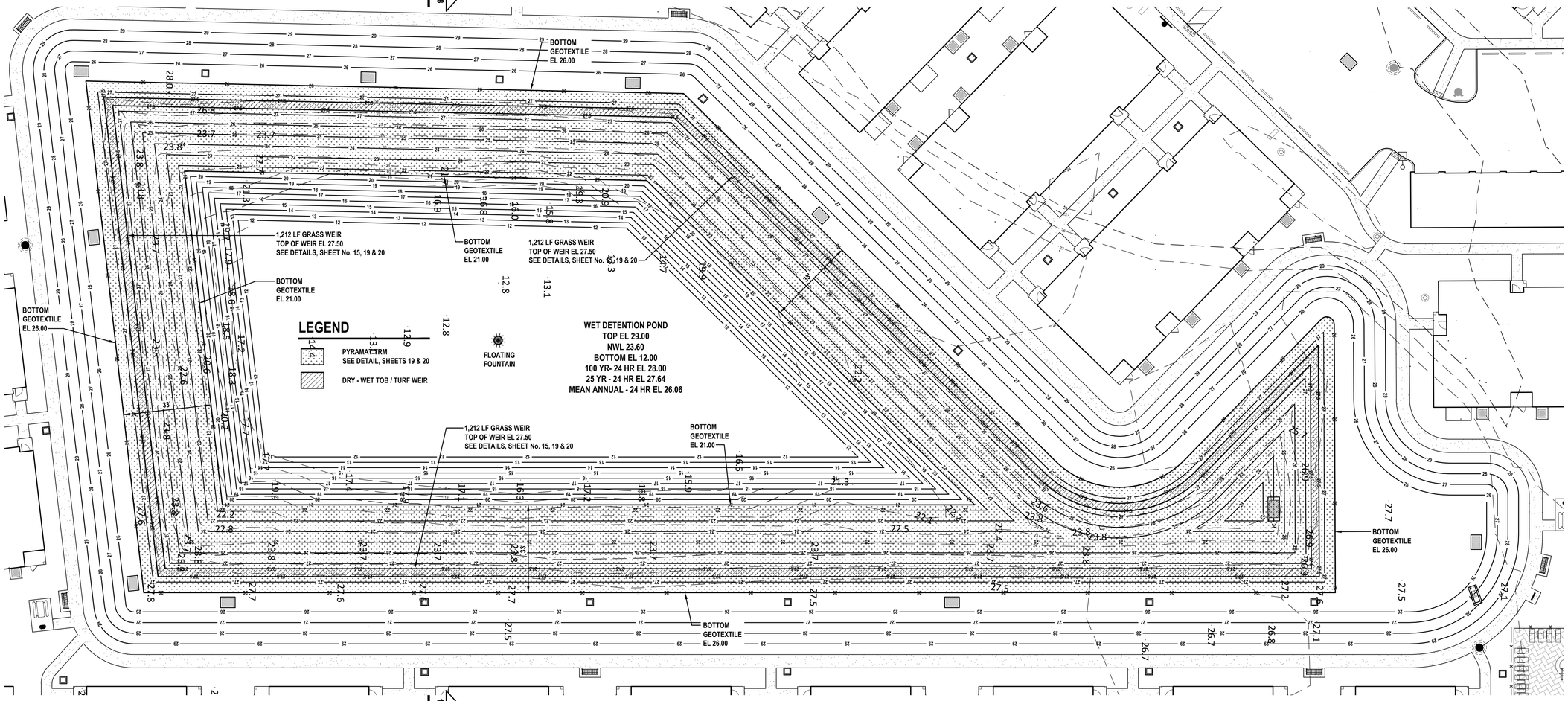
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

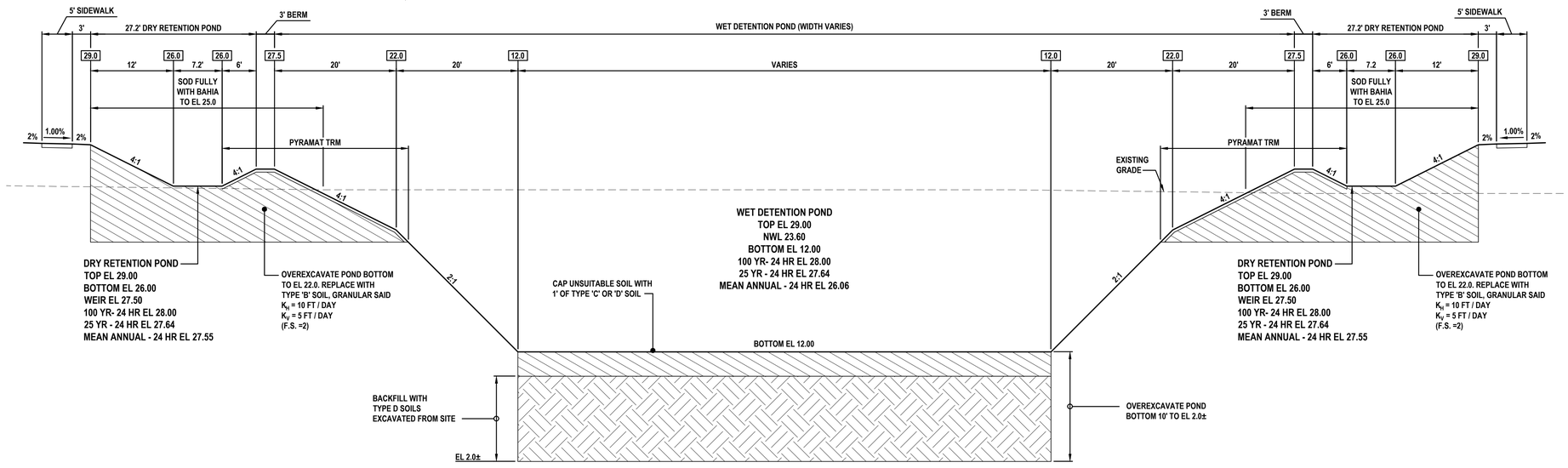
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

17.2





SECTION A
NOT TO SCALE

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

POND PLAN
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 20'

DRAWING NUMBER

18

PYRAMAT®

PYRAMAT® SLOPE INSTALLATION AND MAINTENANCE GUIDELINES

Thank you for purchasing our PYRAMAT® High Performance Turf Reinforcement Mat (HPTRM) or Turf Reinforcement Mat (TRM) by Propex Operating Company, LLC (Propex). This document provides installation and maintenance guidelines for PYRAMAT used as slope armoring to increase earthen slope resiliency. PYRAMAT provides permanent erosion protection on either the flood side and/ or protected side of an earthen slope.

Temporary securing pins (pins) are used during installation to hold PYRAMAT in place. Pins also promote vegetation establishment keeping PYRAMAT in intimate contact with the soil.

PYRAMAT is an Engineered Earth Armoring Solution™ with a unique design for each specific project. While Propex has made every effort to ensure general validity, this information should not be used for a specific application without independent professional examination and verification of its suitability, applicability, and accuracy. The information provided herein is for general information only, and is intended to present installation guidance. Project specific contract documents take precedence when pin placements are different than what is represented in this document. Depending upon the critical nature of the structure to be armored, work restrictions may be in place such as limiting work based on growing seasons, weather patterns, etc. Work should be performed under the provisions set forth for the specific project. Propex Engineering Services is available for support during installation to consult for solving constructability issues encountered in specific applications. Please feel free to call our technical support hotline at (800) 621-1273.

BEFORE INSTALLATION BEGINS

- *Coordinate with a Propex Representative:* A pre-construction meeting is suggested with the construction team and a representative from Propex. This meeting should be scheduled by the contractor with at least a two week notice.
- *Gather the Tools Needed:* Tools that you will need to install PYRAMAT include a pair of industrial shears to cut PYRAMAT, tape measure, and mallet or hammer.
- *Determine how to Establish Vegetation:* The method of vegetation establishment should be determined prior to the start of installation. Different vegetation establishment methods require different orders of installation. Refer to *VEGETATION ESTABLISHMENT* for further guidance.

INSTALLATION OF PYRAMAT ON SLOPES

SITE PREPARATION

It is recommended during all stages of site preparation that disturbed soils remain unprotected for not more than a single day. Depending on project size this may require progressive site preparation during installation.

1. Grade and compact the area on the slope where PYRAMAT will be installed. The slope surface should be uniform and smooth, having all rocks, clods, vegetation or other objects removed so that during *PYRAMAT LAYDOWN*, PYRAMAT comes in direct, intimate contact with the slope surface.
2. Prepare the area to be armored with PYRAMAT by loosening the topsoil to promote better vegetation establishment. This may be accomplished with a rotary tiller on slopes 3:1 or flatter. For slopes greater than 3:1, prepare topsoil in a safe manner.
3. Excavate a Crest of Slope (COS) trench 12 in x 12 in (300 mm x 300 mm) minimum at a distance of 3 ft (900 mm) from the crest of the slope. (Figure 1).

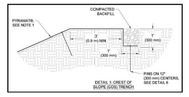


Figure 1: Crest of Slope (COS) Trench

4. Excavate a Toe of Slope (TOS) trench 12 in x 12 in (300 mm x 300 mm) minimum at a minimum distance of 5 ft (1.5 m) from the toe of the slope. (Figure 2)
5. If seeding, refer to *VEGETATION ESTABLISHMENT* for additional considerations during site preparation.

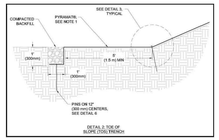


Figure 2: Toe of Slope (TOS) Trench

PYRAMAT LAYDOWN

1. Begin the *PYRAMAT LAYDOWN* process by starting with the downstream / downwind end of the site. To ensure proper pining of the overlapped areas the proceeding roll width must be laid out before the current roll width can be pinned with exception to the final roll width. For straight sections of a slope, PYRAMAT panel lengths should be long enough to construct COS and TOS trenches while also covering the surface of the slope being armored (Figure 12). Panel edges should rest approximately perpendicular to the slope center line. For best results, panels of PYRAMAT should be continuous and free from seams or roll end overlaps that are parallel to the centerline of the slope. Panel edge overlapping should follow a pattern of placing each proceeding panel's edge overtop the previous panel edge, shingling the panels in the direction of the water flow or prevailing wind.
2. Starting at the COS trench, lay PYRAMAT roll so that the roll ends point towards the crest of the slope (Figure 3), with a 3 in (75 mm) overlap created at adjacent panel edge locations. Ensure that adjacent panel edges maintain a minimum 3 in overlap during *PYRAMAT LAYDOWN* (Figure 8).

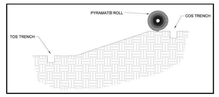


Figure 3: Crest of Slope (COS) Trench Alignment

3. Secure PYRAMAT with pins in the COS trench. Pins should be made of steel with a 0.20 in (5 mm) minimum diameter, having a 1.5 in (38mm) diameter washer at the head, and a length between 12 and 24 in (300-600 mm) with sufficient ground penetration to resist pullout (Figure 4). Longer pins may be required for looser soils. Heavier metal stakes may be required in rocky soils. Suggested placement of pins for the COS trench is along the bottom of the trench with pins on 12 in (300 mm) centers. Pins should also be installed on panel edge overlaps in the COS trench.



Figure 4: Securing Pin

4. Backfill and compact the COS trench in the location of the first PYRAMAT panel only (Figure 5).

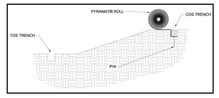


Figure 5: Crest of Slope (COS) Trench Placement

5. Unroll the PYRAMAT roll on the slope surface in the area to be armored (Figure 6). Ensure that PYRAMAT has intimate contact with the ground and all irregular surfaces beneath PYRAMAT are removed.

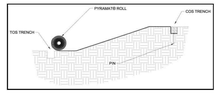


Figure 6: Placement of PYRAMAT across Slope

6. Secure PYRAMAT panels in place using pins across the slope surface according to the project's engineered design. Pin placement should reflect a checkerboard pattern across the slope surface for best results (Figure 7 and Figure 8).
   - The leading edge of the first PYRAMAT panel should be secured on the Slope Armoring Edge (SAE) with pins on 12 in (300 mm) centers.
   - Roll edges shall be overlapped a minimum of 3 in (75 mm) with pins placed on 12 in (300 mm) centers (Figure 8).
   - Roll ends shall be overlapped a minimum of 6 in (150 mm) with upstream / upwind panel on top. Secure roll end overlaps with two rows of pins staggered 6 in (150 mm) apart on 12 in (300 mm) centers (Figure 9)
   - For slope lengths greater than 45 ft (13.7 m), install simulated check slots. This method includes placing two rows of pins 12 in (300 mm) apart on 12 in (300 mm) centers at 45 ft (13.7 m) maximum intervals or across the midpoint of the slope for slope lengths less than 60 ft (18.2 m) (Figure 10).
   - At the break in slope interface towards the TOS, it is suggested that pins be installed on 12 in (300 mm) centers (Figure 11).

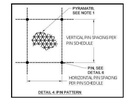


Figure 7: Example Pin Pattern

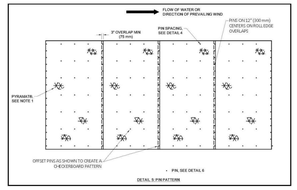


Figure 8: Example of Panel Overlap

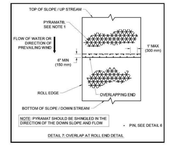


Figure 9: Roll End Overlap

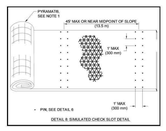


Figure 10: Simulated Check Slot

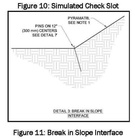


Figure 11: Break in Slope Interface

7. Secure PYRAMAT with pins in the TOS trench. Suggested placement of pins for the TOS trench is along the bottom of the trench with pins on 12 in (300 mm) centers (Figure 12).

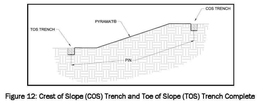


Figure 12: Crest of Slope (COS) Trench and Toe of Slope (TOS) Trench Complete

8. Backfill and compact the TOS trench. (Figure 12)
9. Continue to work down the length of the slope by repeating steps 1 through 8 overlapping each adjacent PYRAMAT panel by 3 in (75 mm) (Figure 8). The last PYRAMAT panel should terminate on the Slope Armoring Edge (SAE) with pins on 12 in (300 mm) centers. At a minimum, PYRAMAT panels should be pinned entirely across the slope surface, pins should be installed in the trenches, and the trenches should be backfilled and compacted at the end of each day to minimize rework in the case of a major rain event.

Specific project conditions may warrant further evaluation of installation order for ease. An example elevation view (Figure 13) of a slope armored with PYRAMAT can be seen below for overall reference. Consult Propex Engineering Services at (800) 621-1273 with any questions that you may have.

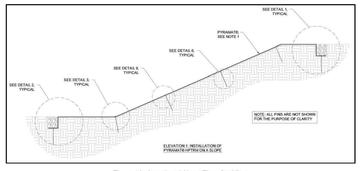


Figure 13: Completed Slope Elevation View

VEGETATION ESTABLISHMENT

Vegetation can be established with PYRAMAT by broadcast seeding, hydraulic seed application (hydroseeding), or sodding. Seed application rate, seed type, sod type, and irrigation rate should be selected based on local or site specific knowledge and time of year. For best results, consider having a site specific soil test performed to help determine what soil amendments, such as lime and fertilizer, need to be incorporated into the soil to promote healthy vegetation.

Irrigate as necessary to establish and maintain vegetation until 75% of vegetation has established and has reached a height of 2 in (50 mm). Frequent, light irrigation will need to be applied to seeded areas if natural rain events have not occurred within two weeks of seeding. When watering seeded areas, use a fine spray to prevent erosion of seeds or soil. Do not over irrigate. Proper irrigation guidance is provided under the Maintenance portion of this document.

PROJECT SPECIFIC CONSIDERATIONS

1. For applications that require special transitions (i.e. connections to riprap, concrete, T-walls, etc.), refer to the project specific drawings or consult with Propex Engineering Services at (800) 621-1273.
2. A deeper terminal trench and/or hard armoring may be required when slopes have severe scour potential at the toe location.
3. For installing PYRAMAT panels around curved sections of a slope, trim panels at an angle so that no more than two layers of PYRAMAT overlap at any point in time. Additional pins may be needed to secure panel edges towards the toe of the slope depending upon the radius of the curved slope. Install pins as necessary to securely fasten PYRAMAT to the ground.

4. Allowable Vehicle Traffic:
   - A. If using equipment on PYRAMAT, it should be of the rubber-tired type and should avoid sharp turns. Tracked equipment is not permitted to drive over the PYRAMAT without vegetation at any time.
   - B. Avoid any traffic over PYRAMAT if loose or wet soil conditions exist.
5. Disturbed areas should be reseeded. If ruts or depressions develop for any reason, rework soil until smooth and reseed such areas.

SHORT-TERM AND LONG-TERM MAINTENANCE

The purpose of this section is to provide some general guidelines for performing short-term and long-term maintenance of PYRAMAT with respect to maintaining vegetation reinforced with PYRAMAT, and patching of PYRAMAT (in the event it needs to be removed or replaced). These procedures are to be considered minimum guidelines for proper maintenance, and further maintenance techniques may be appropriate considering local practices and procedures.

PYRAMAT PROTECTED SLOPES

For PYRAMAT to be most effective, it is important to ensure that it is properly maintained both during construction and after construction. Identifying trouble areas is easy with PYRAMAT, and it can make identifying potential threats much simpler and manageable. Look for areas with sparse, dying, or no vegetation as these are obvious signs that PYRAMAT is losing intimate contact with the slope surface. If loss of ground surface occurs, PYRAMAT will need to be removed and reinstalled as described in *PATCHING AND REPAIRS* Section after the eroded area is backfilled with compacted soil that is similar to material of the slope. After PYRAMAT is reinstalled, re-establish vegetation on the newly installed PYRAMAT and disturbed areas. Monitor the sites to determine if frequent watering may be required to establish vegetation.

To minimize exposure to unwanted maintenance and repair, PYRAMAT armored slopes should be free of unauthorized vehicular traffic. Routine maintenance and slope inspections should be performed with rubber tired vehicles. Tracked equipment such as skid steers, excavators, or dozers should only be allowed to traffic over PYRAMAT in times of emergency after vegetation establishment is complete. Failure to control unauthorized traffic can result in PYRAMAT being damaged resulting in erosion below PYRAMAT during storm events. In addition, routine mowing maintenance should be used to keep the protected area free of unwanted brush, saplings, and trees. Selective herbicides that target only the unwanted plants can be used as long as the vegetation established with PYRAMAT is not impaired. Failure to control the sapling and tree growth can result in the trees being uprooted during a flood.

MAINTAINING VEGETATION

Good vegetative cover will ensure maximum performance of PYRAMAT. Vegetative cover care starts before a project is complete and is ongoing until all PYRAMAT is installed. Vegetative cover should be given every opportunity to grow and establish well. This will require that a contractor periodically fertilize, water, and mow the grasses as needed until a project is complete in the short-term, with the owner of the slope fulfilling the maintenance of the slope in a similar fashion for the long-term. For the entire lifecycle of PYRAMAT, every effort must be made to prevent unauthorized encroachments, grazing, vehicle traffic, the misuse of chemicals, or burning during inappropriate seasons.

1. After the installation of vegetation is complete, immediately water and soak the entire area using a fine spray to prevent erosion and loss of seeds. A suggested amount of water is identified below. Prior to installation if using sod, the sod pads in storage should be kept moist at all times and not stored for more

than 24 hours from site arrival to installation. Warmer weather will necessitate more frequent applications than listed below.

- A. For each reach/segment of installed vegetation, watering shall be conducted immediately after each installation or the day's work.
- B. For initial vegetation establishment, water vegetation in a manner consistent with best practices for vegetation type and location.
- C. Establish a watering schedule and follow until vegetation is well established and will thrive in the absence of manual watering.
- D. Avoid excessive application of water, so that surface runoff does not occur. Runoff should be prohibited. However, additional watering may be required for repaired or damaged areas.

2. Fertilizer should be applied as needed to address any nutrient deficiencies revealed in soil testing.
3. Implement best practices for mowing over PYRAMAT. While PYRAMAT is designed to withstand non-hydraulic stresses such as mowing, there are procedures to minimize exposure to unwanted damage.
   - A. Immediately after installation, signage and post shall be installed stating that "Vehicles and Pedestrians are Prohibited from Access" on the slopes and the newly installed vegetation. Signage shall be posted every 1,500 lineal feet.
   - B. Vegetated areas should be mowed to a height no less than 6 inches and no greater than 12 inches from natural ground after a period of 60 days of growth. The excessive grass clippings created from mowing shall be evenly spread on the slope section outside of the armored area. Periodic and final grass mowing should be performed until final inspection and acceptance of slope work. Monitor the vegetated areas throughout winter months and generate reports as needed, noting any issues that should be addressed. Minimum mowing heights will depend on the vegetation density and should be as follows:
     - i. 6" with 0 – 30% vegetation establishment
     - ii. 4" with 30 – 70% vegetation establishment
     - iii. 3" with 70 – 100% vegetation establishment
   - C. To prevent damage to the newly established vegetation, the mowing tractor should be fitted with 3-rib agriculture tires. Note that tractors with 8-foot flail mowers provide best results. Tractors with 15-foot brush hogs should avoid sharp turns up the slope to prevent damage to vegetation.
   - D. Mowing should not take place for a minimum of 48 hours after a rainfall event of 2 inches or more to minimize the potential for rutting and/or damage to the slope surface. Maintenance mowing of the slope should be done on a consistent basis to prevent vegetation growing to more than 3 feet in height. This will minimize thatch thickness and potential damage to PYRAMAT. If turn-around pads are present, operate mowing equipment utilizing the turn-around pads to the fullest extent. The mowing blade height over PYRAMAT should be a minimum of 8 inches. However, should vegetation grow to more than 3 feet in height, the mowing blade height for the condition should be a minimum of 12 inches.
4. Some special circumstances may exist. When mowing the crown of a slope with a crown or crest equal to or exceeding 20%, it should be mowed with an articulating arm mower to minimize the potential for the mower blades to catch PYRAMAT at the slope surface. The articulating arm mower should be level on the surface with the articulating arm extending over the crown. **Pay close attention to areas where the slope changes.** The mower blades should be set at a minimum height of 8 inches. If PYRAMAT is damaged by

the mowing blades at any time, mowing should stop immediately and further direction should be obtained to continue activity. Repair the damaged area as described in the *PATCHING AND REPAIRS* section below.

5. PYRAMAT protected slopes are not as susceptible to animal burrowing due the tenacity of the PYRAMAT; however, inspections to detect the presence of burrowing animal activity are generally most effective immediately after the slope has been mowed. Animal burrows that are identified should be thoroughly excavated and inspected, backfilled with compacted soil that is similar to material of the slope, and vegetation re-established. This will avoid the possibility of water piping through unfilled portions of the burrows. Should PYRAMAT be damaged, it is to be repaired as described *PATCHING AND REPAIRS* section below.

PATCHING AND REPAIRS

PYRAMAT may require localized repair at times. For emergency repairs, an adequate supply of PYRAMAT should be maintained in inventory with the necessary tools to install. This will allow for a timely, initial repair of the system.

1. In order to identify areas in need of repair, the site should be patrolled immediately after mowing and after rain events of 2 inches or more. When patrolling look for areas of sparse vegetation, exposed edges of PYRAMAT, and areas where direct contact between PYRAMAT and the slope surface is compromised. PYRAMAT should be rated as *Acceptable*, *Minimally Acceptable*, or *Unacceptable* during inspection.
   - A. *Acceptable* (A) - The rated area is in satisfactory, acceptable condition, and will function as designed and intended during the rain event. PYRAMAT has no exposed edges, is installed tightly by maintaining direct contact to the slope surface with no rilling beneath, and has over 90% vegetation cover. There is no noticeable damage present.
   - B. *Minimally Acceptable* (M) - The rated area has a minor deficiency that needs to be corrected. The minor deficiency will not seriously impair the functioning of the area during the next rain event; however, the overall reliability of the project will be lowered because of the minor deficiency. PYRAMAT has 75% vegetation cover with un-vegetated patches as large as one square yard. Edges of PYRAMAT are exposed with noticeable damage. Minimal erosion has occurred underneath PYRAMAT.
   - C. *Unacceptable* (U) - The rated area is unsatisfactory. The deficiency is so serious that the area will not adequately function in the next rain event. PYRAMAT has been physically torn, ripped, or lifted from the slope surface. Less than 75% vegetation cover is present with un-vegetated patches being greater than 1 square yard, and there is evidence that erosion is occurring beneath PYRAMAT.
2. Repair any raised or exposed edges of PYRAMAT by driving existing and additional pins along the edges as necessary to securely fasten to the ground. Inspect areas where the vegetation is not growing on top of PYRAMAT. Many times this is an indicator that PYRAMAT has lost contact with the ground beneath. Check for voids beneath PYRAMAT and fill any holes, gullies, etc. with compacted fill material if possible. Replace PYRAMAT as described below.
3. To repair PYRAMAT, cut out and remove damaged areas in a square configuration a minimum size of 2 ft by 2 ft. Remove all vegetation and debris atop of PYRAMAT. Loosen the top 1 to 2 in of soil in the patch area then seed. The subgrade of area to be patched shall be prepared to be smooth and uniform and transition smoothly into the in-situ area. Cut a square PYRAMAT patch a minimum of 12 in greater than the damaged area for all four sides of the patch. Overlap the patch area in all directions a minimum of 12 in. The patch overlaps shall be tucked under the existing damaged PYRAMAT material (Figure 14 and Figure 15)

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013

Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

GEOTEXTILE DETAILS & NOTES

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK
LICENSE
NO. 62971
STATE OF FLORIDA
PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

19

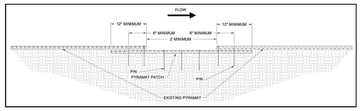


Figure 14: PYRAMAT Patch Cross Section

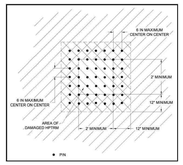
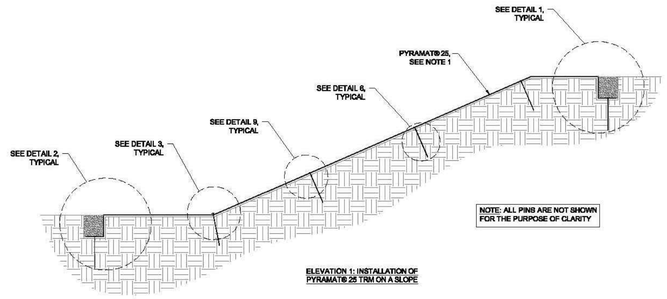


Figure 15: PYRAMAT Patch Plan View

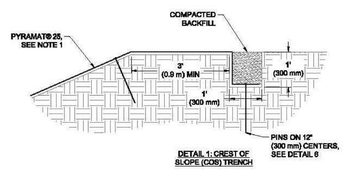
4. Install pins on 6 in (150 mm) (max) centers. For larger areas of damage, pins should be installed to match existing pin pattern. Once PYRAMAT is in place, vegetate per project specifications.

SUMMARY

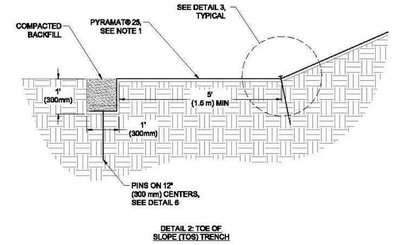
Maintenance should consist of watering and weeding, repair of all erosion, and any re-seeding as necessary to establish a uniform stand of vegetation during construction and beyond. A minimum of 70% of the armored area should be covered with no bare or dead spots greater than 10 ft² (1 m²). Establishing vegetation should not be mowed prior to 70% vegetative density and a minimum grass growth of 4 in (100 mm). Throughout the duration of the project, the contractor should be responsible for mowing to facilitate growth and should not let the vegetation in the armored areas exceed 18 in (450 mm). In addition, the Contractor should water all grassed areas as often as necessary to establish satisfactory growth and to maintain its growth throughout the duration of the project. After the project is complete, it is the responsibility of the Owner to maintain and upkeep all PYRAMAT installed areas for long term performance and best results as described herein for superior slope armoring.



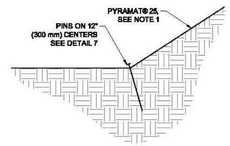
ELEVATION 1: INSTALLATION OF PYRAMAT® 25 TRM ON A SLOPE



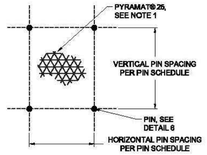
DETAIL 1: CREST OF SLOPE (COS) TRENCH



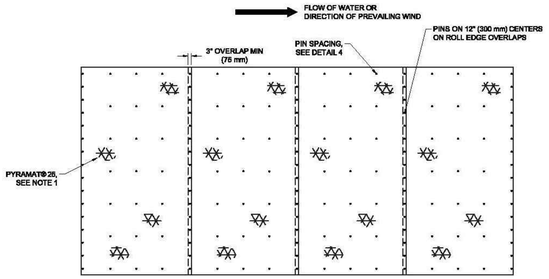
DETAIL 2: TOE OF SLOPE (TOS) TRENCH



DETAIL 3: BREAK IN SLOPE INTERFACE

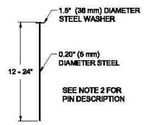


DETAIL 4: PIN PATTERN

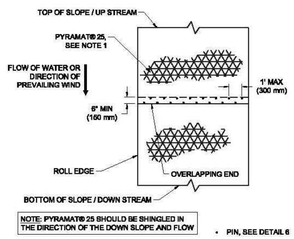


• PIN, SEE DETAIL 6

DETAIL 5: PIN PATTERN

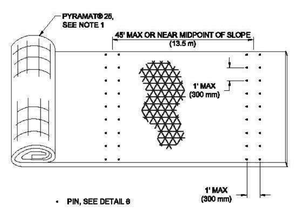


DETAIL 6: PIN



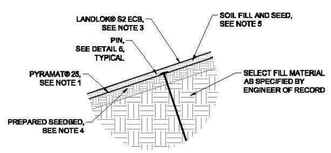
• PIN, SEE DETAIL 6

DETAIL 7: OVERLAP AT ROLL END DETAIL



• PIN, SEE DETAIL 6

DETAIL 8: SIMULATED CHECK SLOT DETAIL



DETAIL 9: VEGETATION ESTABLISHMENT

PIN SCHEDULE	
SECURING DEVICE	PIN
HORIZONTAL PIN SPACING	2' (0.60 m)
VERTICAL PIN SPACING	2.5' (0.75 m)
EMBEDMENT DEPTH	PER MANUFACTURES DESIGN

PYRAMAT® 25 TRM ON A SLOPE FOR EROSION CONTROL GENERAL INSTALLATION GUIDELINES

GENERAL NOTES

1. PYRAMAT® 25 TRM is a three-dimensional, lofty, woven polypropylene geotextile that is available in green or tan which is specially designed for erosion control applications on steep slopes and vegetated waterways. The matrix is composed of polypropylene monofilament yarns featuring X3® technology woven into a uniform configuration of resilient pyramid-like projections. The material exhibits very high interlock and reinforcement capacity with both soil and root systems, demonstrates superior UV resistance, and enhances seedling emergence.
2. The 12", 18", and 24" Securing Pins are composed of a wire, mushrroomed at the top. A washer is then placed on the wire and the wire is crimped or swedged about 3-1/2" below the top so the washer will not slide off. The end of the wire is cut at a 45 degree angle for easy penetration of the soil. These Pins with washers conform to industry standards for erosion control pins with washers.
3. LANDLOK® S2 Erosion Control Blankets consist of 100% wheat straw mechanically bound and covered on both sides by netting. The straw is homogeneously blended and evenly distributed throughout the blanket. The netting is photodegradable polypropylene with mesh openings of approximately 3/8 in. by 3/8 in. (11 mm by 11 mm). The blanket is sewn on approximately 2 in. (51 mm) centers with photodegradable polypropylene thread. This product is NTPEP approved for AASHTO standards.

VEGETATION ESTABLISHMENT

4. Prepare seedbed by loosening 50 to 75 mm (2 to 3 in) of soil above final grade. Apply seed in an amount equivalent to 60% of the total mixture required to be installed on the soil surface, to scarified surface prior to installation of the PYRAMAT® 25 TRM. Select and apply soil amendments and fertilizer, to scarified surface prior to installation of the PYRAMAT® 25 TRM. A site specific soil test should be performed to help determine what soil amendments, such as lime and fertilizer, need to be incorporated into the soil to promote healthy vegetation.
5. The installed PYRAMAT® 25 TRM shall be soil filled and seeded with the remaining 40% of the seed mixture. Do not place excessive soil above material. Once soil fill and additional seed is in place, surficial protection should be accomplished by installing LANDLOK® S2 Erosion Control Blanket (ECB) atop the seed layer. LANDLOK® S2 ECB is to be secured using 6" U-shaped staples with a frequency of 2.0 staples per square meter (1.7 staples per square yard).
6. Irrigate as necessary to establish and maintain vegetation until 70% of vegetation has established and has reached a height of 2 inches. Frequent, light irrigation will need to be applied to seeded areas if natural rain events have not occurred within two weeks of seeding.

BEFORE INSTALLATION BEGINS

7. Coordinate with a Propex Representative: A pre-construction meeting is suggested with the construction team and a representative from Propex. This meeting should be scheduled by the contractor with at least a two week notice.
8. Gather the Tools Needed: Tools that you will need to install PYRAMAT® 25 include a pair of Industrial shears to cut PYRAMAT® 25 and tape measure.
9. Determine how to Establish Vegetation: The method of vegetation establishment should be determined prior to the start of installation. Different vegetation establishment methods require different orders of installation. Refer to Establish Vegetation for further guidance.
10. Please consult the Propex Website for the most up to date installation guidelines.

Propex GEOSOLUTIONS

© 2017 Propex Operating Company, LLC

EROSION CONTROL INSTALLATION DETAILS

Please note that the information presented herein is general information only. It is for conceptual use only and not intended to be used for construction. While every effort has been made to ensure its accuracy, this information should not be used for a specific application without independent professional examination and verification of its suitability, applicability, and accuracy. This engineering drawing is protected by the Copyright Act, 17 U.S.C. §101 et seq. and may be used ONLY with the express written permission of Propex in connection with Propex products. Any copying, distributing, and/or creation of a derivative work without permission of Propex is prohibited and is subject of actual damages, statutory damages and attorney's fees under the Copyright Act.

1 of 1	PYRAMAT®	TURF REINFORCEMENT MAT (TRM)		
		PYRAMAT® 25 INSTALLATION DETAILS FOR SLOPES		
Rev	Date: 02/15/2017	Drawn By: J. HILL	Scale: NTS	*ALL DIMENSIONS ARE TO BE VERIFIED BY ENGINEER OF RECORD

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.NewkirkEngineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

GEOTEXTILE DETAILS & NOTES

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

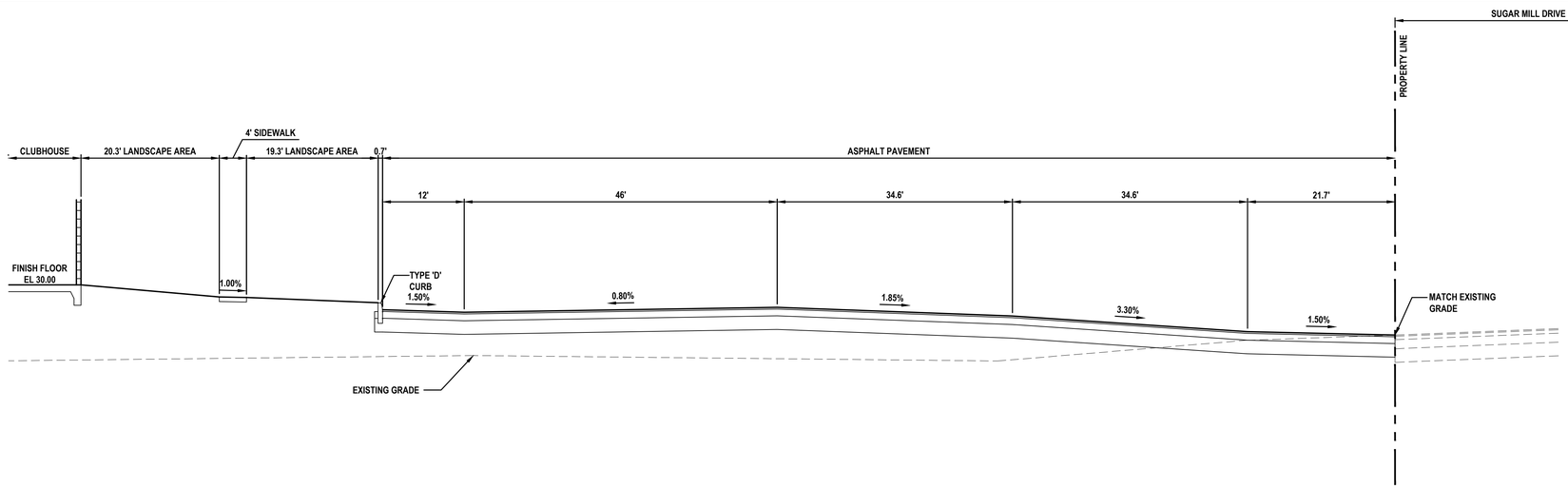
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

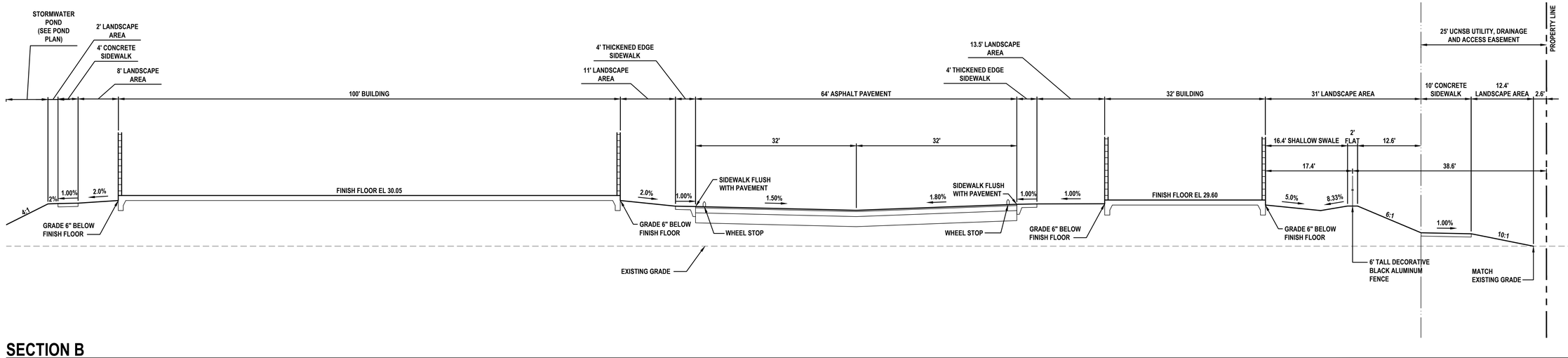
DRAWING NUMBER

20



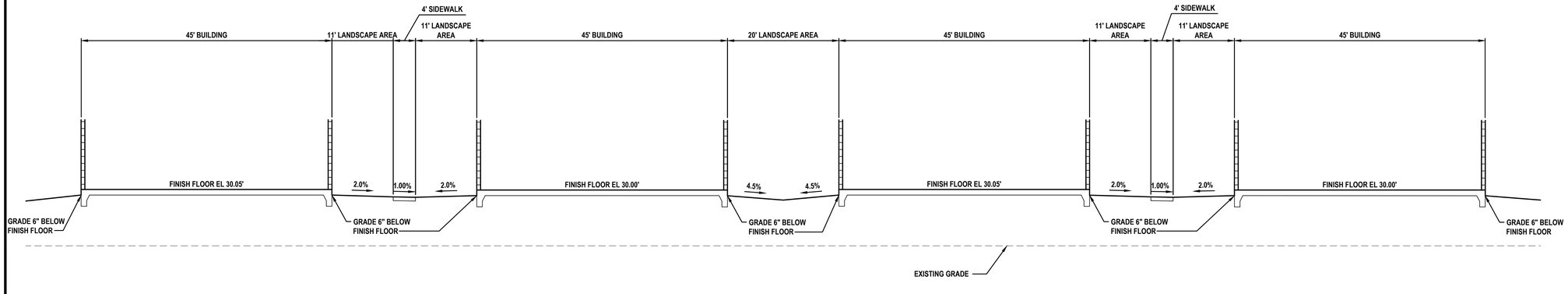
SECTION A

NOT TO SCALE



SECTION B

NOT TO SCALE



SECTION C

NOT TO SCALE

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

CROSS SECTIONS
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

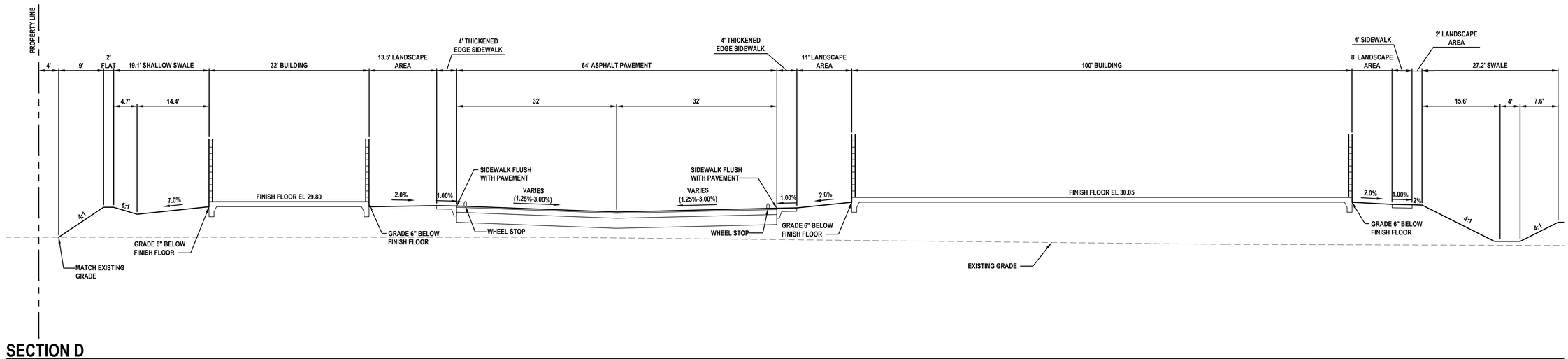
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

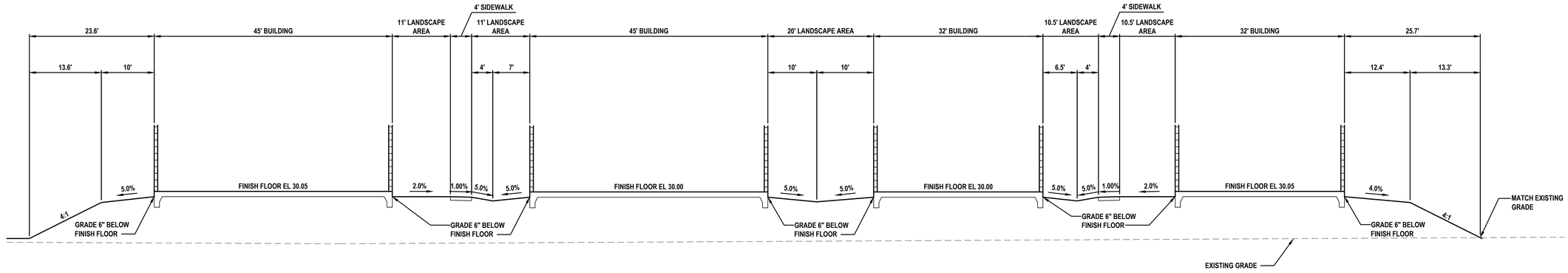
DRAWING NUMBER

21



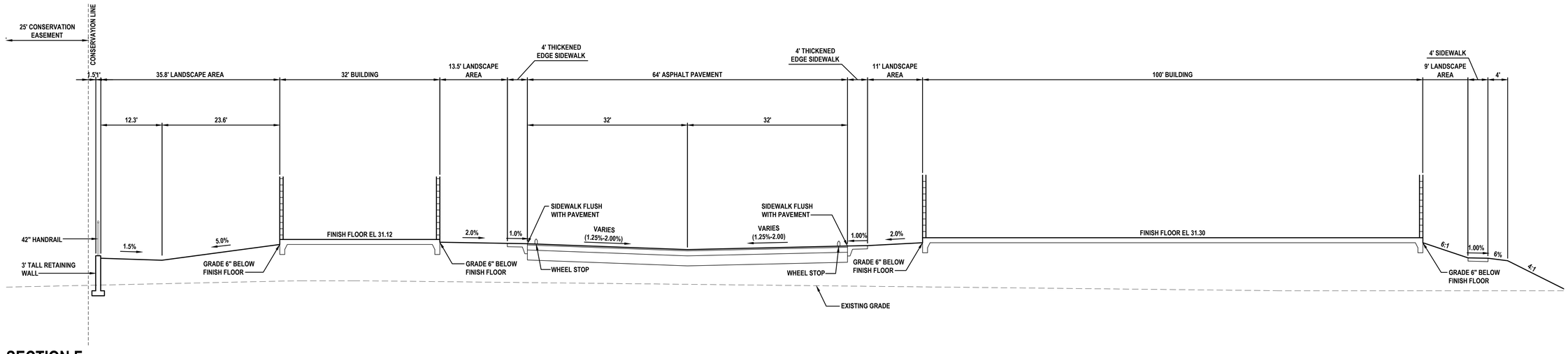
SECTION D

NOT TO SCALE



SECTION E

NOT TO SCALE



SECTION F

NOT TO SCALE

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

CROSS SECTIONS

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

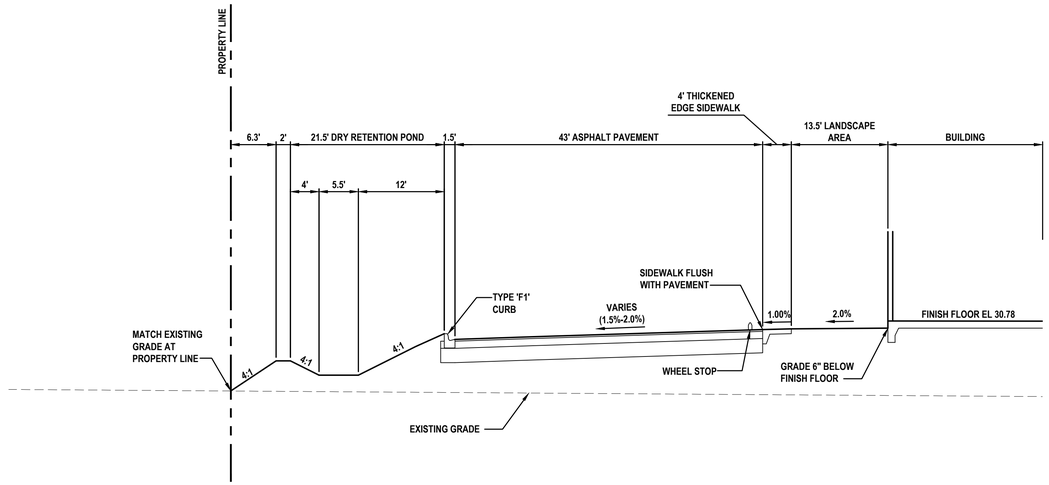
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

22



SECTION G

NOT TO SCALE

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

CROSS SECTIONS

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

23

GRAPHIC SCALE
1"=50'
50 0 50 100

NOTE: BUILDINGS ARE VERIFIED TO BE IN CONFORMANCE WITH FFPC SECTIONS 18.2.3.2.2 AND 18.2.3.2.2.1.

REUSE STORMWATER POND P-W-201
COASTAL WOODS COMMERCIAL, PHASE 1
100 YR- 24 HR EL 28.45
100 YR- 72 HR EL 28.44
25 YR - 24 HR EL 27.99
MEAN ANNUAL EL 27.15
NWL EL 25.50

PROPOSED 8" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER) (PRIVATELY OWNED AND MAINTAINED)

MH 08
STA. 21+60.58, 17.74' R
RIM EL. 28.77
INV. EL. 23.29(N)(8")
INV. EL. 23.19(SE)(8")
(PRIVATE)

MH 09
STA. 18+17.58, 20.82' R
RIM EL. 29.24
INV. EL. 24.84(NE)(8")
INV. EL. 24.74(S)(8")
(PRIVATE)
SHALLOW MANHOLE

WETLANDS

358 LF 8" PVC SDR 26 SLOPE @ 0.40%

245 LF 8" PVC SDR 26 SLOPE @ 0.40%

207 LF 8" PVC SDR 26 SLOPE @ 0.40%

239 LF 8" PVC SDR 26 SLOPE @ 0.40%

MH 07
STA. 23+58.40, 23.69' R
RIM EL. 28.69
INV. EL. 22.35(NW)(8")
INV. EL. 22.25(E)(8")
(PRIVATE)

MH 06
STA. 25+91.22, 11.15' R
RIM EL. 28.78
INV. EL. 21.28(W)(8")
INV. EL. 21.18(E)(8")
(PRIVATE)

MH 01
STA. 1+15.25, 9.03' R
RIM EL. 28.56
INV. EL. 20.36(N)(8")
INV. EL. 20.36(W)(8")
INV. EL. 20.26(SE)(8")
(PRIVATE)
RIM EL. 27.34
INV EL. (W)(8" PVC) 19.82 CAPPED
INV EL. (S)(8" PVC) 19.80
INV EL. (N)(8" PVC) 19.81

200 LF 8" PVC SDR 26 SLOPE @ 0.40%

340 LF 8" PVC SDR 26 SLOPE @ 0.41%

68 LF 8" PVC SDR 26 SLOPE @ 0.50%

377 LF 8" PVC SDR 26 SLOPE @ 0.40%

373 LF 8" PVC SDR 26 SLOPE @ 0.40%

148 LF 8" PVC SDR 26 SLOPE @ 0.40%

306 LF 8" PVC SDR 26 SLOPE @ 0.40%

94 LF 12" RELOCATED PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER) (PUBLIC, UCNSB)

REMOVE 122± LF EXISTING 12" WATER MAIN

MH 05
STA. 13+30.20, 12.58' R
RIM EL. 29.53
INV. EL. 25.55(E)(8")
(PRIVATE)
SHALLOW MANHOLE

MH 10
STA. 15+71.46, 10.23' R
RIM EL. 30.33
INV. EL. 25.84(SW)(8")
(PRIVATE)
SHALLOW MANHOLE

MH 04
STA. 10+24.77, 0.00'
RIM EL. 28.50
INV. EL. 24.31(W)(8")
INV. EL. 24.21(S)(8")
(PRIVATE)
SHALLOW MANHOLE

MH 03
STA. 8+74.39, 10.06' R
RIM EL. 28.58
INV. EL. 23.60(N)(8")
INV. EL. 23.50(S)(8")
(PRIVATE)
SHALLOW MANHOLE

MH 02
STA. 4+97.66, 10.00' R
RIM EL. 28.62
INV. EL. 21.98(N)(8")
INV. EL. 21.88(S)(8")
(PRIVATE)

BUILDING No. 1 FFE 30.00
BUILDING No. 2 FFE 30.00
BUILDING No. 3 FFE 30.05
BUILDING No. 4 FFE 30.00
BUILDING No. 5 FFE 30.05
BUILDING No. 6 FFE 30.00
BUILDING No. 7 FFE 30.05
BUILDING No. 8 FFE 30.00
BUILDING No. 9 FFE 30.05
BUILDING No. 10 FFE 30.00
BUILDING No. 11 FFE 30.05
BUILDING No. 12 FFE 30.00
BUILDING No. 13 FFE 30.05
BUILDING No. 14 FFE 30.05
BUILDING No. 15 FFE 30.00
BUILDING No. 16 FFE 30.00
BUILDING No. 17 FFE 30.05
BUILDING No. 18 FFE 30.95
BUILDING No. 19 FFE 31.00
BUILDING No. 20 FFE 31.30
BUILDING No. 21 FFE 31.25
BUILDING No. 22 FFE 30.55
BUILDING No. 23 FFE 30.78
BUILDING No. 24 FFE 30.78
BUILDING No. 25 FFE 30.00
BUILDING No. 26 FFE 29.60
BUILDING No. 27 FFE 29.60
BUILDING No. 28 FFE 29.60
BUILDING No. 29 FFE 29.60
BUILDING No. 30 FFE 29.60
BUILDING No. 31 FFE 29.60
BUILDING No. 32 FFE 29.80
BUILDING No. 33 FFE 29.80
BUILDING No. 34 FFE 29.80
BUILDING No. 35 FFE 29.80
BUILDING No. 36 FFE 30.05
BUILDING No. 37 FFE 30.00
BUILDING No. 38 FFE 29.75
BUILDING No. 39 FFE 29.70
BUILDING No. 40 FFE 29.55
BUILDING No. 41 FFE 29.60
BUILDING No. 42 FFE 30.15
BUILDING No. 43 FFE 30.20
BUILDING No. 44 FFE 30.45
BUILDING No. 45 FFE 31.12
BUILDING No. 46 FFE 31.35
BUILDING No. 47 FFE 31.10
GARAGE No. 1 FFE 29.77
GARAGE No. 2 FFE 29.77
GARAGE No. 3 FFE 29.42
GARAGE No. 4 FFE 31.11
GARAGE No. 5 FFE 29.43
CLUBHOUSE FFE 30.00
TRASH COMPACTOR
FLOATING FOUNTAIN

FIRE HYDRANT
BSP #1
BSP #2
BSP #3
BSP #4
BSP #6
BSP #7
BSP #8
BSP #9
6" GATE VALVE
12" INSERTION VALVE

NOTE: ALL 8" WATER MAINS, FIRE HYDRANTS AND WATER SERVICES ON-SITE ARE PRIVATE

NOTE: ALL SANITARY MANHOLES, GRAVITY MAINS AND SERVICES ON-SITE ARE PRIVATE

CONNECT TO EXISTING SANITARY MANHOLE
INV EL 19.90±
RAISE RIM COVER TO EL 29.14
PROVIDE WATER TIGHT SEAL (KOR-N-SEAL)
CONTRACTOR TO FIELD VERIFY INVERT BEFORE CONSTRUCTION. (PRIVATE)

CONNECT TO 8" WATER MAIN STUBOUT
8" ABOVE GROUND MASTER METER
8" DOUBLE DETECTOR CHECK ASSEMBLY WITH BYPASS METER (BY UCNSB)
BSP # 1
(10'x25' UCNSB UTILITY EASEMENT)

EXISTING 20" RECLAIM MAIN

EXISTING 20" ABAONDONED RECLAIM MAIN

EXISTING 12" WATER MAIN (UCNSB)

EXISTING 6" FORCE MAIN (UCNSB)

EXISTING 20" RECLAIM MAIN (UCNSB)

EXISTING 20" ABAONDONED RECLAIM MAIN

20"x2" TAPPING SADDLE
20 LF 2" PE (PURPLE) RECLAIM SERVICE
2" RECLAIM IRRIGATION METER

REMOVED 6" FORCE MAIN

CONNECT TO EXISTING 6" FM

SUGAR MILL DRIVE
(100' R/W) (SPEED LIMIT - 45 MPH)

RECLAIM WATER CAUTION SIGN (12"x18")

SARINA LAKES ENTRANCE

8" ABOVE GROUND MASTER METER
8" DOUBLE DETECTOR CHECK ASSEMBLY WITH BYPASS METER (BY UCNSB)

WET TAP EXISTING 12" WATER MAIN WITH 12"x8" TAPPING SLEEVE, VALVE AND VALVE BOX
7 LF 8" PVC CLASS 150 (DR 18) WATER MAIN (36" MINIMUM COVER)
BSP #5
(20'x10' UCNSB UTILITY EASEMENT)

GENERAL UTILITY NOTE

1. THERE WILL NOT BE ANY OVERHEAD UTILITY AND SERVICE LINES ASSOCIATED WITH THIS PROJECT. ALL UTILITY LINES AND SERVICES ARE REQUIRED TO BE INSTALLED UNDERGROUND AT THE OWNER'S, DEVELOPER'S EXPENSE. THIS APPLIES TO ALL CABLE, CONDUITS, OR WIRES FORMING PART OF AN ELECTRICAL DISTRIBUTION SYSTEM, INCLUDING SERVICE LINES TO INDIVIDUAL PROPERTIES NECESSARY TO SERVE NEW DEVELOPMENT, OR EXISTING DEVELOPMENT WHERE NEW OR UPGRADED SERVICE IS BEING INSTALLED.
2. WATER MAIN AND GRAVITY SEWER SYSTEMS WITHIN THE PAVED AREAS WILL HAVE TO HAVE THE LIFTS OF BASE ESTABLISHED FOR TESTING AND CERTIFICATIONS FOR ACCEPTANCE.
3. ALL SANITARY SEWER MANHOLES, GRAVITY MAINS AND SERVICES ARE PRIVATELY OWNED AND MAINTAINED.
4. THE 8" INTERNAL LOOPING WATER MAIN IS A PRIVATELY OWNED AND MAINTAINED.
5. 2.5" FIRE LINE DDCVA SHALL BE PROVIDED BY DEVELOPER.

REQUIRED FIRE FLOW:

"SITE DESIGNED IN ACCORDANCE TO THE FLORIDA FIRE PREVENTION CODE, 7TH EDITION.

FLORIDA BUILDING CODE CONSTRUCTION TYPE:	VB - UN-PROTECTED
FIRE AREA:	4,768 SF
REQUIRED FIRE FLOW:	1,500 GPM @ 4 HOURS

UTILITY LEGEND

- PROPOSED 11.25° BEND
- PROPOSED 22.5° BEND
- PROPOSED 45° BEND
- PROPOSED 90° BEND
- PROPOSED TEE
- PROPOSED GATE VALVE
- PROPOSED FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE
- PROPOSED SANITARY SEWER MANHOLE
- 2.5"S — PROPOSED 8"x4" TEE, 4"x2.5" REDUCER, 2.5" GATE VALVE, 2.5" PVC DR-14, 2.5" DOUBLE DETECTOR CHECK VALVE ASSEMBLY (FIRE DDCVA BY DEVELOPER) (PER CITY DETAIL PW-03, SHEET No. 34) WITH ATTACHED FIRE DEPARTMENT CONNECTION WITH (2 - 2.5" WYE) STANDARD FDC THREADS (NO LOCKING CAPS)
- 12WM — PROPOSED 12" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- 8WM — PROPOSED 8" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- 6WM — PROPOSED 6" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- 1.5WS — PROPOSED 1.5" PE 4710 (SDR 9) WATER SERVICE (30" MINIMUM COVER) (INCLUDE 8"x2" TAPPING SADDLE & 2" GATE VALVE & 2"x1.5" REDUCER)
- (0.40% MIN.) 8SAN — PROPOSED 8" PVC SDR 26 SANITARY MAIN SLOPE @ 0.40% MIN.
- (1.0% MIN.) 6SAN — PROPOSED 6" PVC SDR 26 SANITARY SERVICE WITH 2.0% MIN. SLOPE

WARNING !!
CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES, GAS MAINS AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

One Nation... One Number... 811 Know what's below. Call before you dig.

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS
8/16/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

OVERALL UTILITY PLAN
THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEGIN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

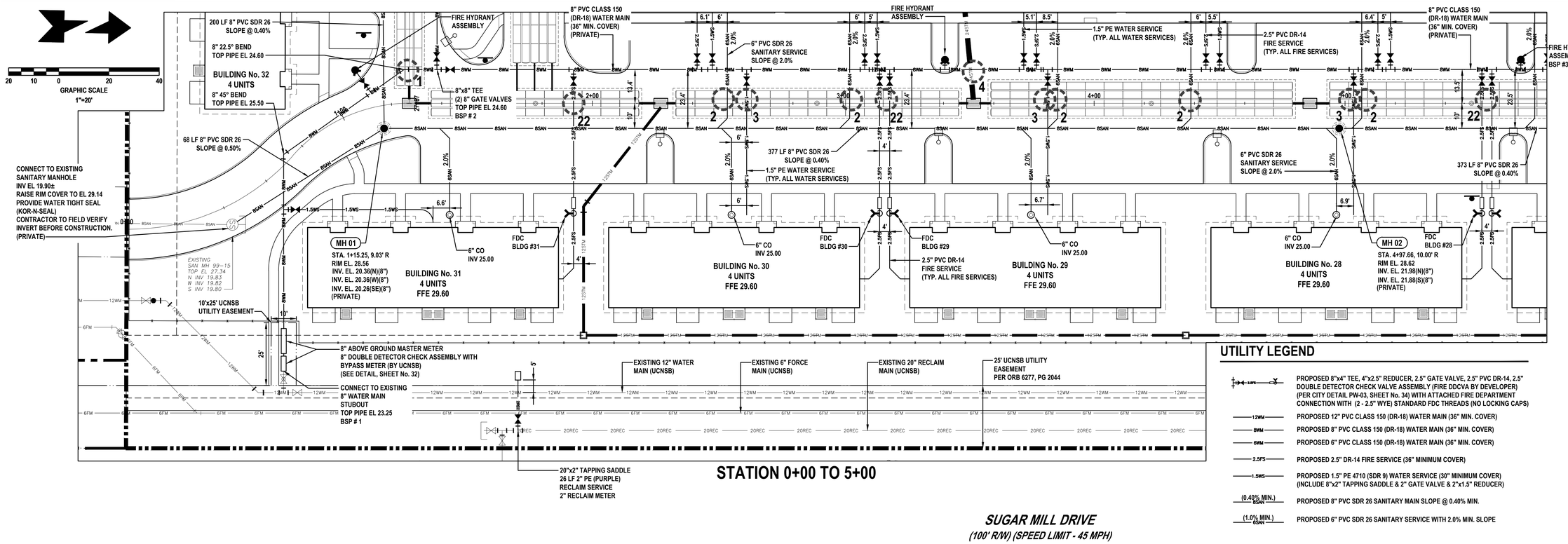
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 50'

DRAWING NUMBER

24

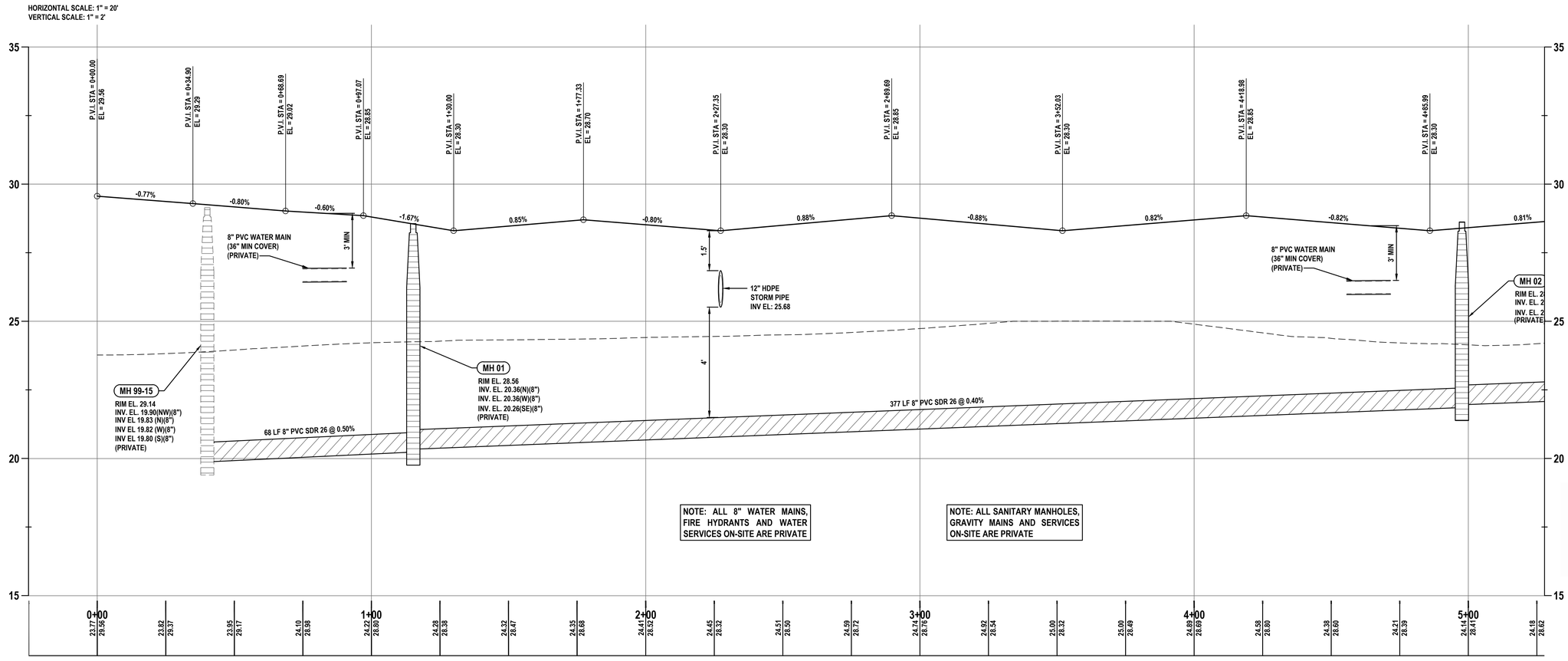


STATION 0+00 TO 5+00

SUGAR MILL DRIVE
(100' R/W) (SPEED LIMIT - 45 MPH)

UTILITY LEGEND

- PROPOSED 8"x4" TEE, 4"x2.5" REDUCER, 2.5" GATE VALVE, 2.5" PVC DR-14, 2.5" DOUBLE DETECTOR CHECK VALVE ASSEMBLY (FIRE DDCVA BY DEVELOPER) (PER CITY DETAIL PW-03, SHEET No. 34) WITH ATTACHED FIRE DEPARTMENT CONNECTION WITH (2 - 2.5" WYE) STANDARD FDC THREADS (NO LOCKING CAPS)
- PROPOSED 12" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- PROPOSED 8" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- PROPOSED 6" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- PROPOSED 2.5" DR-14 FIRE SERVICE (36" MINIMUM COVER)
- PROPOSED 1.5" PE 4710 (SDR 9) WATER SERVICE (30" MINIMUM COVER) (INCLUDE 8"x2" TAPPING SADDLE & 2" GATE VALVE & 2"x1.5" REDUCER)
- PROPOSED 8" PVC SDR 26 SANITARY MAIN SLOPE @ 0.40% MIN.
- PROPOSED 6" PVC SDR 26 SANITARY SERVICE WITH 2.0% MIN. SLOPE



NOTE: ALL 8" WATER MAINS, FIRE HYDRANTS AND WATER SERVICES ON-SITE ARE PRIVATE

NOTE: ALL SANITARY MANHOLES, GRAVITY MAINS AND SERVICES ON-SITE ARE PRIVATE

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

PLAN AND PROFILE STA. 0+00 TO 5+00

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

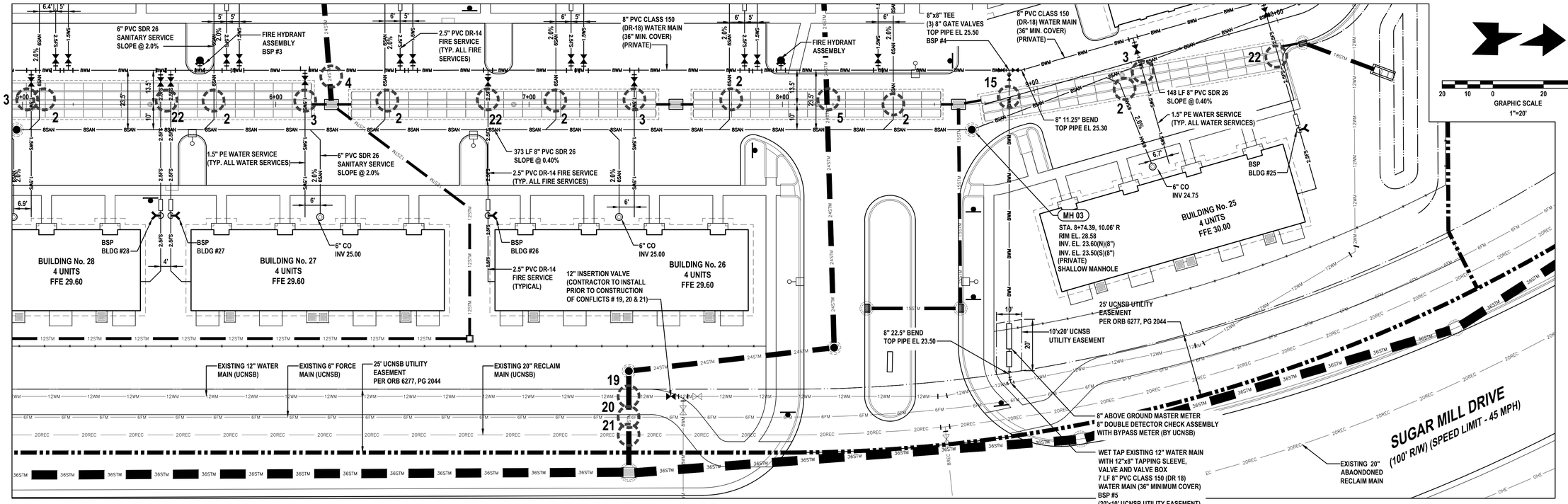
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

25

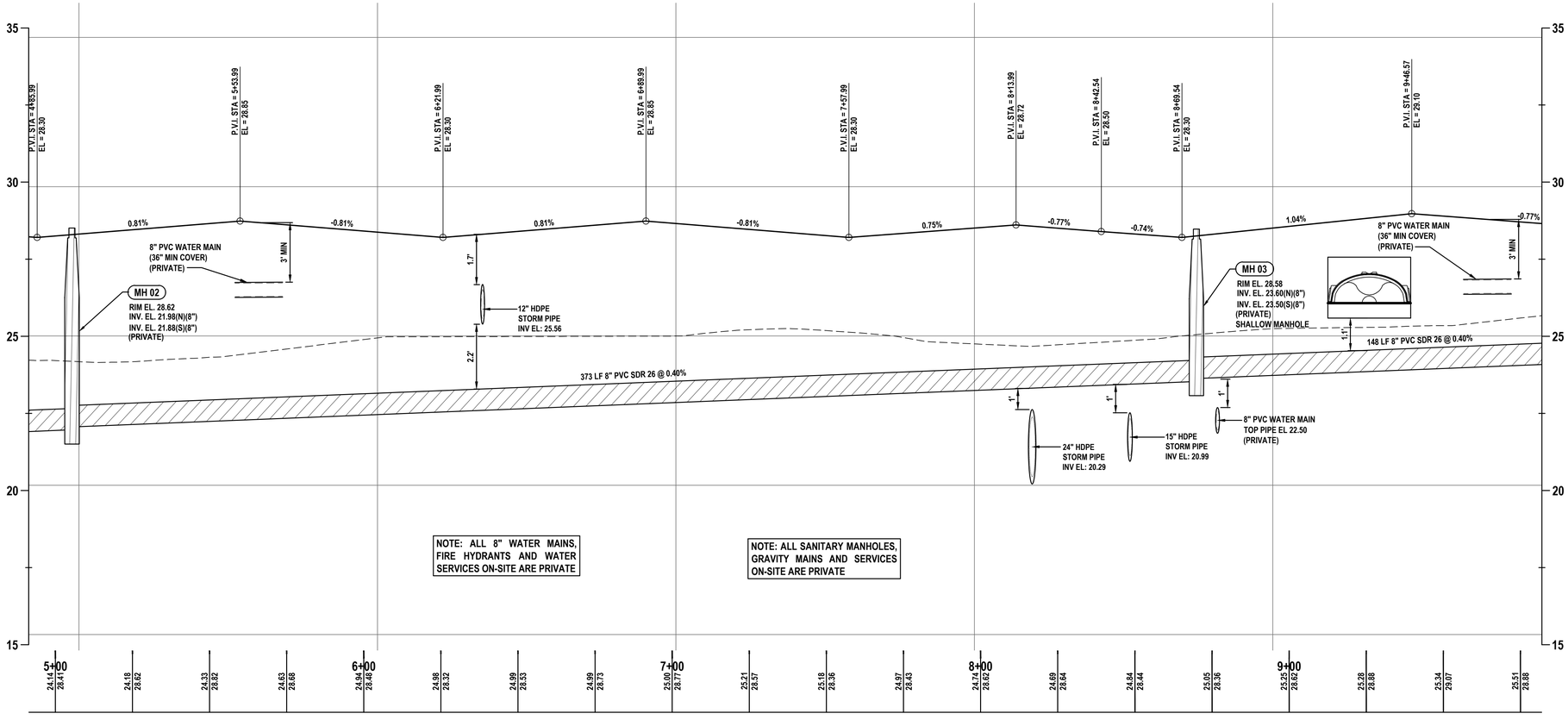


STATION 5+00 TO 9+50

LEGEND

UCNSB UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



NOTE: ALL 8" WATER MAINS, FIRE HYDRANTS AND WATER SERVICES ON-SITE ARE PRIVATE

NOTE: ALL SANITARY MANHOLES, GRAVITY MAINS AND SERVICES ON-SITE ARE PRIVATE

UTILITY LEGEND

- 1.5FS — PROPOSED 8"x4" TEE, 4"x2.5" REDUCER, 2.5" GATE VALVE, 2.5" PVC DR-14, 2.5" DOUBLE DETECTOR CHECK VALVE ASSEMBLY (FIRE DDCVA BY DEVELOPER) (PER CITY DETAIL PW-03, SHEET No. 34) WITH ATTACHED FIRE DEPARTMENT CONNECTION WITH (2 - 2.5" WYE) STANDARD FDC THREADS (NO LOCKING CAPS)
- 12WM — PROPOSED 12" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- 8WM — PROPOSED 8" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- 6WM — PROPOSED 6" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- 2.5FS — PROPOSED 2.5" PVC DR-14 FIRE SERVICE (36" MINIMUM COVER)
- 1.5WS — PROPOSED 1.5" PE 4710 (SDR 9) WATER SERVICE (30" MINIMUM COVER) (INCLUDE 8"x2" TAPPING SADDLE & 2" GATE VALVE & 2"x1.5" REDUCER)
- (0.40% MIN.) 8SAN — PROPOSED 8" PVC SDR 26 SANITARY MAIN SLOPE @ 0.40% MIN.
- (1.0% MIN.) 6SAN — PROPOSED 6" PVC SDR 26 SANITARY SERVICE WITH 2.0% MIN. SLOPE

WARNING !!

CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES, GAS MAINS AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS
8/16/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.NewkirkEngineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

PLAN AND PROFILE STA. 5+00 TO 9+50

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

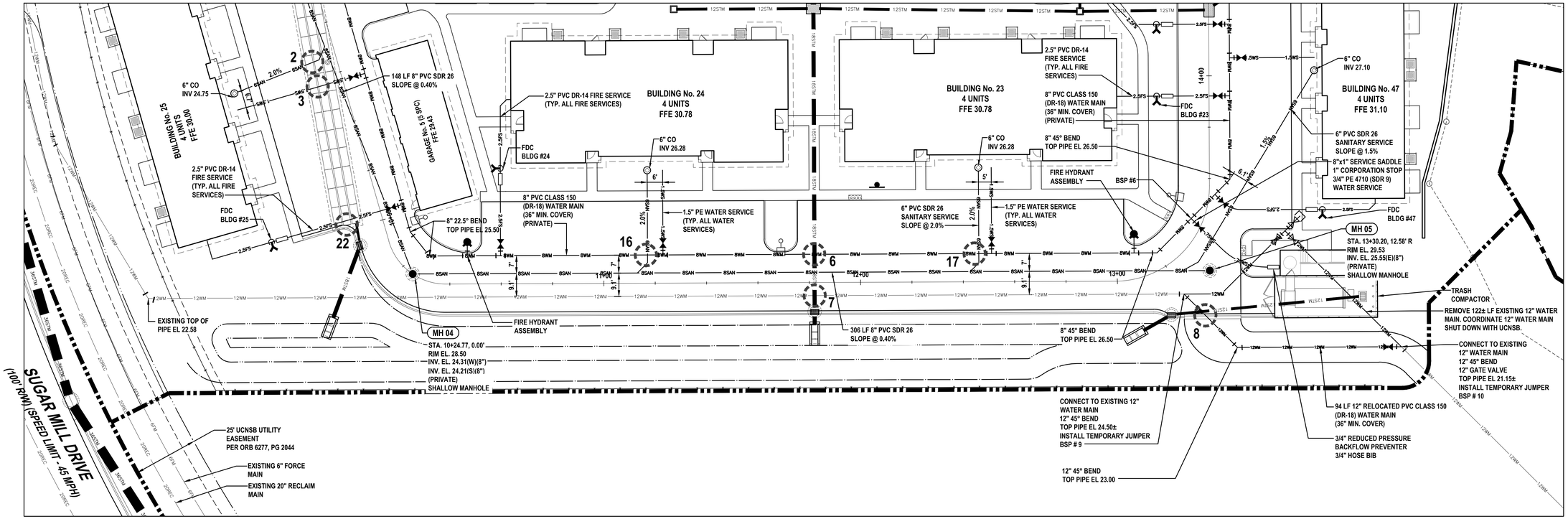
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

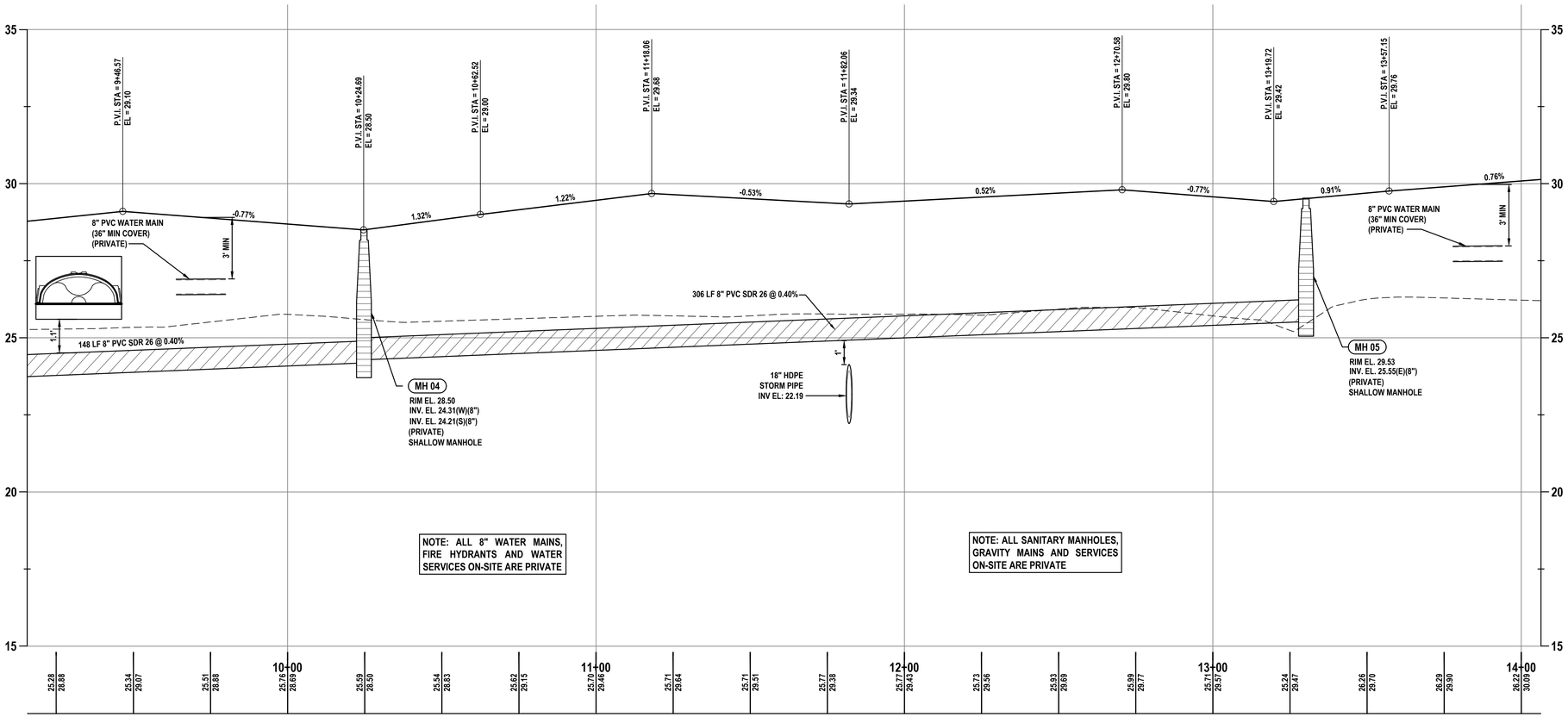
DRAWING NUMBER

26



STATION 9+50 TO 13+50

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



NOTE: ALL 8" WATER MAINS, FIRE HYDRANTS AND WATER SERVICES ON-SITE ARE PRIVATE

NOTE: ALL SANITARY MANHOLES, GRAVITY MAINS AND SERVICES ON-SITE ARE PRIVATE

GRAPHIC SCALE
20 10 0 20 40
1"=20'

UTILITY LEGEND

2.5FS	PROPOSED 8"x4" TEE, 4"x2.5" REDUCER, 2.5" GATE VALVE, 2.5" PVC DR-14, 2.5" DOUBLE DETECTOR CHECK VALVE ASSEMBLY (FIRE DDCVA PER DEVELOPER) (PER CITY DETAIL PW-03, SHEET No. 34) WITH ATTACHED FIRE DEPARTMENT CONNECTION WITH (2 - 2.5" WYE) STANDARD FDC THREADS (NO LOCKING CAPS)
12WM	PROPOSED 12" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
8WM	PROPOSED 8" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
6WM	PROPOSED 6" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
2.5FS	PROPOSED 2.5" PVC DR-14 FIRE SERVICE (36" MINIMUM COVER)
1.5WS	PROPOSED 1.5" PE 4710 (SDR 9) WATER SERVICE (30" MINIMUM COVER) (INCLUDE 8"x2" TAPPING SADDLE & 2" GATE VALVE & 2"x1.5" REDUCER)
(0.40% MIN.) 8SAN	PROPOSED 8" PVC SDR 26 SANITARY MAIN SLOPE @ 0.40% MIN.
(1.0% MIN.) 6SAN	PROPOSED 6" PVC SDR 26 SANITARY SERVICE WITH 2.0% MIN. SLOPE

LEGEND

UCNSB UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH



WARNING !!

CONTRACTOR SHALL TAKE ALL PRECAUTIONS DURING CONSTRUCTION TO AVOID CONTACT WITH EXISTING UNDERGROUND UTILITIES, GAS MAINS AND OVERHEAD ELECTRIC IN THE RIGHT-OF-WAY.

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

PLAN AND PROFILE
STA. 9+50 TO 13+50
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

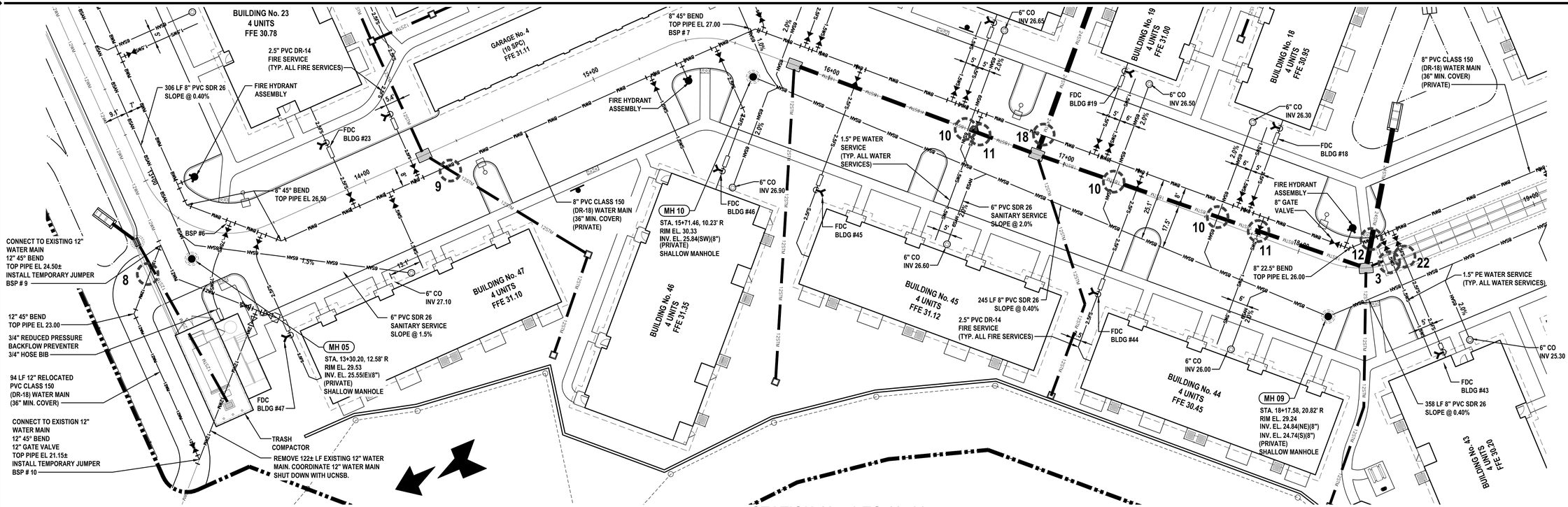
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

27



HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

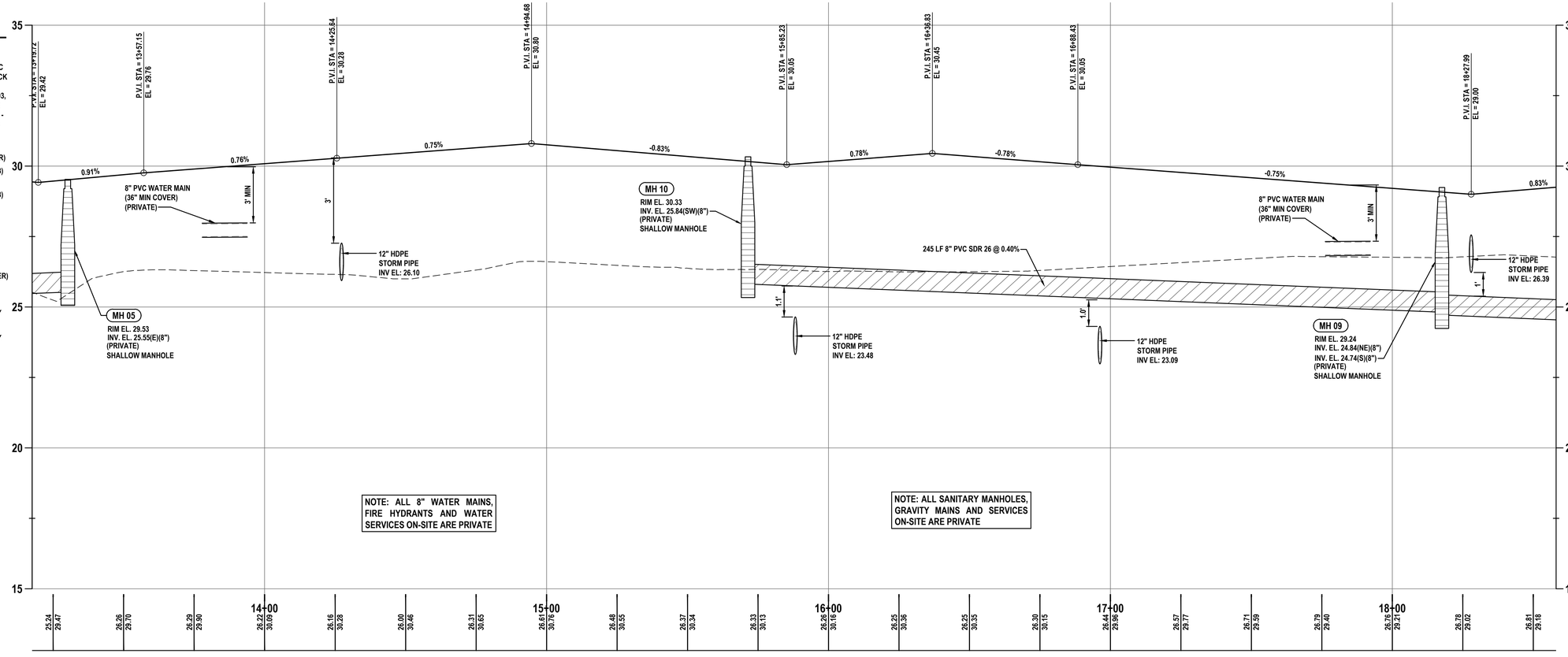
STATION 13+50 TO 18+00

LEGEND

UCNSB UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH

UTILITY LEGEND

- PROPOSED 8"x4" TEE, 4"x2.5" REDUCER, 2.5" GATE VALVE, 2.5" PVC DR-14, 2.5" DOUBLE DETECTOR CHECK VALVE ASSEMBLY (FIRE DDCVA BY DEVELOPER) (PER CITY DETAIL PW-03, SHEET No. 34) WITH ATTACHED FIRE DEPARTMENT CONNECTION WITH (2 - 2.5" WYE) STANDARD FDC THREADS (NO LOCKING CAPS)
- 12WM — PROPOSED 12" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- 8WM — PROPOSED 8" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- 6WM — PROPOSED 6" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- 2.5FS — PROPOSED 2.5" PVC DR-14 FIRE SERVICE (36" MINIMUM COVER)
- 1.5WS — PROPOSED 1.5" PE 4710 (SDR 9) WATER SERVICE (30" MINIMUM COVER) (INCLUDE 2" TAPPING SADDLE & 2" GATE VALVE & 2"x1.5" REDUCER)
- (0.40% MIN.) 8SAN — PROPOSED 8" PVC SDR 26 SANITARY MAIN SLOPE @ 0.40% MIN.
- (1.0% MIN.) 6SAN — PROPOSED 6" PVC SDR 26 SANITARY SERVICE WITH 2.0% MIN. SLOPE



NOTE: ALL 8" WATER MAINS, FIRE HYDRANTS AND WATER SERVICES ON-SITE ARE PRIVATE

NOTE: ALL SANITARY MANHOLES, GRAVITY MAINS AND SERVICES ON-SITE ARE PRIVATE

One Nation... One Number... 811 Know what's below. Call before you dig.

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.NewkirkEngineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

PLAN AND PROFILE
STA. 13+50 TO 18+00
THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

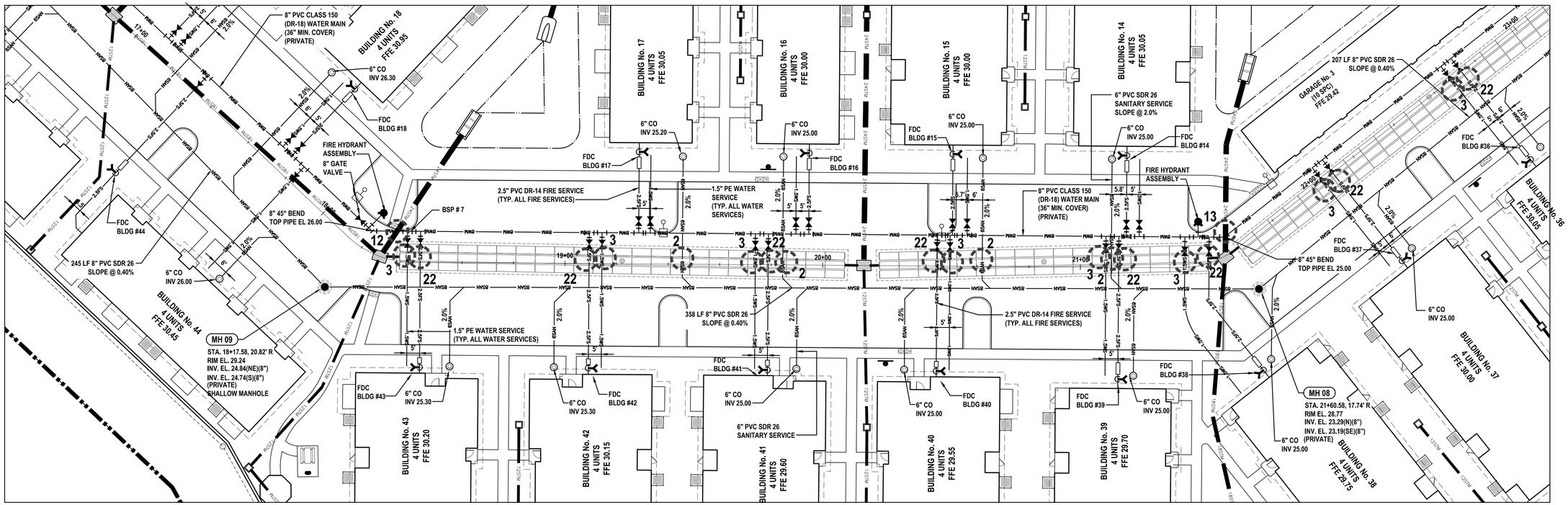
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

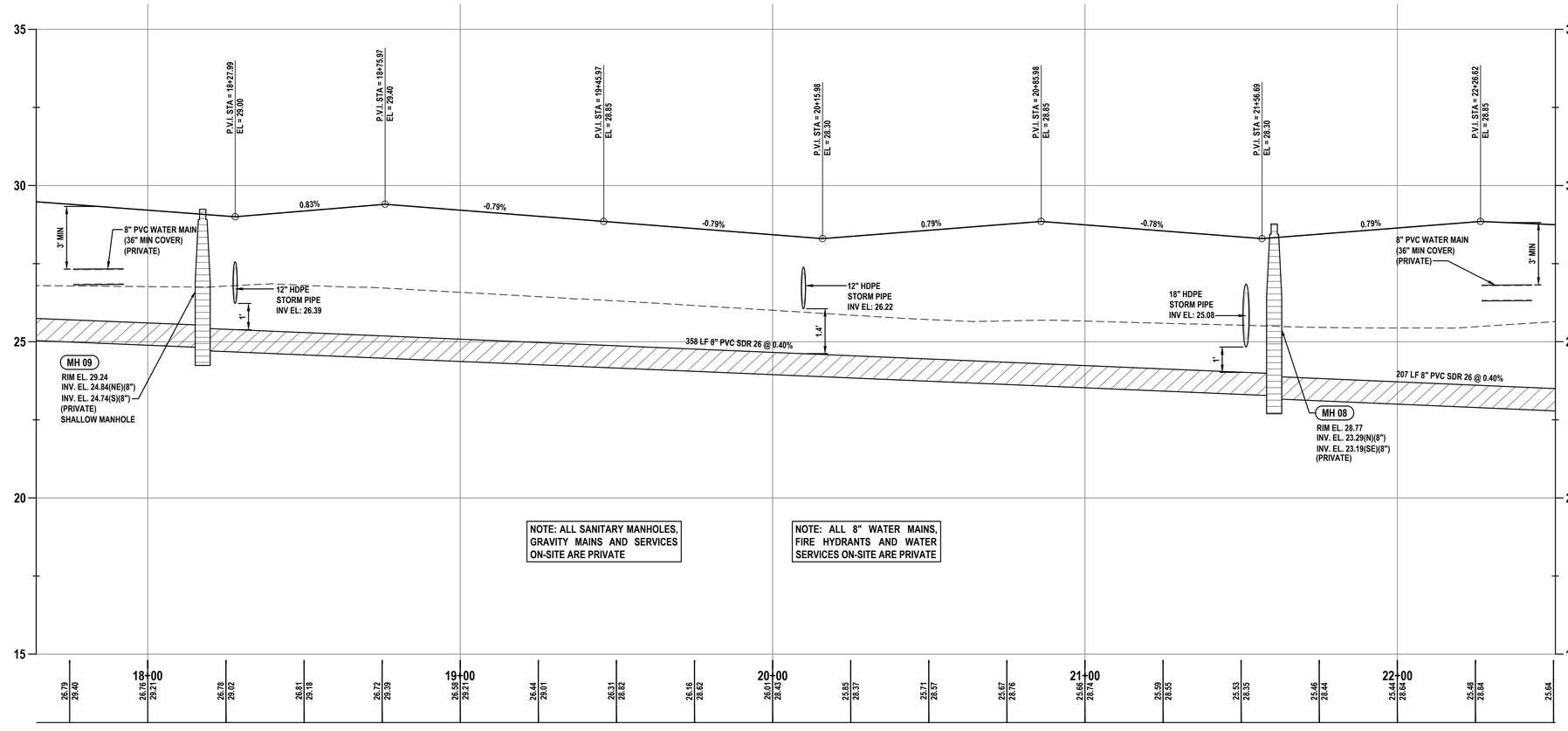
DRAWING NUMBER

28



STATION 18+00 TO 22+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



NOTE: ALL SANITARY MANHOLES, GRAVITY MAINS AND SERVICES ON-SITE ARE PRIVATE

NOTE: ALL 8" WATER MAINS, FIRE HYDRANTS AND WATER SERVICES ON-SITE ARE PRIVATE

GRAPHIC SCALE
1"=20'
20 10 0 20 40

UTILITY LEGEND

2.5FS	PROPOSED 8"x4" TEE, 4"x2.5" REDUCER, 2.5" GATE VALVE, 2.5" PVC DR-14, 2.5" DOUBLE DETECTOR CHECK VALVE ASSEMBLY (FIRE DDCVA BY DEVELOPER) (PER CITY DETAIL PW-03, SHEET No. 34) WITH ATTACHED FIRE DEPARTMENT CONNECTION WITH (2 - 2.5" WYE) STANDARD FDC THREADS (NO LOCKING CAPS)
12WM	PROPOSED 12" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
8WM	PROPOSED 8" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
6WM	PROPOSED 6" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
2.5FS	PROPOSED PVC 2.5" DR-14 FIRE SERVICE (36" MINIMUM COVER)
1.5WS	PROPOSED 1.5" PE 4710 (SDR 9) WATER SERVICE (30" MINIMUM COVER) (INCLUDE 8"x2" TAPPING SADDLE & 2" GATE VALVE & 2"x1.5" REDUCER)
(0.40% MIN.) 6SAN	PROPOSED 8" PVC SDR 26 SANITARY MAIN SLOPE @ 0.40% MIN.
(1.0% MIN.) 6SAN	PROPOSED 6" PVC SDR 26 SANITARY SERVICE WITH 2.0% MIN. SLOPE

LEGEND

UCNSB UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH

One Nation... One Number... 811
Know what's below. Call before you dig.

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering, Transportation, CEI & Landscape Architecture
NEWKIRK ENGINEERING INC.

PLAN AND PROFILE STA. 18+00 TO 22+00

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

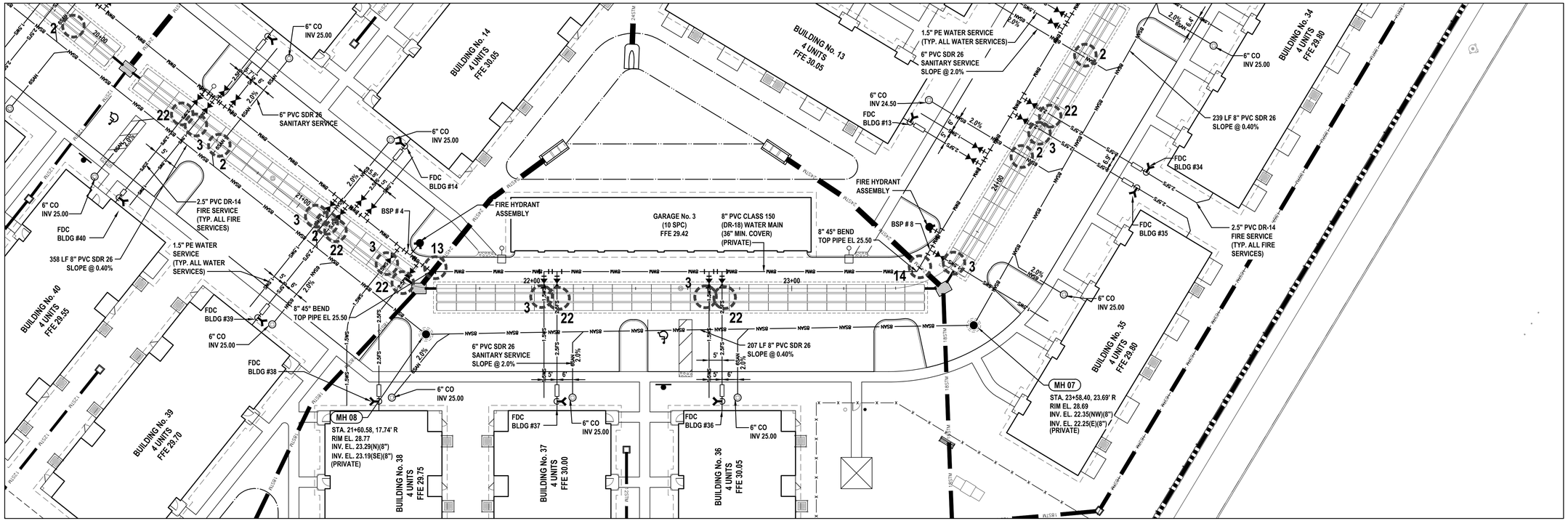
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

29



STATION 22+00 TO 24+50

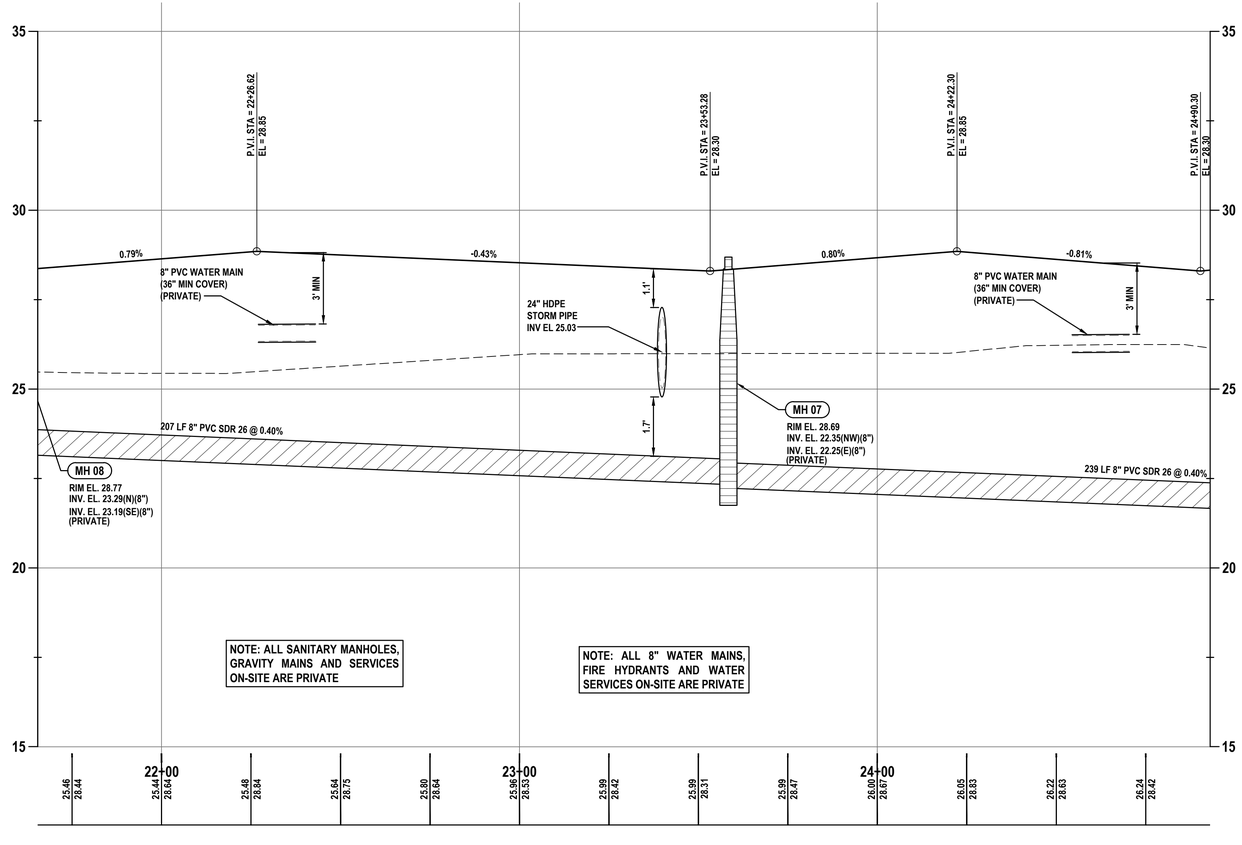
UTILITY LEGEND

1.5PS	PROPOSED 8"x4" TEE, 4"x2.5" REDUCER, 2.5" GATE VALVE, 2.5" PVC DR-14, 2.5" DOUBLE DETECTOR CHECK VALVE ASSEMBLY (FIRE DDCVA BY DEVELOPER) (PER CITY DETAIL PW-03, SHEET No. 34) WITH ATTACHED FIRE DEPARTMENT CONNECTION WITH (2 - 2.5" WYE) STANDARD FDC THREADS (NO LOCKING CAPS)
12WM	PROPOSED 12" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
8WM	PROPOSED 8" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
6WM	PROPOSED 6" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
2.5FS	PROPOSED PVC 2.5" DR-14 FIRE SERVICE (36" MINIMUM COVER)
1.5WS	PROPOSED 1.5" PE 4710 (SDR 9) WATER SERVICE (30" MINIMUM COVER) (INCLUDE 8"x2" TAPPING SADDLE & 2" GATE VALVE & 2"x1.5" REDUCER)
(0.40% MIN.) 8SAN	PROPOSED 8" PVC SDR 26 SANITARY MAIN SLOPE @ 0.40% MIN.
(1.0% MIN.) 6SAN	PROPOSED 6" PVC SDR 26 SANITARY SERVICE WITH 2.0% MIN. SLOPE

LEGEND

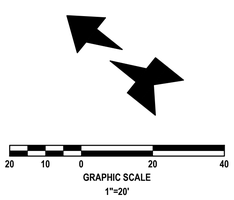
UCNSB UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



NOTE: ALL SANITARY MANHOLES, GRAVITY MAINS AND SERVICES ON-SITE ARE PRIVATE

NOTE: ALL 8" WATER MAINS, FIRE HYDRANTS AND WATER SERVICES ON-SITE ARE PRIVATE



One Nation... One Number... 811
Know what's below. Call before you dig.

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

PLAN AND PROFILE STA. 22+00 TO 24+50

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

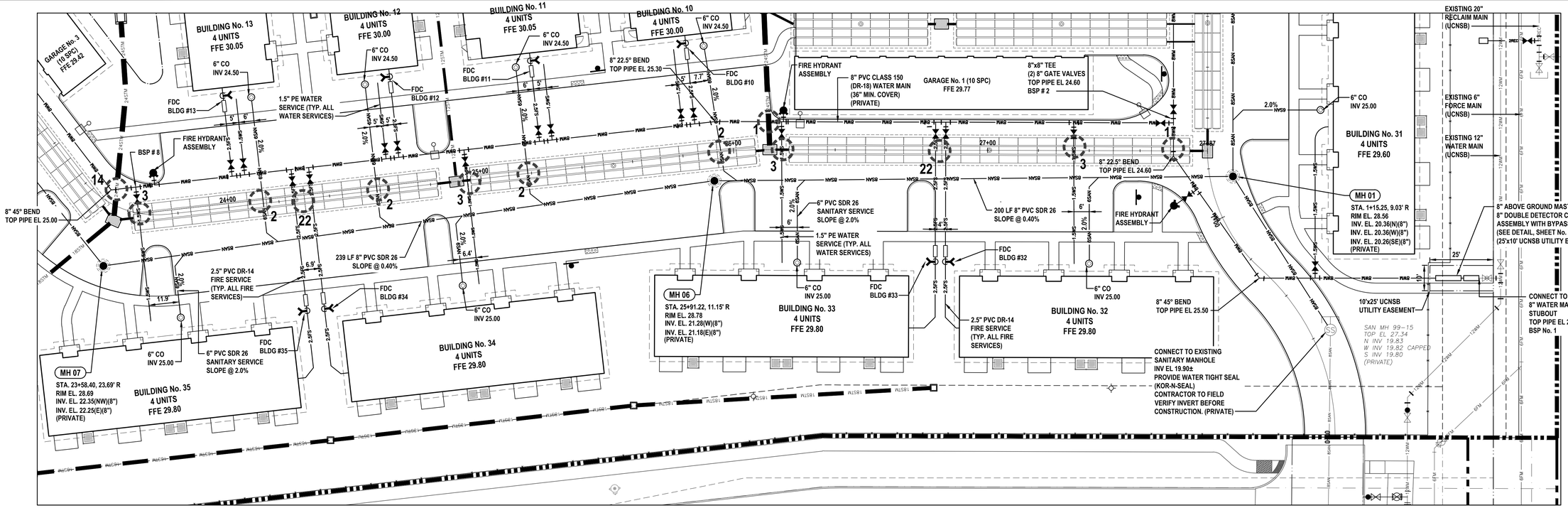
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

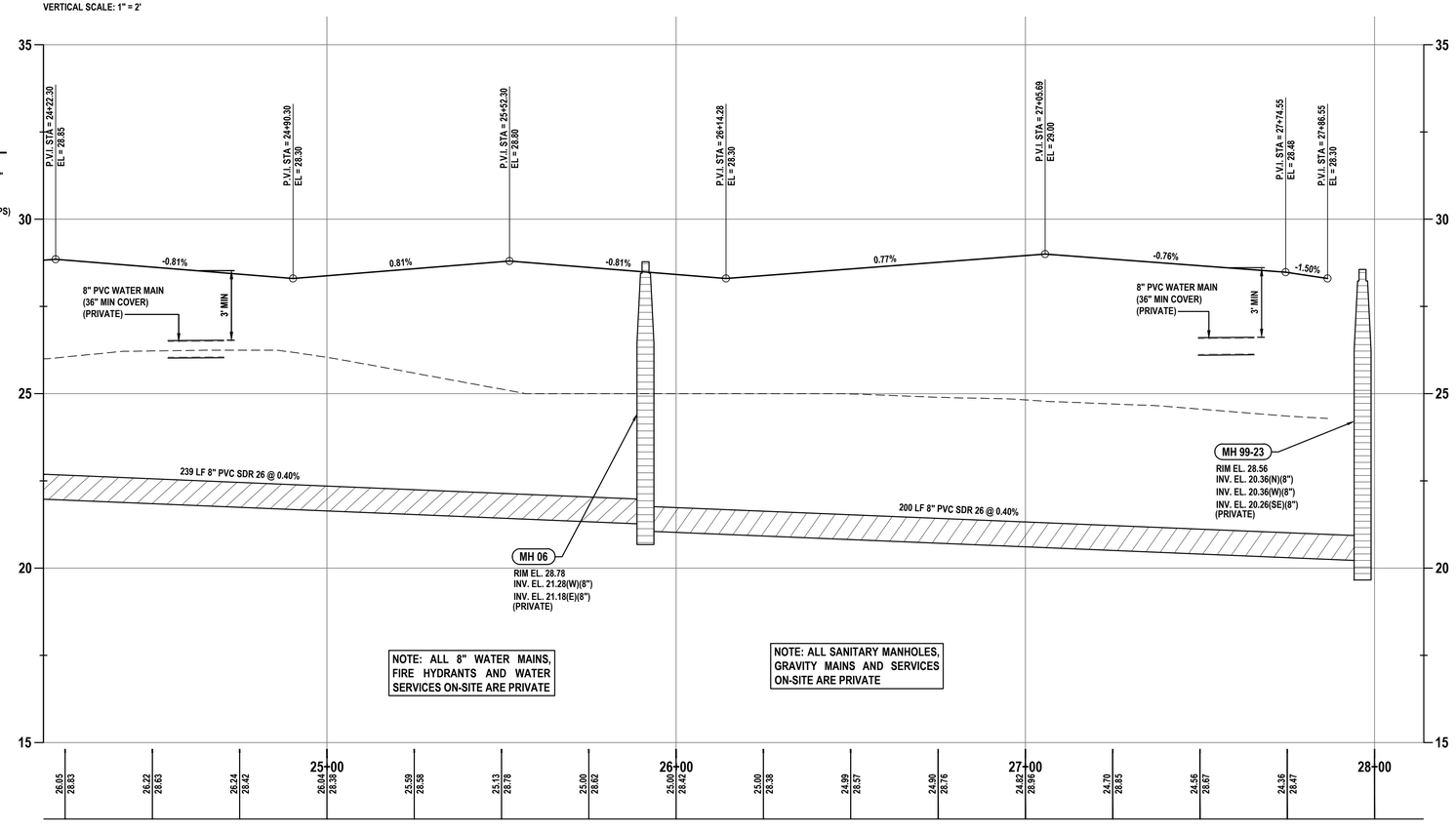
DRAWING NUMBER

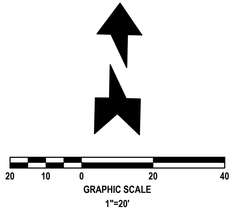
30



STATION 24+50 TO 27+87

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'





UTILITY LEGEND

- PROPOSED 8"x4" TEE, 4"x2.5" REDUCER, 2.5" GATE VALVE, 2.5" PVC DR-14, 2.5" DOUBLE DETECTOR CHECK VALVE ASSEMBLY (FIRE DDCVA BY DEVELOPER) (PER CITY DETAIL PW-03, SHEET No. 34) WITH ATTACHED FIRE DEPARTMENT CONNECTION WITH (2 - 2.5" WYE) STANDARD FDC THREADS (NO LOCKING CAPS)
- 12WM — PROPOSED 12" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- 8WM — PROPOSED 8" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- 6WM — PROPOSED 6" PVC CLASS 150 (DR-18) WATER MAIN (36" MIN. COVER)
- 2.5FS — PROPOSED PVC 2.5" DR-14 FIRE SERVICE (36" MINIMUM COVER)
- 1.5WS — PROPOSED 1.5" PE 4710 (SDR 9) WATER SERVICE (30" MINIMUM COVER) (INCLUDE 8"x2" TAPPING SADDLE & 2" GATE VALVE & 2"x1.5" REDUCER)
- (0.40% MIN.) 8SAN — PROPOSED 8" PVC SDR 26 SANITARY MAIN SLOPE @ 0.40% MIN.
- (1.0% MIN.) 6SAN — PROPOSED 6" PVC SDR 26 SANITARY SERVICE WITH 2.0% MIN. SLOPE

LEGEND

UCNSB UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH



REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013

Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

PLAN AND PROFILE STA. 24+50 TO 27+87

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

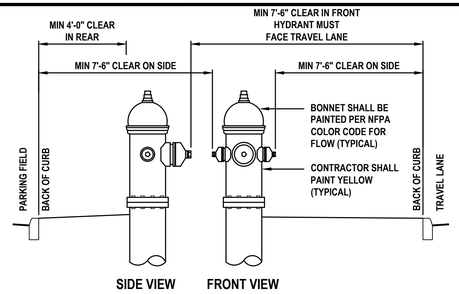
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

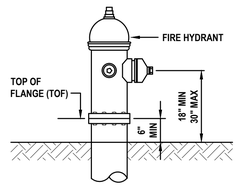
31



SIDE VIEW FRONT VIEW

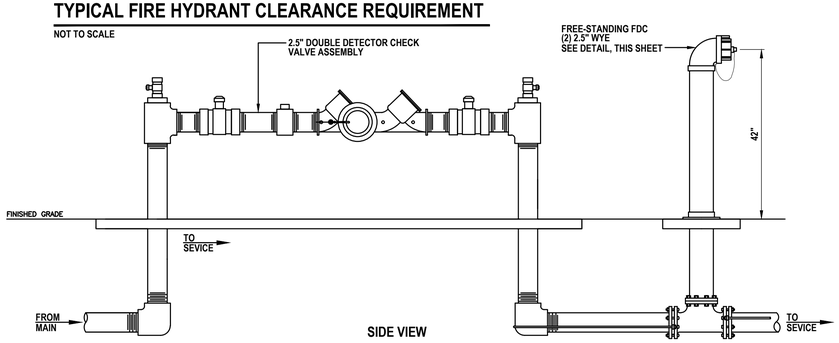
TYPICAL FIRE HYDRANT CLEARANCE REQUIREMENT

NOT TO SCALE



TOP OF FLANGE REFERENCE POINT DETAIL

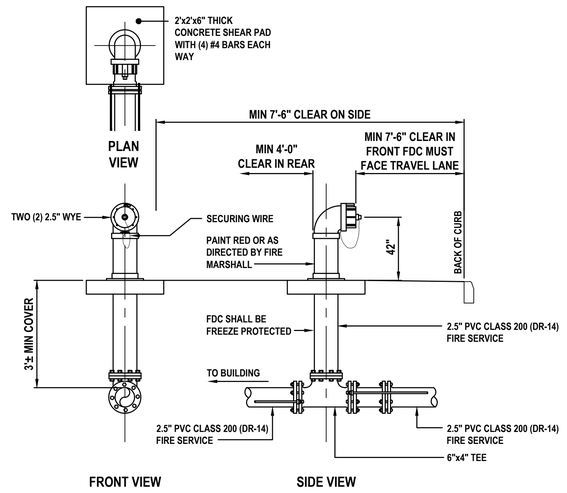
NOT TO SCALE



SIDE VIEW

DDC TO FDC DETAIL

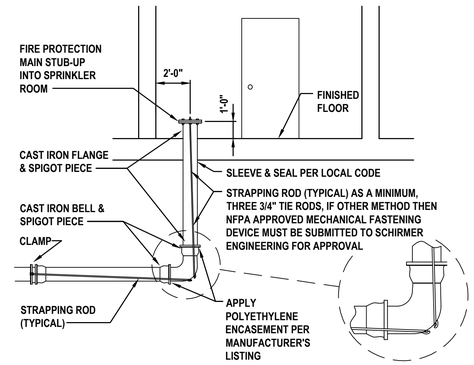
NOT TO SCALE



FRONT VIEW SIDE VIEW

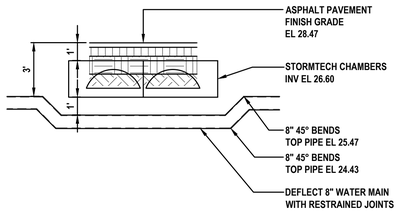
FDC (FREE STANDING) DETAIL

NOT TO SCALE

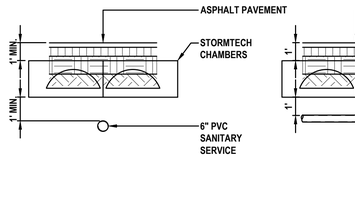


UNDERGROUND RESTRAINT DETAIL

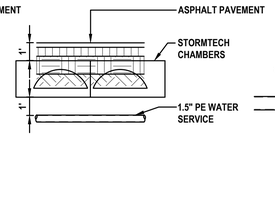
NOT TO SCALE



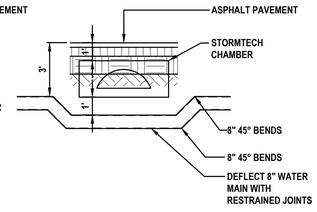
CONFLICT POINT 1



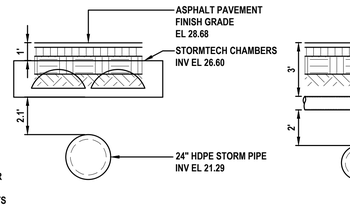
CONFLICT POINT 2



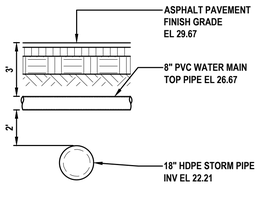
CONFLICT POINT 3



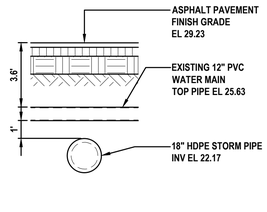
CONFLICT POINT 4



CONFLICT POINT 5



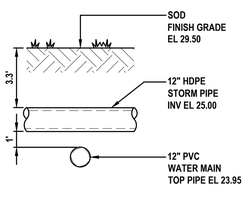
CONFLICT POINT 6



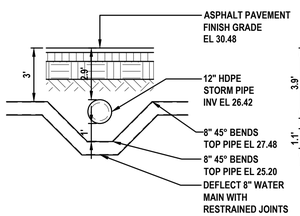
CONFLICT POINT 7

UTILITY CONFLICT DETAIL

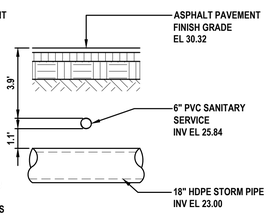
NOT TO SCALE



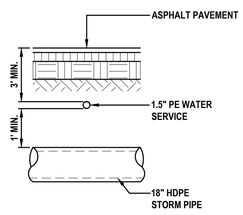
CONFLICT POINT 8



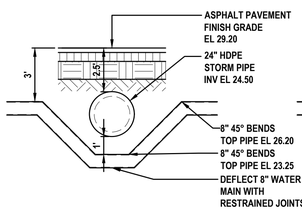
CONFLICT POINT 9



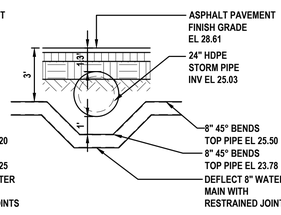
CONFLICT POINT 10



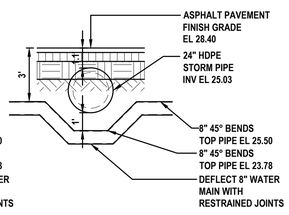
CONFLICT POINT 11



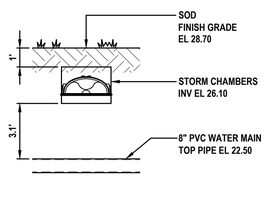
CONFLICT POINT 12



CONFLICT POINT 13



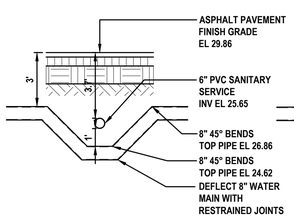
CONFLICT POINT 14



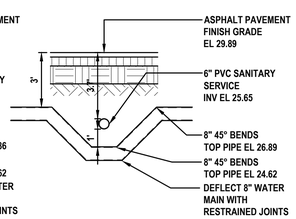
CONFLICT POINT 15

UTILITY CONFLICT DETAIL

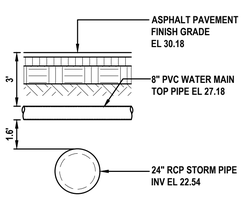
NOT TO SCALE



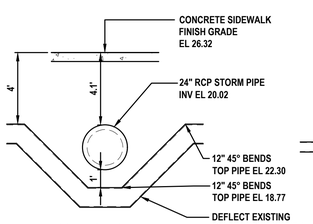
CONFLICT POINT 16



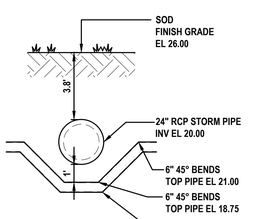
CONFLICT POINT 17



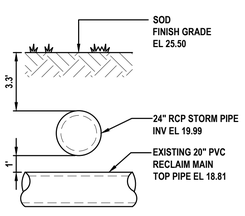
CONFLICT POINT 18



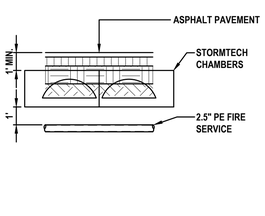
CONFLICT POINT 19



CONFLICT POINT 20



CONFLICT POINT 21



CONFLICT POINT 22

UTILITY CONFLICT DETAIL

NOT TO SCALE

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013

Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

UTILITY DETAILS AND NOTES

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

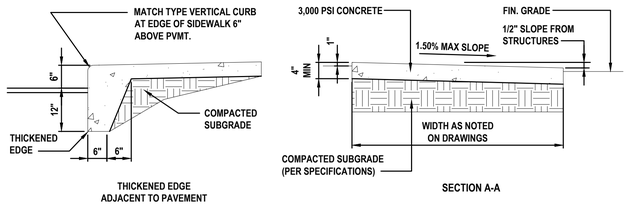
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

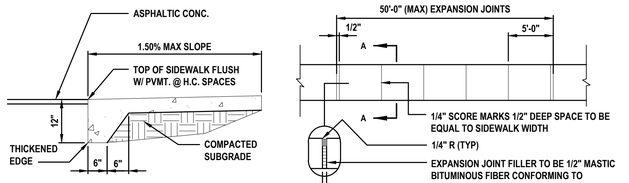
32

CONCRETE WALKS SHALL BE 4 INCHES THICK, CLASS I, HAVING A 3,000 PSI STRENGTH @ 28 DAYS, POURED OVER PROPERLY PREPARED SUBGRADE. ALL CONCRETE SIDEWALKS SHALL BE 8 INCHES THICK ACROSS DRIVEWAYS. 1/2 INCH EXPANSION JOINTS SHALL BE PLACED AT A MAXIMUM OF 5'. CRACK CONTROL JOINTS SHALL BE 5' ON CENTERS.



THICKENED EDGE
ADJACENT TO PAVEMENT

SECTION A-A

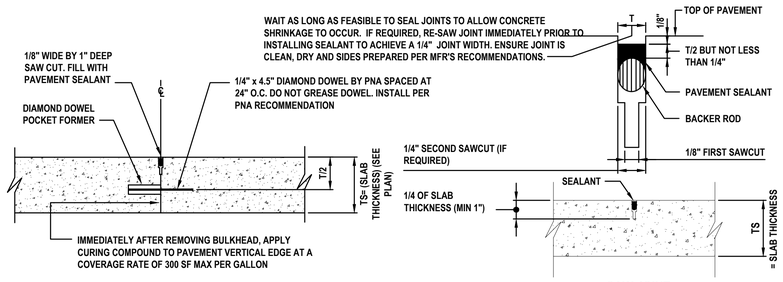


THICKENED EDGE
ADJACENT TO ADA WALKWAY

PLAN

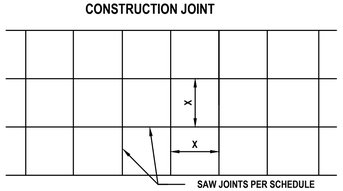
SIDEWALK DETAILS

NOT TO SCALE



CONSTRUCTION JOINT

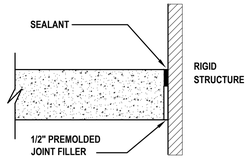
SAW JOINT



PLAN VIEW CONCRETE PAVEMENT

SAW CUT SCHEDULE

X = 12'x12'x2" DEEP

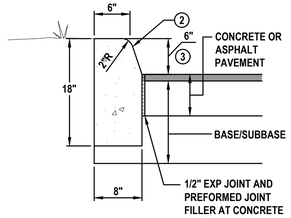


PROVIDE ISOLATION JOINT WHERE CONCRETE PAVEMENT ABUTS A RIGID STRUCTURE

ISOLATION JOINT

CONCRETE PAVEMENT JOINT DETAILS

NOT TO SCALE



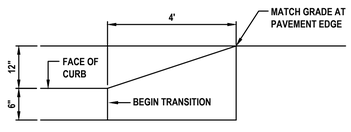
TYPE "D" CURB DETAIL

NOT TO SCALE

1. WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT.
2. PROVIDE CONTRACTION JOINTS @ 10' O.C. AND EXPANSION JOINTS @ 50' O.C. ALL JOINTS SEALED PER SPECIFICATIONS
3. 6" HEIGHT SHALL BE UNIFORM, IF HEIGHT VARIES ± 1/2" THEN CURB WILL BE REPLACED AT THE DISCRETION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

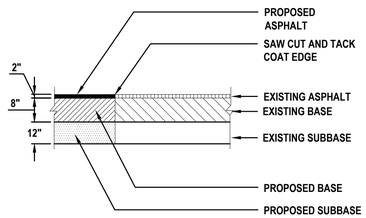
CURB CONSTRUCTION NOTES

1. ALL CURBS TO BE CONSTRUCTED OF 28 DAY, 3000 P.S.I. CONCRETE.
2. 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED EVERY 50', CONSTRUCTION JOINT REQUIRED EVERY 10' MAXIMUM (4' MINIMUM).
3. 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED AT EACH SIDE OF ALL STORM INLET STRUCTURES AND AT ALL RADIUS POINTS.
4. 6" SUBBASE TO BE COMPACTED AND TESTED TO 98% DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST AND SHALL BE STABILIZED TO A MINIMUM L.B.R. 40.
5. EXPANSION JOINT MATERIAL MUST COVER ENTIRE CROSS SECTION OF CURB.
6. IN NO INSTANCE SHALL EXTRUDED CURBS (DEFINED AS HEADER-TYPE CURBS INSTALLED DIRECTLY ON TOP OF PAVEMENT) BE PERMITTED.



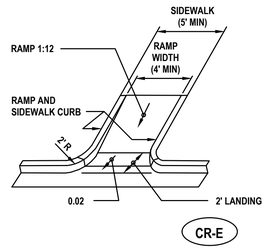
"F1" CURB TRANSITION TO FLAT DETAIL

NOT TO SCALE



PAVEMENT BUTT JOINT DETAIL

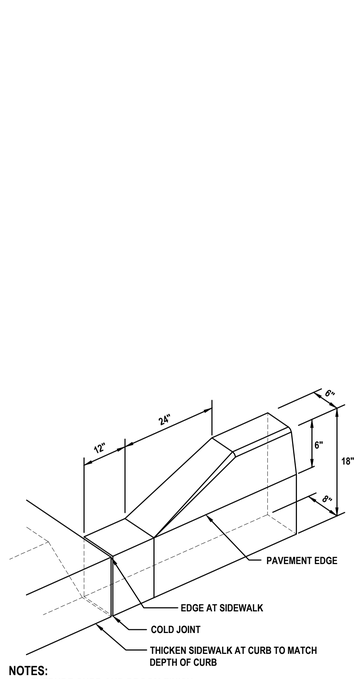
NOT TO SCALE



SEE FDOT INDEX No. 304 FOR ADDITIONAL INFORMATION

SIDEWALK CURB RAMP DETAIL

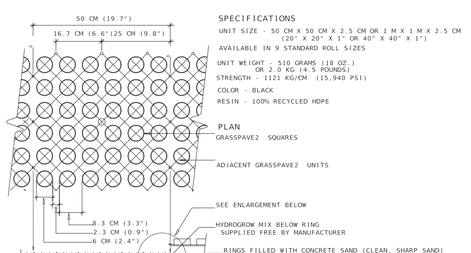
NOT TO SCALE



NOTES:
1. EXTRUDE CURB AND BROOM FINISH
2. PROVIDE 1/2" EXPANSION JOINTS AT ALL COLD JOINTS.
3. SAW CUT CONSTRUCTION JOINTS AT 10'-0" O.C.
4. ALL EXPOSED SURFACES SHALL BE STRIPED GREEN, TROWLED AND CURB EDGING RUBBED SMOOTH.
5. "GLUED-ON" EXTRUDED CURB NOT PERMITTED.

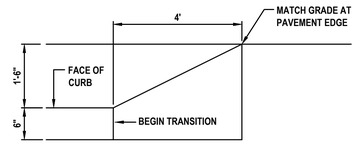
TYPE "D" CURB TERMINATION DETAIL

NOT TO SCALE



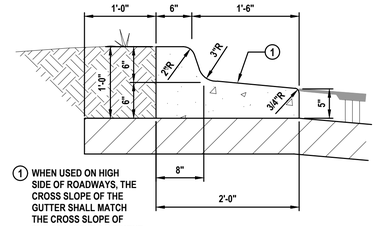
STABILIZED GRASS ACCESS DETAIL

NOT TO SCALE



"F" CURB TRANSITION TO FLAT DETAIL

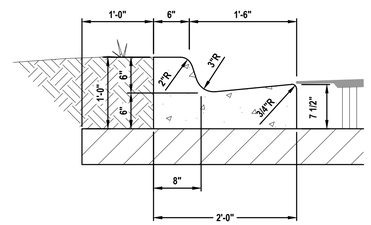
NOT TO SCALE



1. WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT.

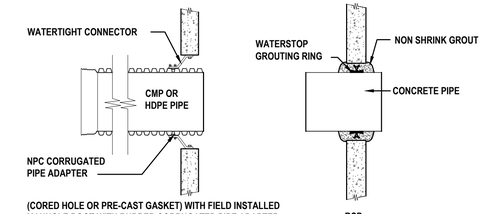
TYPE "F" SPILLOUT CURB DETAIL

NOT TO SCALE



TYPE "F" CATCH CURB DETAIL

NOT TO SCALE

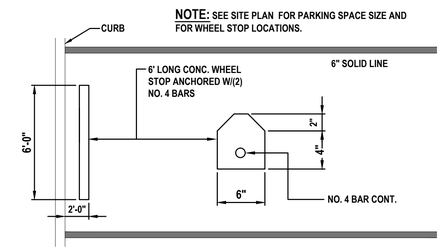


(CORED HOLE OR PRE-CAST GASKET) WITH FIELD INSTALLED MANHOLE BOOT WITH RUBBER CORRUGATED PIPE ADAPTER

WATER-TIGHT PIPE TO MANHOLE CONNECTION DETAIL

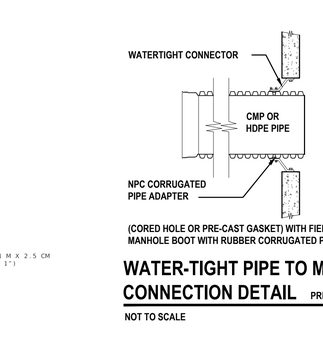
PRECAST HOLES REQUIRED

NOT TO SCALE



CONCRETE WHEEL STOP DETAIL

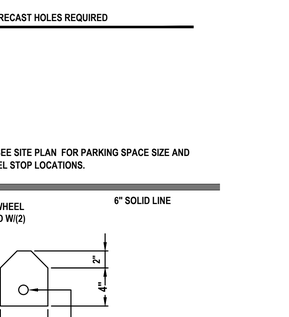
NOT TO SCALE



PLAN VIEW

FRONT VIEW

DETAIL SHOWN HEREON ARE FOR MADRAX HEAVY DUTY WINDER BIKE RACK, MODEL HW238-5-SF, GALVANIZED. CONTRACTOR MAY INSTALL DIFFERENT MODEL OR UNIT BY OTHER MANUFACTURER AS DETERMINED BY DEVELOPER.



SIDE VIEW

BICYCLE RACK DETAIL

NOT TO SCALE

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

MISCELLANEOUS DETAILS AND NOTES

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

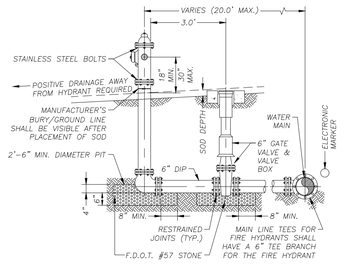
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

33



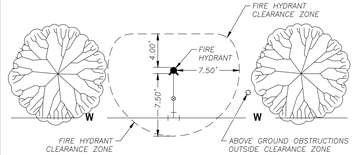
NOTES:
1. HYDRANT MUST BE LOCATED ON THE SAME SIDE OF THE ROAD OR PARKING LOT AS THE WATER MAIN, OUTSIDE THE CLEAR RECOVERY ZONE OF THE TRAVEL WAY, AND A MINIMUM OF 2' FROM SIDEWALK EDGE.
2. HYDRANT MUST HAVE A CLOSED WEEP HOLE.

FIRE HYDRANT ASSEMBLY
NTS UCNSB 6/15

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL

FIRE HYDRANT ASSEMBLY

DWN. A. WISHART	SCALE: 1"=2'	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WANSCOTT	FILE: PW-01		PW-01

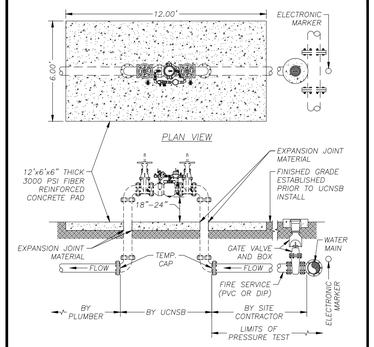


FIRE HYDRANT CLEARANCE ZONE
NTS UCNSB 6/15

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL

FIRE HYDRANT CLEARANCE ZONE

DWN. A. WISHART	SCALE: 1"=4'	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WANSCOTT	FILE: PW-02		PW-02

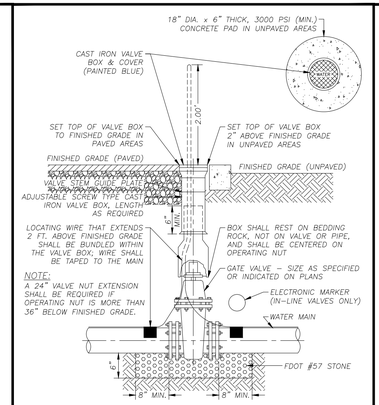


FIRE SERVICE DOUBLE CHECK DETECTOR ASSEMBLY
NTS UCNSB 6/15

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL

FIRE SERVICE DOUBLE CHECK DETECTOR ASSEMBLY

DWN. A. WISHART	SCALE: 1"=3'	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WANSCOTT	FILE: PW-03		PW-03



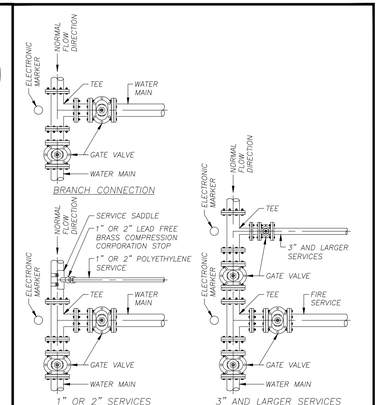
NOTE:
A 24" VALVE NUT EXTENSION SHALL BE REQUIRED IF OPERATING NUT IS MORE THAN 36" BELOW FINISHED GRADE.

GATE VALVE
NTS UCNSB 6/15

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL

GATE VALVE

DWN. A. WISHART	SCALE: 1"=1'	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WANSCOTT	FILE: PW-04		PW-04

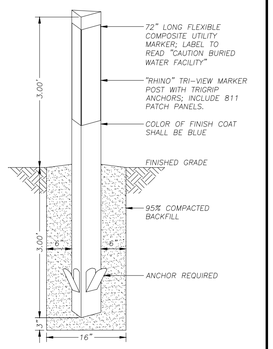


VALVE LAYOUT AT TEES AND SERVICES
NTS UCNSB 6/15

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL

VALVE LAYOUT AT TEES AND SERVICES

DWN. A. WISHART	SCALE: 1"=2'	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WANSCOTT	FILE: PW-05		PW-05

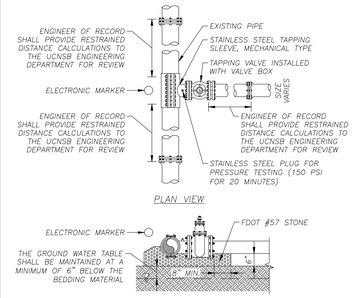


VALVE MARKER
NTS UCNSB 6/15

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL

VALVE MARKER

DWN. A. WISHART	SCALE: 1"=1'	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WANSCOTT	FILE: PW-06		PW-06



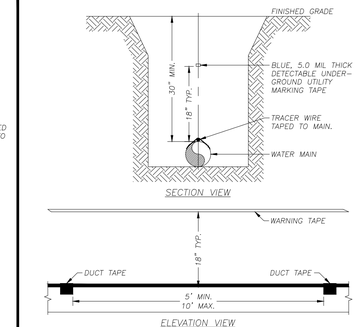
NOTES:
1. FULL LENGTH TAPPING SLEEVE REQUIRED.
2. STAINLESS STEEL TAPPING SLEEVES ARE REQUIRED FOR ALL TYPES OF PIPE MATERIALS.
3. INSTALLATION REQUIRES RESTRAINED JOINTS. IN NO INSTANCE SHALL THRUST BLOCKS BE PERMITTED.
4. REVERSE SIDE AND VERTICAL TAPPING REQUIRES UCNSB ENGINEERING DEPARTMENT APPROVAL.

TAPPING SLEEVE AND VALVE
NTS UCNSB 6/15

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL

TAPPING SLEEVE AND VALVE

DWN. A. WISHART	SCALE: 1"=2'	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WANSCOTT	FILE: PW-07		PW-07



NOTES:
1. ALL PIPE SHALL REQUIRE #14 GAUGE (AWG) HIGH-STRENGTH COPPER CLAD STEEL CONDUCTOR (HS-CCS) TRACER WIRE COATED WITH A 30 MIL THICK, HIGH DENSITY POLYETHYLENE (HDPE) INSULATION, AND RATED FOR DIRECT BURIAL USE AT 30 VOLTS LOCATED DIRECTLY ABOVE THE CENTERLINE OF THE PIPE AND TAPED TO THE PIPE AT 5 FT. TO 10 FT. INTERVALS.
2. AT RESTRAINED JOINTS, WRAP TRACER WIRE AROUND ONE LUG.

PIPE LOCATING WIRE AND TAPE
NTS UCNSB 6/15

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL

PIPE LOCATING WIRE AND TAPE

DWN. A. WISHART	SCALE: 1"=1'	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WANSCOTT	FILE: PW-09		PW-09

OTHER PIPE	HORIZONTAL SEPARATION	CROSSING	JOINT SPACING AT CROSSINGS (FULL JOINT CENTERED)
STORM SEWER, STORMWATER FORCE MAIN, RECLAIMED WATER REGULATED UNDER FAC 62-610 PART III	WATER MAIN, 3 FT MINIMUM	WATER MAIN; 12 INCHES IS THE MINIMUM EXCEPT FOR STORM SEWER, THEN 6 INCHES IS THE MINIMUM AND 12 INCHES IS PREFERRED	ALTERNATE 3 FT MINIMUM; WATER MAIN
VACUUM SANITARY SEWER	WATER MAIN, 10 FT PREFERRED 3 FT MINIMUM	WATER MAIN; 6 INCHES IS THE MINIMUM; 12 INCHES IS PREFERRED	ALTERNATE 3 FT MINIMUM; WATER MAIN
GRAVITY OR PRESSURE SANITARY SEWER, SANITARY SEWER FORCE MAIN, RECLAIMED WATER NOT REGULATED UNDER FAC 62-610 PART III	WATER MAIN, 10 FT PREFERRED 6 FT MINIMUM	WATER MAIN; 12 INCHES IS THE MINIMUM EXCEPT FOR GRAVITY SEWER, THEN 6 INCHES IS THE MINIMUM AND 12 INCHES IS PREFERRED	ALTERNATE 6 FT MINIMUM; WATER MAIN

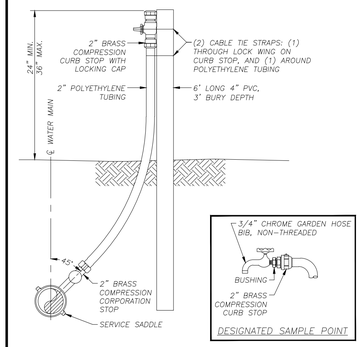
NOTES:
1. LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH FAC RULE 62-555.314.
2. WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 12 INCHES.
3. IN ADDITION TO FAC RULE 62-555.314, THE UCNSB REQUIRES THAT ALL OTHER UTILITY SEPARATIONS SHALL BE 1 FOOT VERTICALLY ON CROSSINGS AND 3 FEET PARALLEL.

UTILITY SEPARATION
NTS UCNSB 6/15

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL

UTILITY SEPARATION

DWN. A. WISHART	SCALE: 1"=3'	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WANSCOTT	FILE: PW-10		PW-10



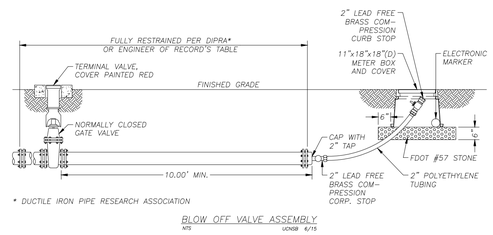
NOTE:
ALL FITTINGS SHALL BE LEAD FREE BRASS.

2" TEST SERVICE STUB OUT
NTS UCNSB 6/15

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL

2" TEST SERVICE STUB OUT

DWN. A. WISHART	SCALE: 1"=1'	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WANSCOTT	FILE: PW-16		PW-16



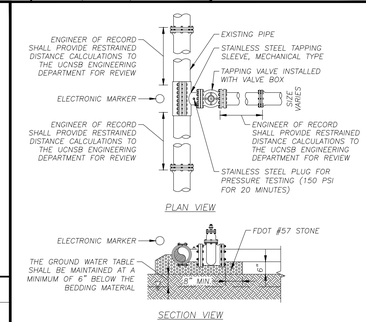
* DUCTILE IRON PIPE RESEARCH ASSOCIATION

BLOW OFF VALVE ASSEMBLY
NTS UCNSB 6/15

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL

BLOW OFF VALVE ASSEMBLY

DWN. A. WISHART	SCALE: 1" = 2'	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WANSCOTT	FILE: PW-08		PW-08



NOTES:
1. FULL LENGTH TAPPING SLEEVE REQUIRED.
2. STAINLESS STEEL TAPPING SLEEVES ARE REQUIRED FOR ALL TYPES OF PIPE MATERIALS.
3. INSTALLATION REQUIRES RESTRAINED JOINTS. IN NO INSTANCE SHALL THRUST BLOCKS BE PERMITTED.
4. REVERSE SIDE AND VERTICAL TAPPING REQUIRES UCNSB ENGINEERING DEPARTMENT APPROVAL.

TAPPING SLEEVE AND VALVE
NTS UCNSB 6/15

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL

TAPPING SLEEVE AND VALVE

DWN. A. WISHART	SCALE: 1"=2'	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WANSCOTT	FILE: RW-04		RW-04

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH
THE COVE AT NEW SMYRNA BEACH DETAILS
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

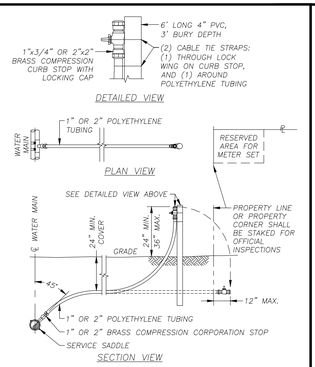
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

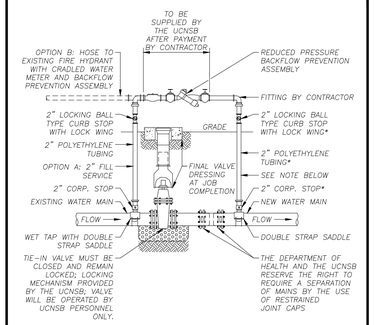
34



NOTES:
1. APPLIES TO NEW CONSTRUCTION ONLY.
2. ALL FITTINGS SHALL BE LEAD FREE BRASS.
3. ATTACH WATER SERVICE TO POST AS SHOWN ABOVE.

1" OR 2" SHORT SIDE WATER SERVICE STUB OUT
NTS UCNSB 6/15

UTILITIES COMMISSION CITY OF NEW SMYRNA BEACH, FL			
1" OR 2" SHORT SIDE WATER SERVICE STUB OUT			
DWN. A. WISHART	SCALE: 1"=3"	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WAINSCOTT	FILE: PW-14		PW-14

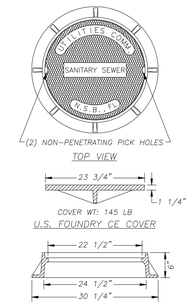


* THESE COMPONENTS COMPRISE THE TEST SERVICE.

NOTE:
2" TEST SERVICE TO BE STAKED PER TEST SERVICE STUB OUT DETAIL AT JOB COMPLETION.

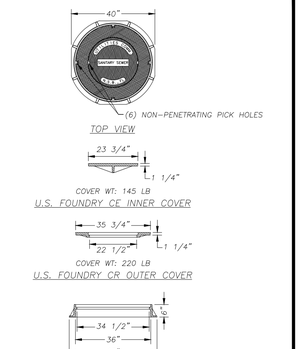
2" TEMPORARY CONSTRUCTION METER CONNECTION
NTS UCNSB 6/15

UTILITIES COMMISSION CITY OF NEW SMYRNA BEACH, FL			
2" TEMPORARY CONSTRUCTION METER CONNECTION			
DWN. A. WISHART	SCALE: 1"=3"	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WAINSCOTT	FILE: PW-17		PW-17



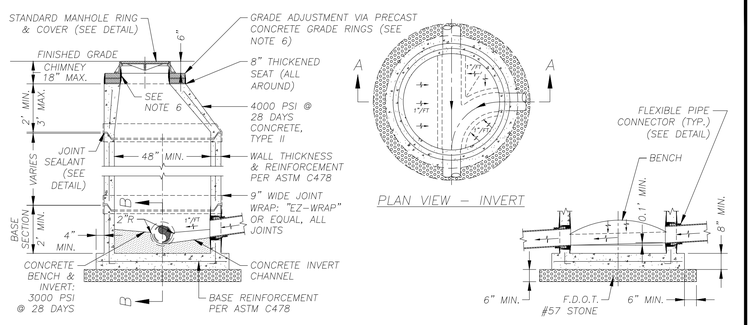
STANDARD MANHOLE RING AND COVER
NTS UCNSB 6/15

UTILITIES COMMISSION CITY OF NEW SMYRNA BEACH, FL			
STANDARD MANHOLE RING AND COVER			
DWN. A. WISHART	SCALE: 1"=1"	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WAINSCOTT	FILE: SS-04		SS-04



SHALLOW STRUCTURE RING AND COVER
NTS UCNSB 6/15

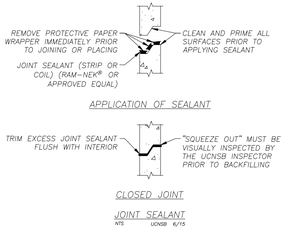
UTILITIES COMMISSION CITY OF NEW SMYRNA BEACH, FL			
SHALLOW STRUCTURE RING AND COVER			
DWN. A. WISHART	SCALE: 1"=2"	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WAINSCOTT	FILE: SS-05		SS-05



NOTES:
1. PRE-FORMED INVERTS ARE PERMITTED.
2. TOP SECTIONS SHALL BE ECCENTRIC.
3. STRUCTURES SHALL BE INSTALLED LEVEL IN ALL DIRECTIONS.
4. MANHOLE STRUCTURES SHALL BE COATED WITH COAL TAR EPOXY: 1 COAT OR 8 MILS OUTSIDE, 2 COATS OR 16 MILS INSIDE; LINED MANHOLES SHALL BE COATED OUTSIDE ONLY.
5. PIPE CONNECTIONS AT MANHOLE JOINTS ARE NOT PERMITTED.
6. EPOXY MORTAR INSIDE & OUTSIDE OF CHIMNEY/PRECAST CONCRETE GRADE RINGS & PIPE OPENINGS FOR A SMOOTH FINISH.

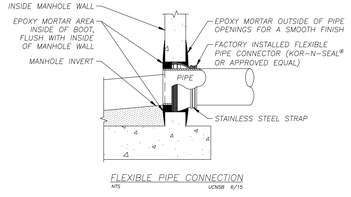
STANDARD MANHOLE
NTS UCNSB 6/15

UTILITIES COMMISSION CITY OF NEW SMYRNA BEACH, FL			
STANDARD MANHOLE			
DWN. A. WISHART	SCALE: 1" = 3"	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WAINSCOTT	FILE: SS-01		SS-01



JOINT SEALANT
NTS UCNSB 6/15

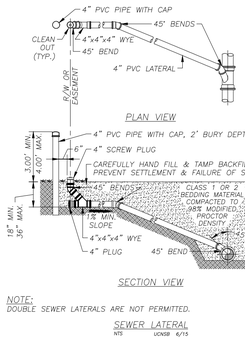
UTILITIES COMMISSION CITY OF NEW SMYRNA BEACH, FL			
JOINT SEALANT			
DWN. A. WISHART	SCALE: 1"=1"	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WAINSCOTT	FILE: SS-06		SS-06



FLEXIBLE PIPE CONNECTION
NTS UCNSB 6/15

UTILITIES COMMISSION CITY OF NEW SMYRNA BEACH, FL			
FLEXIBLE PIPE CONNECTION			
DWN. A. WISHART	SCALE: 1"=1"	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WAINSCOTT	FILE: SS-07		SS-07

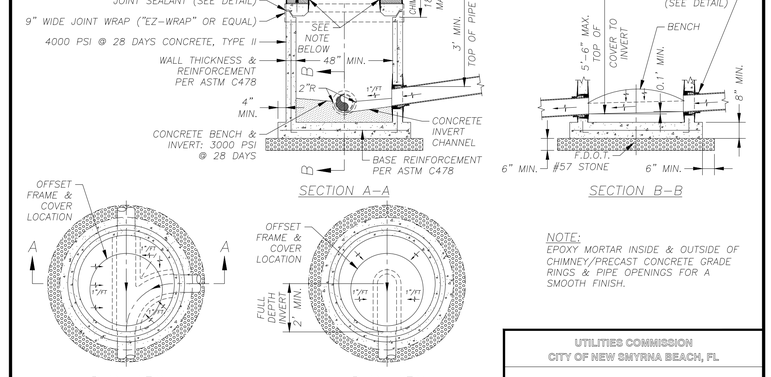
NOTE:
6" SANITARY SERVICES REQUIRED FOR ALL COMMERCIAL CONNECTIONS



NOTE:
DOUBLE SEWER LATERALS ARE NOT PERMITTED.

SEWER LATERAL
NTS UCNSB 6/15

UTILITIES COMMISSION CITY OF NEW SMYRNA BEACH, FL			
SEWER LATERAL			
DWN. A. WISHART	SCALE: 1"=3"	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WAINSCOTT	FILE: SS-13		SS-13



NOTE:
EPOXY MORTAR INSIDE & OUTSIDE OF CHIMNEY/PRECAST CONCRETE GRADE RINGS & PIPE OPENINGS FOR A SMOOTH FINISH.

SHALLOW MANHOLE
NTS UCNSB 6/15

UTILITIES COMMISSION CITY OF NEW SMYRNA BEACH, FL			
SHALLOW MANHOLE			
DWN. A. WISHART	SCALE: 1" = 3"	REV.	SHEET 1 OF 1
CKD. D. HALE	DATE: 6/2015		
APP. D. WAINSCOTT	FILE: SS-02		SS-02

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

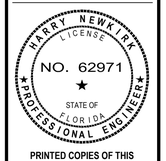
UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH DETAILS

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON



PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

35

SEGMENTAL RETAINING WALL SPECIFICATIONS:

PART 1: GENERAL

1.01 DESCRIPTION

A. WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A KEYSTONE COMPAC UNIT RETAINING WALL SYSTEM OR EQUAL IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS.

B. WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT DRAINAGE FILL AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.

C. WORK INCLUDES FURNISHING AND INSTALLING GEOGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.

1.02 RELATED SECTIONS

A. SECTION 02300 (31 00 00) - EARTHWORK

1.03 REFERENCE DOCUMENTS

A. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

1. ASTM C140 SAMPLING AND TESTING CONCRETE MASONRY UNITS
1. ASTM C1372 SPECIFICATION FOR DRY-CAST SEGMENTAL RETAINING WALL UNITS
2. ASTM D422 PARTICLE-SIZE ANALYSIS OF SOILS
3. ASTM D698 LABORATORY COMPACTION CHARACTERISTICS OF SOIL -STANDARD EFFORT
4. ASTM D1557 LABORATORY COMPACTION CHARACTERISTICS OF SOIL -MODIFIED EFFORT
5. ASTM D3034 POLYVINYL CHLORIDE PIPE (PVC)
6. ASTM D4318 LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS
7. ASTM D4475 HORIZONTAL SHEAR STRENGTH OF PULTRUDED REINFORCED PLASTIC RODS
8. ASTM D4476 FLEXURAL PROPERTIES OF FIBER REINFORCED PULTRUDED PLASTIC RODS
9. ASTM D4595 TENSILE PROPERTIES OF GEOTEXTILES - WIDE WIDTH STRIP
10. ASTM D5262 UNCONFINED TENSION CREEP BEHAVIOR OF GEOSYNTHETICS
11. ASTM D5818 EVALUATE INSTALLATION DAMAGE OF GEOSYNTHETICS
12. ASTM D6637 TENSILE PROPERTIES OF GEOGRIDS - SINGLE OR MULTI-RIB
13. ASTM D6638 CONNECTION STRENGTH - REINFORCEMENT/SEGMENTAL UNITS
14. ASTM D6706 GEOSYNTHETIC PULLOUT RESISTANCE IN SOIL
15. ASTM D6916 SHEAR STRENGTH BETWEEN SEGMENTAL CONCRETE UNITS

B. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

1. AASHTO M 252 CORRUGATED POLYETHYLENE DRAINAGE PIPE

C. GEOSYNTHETIC RESEARCH INSTITUTE (GRI)

1. GRI-GG4 DETERMINATION OF LONG TERM DESIGN STRENGTH OF GEOGRIDS
2. GRI-GG5 DETERMINATION OF GEOGRID (SOIL) PULLOUT

D. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)

1. NCMA SRWU-1 TEST METHOD FOR DETERMINING CONNECTION STRENGTH OF SRW
2. NCMA SRWU-2 TEST METHOD FOR DETERMINING SHEAR STRENGTH OF SRW

1.04 SUBMITTALS/CERTIFICATION

A. CONTRACTOR SHALL SUBMIT A MANUFACTURER'S CERTIFICATION, PRIOR TO START OF WORK, THAT THE RETAINING WALL SYSTEM COMPONENTS MEET THE REQUIREMENTS OF THIS SPECIFICATION AND THE STRUCTURE DESIGN.

B. CONTRACTOR SHALL SUBMIT CONSTRUCTION DRAWINGS AND DESIGN CALCULATIONS FOR THE RETAINING WALL SYSTEM PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT. THE ENGINEERING DESIGNS, TECHNIQUES, AND MATERIAL EVALUATIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S DESIGN MANUAL, NCMA DESIGN GUIDELINES FOR SEGMENTAL RETAINING WALLS, OR THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (WHICHEVER IS APPLICABLE TO DESIGNER).

C. CONTRACTOR SHALL SUBMIT A TEST REPORT DOCUMENTING STRENGTH OF SPECIFIC MODULAR CONCRETE UNIT AND GEOGRID REINFORCEMENT CONNECTION. THE MAXIMUM DESIGN TENSILE LOAD OF THE GEOGRID SHALL BE EQUAL TO THE LABORATORY TESTED ULTIMATE STRENGTH OF GEOGRID / FACING UNIT CONNECTION AT A MAXIMUM NORMAL FORCE LIMITED BY THE "HINGE HEIGHT" OF THE STRUCTURE DIVIDED BY A SAFETY FACTOR OF 1.5. THE CONNECTION STRENGTH EVALUATION SHALL BE PERFORMED IN ACCORDANCE WITH ASTM D6638 (NCMA SRWU_1).

1.05 QUALITY ASSURANCE

A. CONTRACTOR SHALL SUBMIT CERTIFICATION, PRIOR TO START OF WORK, THAT THE RETAINING WALL SYSTEM (MODULAR CONCRETE UNITS AND SPECIFIC GEOGRID):

1) HAS BEEN SUCCESSFULLY UTILIZED ON A MINIMUM OF FIVE (5) SIMILAR PROJECTS, I.E., HEIGHT, SOIL FILL TYPES, ERECTION TOLERANCES, ETC.; AND

2) HAS BEEN SUCCESSFULLY INSTALLED ON A MINIMUM OF 1 MILLION (1,000,000) SQUARE FEET OF RETAINING WALLS.

B. CONTRACTOR SHALL SUBMIT A LIST OF FIVE (5) PREVIOUSLY CONSTRUCTED PROJECTS OF SIMILAR SIZE AND MAGNITUDE BY THE WALL INSTALLER WHERE THE SPECIFIC RETAINING WALL SYSTEM HAS BEEN CONSTRUCTED SUCCESSFULLY. CONTACT NAMES AND TELEPHONE NUMBERS SHALL BE LISTED FOR EACH PROJECT.

C. CONTRACTOR SHALL PROVIDE EVIDENCE THAT THE DESIGN ENGINEER HAS A MINIMUM OF FIVE YEARS OF DOCUMENTAL EXPERIENCE IN THE DESIGN FOR REINFORCED SOIL STRUCTURES. THE DESIGN ENGINEER SHALL PROVIDE PROOF OF CURRENT PROFESSIONAL LIABILITY INSURANCE WITH AN AGGREGATE COVERAGE LIMIT OF NOT LESS THAN $2,000,000.

D. OWNER SHALL/MAY PROVIDE SOIL TESTING AND QUALITY ASSURANCE INSPECTION DURING EARTHWORK AND WALL CONSTRUCTION OPERATIONS. CONTRACTOR SHALL PROVIDE ANY QUALITY CONTROL TESTING OR INSPECTION NOT PROVIDED BY THE OWNER. OWNER'S QUALITY ASSURANCE PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR QUALITY CONTROL AND WALL PERFORMANCE.

1.06 DELIVERY, STORAGE AND HANDLING

A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAVE BEEN RECEIVED.

B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOBSITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.

PART 2: PRODUCTS

2.01 DEFINITIONS

A. MODULAR UNIT _ A CONCRETE RETAINING WALL ELEMENT MACHINE MADE FROM PORTLAND CEMENT, WATER, AND AGGREGATES.

B. STRUCTURAL GEOGRID _ A STRUCTURAL ELEMENT FORMED BY A REGULAR NETWORK OF INTEGRALLY CONNECTED TENSILE ELEMENTS WITH APERTURES OF SUFFICIENT SIZE TO ALLOW INTERLOCKING WITH SURROUNDING SOIL, ROCK, OR EARTH AND FUNCTION PRIMARILY AS REINFORCEMENT.

C. UNIT DRAINAGE FILL _ DRAINAGE AGGREGATE, WHICH IS PLACED WITHIN AND IMMEDIATELY BEHIND THE MODULAR CONCRETE UNITS.

D. REINFORCED BACKFILL _ COMPACTED SOIL, WHICH IS PLACED WITHIN THE REINFORCED SOIL VOLUME AS OUTLINED ON THE PLANS.

2.02 MODULAR CONCRETE RETAINING WALL UNITS

A. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:

1. FACE COLOR - CONCRETE GRAY, UNLESS OTHERWISE SPECIFIED. THE OWNER MAY SPECIFY STANDARD MANUFACTURERS' COLOR.
2. FACE FINISH _ SCULPTURED ROCK FACE IN ANGULAR TRI-PLANER CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.
3. BOND CONFIGURATION _ RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS.
4. EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 10 FEET UNDER DIFFUSED LIGHTING.

B. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.

C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH ASTM C140 SAMPLING AND TESTING CONCRETE MASONRY UNITS:

1. COMPRESSIVE STRENGTH: 3000 PSI (21 MPA);
2. ABSORPTION: 8 % (6% IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES;
3. DIMENSIONAL TOLERANCES: ± 1/8" (3 MM) FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE, ±1/16" (1.5 MM) UNIT HEIGHT - TOP AND BOTTOM PLANES;
4. UNIT SIZE: 8" (203 MM) (H) X 18" (457 MM)(W) X 12" (304 MM)(D) MINIMUM;
5. UNIT WEIGHT: 75-LBS/UNIT (35 KG/UNIT) MINIMUM FOR STANDARD WEIGHT AGGREGATES.

D. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING PERFORMANCE TESTING:

1. INTER_UNIT SHEAR STRENGTH IN ACCORDANCE WITH ASTM D6916 (NCMA SRWU-2): 600-PLF (8 KN/M) MINIMUM AT 2-PSI (13 KPA) NORMAL PRESSURE;
2. GEOGRID/UNIT PEAK CONNECTION STRENGTH IN ACCORDANCE WITH ASTM D6638 (NCMA SRWU-1): 500-PLF (7 KN/M) MINIMUM AT 2-PSI (13 KPA) NORMAL FORCE.

E. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING CONSTRUCTABILITY REQUIREMENTS:

1. VERTICAL SETBACK = 1/8"± (3 MM) PER COURSE (NEAR VERTICAL) OR 1" (25 MM)+ PER COURSE PER THE DESIGN;
2. ALIGNMENT AND GRID POSITIONING MECHANISM _ FIBERGLASS PINS, TWO PER UNIT MINIMUM;
3. MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE 1/2 INCH (13 MM).

2.03 SHEAR CONNECTORS

A. SHEAR CONNECTORS SHALL BE 1/2-INCH (12 MM) DIAMETER THERMOSET ISOPTHALIC POLYESTER RESIN_PULTRUDED FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS WITH THE FOLLOWING REQUIREMENTS:

1. FLEXURAL STRENGTH IN ACCORDANCE WITH ASTM D4476: 128,000 PSI (882 MPA) MINIMUM;
2. SHORT BEAM SHEAR IN ACCORDANCE WITH ASTM D4475: 6,400 PSI (44 MPA) MINIMUM.

B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE_TENSIONING AND BACKFILLING.

2.04 BASE LEVELING PAD MATERIAL

A. MATERIAL SHALL CONSIST OF A COMPACTED CRUSHED STONE BASE OR NON_REINFORCED CONCRETE AS SHOWN ON THE CONSTRUCTION DRAWINGS.

2.05 UNIT DRAINAGE FILL

A. UNIT DRAINAGE FILL SHALL CONSIST OF CLEAN 1" (25 MM) MINUS CRUSHED STONE OR CRUSHED GRAVEL MEETING THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D-422:

SIEVE SIZE	PERCENT PASSING
1 INCH (25 MM)	100
3/4-INCH (19 MM)	75_100
NO. 4	0 _ 10
NO. 50	0 _ 5

B. ONE CUBIC FOOT (0.028 M3), MINIMUM, OF DRAINAGE FILL SHALL BE USED FOR EACH SQUARE FOOT (0.093 M2) OF WALL FACE. DRAINAGE FILL SHALL BE PLACED WITHIN CORES OF, BETWEEN, AND BEHIND UNITS TO MEET THIS REQUIREMENT.

2.06 REINFORCED BACKFILL

A. REINFORCED BACKFILL SHALL BE FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D-422:

SIEVE SIZE	PERCENT PASSING
2-INCH (50 MM)	100
3/4-INCH (19 MM)	100_75
NO. 40	0_60
NO. 200	0_35

PLASTICITY INDEX (PI) <15 AND LIQUID LIMIT <40 PER ASTM D-4318.

B. THE MAXIMUM AGGREGATE SIZE SHALL BE LIMITED TO 3/4 INCH (19 MM) UNLESS FIELD TESTS HAVE BEEN PERFORMED TO EVALUATE POTENTIAL STRENGTH REDUCTIONS TO THE GEOGRID DESIGN DUE TO DAMAGE DURING CONSTRUCTION.

C. MATERIAL CAN BE SITE-EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE BACKFILL OR IN THE REINFORCED SOIL MASS.

D. CONTRACTOR SHALL SUBMIT REINFORCED FILL SAMPLE AND LABORATORY TEST RESULTS TO THE ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO THE USE OF ANY PROPOSED REINFORCED FILL MATERIAL.

2.07 GEOGRID SOIL REINFORCEMENT

A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE MANUFACTURED FROM HIGH TENACITY POLYESTER YARN OR HIGH-DENSITY POLYETHYLENE. POLYESTER GEOGRID SHALL BE KNITTED FROM HIGH TENACITY POLYESTER FILAMENT YARN WITH A MOLECULAR WEIGHT EXCEEDING 25,000 G/M AND A CARBOXYL END GROUP VALUES LESS THAN 30. POLYESTER GEOGRID SHALL BE COATED WITH AN IMPREGNATED PVC COATING THAT RESISTS PEELING, CRACKING, AND STRIPPING.

B. TA, LONG TERM ALLOWABLE TENSILE DESIGN LOAD, OF THE GEOGRID MATERIAL SHALL BE DETERMINED AS FOLLOWS:

TA = TULT / (RFCR*RFD*RFID*FS)
TA SHALL BE EVALUATED BASED ON A 75-YEAR DESIGN LIFE.

1. TULT, SHORT TERM ULTIMATE TENSILE STRENGTH SHALL BE DETERMINED IN ACCORDANCE WITH ASTM D4595 OR ASTM D6637.
TULT IS BASED ON THE MINIMUM AVERAGE ROLL VALUES (MARV).

2. RFCR, REDUCTION FACTOR FOR LONG TERM TENSION CREEP
RFCR SHALL BE DETERMINED FROM 10,000-HOUR CREEP TESTING PERFORMED IN ACCORDANCE WITH ASTM D5262. REDUCTION VALUE = 1.45 MINIMUM.

3. RFD, REDUCTION FACTOR FOR DURABILITY
RFD SHALL BE DETERMINED FROM POLYMER SPECIFIC DURABILITY TESTING COVERING THE RANGE OF EXPECTED SOIL ENVIRONMENTS. RFD = 1.10 MINIMUM.

4. RFID, REDUCTION FACTOR FOR INSTALLATION DAMAGE
RFID SHALL BE DETERMINED FROM PRODUCT SPECIFIC CONSTRUCTION DAMAGE TESTING PERFORMED IN ACCORDANCE WITH ASTM D5818 (GRI_GG4). TEST RESULTS SHALL BE PROVIDED FOR EACH PRODUCT TO BE USED WITH PROJECT SPECIFIC OR MORE SEVERE SOIL TYPE. RFID = 1.05 MINIMUM.

5. FS, OVERALL DESIGN FACTOR OF SAFETY
FS SHALL BE 1.5 UNLESS OTHERWISE NOTED FOR THE MAXIMUM ALLOWABLE WORKING STRESS CALCULATION.

C. THE MAXIMUM DESIGN TENSILE LOAD OF THE GEOGRID SHALL NOT EXCEED THE LABORATORY TESTED ULTIMATE STRENGTH OF THE GEOGRID/FACING UNIT CONNECTION AS LIMITED BY THE "HINGE HEIGHT" DIVIDED BY A FACTOR OF SAFETY OF 1.5. THE CONNECTION STRENGTH TESTING AND COMPUTATION PROCEDURES SHALL BE IN ACCORDANCE WITH ASTM D6638 CONNECTION STRENGTH BETWEEN GEOSYNTHETIC REINFORCEMENT AND SEGMENTAL CONCRETE UNITS (NCMA SRWU-1).

D. SOIL INTERACTION COEFFICIENT, CI
CI VALUES SHALL BE DETERMINED PER ASTM D6706 (GRI:GG5) AT A MAXIMUM 0.75-INCH (19 MM) DISPLACEMENT.

E. MANUFACTURING QUALITY CONTROL
THE GEOGRID MANUFACTURER SHALL HAVE A MANUFACTURING QUALITY CONTROL PROGRAM THAT INCLUDES QC TESTING BY AN INDEPENDENT LABORATORY.
THE QC TESTING SHALL INCLUDE:
TENSILE STRENGTH TESTING
MELT FLOW INDEX (HDPE)
MOLECULAR WEIGHT (POLYESTER)

2.08 DRAINAGE PIPE

A. IF REQUIRED, THE DRAINAGE PIPE SHALL BE PERFORATED OR SLOTTED PVC PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D-3034 OR CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH AASHTO M252.

2.09 GEOTEXTILE FILTER FABRIC

A. WHEN REQUIRED, GEOTEXTILE FILTER FABRIC SHALL BE 4.0 OZ/SY, POLYPROPYLENE, NEEDLEPUNCHED NONWOVEN FABRIC.

PART 3: EXECUTION

3.01 EXCAVATION

A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. OWNER'S REPRESENTATIVE SHALL INSPECT THE EXCAVATION AND APPROVE PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS. PROOF ROLL FOUNDATION AREA AS DIRECTED TO DETERMINE IF REMEDIAL WORK IS REQUIRED.

B. OVER_EXCAVATION AND REPLACEMENT OF UNSUITABLE FOUNDATION SOILS AND REPLACEMENT WITH APPROVED COMPACTED FILL WILL BE COMPENSATED AS AGREED UPON WITH THE OWNER.

3.02 BASE LEVELING PAD

A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES (150 MM) AND EXTEND LATERALLY A MINIMUM OF 6" (150 MM) IN FRONT AND BEHIND THE MODULAR WALL UNIT.

B. SOIL LEVELING PAD MATERIALS SHALL BE COMPACTED TO A MINIMUM OF 95 % STANDARD PROCTOR DENSITY PER ASTM D-698 OR 92% MODIFIED PROCTOR DENSITY PER ASTM D1557.

C. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.

3.03 MODULAR UNIT INSTALLATION

A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.

B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

C. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.

D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH STRUCTURE BACKFILL.

E. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS, PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED TWO COURSES.

3.04 STRUCTURAL GEOGRID INSTALLATION

A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.

B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DESIGN DRAWINGS OR AS DIRECTED BY THE ENGINEER.

C. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE MODULAR WALL UNITS. PLACE THE NEXT COURSE OF MODULAR CONCRETE UNITS OVER THE GEOGRID. THE GEOGRID SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.

D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPLICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS BETWEEN ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.

3.05 REINFORCED BACKFILL PLACEMENT

A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE.

B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES (150 MM) WHERE HAND COMPACTION IS USED, OR 8 - 10 INCHES (200 TO 250 MM) WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.

C. REINFORCED BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 95 % STANDARD PROCTOR DENSITY PER ASTM D-698 OR 92% MODIFIED PROCTOR DENSITY PER ASTM D1557. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE DRY OF OPTIMUM, + 0%, - 3%.

D. ONLY LIGHTWEIGHT HAND_OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET (1 M) FROM THE TAIL OF THE MODULAR CONCRETE UNIT.

E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES (150 MM) IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.

F. RUBBER TIRED EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH (15 KPH). SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.

G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

3.06 CAP INSTALLATION

A. CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER ADHESIVE RECOMMENDED BY THE MANUFACTURER.

3.07 AS-BUILT CONSTRUCTION TOLERANCES

A. VERTICAL ALIGNMENT: ± 1.5" (40 MM) OVER ANY 10' (3 M) DISTANCE.

B. WALL BATTER: WITHIN 2 DEGREES OF DESIGN BATTER.

C. HORIZONTAL ALIGNMENT: ± 1.5" (40 MM) OVER ANY 10' (3 M) DISTANCE.
CORNERS, BENDS & CURVES: ± 1 FT (300 MM) TO THEORETICAL LOCATION.

D. MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE 1/2 INCH (13 MM).

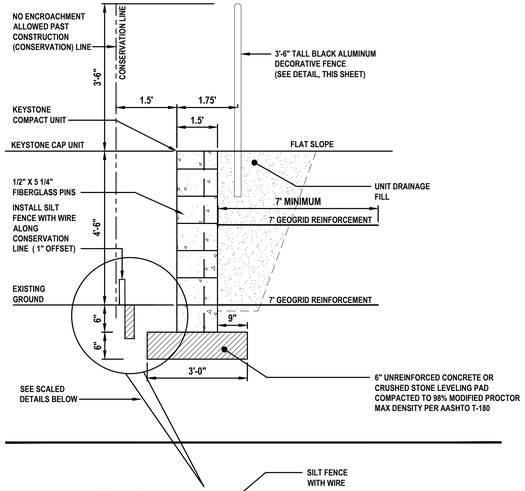
3.08 FIELD QUALITY CONTROL

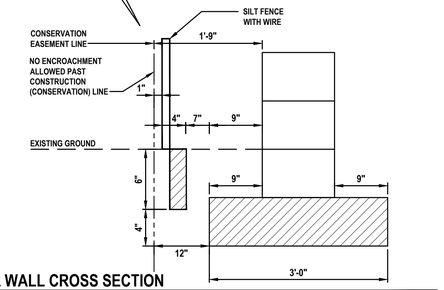
A. QUALITY ASSURANCE - THE OWNER SHALL/MAY ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION. THIS DOES NOT RELIEVE THE CONTRACTOR FROM SECURING THE NECESSARY CONSTRUCTION QUALITY CONTROL TESTING.

B. QUALITY ASSURANCE SHOULD INCLUDE FOUNDATION SOIL INSPECTION. VERIFICATION OF GEOTECHNICAL DESIGN PARAMETERS, AND VERIFICATION THAT THE CONTRACTOR'S QUALITY CONTROL TESTING IS ADEQUATE AS A MINIMUM. QUALITY ASSURANCE SHALL ALSO INCLUDE OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND PROJECT SPECIFICATIONS. (QUALITY ASSURANCE IS USUALLY BEST PERFORMED BY THE SITE GEOTECHNICAL ENGINEER.)

C. QUALITY CONTROL - THE CONTRACTOR SHALL ENGAGE INSPECTION AND TESTING SERVICES TO PERFORM THE MINIMUM QUALITY CONTROL TESTING DESCRIBED IN THE RETAINING WALL DESIGN PLANS AND SPECIFICATIONS. ONLY QUALIFIED AND EXPERIENCED TECHNICIANS AND ENGINEERS SHALL PERFORM TESTING AND INSPECTION SERVICES.

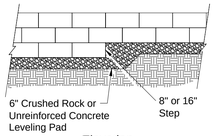
D. QUALITY CONTROL TESTING SHALL INCLUDE SOIL AND BACKFILL TESTING TO VERIFY SOIL TYPES AND COMPACTION AND VERIFICATION THAT THE RETAINING WALL IS BEING CONSTRUCTED IN ACCORDANCE WITH THE DESIGN PLANS AND PROJECT SPECIFICATIONS.





TYPICAL WALL CROSS SECTION

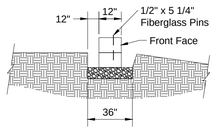
NOT TO SCALE



Elevation

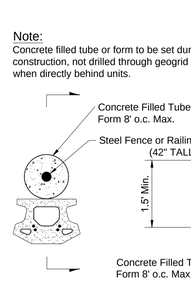
Note:

1. The leveling pad is to be constructed of crushed stone or 2000 psi unreinforced concrete.



Section

Leveling Pad Detail



Fence Plan Detail

Fence Section & Plan Detail

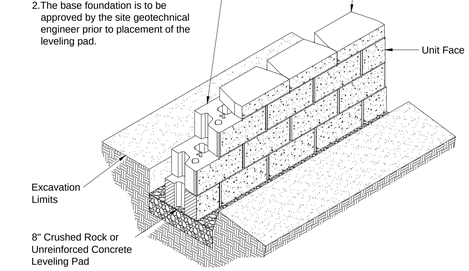
Compact Unit - Near Vertical Setback

Base Leveling Pad Notes:

1. The leveling pad is to be constructed of crushed stone or 2,000 psi unreinforced concrete
2. The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

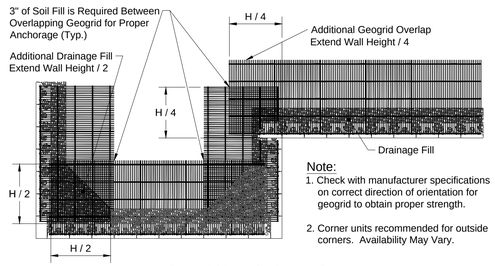
Compac Unit	
Width:	18"
*Depth:	12"
Height:	8"
*Weight:	90 lbs

Cap Unit	
Width:	18"
*Depth:	10 1/2"
Height:	4"
*Weight:	50 lbs



Compac Unit/Base Pad Isometric Section View

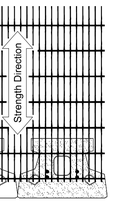
* Dimensions & Weight May Vary by Region



Note:

1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.
2. Corner units recommended for outside corners. Availability May Vary.

Geogrid Installation at Corners

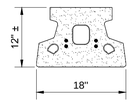


Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

Grid & Pin Connection



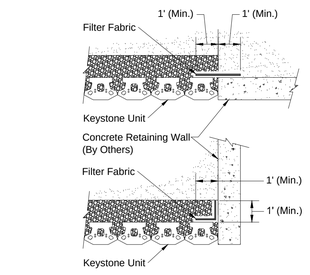
Compac Elevation



Compac Plan

Compac Unit

* Dimensions May Vary by Region



Connection Details

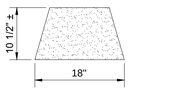
Compac Unit - Shown



Cap Unit Elevation



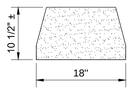
Cap Unit Elevation



Cap Unit Plan

Universal Cap Unit Option

* Dimensions & Availability Will Vary by Region



Cap Unit Plan

Straight Split Cap Unit Option

* Dimensions & Availability Will Vary by Region

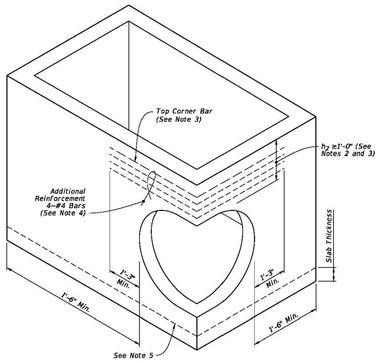
NEWKIRK ENGINEERING INC.
1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering, Transportation, CEI &, Landscape Architecture

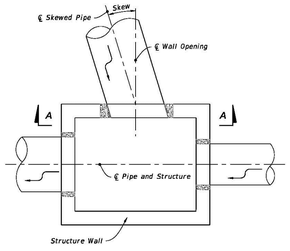
REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

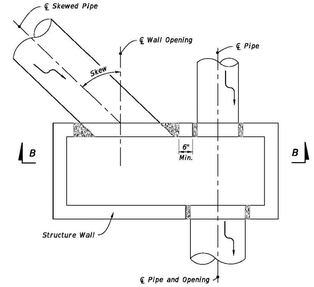
FDOT STANDARD DETAILS
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING





PLAN

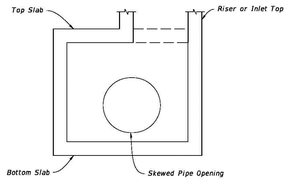


PLAN

NOTES:

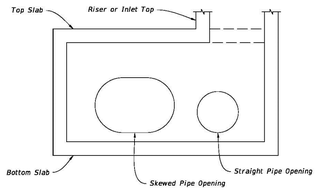
1. Submit Shop Drawings of corner openings for approval by the Engineer.
2. h_2 may be less than 1'-0" when a minimum 1'-0" deep segment, 8" slab or curb inlet is provided above the corner opening.
3. For inlet segments at finish grade elevation, substitute a #8 Bar for the top corner bar when $1'-0" \leq h_2 < 2'-0"$.
4. Install bars continuously around corner and evenly spaced. Tie additional reinforcement to the outside of vertical wall reinforcement.
5. Dowel construction joint or monolithically cast wall and slabs.

PIPE OPENING AT CORNER



SECTION A-A

SKEWS ≤ 45°
(Not Centered)



SECTION B-B

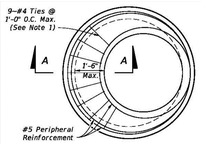
SKEWS > 45°
(Not Centered)

SKEWED PIPE IN RECTANGULAR STRUCTURES
(See Table 4 on Sheet 8)

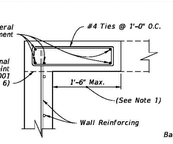
SKEWED PIPE IN RECTANGULAR STRUCTURES

10/12/2020 8:42:48 AM

LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	SUPPLEMENTARY DETAILS FOR DRAINAGE STRUCTURES	INDEX	SHEET
11/01/20	REVISION			425-001	7 of 8

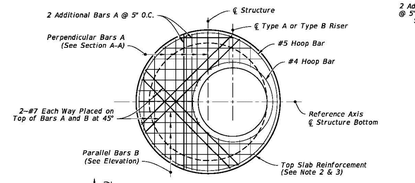


PLAN

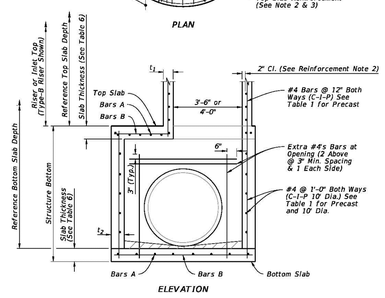


SECTION A-A

SPECIAL TOP SLAB



PLAN

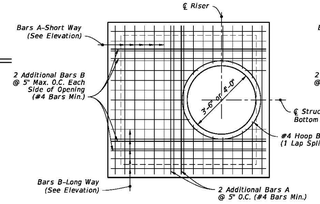


ELEVATION

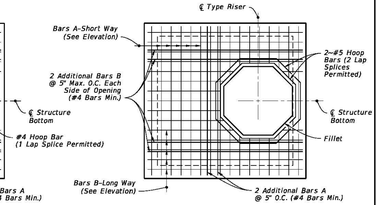
TYPE J BOTTOM - ALTERNATE A

ALTERNATE A NOTES:

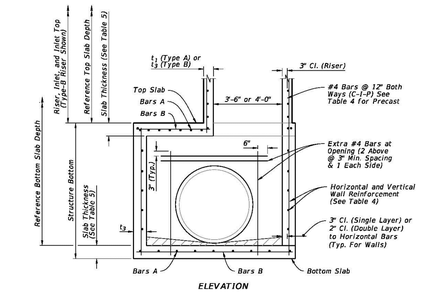
1. Rotate #4 Bars as required to maintain cover.
2. Construct the top or riser of the structure according the top slab to the "Special Top Slab" details, when the inside diameter of a round structure is not more than 1'-6" larger than the opening in the riser or top slab.
3. Alternate A slab reinforcing not applicable for Type A, B, C, D & E Ditch Bottom Inlets or Type S & V Gutter Inlets. See Indexes 425-040, 425-041, 425-050, 425-051, and 425-052.



TYPE A - ROUND RISER OPENING
PLAN



TYPE B - SQUARE RISER OPENING
PLAN



ELEVATION

TYPE J BOTTOM - ALTERNATE B

DIMENSIONAL AND REINFORCING DETAILS

10/12/2020 8:43:31 AM

LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	STRUCTURE BOTTOMS TYPE J AND P	INDEX	SHEET
11/01/20	REVISION			425-010	2 of 4

TABLE 1 - ALTERNATE A - STRUCTURES

TYPE	STRUCTURE/RISER DIAMETER (ft)	CAST-IN-PLACE ITEMS CLASS II CONCRETE t_1 RISER (in.)	t_2 BOTTOM (in.)	A_s (in^2/ft.)	PRECAST ITEMS CLASS II CONCRETE t_1 RISER (in.)	t_2 BOTTOM (in.)	A_s (in^2/ft.)	ASTM C478 t_1 or t_2 (in.)	A_s*** (in^2/ft.)
P	3'-6"	6	8	0.20	6	8	0.20	4**	0.105
P	4'-0"	6	8	0.20	6	8	0.20	5**	0.120
J	5'-0"	–	8	0.20	–	8	0.20	6**	0.150
J	6'-0"	–	8	0.20	–	8	0.20	6	0.180
J	7'-0"	–	8	0.20	–	8	0.20	7	0.210
J	8'-0"	–	8	0.20	–	8	0.20	8	0.240
J	10'-0"	–	10	0.40##*	–	10	0.40##*	10	0.300
J	12'-0"	–	10	0.40##*	–	12	0.40##*	12	0.360

t_1 and t_2 - Wall Thickness.
A_s - Vertical and horizontal areas of reinforcement.
##Provide 0.20 sq. in./ft. at each face, 12" max. bar spacing.
**Modified minimum wall thickness.
***Min. total circumferential reinforcement for continuous steel hoops:
A2 = 0.40 sq. in. for riser section height equal or less than 2'-0" (2 hoop min.)
A_s = 0.60 sq. in. for riser section height more than 2'-0" up to 4'-0" (3 hoop min.)
Areas of reinforcing for precast items are based on Grade 60 reinforcing.
No reduction in the area of reinforcement is allowed for welded wire fabric in Table 1.
Area of vertical reinforcing may be reduced in accordance with ASTM C478.

TABLE 2 - ALTERNATE B SQUARE AND RECTANGULAR STRUCTURES

TYPE	WALL LENGTH (FT)	MAX. DEPTH (FT)	WALL THICKNESS (t_2) C-I-P (in.)	PRECAST (in.)
P	≤ 3'-6"	40	6 Riser & Bottom	6
J	4'-0"	40	8	6
J	5'-0"	22	–	6
J	6'-0"	15	–	6
J	5'-0" to 9'-0"	40	8	8
J	10'-0"	26	8	8
J	10'-0" to 12'-0"	40	10	9
J	16'-0"	35	–	9
J	16'-0"	40	10	10
J	20'-0"	25	–	9
J	20'-0"	30	10	10

See Table 4 for Reinforcing Schedule.

TABLE 3 - REINFORCING SCHEDULE

SCHEDULE	GRADE 60 AREA (in^2/ft)	GRADE 60 AND WELDED WIRE REINFORCING MAXIMUM SPACING GR 60 BARS (in.)	WWR EQUIV. AREA 65 KSI (in.)	WWR EQUIV. AREA 70 KSI (in.)
A12	0.20	12	8	8
A6	0.20	6	5	4½
B10	0.24	10	8	7½
B5.5	0.24	5½	5	4
C6.5	0.37	6½	6	5
C3.5	0.37	3½	3	2½
D7	0.53	7	6	5
D4.5	0.53	4½	4	3½
E5	0.73	5	4	4
E3	0.73	3	3	3
F5	1.06	5	4	4
F3.5	1.06	3½	3	3
G5	1.45	5	4	4
G3.5	1.45	3½	3	3
H4	1.75	4	3	3

TABLE 4 - WALL DESIGNS - RECTANGULAR STRUCTURES

VERTICAL REINFORCING WALL DEPTH	VERTICAL REINFORCING SCHEDULE	HORIZONTAL REINFORCING WALL DEPTH	HORIZONTAL REINFORCING SCHEDULE	WALL THICKNESS
SIZE: 3'-6" & RISER				
≥1.17' – 40'	A12	≥1.17' < 10'	B10	6"/8"
		10' < 18'	B5.5	6"/8"
		18' < 29'	C6.5	6"/8"
		29' – 40'	C3.5	6"/8"
SIZE: 4'-0"				
≥1.17' – 40'	A12	≥1.17' < 6'	B10	6"/8"
		6' < 10'	B5.5	6"/8"
		10' < 20'	C6.5	6"/8"
		20' < 28'	C3.5	6"/8"
		28' – 40'	D4.5	6"/8"
SIZE: 5'-0"				
≥1.17' – 40'	A12	≥1.17' < 5'	B5.5	6"/8"
		5' < 9'	C6.5	6"/8"
		9' < 15'	C3.5	6"/8"
		15' < 22'	D4.5	6"/8"
		22' – 40'	E3	8"
SIZE: 6'-0"				
≥1.17' < 26'	A12	≥1.17' < 9'	C3.5	6"/8"
		9' < 15'	D4.5	6"/8"
		15' < 26'	E3	8"
	Inside/Outside		Inside/Outside	
26' – 40'	A12 / A12	26' – 40'	D7 / D7	8"
SIZE: 7'-0"				
	Inside/Outside		Inside/Outside	
≥1.17' < 25'	A12 / A12	≥1.17' < 7'	B10 / B10	8"
26' – 40'	B10 / B10	7' < 10'	B5.5 / B5.5	8"
		10' < 20'	C6.5 / C6.5	8"
		20' < 30'	D7 / D7	8"
		30' – 40'	E5 / E5	8"
SIZE: 8'-0"				
	Inside/Outside		Inside/Outside	
≥1.17' < 20'	A12 / A12	≥1.17' < 6'	B5.5 / B5.5	8"
20' – 40'	C6.5 / C6.5	6' < 13'	C6.5 / C6.5	8"
		13' < 22'	D7 / D7	8"
		22' < 31'	E5 / E5	8"
		31' – 40'	F5 / F5	8"
SIZE: 9'-0"				
	Inside/Outside		Inside/Outside	
≥1.17' < 12'	A12 / A12	≥1.17' < 8'	C6.5 / C6.5	8"
12' < 28'	C6.5 / C6.5	8' < 15'	D7 / D7	8"
28' – 40'	D7 / D7	15' < 23'	E5 / E5	8"
		23' – 40'	F5 / F5	8"
SIZE: 10'-0"				
	Inside/Outside		Inside/Outside	
≥1.17' < 10'	B10 / B10	≥1.17' < 10'	D7 / D7	8"
10' < 21'	C6.5 / C6.5	10' < 17'	E5 / E5	8"
21' < 26'	D7 / D7	17' < 26'	F5 / F5	8"
26' – 40'	C6.5 / C6.5	26' – 40'	F5 / F5	10"

VERTICAL REINFORCING WALL DEPTH	VERTICAL REINFORCING SCHEDULE	HORIZONTAL REINFORCING WALL DEPTH	HORIZONTAL REINFORCING SCHEDULE	WALL THICKNESS
SIZE: 10'-0" (Precast Only)				
	Inside/Outside		Inside/Outside	
26' – 40'	D7 / D7	26' – 40'	F5 / F5	9"
SIZE: 12'-0"				
	Inside/Outside		Inside/Outside	
≥1.17' < 14'	B10 / B10	≥1.17' < 10'	C6.5 / C6.5	10"
14' < 25'	C6.5 / C6.5	10' < 17'	D7 / D7	10"
25' – 40'	D7 / D7	17' < 24'	E5 / E5	10"
		24' – 40'	F5 / F5	10"
SIZE: 12'-0" (Precast Only)				
	Inside/Outside		Inside/Outside	
≥1.17' < 12'	B10 / B10	≥1.17' < 10'	D7 / D7	9"
12' < 24'	C6.5 / C6.5	10' < 17'	D4.5 / D4.5	9"
24' – 40'	D7 / D7	17' < 23'	E5 / E5	9"
		23' < 32'	F5 / F5	9"
		32' – 40'	G5 / G5	9"
SIZE: 16'-0"				
	Inside/Outside		Inside/Outside	
≥1.17' < 11'	C6.5 / C6.5	≥1.17' < 13'	D7 / D7	10"
11' < 20'	D7 / D7	13' < 20'	E5 / E5	10"
20' < 28'	E5 / E5	20' < 28'	F5 / F5	10"
28' – 40'	F5 / F5	28' – 40'	G5 / G5	10"
SIZE: 16'-0" (Precast Only)				
	Inside/Outside		Inside/Outside	
≥1.17' < 10'	C6.5 / C6.5	≥1.17' < 9'	D7 / D7	9"
10' < 18'	D7 / D7	9' < 13'	D4.5 / D4.5	9"
18' < 25'	E5 / E5	13' < 19'	E5 / E5	9"
25' – 35'	F5 / F5	19' < 27'	F5 / F5	9"
		27' – 35'	G5 / G5	9"
SIZE: 20'-0"				
	Inside/Outside		Inside/Outside	
≥1.17' < 10'	C6.5 / C6.5	≥1.17' < 8'	D7 / D7	10"
10' < 17'	D7 / D7	8' < 12'	E5 / E5	10"
17' – 30'	E5 / E5	12' < 20'	F5 / F5	10"
		20' – 30'	G5 / G5	10"
SIZE: 20'-0" (Precast Only)				
	Inside/Outside		Inside/Outside	
≥1.17' < 8'	C6.5 / C6.5	≥1.17' < 8'	D4.5 / D4.5	9"
8' < 13'	D7 / D7	8' < 12'	E5 / E5	9"
13' – 25'	E5 / E5	12' < 19'	F5 / F5	9"
		19' – 25'	G5 / G5	9"

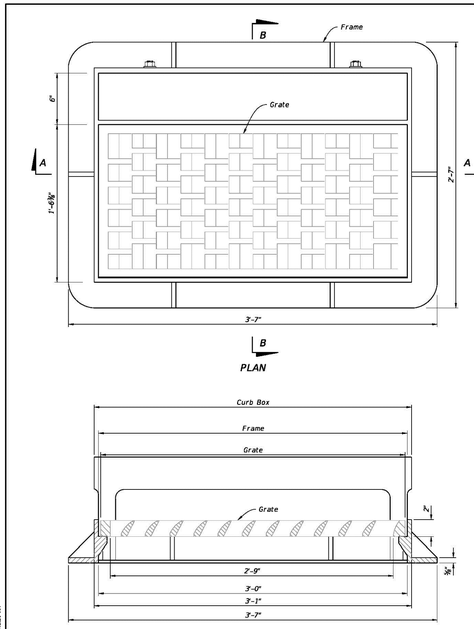
TABLE 4 NOTES:

1. Wall depth is measured to the top of the bottom slab for boxes and to the top of the intermediate slab for risers.
2. Wall height is the distance between top of lower slab to bottom of upper slab. Maximum wall height is 12' for wall lengths exceeding 5', or 10' for wall lengths exceeding 12'.
3. Wall lengths exceeding 6'-0" require two layers of reinforcing (See Table 4) with 2" of cover from the horizontal bars to the inside and outside faces for each layer.
4. Wall lengths exceeding the dimensions or depths shown in Table 4, or 12'-0" diameter require a special design.
5. Wall thickness and reinforcing for rectangular structures is based on the longer wall length.

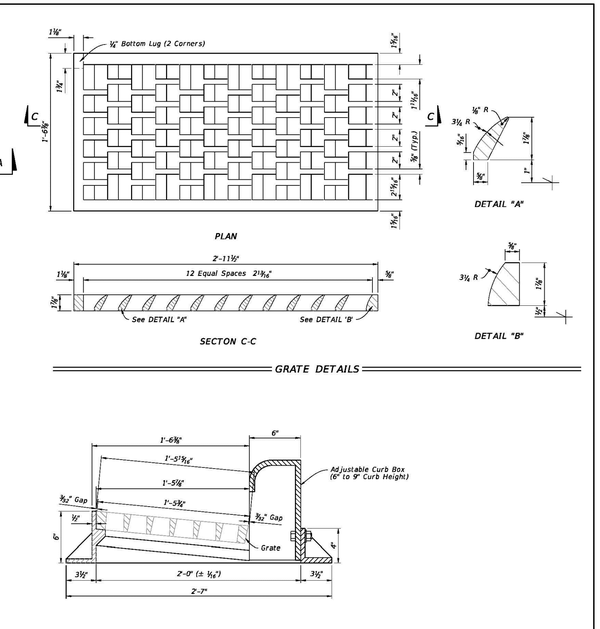
TABLES 1, 2, 3, AND 4

11/2/2020 8:53:37 AM

LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	STRUCTURE BOTTOMS TYPE J AND P	INDEX	SHEET
11/01/20	REVISION			425-010	3 of 4



PLAN



PLAN

DETAIL "A"

SECTON C-C

DETAIL "B"

GRATE DETAILS

SECTION A-A

SECTION B-B

FRAME AND GRATE DETAILS

FRAME AND GRATE DETAILS

10/12/2020 8:44:51 AM

LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	CURB INLET TOP TYPE 9	INDEX	SHEET
11/01/20	REVISION			425-024	2 of 3

NEWKIRK ENGINEERING INC.
1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

FDOT STANDARD DETAILS
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

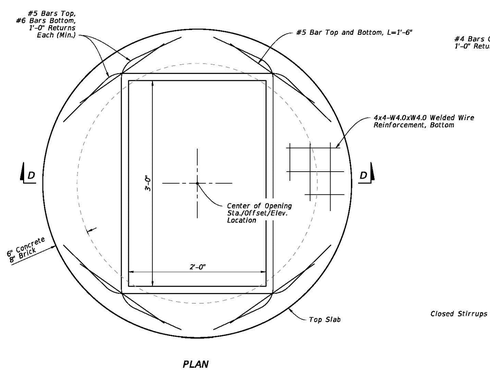
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

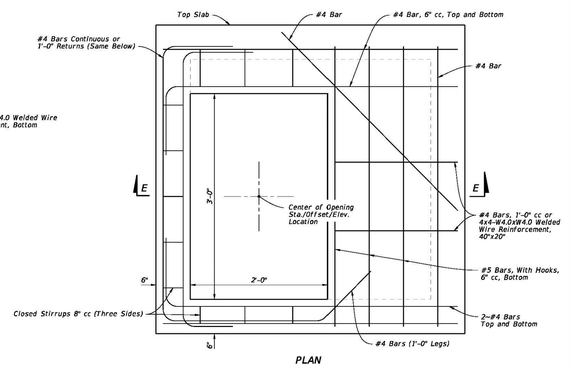
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

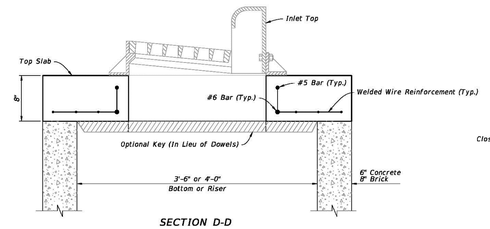
PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

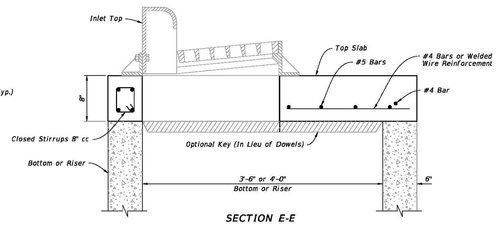
DRAWING NUMBER

37





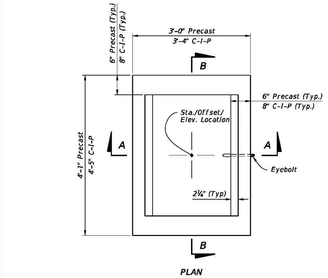


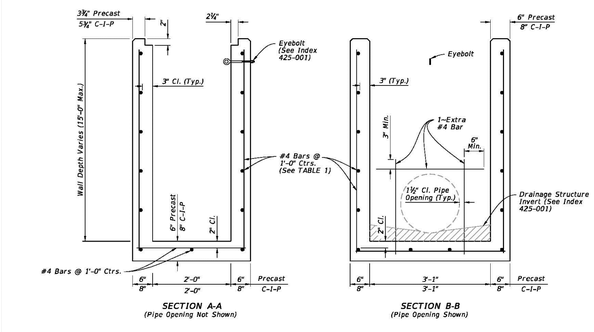


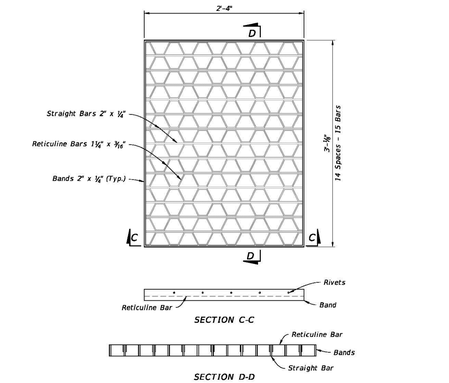
TOP SLAB DETAILS

10/23/2020 6:48:07 AM

LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	CURB INLET TOP TYPE 9	INDEX	SHEET
11/01/20	REVISION			425-024	3 of 3







STEEL GRATE DETAIL

(Approx. 104 Lbs. - See Sheet 7 For Cast Iron Grates)

TABLE 1
HORIZONTAL WALL REINFORCING SCHEDULE

WALL DEPTH	SCHEDULE	AREA (in²/ft.)	MAX. SPACING	
			BARS	WWF
0' - 15'	A12	0.20	12"	8"

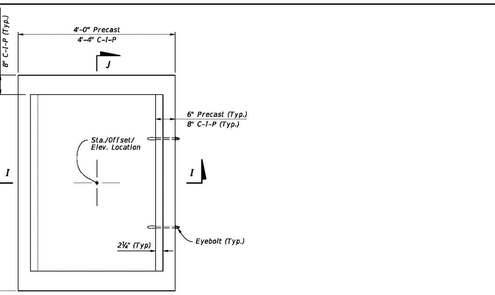
NOTES:
1. Grate, Concrete Apron, and Sod not shown on structure detail.
2. See Sheet 8, 9, and 10 For Concrete Apron and Sodded Area details.

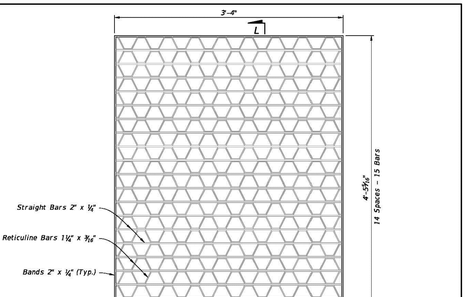
DIMENSIONAL AND REINFORCING DETAILS

TYPE C - DIMENSIONAL, REINFORCING, AND STEEL GRATE DETAILS

7/12/2021 1:03:01 AM

LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	DITCH BOTTOM INLET TYPE C, D, E, AND H	INDEX	SHEET
11/01/20	REVISION			425-052	2 of 14





STEEL GRATE DETAIL

(Approx. 215 lbs. - See Sheet 7 For Cast Iron Grates)

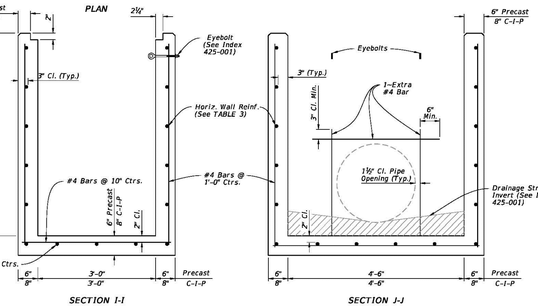


TABLE 3
HORIZONTAL WALL REINFORCING SCHEDULE

WALL DEPTH	SCHEDULE	AREA (in²/ft.)	MAX. SPACING	
			BARS	WWR
0' - 5'	A12	0.20	12"	8"
0' - 7.5'	A6	0.20	6"	5"
7.5' - 10'	B5.5	0.24	5½"	5"
10' - 15'	C6.5	0.37	6½"	6"

NOTES:
1. Grate, Concrete Apron, and Sod not shown on structure detail.
2. See Sheet 8, 9, and 10 For Concrete Apron and Sodded Area details.

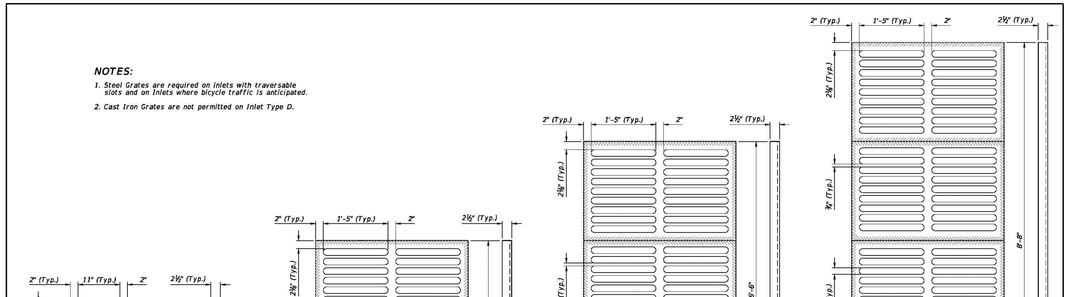
DIMENSIONAL AND REINFORCING DETAILS

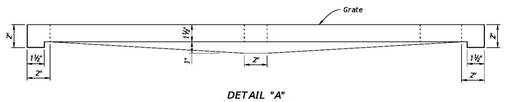
TYPE E - DIMENSIONAL, REINFORCING, AND STEEL GRATE DETAILS

10/30/06 AM 7/12/2021

LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	DITCH BOTTOM INLET TYPE C, D, E, AND H	INDEX	SHEET
11/01/20	REVISION			425-052	4 of 14

NOTES:
1. Steel Grates are required on inlets with traversable slots and on inlets where bicycle traffic is anticipated.
2. Cast Iron Grates are not permitted on Inlet Type D.





CAST IRON GRATE DETAILS

7/14/2021 1:38:23 PM

LAST REVISION	DESCRIPTION:	FDOT FY 2022-23 STANDARD PLANS	DITCH BOTTOM INLET TYPE C, D, E, AND H	INDEX	SHEET
11/01/20	REVISION			425-052	7 of 14

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

FDOT STANDARD DETAILS

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

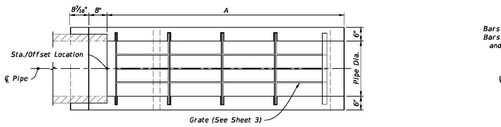
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

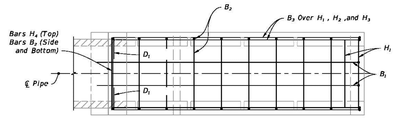
PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

38

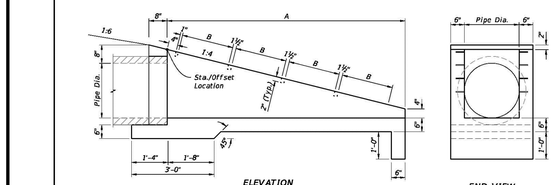


PLAN



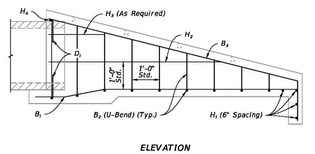
PLAN

LEGEND:
H = Horizontal Bars
V = Vertical Bars
B = Bent Bars
D = Dowels or Diagonal Bars

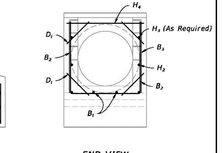


ELEVATION

END VIEW



ELEVATION



END VIEW

DIMENSIONAL DETAIL — *REINFORCING DETAIL*

TABLE 2
DIMENSIONS AND QUANTITIES

	Pipe Dia.	A (Ft.)	B (Ft)	Class I Conc. (CY)	Reinf. Steel (lbs.)
Slope 1:4	15"	5.67	2.38	0.85	56
	18"	6.67	1.875	1.01	73
	24"	8.67	1.875	1.65	97
	30"	10.67	1.875	2.33	129

10/12/2020 7:13:47 AM

DIMENSIONAL AND REINFORCING DETAILS

LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	U-TYPE CONCRETE ENDWALLS 15" TO 30" PIPES WITH GRATES	INDEX	SHEET
11/01/19	REVISION			430-010	2 of 3

TABLE 1
SINGLE AND MULTIPLE CONCRETE PIPE DIMENSIONS AND QUANTITIES

	Dia. D	Rise R	Span S	X	A	B	C	E	F	G	H	M Single Pipe	M Double Pipe	M Triple Pipe	M Quad. Pipe	N	5½" CONC. SLAB (CY) (See General Note 3) Single Pipe	5½" CONC. SLAB (CY) Double Pipe	5½" CONC. SLAB (CY) Triple Pipe	5½" CONC. SLAB (CY) Quad. Pipe	9" CONC. SLAB (CY) (See General Note 3) Single Pipe	9" CONC. SLAB (CY) Double Pipe	9" CONC. SLAB (CY) Triple Pipe	9" CONC. SLAB (CY) Quad. Pipe	SODDING (SY) Single Pipe	SODDING (SY) Double Pipe	SODDING (SY) Triple Pipe	SODDING (SY) Quad. Pipe
Round Concrete Pipe — 1:2 Slope	15"	—	—	2'-7"	1.92	2.18	4.10	2.00	5	1.22	2.9	4.63	7.29	9.79	12.37	119	0.38	0.58	0.77	0.98	0.27	0.41	0.54	0.67	21	24	27	30
	18"	—	—	2'-10"	1.90	2.24	4.21	2.56	6	1.41	3.4	4.92	7.75	10.38	13.42	121	0.44	0.65	0.87	1.09	0.31	0.45	0.60	0.75	22	25	28	31
	24"	—	—	3'-5"	2.00	3.85	5.91	3.56	7	1.73	3.4	5.50	8.92	12.33	15.75	125	0.54	0.83	112	1.42	0.39	0.59	0.79	1.00	24	28	32	35
	30"	—	—	4'-2"	2.15	4.95	7.10	4.56	8	2.00	3.4	6.08	10.33	14.58	18.83	129	0.66	1.09	1.50	1.91	0.46	0.76	1.04	1.32	26	31	35	40
	36"	—	—	5'-1"	2.25	6.08	8.33	5.50	9	2.24	3.4	6.67	11.75	16.83	21.92	133	0.81	1.38	1.95	2.51	0.55	0.94	1.33	1.71	28	34	39	45
	42"	—	—	6'-0"	2.34	7.21	9.55	6.56	10	2.45	3.4	7.25	13.25	19.25	25.25	138	0.97	1.70	2.45	3.19	0.66	1.15	1.66	2.15	30	37	43	50
	48"	—	—	6'-9"	2.43	8.33	10.78	7.56	11	2.65	3.4	7.83	14.58	21.33	28.08	142	1.13	2.04	2.93	3.84	0.76	1.37	1.96	2.57	32	39	47	54
	54"	—	—	7'-8"	2.52	9.44	11.96	8.56	12	2.83	3.4	8.42	16.08	23.75	31.42	146	1.31	2.44	3.58	4.72	0.81	1.62	2.38	3.14	34	42	51	59
	60"	—	—	8'-6"	2.62	10.50	13.18	9.56	14	3.00	4.4	9.00	17.50	26.00	34.50	150	1.51	2.89	4.28	5.68	0.99	1.90	2.81	3.73	36	45	55	64
	66"	—	—	9'-5"	2.71	11.68	14.39	10.56	15	3.19	4.4	9.58	18.75	27.92	37.08	154	1.68	3.25	4.84	6.43	1.11	2.15	3.21	4.27	38	48	58	68
	72"	—	—	10'-0"	2.80	12.80	15.60	11.56	16	3.30	4.4	10.16	20.16	30.16	40.16	158	1.89	3.74	5.59	7.45	1.24	2.46	3.68	4.90	40	51	62	73
	15"	—	—	2'-2"	2.40	4.09	6.36	4.03	8	1.22	4.0	4.63	7.29	9.79	12.37	119	0.57	0.87	115	1.44	0.40	0.61	0.80	1.00	23	26	29	32
	18"	—	—	2'-10"	2.39	5.12	7.48	5.03	9	1.41	4.0	4.92	7.75	10.58	13.42	121	0.66	0.99	1.31	165	0.47	0.69	0.91	114	25	28	31	35
	24"	—	—	3'-5"	2.53	7.18	9.71	7.03	11	1.73	4.0	5.50	8.92	12.33	15.75	125	0.85	1.30	1.75	2.20	0.60	0.90	1.21	1.52	28	32	36	40
	30"	—	—	4'-3"	2.70	9.25	11.95	9.03	13	2.00	4.0	6.08	10.33	14.58	18.83	129	1.10	1.74	2.39	3.05	0.76	1.19	1.63	2.07	31	36	41	46
	36"	—	—	5'-1"	2.87	11.31' ◇	14.18'	11.03' ◇	15	2.24	4.0	6.67	11.75	16.83	21.92	133	1.32	2.21	3.08	3.96	0.89	1.48	2.05	2.63	34	40	46	52
	42"	—	—	6'-0"	3.00	13.37	16.42	13.03	17	2.45	4.0	7.25	13.25	19.25	25.25	138	1.58	2.76	3.91	5.09	1.05	1.82	2.57	3.34	38	44	51	58
	48"	—	—	6'-9"	3.22	15.43	18.65	15.03	19	2.65	4.0	7.83	14.58	21.33	28.08	142	1.85	3.30	4.73	6.17	1.21	2.15	3.07	4.00	41	48	56	63
	54"	—	—	7'-8"	3.39	17.49	20.88'	17.03	21	2.83	4.0	8.42	16.08	23.75	31.42	146	2.14	3.95	5.77	7.58	1.39	2.55	3.72	4.88	44	52	61	69
	60"	—	—	8'-6"	3.50	19.55	23.11	19.03	23	3.00	4.0	9.00	17.50	26.00	34.50	150	2.45	4.66	6.87	9.07	1.59	3.02	4.44	5.86	47	56	66	75
	66"	—	—	9'-5"	3.73	21.62	25.35	21.03	25	3.18	4.0	9.58	18.75	27.92	37.08	154	2.88	5.54	8.18	10.84	1.91	3.66	5.40	7.15	49	59	69	80
	72"	—	—	10'-0"	3.91	23.68	27.59	23.03	27	3.30	4.0	10.16	20.16	30.16	40.16	158	3.34	6.41	9.47	12.53	2.12	4.08	6.24	8.30	52	63	74	85
Elliptical Concrete Pipe — 1:2 Slope	—	12"	18"	2'-10"	1.97'	1.82'	3.59'	1.56'	4'	1.50'	2.4'	4.92'	7.75'	10.58'	13.42'	121'	0.30	0.49	0.67	0.85	0.19	0.33	0.45	0.57	21	24	27	30
	—	14"	23"	3'-4"	2.01'	1.99'	4.00'	1.89'	5'	1.90'	3.1'	5.38'	8.71'	12.04'	15.38'	123'	0.37	0.59	0.81	1.02	0.25	0.40	0.55	0.69	22	26	29	33
	—	19"	30"	4'-0"	2.11'	2.92'	5.03'	2.73'	6'	2.31'	3.3'	6.04'	10.04'	14.04'	18.04'	127'	0.50	0.80	109	1.39	0.34	0.55	0.75	0.95	24	28	33	37
	—	24"	38"	5'-0"	2.20'	3.85'	6.05'	3.56'	7'	2.85'	3.4'	6.79'	11.79'	16.79'	21.79'	131'	0.62	1.03	1.45	1.86	0.43	0.71	1.00	1.28	26	31	37	42
	—	29"	45"	5'-11"	2.34'	4.79'	7.13'	4.39'	8'	3.59'	3.6'	7.50'	13.42'	19.33'	25.25'	138'	0.75	1.30	1.84	2.39	0.52	0.90	1.27	1.65	28	34	41	47
	—	34"	53"	7'-0"	2.43'	5.72'	8.15'	5.23'	9'	3.57'	3.8'	8.25'	15.25'	22.25'	29.25'	142'	0.90	1.61	2.32	3.03	0.62	1.11	1.60	2.09	30	37	45	53
	—	38"	60"	7'-10"	2.52'	6.66'	8.98'	5.89'	9'	3.95'	3.3'	8.92'	16.92'	24.92'	32.92'	146'	1.03	1.89	2.74	3.60	0.71	1.29	1.87	2.46	32	41	49	57
	—	43"	68"	8'-11"	2.62'	7.39'	10.01'	6.73'	10'	4.28'	3.3'	9.67'	18.58'	27.50'	36.42'	150'	1.19	2.26	3.33	4.40	0.81	1.54	2.26	2.99	33	43	53	63
	—	48"	76"	9'-11"	2.71'	8.33'	11.04'	7.56'	11'	4.59'	3.4'	10.42'	20.33'	30.25'	40.17'	154'	1.38	2.65	3.93	5.21	0.93	1.79	2.66	3.53	35	46	57	68
	—	53"	83"	10'-10"	2.80'	9.26'	12.06'	8.39'	12'	4.77'	3.6'	11.08'	21.75'	32.42'	43.08'	158'	1.55	3.03	4.50	5.96	1.04	2.04	3.03	3.99	37	49	61	73
	—	58"	91"	11'-8"	2.90'	10.19'	13.09'	9.23'	13'	5.01'	3.8'	11.83'	23.50'	35.17'	46.83'	163'	1.75	3.47	5.20	6.93	1.17	2.33	3.49	4.66	39	52	65	78
	—	12"	18"	3'-4"	2.01'	1.99'	4.00'	1.89'	5'	1.90'	2.0'	4.92'	7.75'	10.58'	13.42'	121'	0.45	0.68	0.92	114	0.30	0.45	0.61	0.76	23	26	29	32
	—	14"	23"	3'-4"	2.44'	3.75'	6.19'	3.70'	6'	1.90'	2.3'	5.38'	8.71'	12.04'	15.38'	123'	0.53	0.83	113	1.42	0.36	0.56	0.76	0.95	24	28	32	35
	—	19"	30"	4'-0"	2.62'	5.47'	8.09'	5.36'	8'	2.31'	2.8'	6.04'	10.04'	14.04'	18.04'	127'	0.74	1.15	1.57	1.98	0.51	0.79	1.08	1.36	27	32	36	40
	—	24"	38"	5'-0"	2.79'	7.18'	9.97'	7.03'	10'	2.85'	3.0'	6.79'	11.79'	16.79'	21.79'	131'	0.97	1.57	2.19	2.81	0.68	1.10	1.53	1.96	30	36	41	47
	—	29"	45"	5'-11"	3.05'	8.90'	11.95'	8.70'	12'	3.19'	3.3'	7.50'	13.42'	19.33'	25.25'	138'	1.22	2.07	2.92	3.77	0.86	1.45	2.04	2.63	33	40	46	53
	—	34"	53"	7'-0"	3.22'	10.62'	13.84'	10.36'	13'	3.57'	3.6'	8.25'	15.25'	22.25'	29.25'	142'	1.48	2.62	3.77	4.93	1.02	1.81	2.60	3.39	36	44	52	59
	—	38"	60"	7'-10"	3.39'	11.99'	15.38'	11.70'	15'	3.95'	3.3'	8.92'	16.75'	24.58'	32.42'	146'	1.72	332	4.53	5.92	118	214	310	4.05	38	47	56	65
	—	43"	68"	8'-11"	3.56'	13.71'	17.27'	13.36'	17'	4.28'	3.6'	9.67'	18.58'	27.50'	36.42'	150'	2.02	378	5.56	7.32	138	258	379	4.99	41	51	61	71
	—	48"	76"	9'-11"	3.73'	15.43'	19.16'	15.03'	19'	4.59'	4.0'	10.42'	20.33'	30.25'	40.17'	154'	2.34	4.49	6.64	8.79	1.59	3.05	4.51	5.97	44	55	66	77
	—	53"	83"	10'-8"	3.91'	17.15'	21.06'	16.70'	20'	4.77'	3.3'	11.08'	21.75'	32.42'	43.08'	158'	2.66	517	7.66	10.16	1.80	3.50	5.19	6.88	47	59	71	83
	—	58"	91"	11'-6"	4.08'	18.87'	22.95'	18.36'	22'	5.01'	3.6'	11.83'	23.50'	35.17'	46.83'	163'	3.02	5.98	8.93	11.90	2.04	4.04	6.05	8.05	50	63	76	89

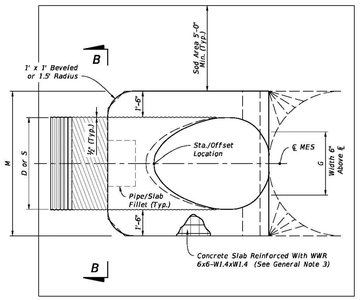
B: △ 6.42' △ 6.25' Dimensions permitted to allow use of 8' standard pipe lengths.

E: ◇ 10.40' ◇ 10.10' Dimensions permitted to allow use of 12' standard pipe lengths.

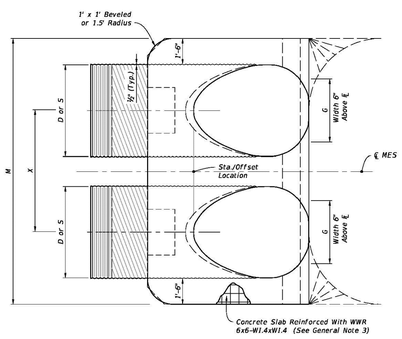
10/12/2020 7:13:55 AM

CONCRETE PIPE DIMENSIONS AND QUANTITIES

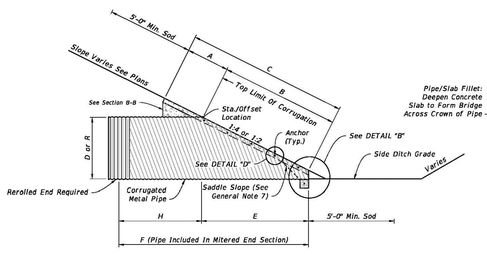
LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	CROSS DRAIN MITERED END SECTION	INDEX	SHEET
11/01/19	REVISION			430-021	3 of 6



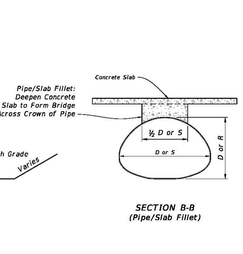
PLAN - SINGLE PIPE



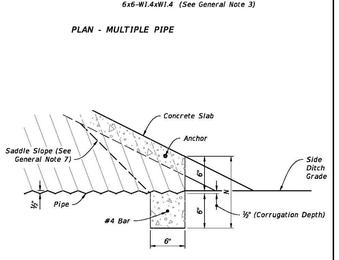
PLAN - MULTIPLE PIPE



ELEVATION



SECTION B-B
(Pipe/Slab Fillet)



DETAIL "B"

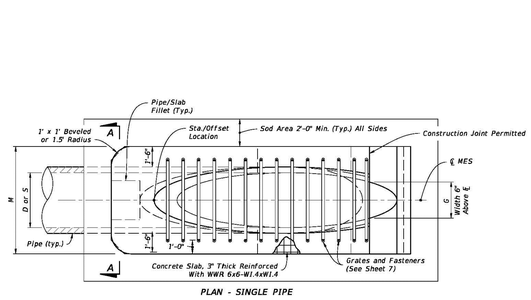
ARCHED CORRUGATED METAL PIPE
(Round Pipe Similar)

NOTE: See Table 2 on Sheet 5 for Dimensions and Quantities.

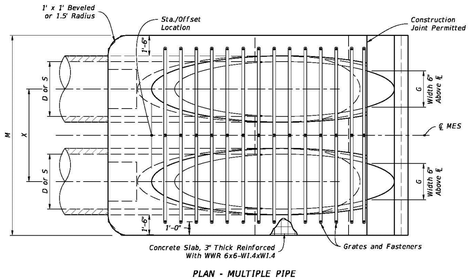
10/12/2020 7:17:08 AM

SINGLE AND MULTIPLE CORRUGATED METAL PIPE

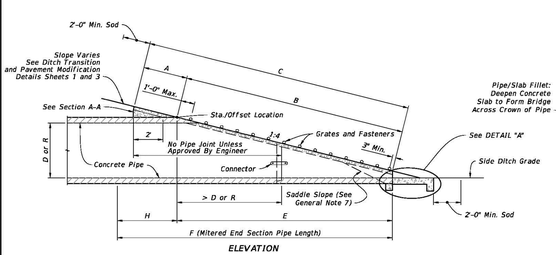
LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	CROSS DRAIN MITERED END SECTION	INDEX	SHEET
11/01/19	REVISION			430-021	4 of 6



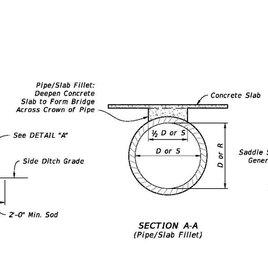
PLAN - SINGLE PIPE



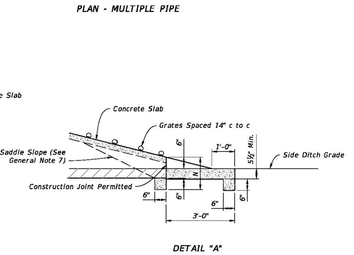
PLAN - MULTIPLE PIPE



ELEVATION



SECTION A-A
(Pipe/Slab Fillet)



DETAIL "A"

ROUND CONCRETE PIPE
(Elliptical Pipe Similar)

10/12/2020 7:17:41 AM

SINGLE AND MULTIPLE CONCRETE PIPE

LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	SIDE DRAIN MITERED END SECTION	INDEX	SHEET
11/01/18	REVISION			430-022	2 of 7

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 8600584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

FDOT STANDARD DETAILS
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

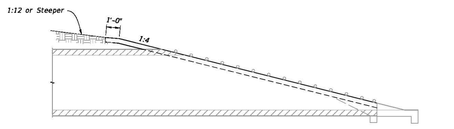
DRAWING NUMBER

39

SINGLE AND MULTIPLE CONCRETE PIPE DIMENSIONS AND QUANTITIES

Pipe	Dia. D	Rise R	Span S	X	A	B	C	E	F	G	H	M Single Pipe	M Double Pipe	M Triple Pipe	M Quad. Pipe	N	GRATE SIZES STANDARD WEIGHT PIPE	GRATE SIZES EXTRA STRONG PIPE	3" CONC. SLAB (CY) Single Pipe	3" CONC. SLAB (CY) Double Pipe	3" CONC. SLAB (CY) Triple Pipe	3" CONC. SLAB (CY) Quad. Pipe	SODDING (SY) Single Pipe	SODDING (SY) Double Pipe	SODDING (SY) Triple Pipe	SODDING (SY) Quad. Pipe
Round Concrete	15"	—	—	2'-7"	2.27'	4.09'	6.36'	4.03'	8'	1.22'	4.0'	4.83'	7.51'	9.79'	12.39'	1.19'			0.76	1.16	1.54	1.94	8	10	11	12
	18"	—	—	2'-10"	2.36'	5.12'	7.48'	5.03'	9'	1.41'	4.0'	4.92'	7.75'	10.58'	13.42'	1.21'			0.85	1.28	1.71	2.17	9	10	12	13
	24"	—	—	3'-5"	2.53'	7.18'△	9.71'	7.03' △	11'	1.73'	4.0'	5.50'	8.92'	12.33'	15.75'	1.25'			1.02	1.58	2.15	2.75	10	12	13	15
	30"	—	—	4'-3"	2.70'	9.25'	11.95'	9.03'	13'	2.00'	4.0'	6.08'	10.33'	14.58'	18.83'	1.29'	2½"	3"	1.23	1.98	2.74	3.50	12	14	15	17
	36"	—	—	5'-1"	2.80'	11.31'◇	14.18'	11.03' ◇	15'	2.24'	4.0'	6.67'	11.75'	16.83'	21.92'	1.33'	2½"	3"	1.40	2.38	3.33	4.24	13	15	17	20
	42"	—	—	6'-0"	3.05'	13.37'	16.42'	13.03'	17'	2.45'	4.0'	7.25'	13.25'	19.25'	25.25'	1.38'	2½"	3½"	1.60	2.83	4.04	5.26	14	17	19	22
	48"	—	—	6'-9"	3.22'	15.43'	18.65'	15.03'	19'	2.65'	4.0'	7.83'	14.58'	21.33'	28.08'	1.42'	2½"	3½"	1.81	3.26	4.70	6.14	15	18	21	24
	54"	—	—	7'-6"	3.39'	17.49'	20.88'	17.03'	21'	2.83'	4.0'	8.42'	16.08'	23.75'	31.42'	1.46'	3"	4"	2.03	3.78	5.54	7.28	17	20	23	27
	60"	—	—	8'-6"	3.56'	19.55'	23.11'	19.03'	23'	3.00'	4.0'	9.00'	17.50'	26.00'	34.50'	1.50'	3"	4"	2.28	4.36	6.43	8.50	18	22'	25	29
Elliptical Concrete	—	12"	18"	2'-10"	2.36'	5.06'	5.42'	3.03'	5'	1.50'	2.2'	4.92'	7.79'	10.58'	13.42'	1.21'			0.66	1.04	1.41	1.77	8	9	11	12
	—	14"	23"	3'-4"	2.44'	5.75'	6.19'	3.70'	6'	1.90'	2.3'	5.38'	8.71'	12.04'	15.38'	1.23'			0.76	1.19	1.63	2.05	9	10	12	13
	—	19"	30"	4'-0"	2.62'	5.47'	8.09'	5.36'	8'	2.37'	2.6'	6.04'	10.04'	14.04'	18.04'	1.27'	2½"	3"	0.95	1.52	2.09	2.65	10	12	13	15
	—	24"	38"	5'-0"	2.79'	7.18'	9.59'	7.03'	10'	2.85'	3.0'	6.79'	11.79'	16.75'	21.75'	1.31'	2½"	3"	1.18	1.95	2.74	3.53	11	13	15	18
	—	29"	45"	5'-11"	3.05'	8.90'	11.95'	8.70'	12'	3.19'	3.3'	7.50'	13.42'	19.33'	25.25'	1.38'	2½"	3½"	1.41	2.42	3.44	4.45	13	15	18	20
	—	34"	53"	7'-0"	3.22'	10.62'	13.84'	10.36'	13'	3.57'	3.6'	8.25'	15.25'	22.25'	29.25'	1.42'	3"	3½"	1.63	2.92	4.22	5.52	13	17	20	23
	—	38"	60"	7'-10"	3.39'	11.99'	15.38'	11.70'	15'	3.95'	3.3'	8.92'	16.75'	24.58'	32.42'	1.46'	3"	4"	1.83	3.36	4.89	6.41	14	18	21	25
	—	43"	68"	9'-1"	3.58'	13.71'	17.22'	13.36'	17'	4.38'	3.8'	9.67'	18.58'	27.50'	36.42'	1.50'	3"	4"	2.00	3.95	5.80	7.65	16	20	23	27
	—	48"	76"	9'-11"	3.73'	15.43'	19.16'	15.03'	19'	4.59'	4.0'	10.42'	20.33'	30.25'	40.17'	1.54'	3"	HSS 5"x5"x¼"	2.37	4.54	6.73	8.92	17	21	26	30
	—	53"	83"	10'-8"	3.91'	17.15'	21.06'	16.70'	20'	4.77'	3.9'	11.08'	21.75'	32.42'	43.08'	1.58'	3"	HSS 5"x5"x¼"	2.61	5.09	7.56	10.03	18	23	27	32
	—	58"	91"	11'-8"	4.08'	18.87'	22.95'	18.36'	22'	5.01'	3.6'	11.83'	23.50'	35.17'	46.83'	1.63	3½"	HSS 5"x5"x¼"	2.91	5.77	8.64	11.50	19	24	29	35

△6.42' △6.25' Dimensions permitted to allow use of 8' standard pipe lengths.
◇10.40' ◇10.10' Dimensions permitted to allow use of 12' standard pipe lengths.



PERMISSIBLE PAVEMENT MODIFICATION

CONCRETE PIPE DIMENSIONS AND QUANTITIES AND PERMISSIBLE PAVEMENT MODIFICATION

10/15/2020 7:17:47 AM

LAST REVISION	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	SIDE DRAIN MITERED END SECTION	INDEX	SHEET
11/01/19	REVISION				430-022	3 of 7

50

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

FDOT STANDARD DETAILS
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

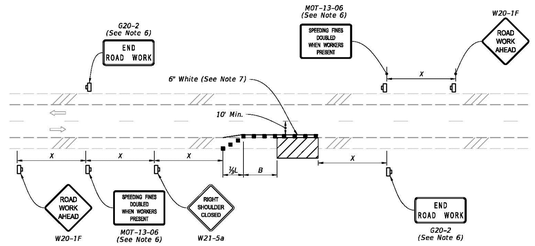
40

NOTES:

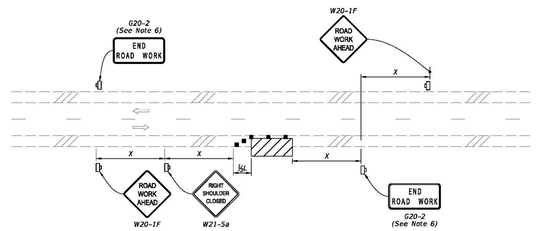
1. This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work on the shoulder.
2. L = Taper Length
   X = Work Zone Sign Spacing
   B = Buffer Length
   See Index 102-600 for "L", "X", "B", and channelizing device spacing values.
3. For incidental work (e.g. mowing or litter removal), only the Road Work Ahead sign is required.
4. When four or more work vehicles enter the through traffic lanes in a one hour period (excluding establishing and terminating the work area), use a flagger or lane closure to accommodate work vehicle ingress and egress.
5. For work less than two feet from the traveled way and work zone speed is greater than 45 MPH, use a lane closure.
6. The "Speeding Fines Doubled When Workers Present"signs (MOT-13-06) and "End Road Work" Signs (G20-2) along with the associated work zone sign spacing distances may be omitted when the temporary condition is in place for 24 hours or less.
7. Temporary pavement markings may be omitted when the work zone is in place for 3 days or less.
8. If the work encroaches on a marked bicycle lane or ridable shoulder, close the lane or shoulder in accordance with the Plans.
9. Omit "Shoulder Closed" signs (W21-5a) along with associated work zone sign spacing distances for work on the median

SYMBOLS:

- Work Area
- ■ Channelizing Device (See Index 102-600)
- D Work Zone Sign
- ⇨ Lane Identification and Direction of Traffic



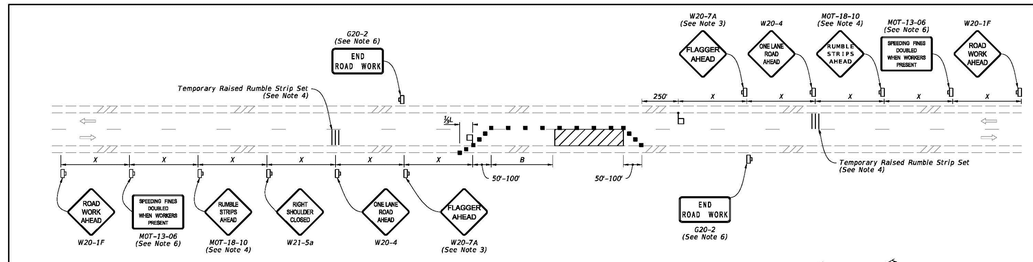
TWO-LANE ROADWAY
SHOULDER WORK LESS THAN 2' FROM THE TRAVELED WAY
WITH WORK ZONE SPEED OF 45 MPH OR LESS



TWO-LANE ROADWAY
SHOULDER WORK BETWEEN 2' AND 15' FROM THE TRAVELED WAY

10/30/2020 1:18:07 PM

LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX	SHEET
11/01/20	REVISION			102-602	1 of 2



NOTES:

1. This Index applies to Two-Lane, Two-Way Roadways with work within the traveled way.
2. L = Taper Length
   B = Buffer Length
   X = Work Zone Sign Spacing
   See Index 102-600 for "L", "B", "X" and channelizing device spacing values.
3. Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).
4. Use temporary raised rumble when the existing posted speed is 55 mph or greater and the work duration is greater than 60 minutes. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign spacing.
5. Additional one-way control may be provided by the following means:
   a. Flag-carrying vehicle
   b. Official vehicle
   c. Pilot vehicles
   d. Traffic signals

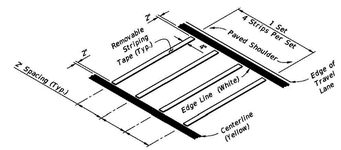
   When flaggers are the sole means of one-way control, the flaggers must be in sight of each other or in direct communication at all times.
6. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign spacing, may be omitted when the work zone will be in place for 24 hours or less.
7. Automated Flagger Assistance Devices (AFADs) may be used in accordance with Specification Sections 102, 990 and the APL vendor drawings.
8. Special Conditions may be required in accordance with these notes and the following sheets:

   A. Railroad Crossings:
      a. If an active railroad crossing is located closer to the Work Area than the queue length plus 300 feet, extend the Buffer Space as shown on Sheet 2.
      b. If the queuing of vehicles across an active railroad crossing cannot be avoided, provide a uniformed traffic control officer or flagger at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic train warning devices are in place.

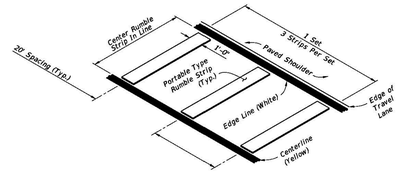
   B. If the Work Area encroaches on the Centerline, use the Layout for Temporary Lane Shift to Shoulder on Sheet 2 only if the Existing Paved Shoulder width is sufficient to provide for an 11' lane between the Work Area and the Edge of Existing Paved Shoulder and the Work Zone will be in place for 24 hours or less. Reduce the posted speed when appropriate.
9. If the work encroaches on a marked bicycle lane or ridable shoulder, close the lane or shoulder in accordance with the Plans.

SYMBOLS:

- Work Area
- ■ Channelizing Device (See Index 102-600)
- D Work Zone Sign
- ⇨ Lane Identification and Direction of Traffic
- Flagger



OPTION - 1
REMOVABLE STRIPING TYPE

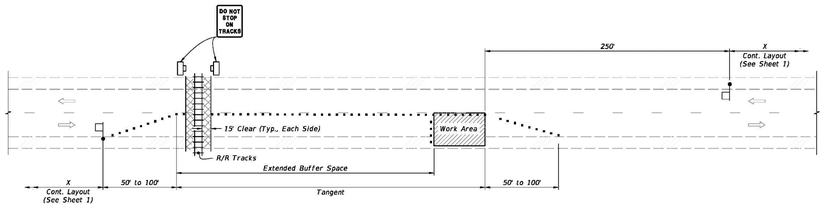


OPTION - 2
PORTABLE TYPE

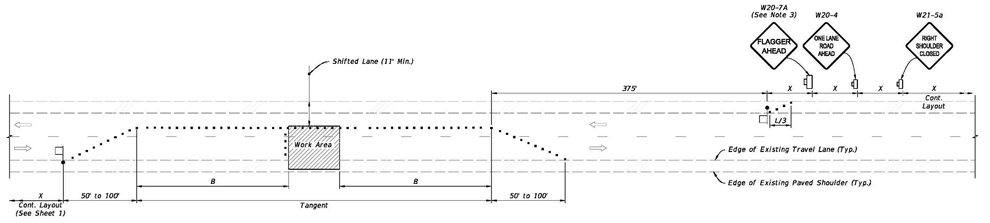
RUMBLE STRIP SETS

10/12/2020 8:15:07 AM

LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX	SHEET
11/01/20	REVISION			102-603	1 of 2



TEMPORARY RAILROAD CROSSING BUFFER SPACE EXTENSION



TEMPORARY LANE SHIFT TO SHOULDER WHEN WORK AREA ENCROACHES ON THE CENTERLINE

SYMBOLS:

- Work Area
- ■ Channelizing Device (See Index 102-600)
- D Work Zone Sign
- ⇨ Lane Identification and Direction of Traffic
- Flagger

SPECIAL CONDITIONS

10/12/2020 8:15:14 AM

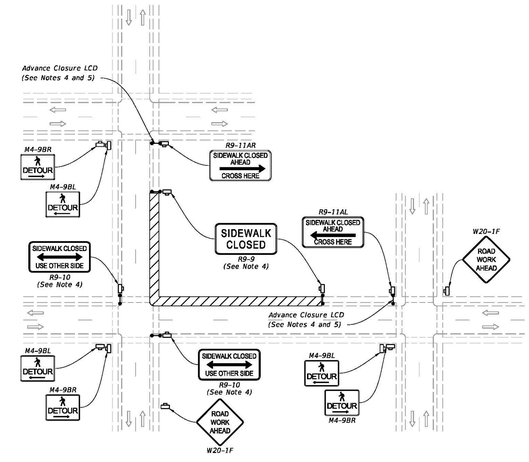
LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX	SHEET
11/01/20	REVISION			102-603	2 of 2

NOTES:

1. Cover or deactivate pedestrian traffic signal display(s) controlling closed crosswalks.
2. Place pedestrian LCDs across the full width of the closed sidewalk.
3. For post mounted signs located near or adjacent to a sidewalk, maintain a minimum 7' clearance from the bottom of the sign panel to the surface of the sidewalk.
4. "Sidewalk Closed" signs (R9-XX) may be mounted on pedestrian LCDs in accordance with the manufacturer's instructions.
5. Omit the Advance Closure LCD if it blocks access to other pedestrian facilities (e.g., transit stops, residences, or business entrances).

SYMBOLS:

- Work Area
- D Work Zone Sign
- ⇨ Lane Identification and Direction of Traffic
- Pedestrian Longitudinal Channelizing Device (LCD)



PEDESTRIAN DETOUR

10/12/2020 8:14:02 AM

LAST REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	SIDEWALK CLOSURE	INDEX	SHEET
11/01/20	REVISION			102-660	1 of 2

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013

Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

MAINTENANCE OF TRAFFIC
THE COVE AT NEW SMYRNA
306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

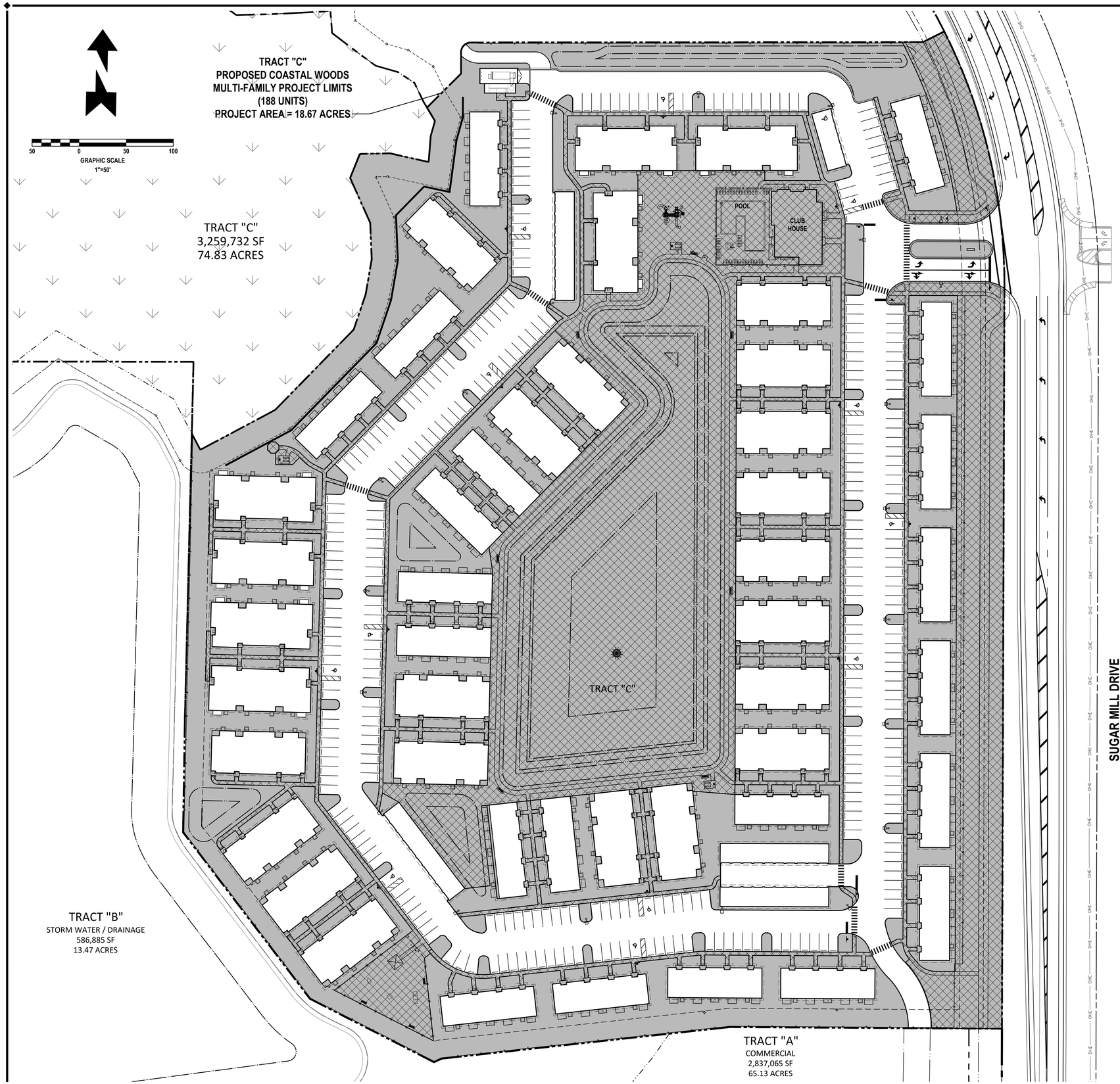
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	AS SHOWN

DRAWING NUMBER

41



OPEN SPACE CALCULATIONS

1. MINIMUM OPEN SPACE REQUIRED =
   60% OF PROJECT AREA = 18.67 x 0.60 = 11.20 ACRES
   OPEN SPACE PROVIDED = 11.21 ACRES (60.0%)
2. MINIMUM COMMON OPEN SPACE AREA =
   35% OF REQUIRED OPEN SPACE (PER LDC) = 11.20 x 0.35 = 3.92 ACRES
   COMMON OPEN SPACE PROVIDED = 5.19 ACRES (46.3%)

LEGEND

- OPEN SPACE (488,345 SF / 11.21 AC)
- COMMON OPEN SPACE (226,138 SF / 5.19 AC)
- PROJECT AREA BOUNDARY (813,342 SF / 18.67 AC)

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 672-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

COMMON OPEN SPACE CALCULATION PLAN

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 50'

DRAWING NUMBER

42

50 0 50 100
GRAPHIC SCALE
1"=50'

REUSE STORMWATER POND P-W-201
COASTAL WOODS COMMERCIAL, PHASE 1
100 YR- 24 HR EL 28.45
100 YR- 72 HR EL 28.44
25 YR - 24 HR EL 27.99
MEAN ANNUAL EL 27.15
NWL EL 25.50

MULCH TRAIL PATHWAY

COMMON RECREATION AREA

WETLANDS

WETLANDS

BUILDING No. 1 4 UNITS
BUILDING No. 2 4 UNITS
BUILDING No. 3 4 UNITS
BUILDING No. 4 4 UNITS
BUILDING No. 5 4 UNITS, 4,452 SF
BUILDING No. 6 4 UNITS
BUILDING No. 7 4 UNITS
BUILDING No. 8 4 UNITS, 4,452 SF
BUILDING No. 9 4 UNITS
BUILDING No. 10 4 UNITS
BUILDING No. 11 4 UNITS
BUILDING No. 12 4 UNITS
BUILDING No. 13 4 UNITS
BUILDING No. 14 4 UNITS
BUILDING No. 15 4 UNITS
BUILDING No. 16 4 UNITS
BUILDING No. 17 4 UNITS
BUILDING No. 18 4 UNITS
BUILDING No. 19 4 UNITS
BUILDING No. 20 4 UNITS
BUILDING No. 21 4 UNITS
BUILDING No. 22 4 UNITS
BUILDING No. 23 4 UNITS
BUILDING No. 24 4 UNITS
BUILDING No. 25 4 UNITS
BUILDING No. 26 4 UNITS
BUILDING No. 27 4 UNITS
BUILDING No. 28 4 UNITS
BUILDING No. 29 4 UNITS
BUILDING No. 30 4 UNITS
BUILDING No. 31 4 UNITS
BUILDING No. 32 4 UNITS
BUILDING No. 33 4 UNITS
BUILDING No. 34 4 UNITS
BUILDING No. 35 4 UNITS
BUILDING No. 36 4 UNITS
BUILDING No. 37 4 UNITS
BUILDING No. 38 4 UNITS
BUILDING No. 39 4 UNITS
BUILDING No. 40 4 UNITS
BUILDING No. 41 4 UNITS
BUILDING No. 42 4 UNITS
BUILDING No. 43 4 UNITS
BUILDING No. 44 4 UNITS
BUILDING No. 45 4 UNITS
BUILDING No. 46 4 UNITS
BUILDING No. 47 4 UNITS

GARAGE No. 1 (10 SPC)
GARAGE No. 2 (10 SPC)
GARAGE No. 3 (10 SPC)
GARAGE No. 4 (10 SPC)
GARAGE No. 5 (5 SPC)

POOL
CLUBHOUSE
TRASH COMPACTOR

C-1

SUGAR MILL DRIVE
(100' R/W) (SPEED LIMIT - 45 MPH)

INTERIOR LANDSCPE CALCULATIONS

MINIMUM INTERIOR PARKING LANDSCAPE REQUIRED =

10% OF PARKING AREA = 129,638 SF x 0.10 = 12,964 SF (10.0%)

INTERIOR LANDSCAPE AREA PROVIDED = 22,200 SF (17.1%)

LEGEND

PARKING LANDSCAPE AREAS (22,200 SF / 0.510 AC)

REVISIONS	
DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

INTERIOR LANDSCAPE CALCULATION
THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 50'

DRAWING NUMBER

43

APPROVED WETLAND LINE

WETLAND LINE

25' WETLAND BUFFER

TRACT "C"

WETLAND LINE

TRACT "B"
STORM WATER / DRAINAGE

REUSE STORMWATER POND
(DRA)
TOP EL 28.00
NWL 24.60
BOTTOM EL 15.00
100 YR- 24 HR EL 27.72
25 YR - 24 HR EL 27.20
MEAN ANNUAL - 24 HR EL 26.12

WETLAND IMPACT
W-25X - 0.50 AC

WETLAND IMPACT
W-24X - 2.80 AC

TRACT "C"

WETLAND IMPACT
W-27 - 0.26 AC

PROPOSED COASTAL
WOODS MULTI-FAMILY

WETLAND IMPACT
W-26X - 0.86 AC

WETLAND IMPACT
W-20X - 1.29 AC

SUGAR MILL DRIVE
(100' R/W) (SPEED LIMIT - 45 MPH)

WETLAND LINE

TRACT "A"
COMMERCIAL

50 0 50 100
GRAPHIC SCALE
1"=50'

LEGEND

WETLAND IMPACT AREA
5.71 AC (TOTAL)

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

WETLAND IMPACT MAP

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

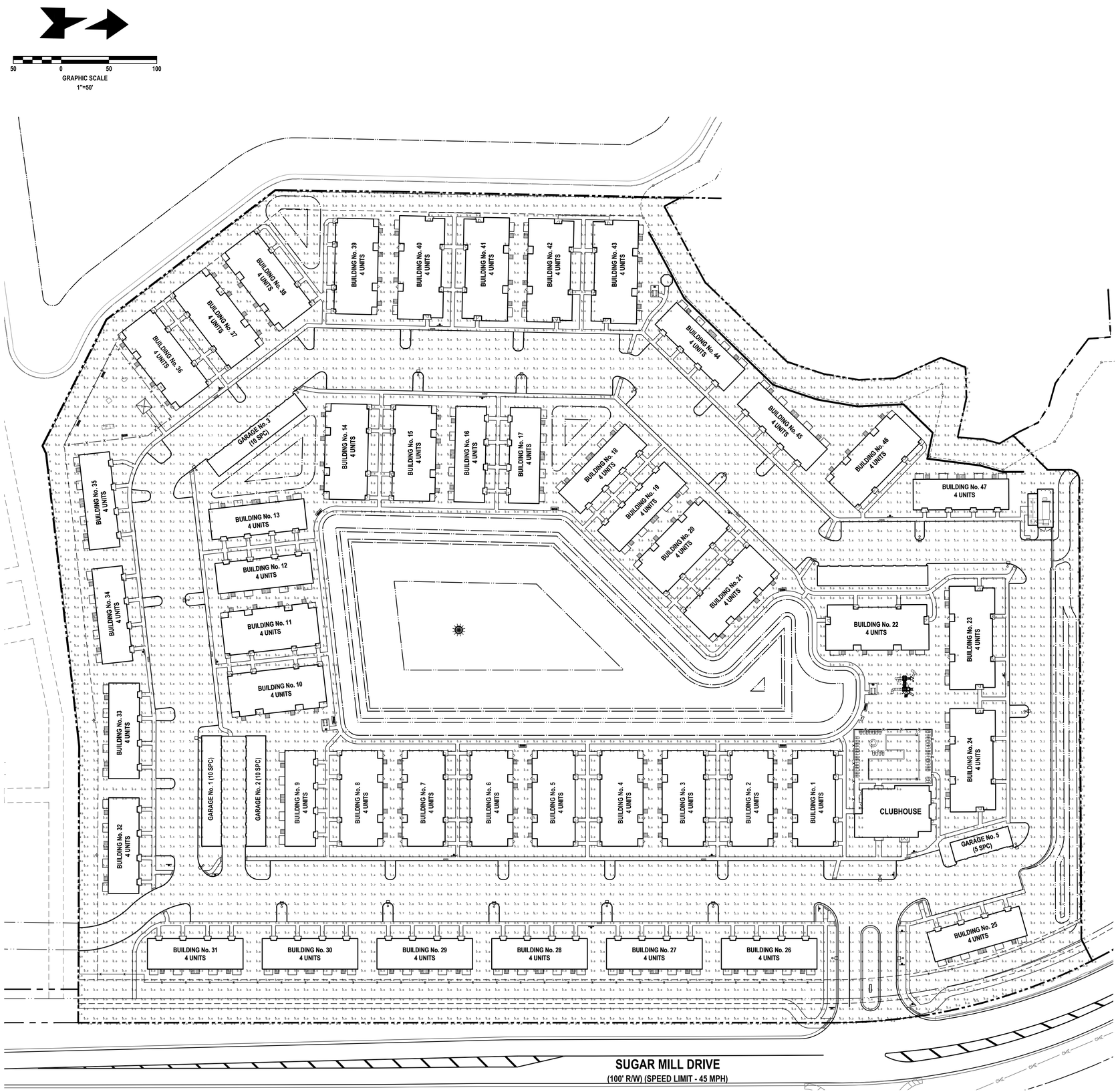
HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 50'

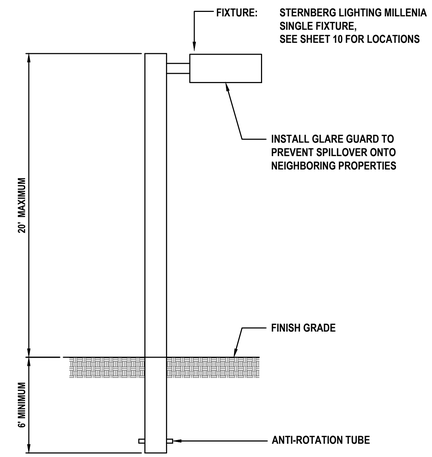
DRAWING NUMBER

44



Luminaire Schedule				
Qty	Symbol	Label	Arrangement	LLF
22		ML740-24LT40T3-MDL018-CA	SINGLE	1.000

Calculation Summary				
Label	Units	Avg	Max	Min
BOUNDARY	Fc	0.02	0.4	0.0
SITE	Fc	0.53	7.2	0.0



POLE TYPE:	5" X 5" STRAIGHT SQUARE DIRECT BURIAL LIGHT POLE
POLE HEIGHT:	20' MAXIMUM HEIGHT WITH 6' MINIMUM BURIAL
FINISH:	SMOOTH BLACK OR SATIN ALUMINUM
MATERIAL:	ALUMINUM

1. CONTRACTOR MUST OBTAIN CITY OF NEW SMYRNA BEACH BUILDING PERMIT FOR LIGHT POLES. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING APPROPRIATE INFORMATION (ENGINEERING, SPECIFICATIONS, ETC...) FOR LIGHT FIXTURES AT TIME OF PERMIT REVIEW.
2. DESIGNED TO HANDLE A MINIMUM 140 MPH WIND SPEED, EXPOSURE B OR C.
3. MAKE THE HOLE, GENERALLY HOLES SHALL BE ROUND WITH SMOOTH VERTICAL SIDES CONSISTING OF UNDISTURBED SOIL FOR BEST COMPACTION AND STABILITY OF POLES. DIAMETER OF POLE SHALL BE ABOUT TWICE THE DIAMETER OF THE POLE AT ITS BASE. HOLES SHALL BE AUGURED.
4. WIRE THE POLE UTILIZING APPROVED METHODS.
5. INSTALL THE POLE, IN MANY CASES COMPOSITE POLES CAN BE MANUALLY LIFTED INTO PLACE AND INSERTED INTO THE HOLE.
6. ALIGN AND LEVEL THE POLE.
7. BACKFILL THE HOLE, FILL AND TAMP EVERY 6 TO 8 INCHES OF BACKFILL, FREQUENT TAMPING IS IMPORTANT FOR INSTALLATION.
8. SITE LIGHTING MUST NOT SHINE DIRECTLY UPON ANY ADJACENT RESIDENCE AND MUST NOT PRODUCE EXCESSIVE GLARE. GLARE GUARDS WILL BE INSTALLED IF NEEDED.

SITE LIGHTING DETAIL

NOT TO SCALE

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture
NEWKIRK ENGINEERING INC.

SITE PHOTOMETRIC PLAN

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEGIN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

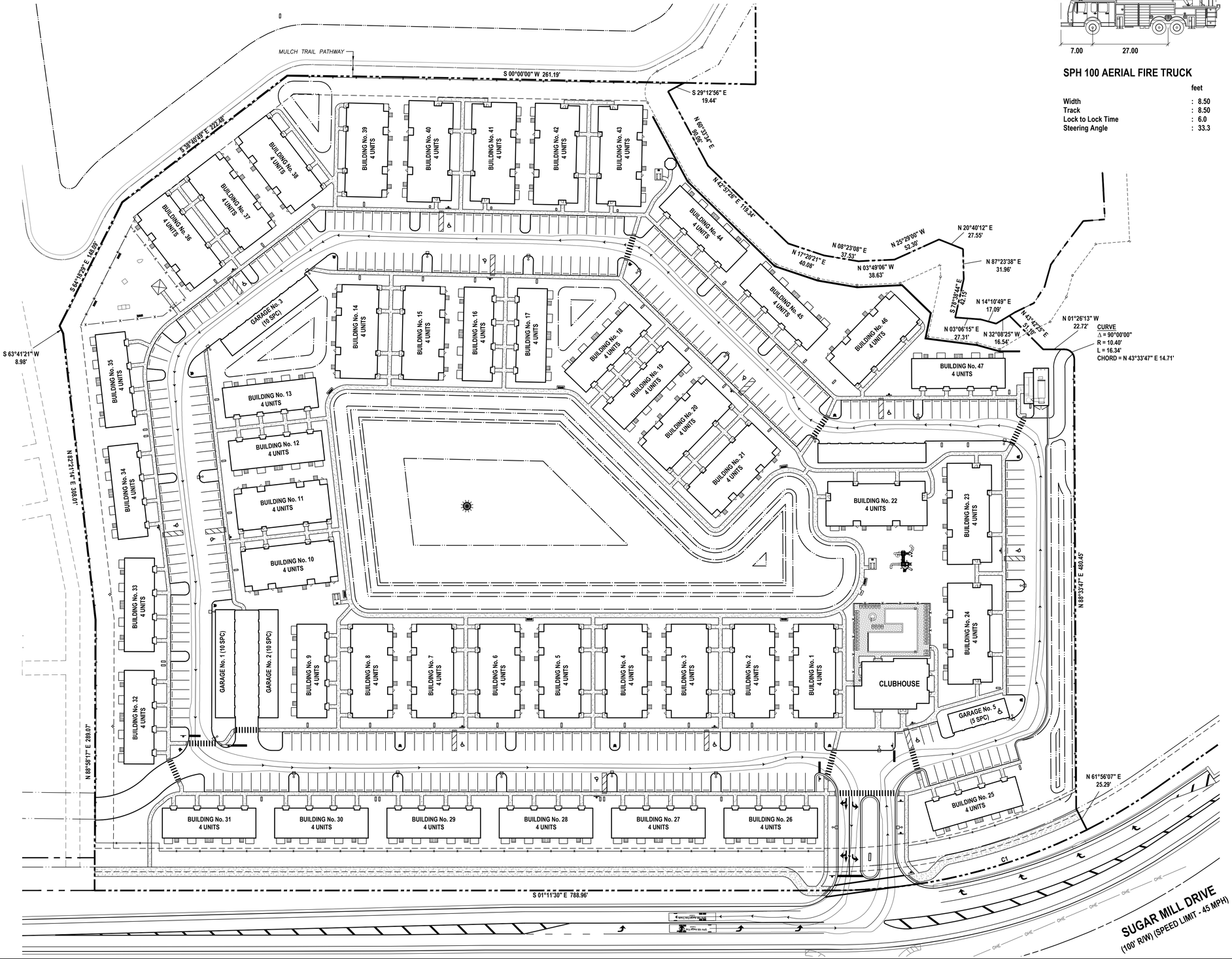
PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 50'

DRAWING NUMBER

45

GRAPHIC SCALE
1"=50'
50 0 50 100



SPH 100 AERIAL FIRE TRUCK

	feet
Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 33.3

AUTOTURN PLAN- FIRE TRUCK

THE COVE AT NEW SMYRNA

306 SUGARMILL DRIVE
NEW SMYRNA BEACH, FL 32168

REVISIONS

DATE	DESCRIPTION
3/4/22	CITY COMMENTS
7/5/22	CITY COMMENTS

1230 North US1, Suite 3
Ormond Beach, Florida 32174
Phone (386) 872-7784
www.Newkirk-Engineering.com
C.A. # 30209
L.C. # 26000584
© 2013
Civil Engineering
Transportation, CEI &
Landscape Architecture

NEWKIRK ENGINEERING INC.

THIS DRAWING IS THE PROPERTY OF NEWKIRK ENGINEERING ANY USE OR REPRODUCTION IN WHOLE OR PART IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF NEWKIRK ENGINEERING COPYRIGHT 2013 ALL RIGHTS RESERVED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY HARRY NEWKIRK, PE # 62971 ON

HARRY NEWKIRK LICENSE NO. 62971 STATE OF FLORIDA PROFESSIONAL ENGINEER

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT No:	2021-12
DATE:	SEPTEMBER 2021
DESIGN BY:	HHN
DRAWN BY:	NWS
CHECKED BY:	HHN
SCALE:	1" = 50'

DRAWING NUMBER

46

COLOR SCHEME 1
*TYP. ALL BLDG TYPES

BLUE GRAY ROOF



ARCTIC WHITE VERTICAL SIDING



STONE VENEER

COLOR SCHEME 2
*TYP. BLDG TYPES B,C,D, & F

LIGHT GRAY ROOF



LIGHT MIST VERTICAL SIDING



STONE VENEER

COLOR SCHEME 3
*TYP. BLDG TYPES B,C,D, & F

TAUPE/BEIGE ROOF



ARCTIC WHITE VERTICAL SIDING



STONE VENEER

*NOTE:

REFER TO INDIVIDUAL BUILDING ELEVATIONS W/ COLOR & MATERIAL LEGENDS FOR SPECIFIC LOCATIONS OF EACH MATERIAL TYPE PER COLOR SCHEME

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION.
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-16
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1

THE COVE AT NEW SMYRNA:

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

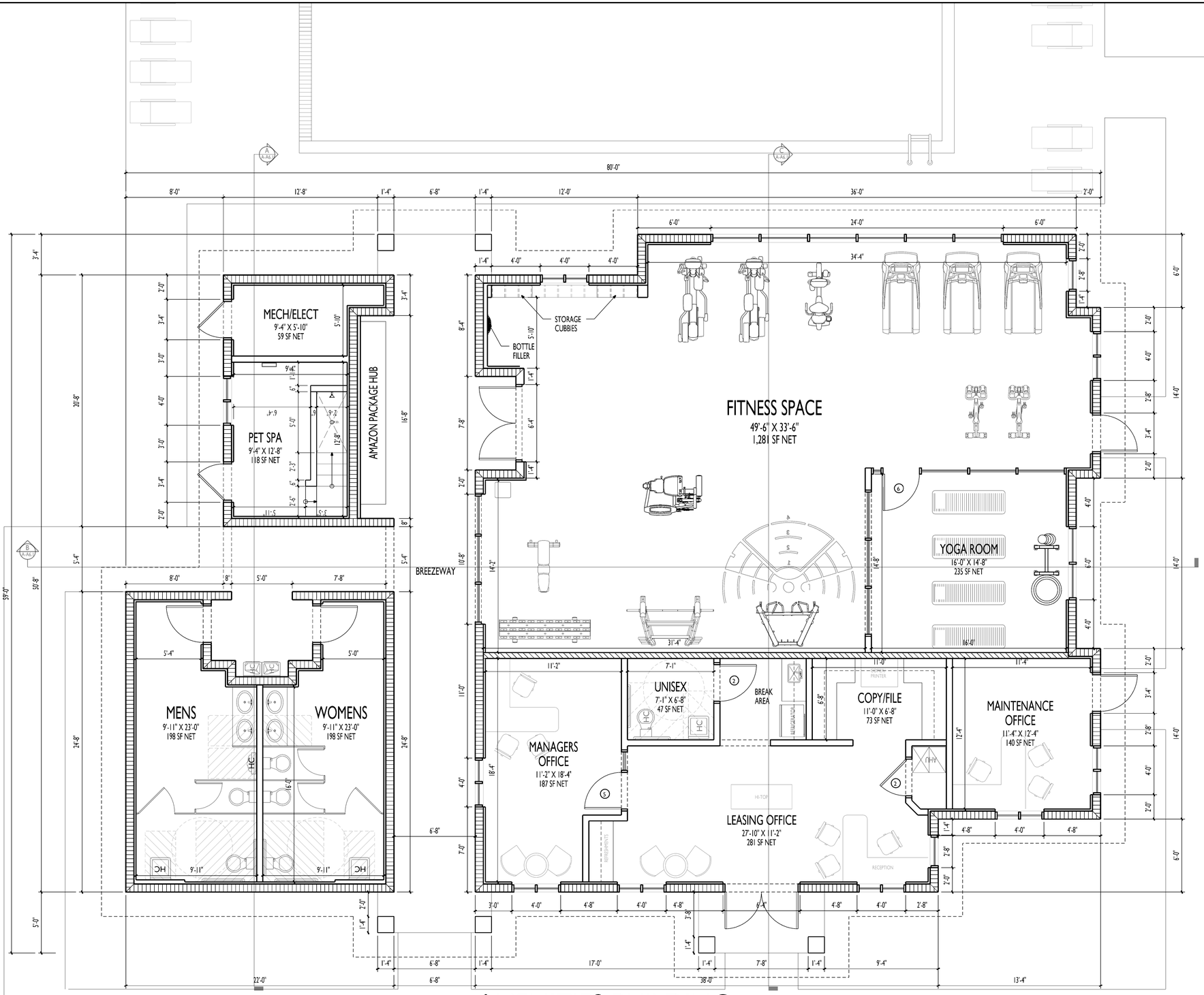
BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

EXTERIOR COLORS AND MATERIALS

DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A0.0
SCALE: 1/4"=1'-0"	

0 1' 7 7 10'

ARCHITECT'S / ENGINEER'S SEAL



A-2.0 AMENITIES BUILDING

BUILDING TYPE A:
FITNESS SPACE / PET SPA / POOL RESTROOMS
LEASING OFFICE/MAINTENANCE OFFICE

SCALE: 1/4" = 1'-0"

WALL LEGEND

1. NON RATED EXTERIOR BEARING WALL ASSEMBLY
   EXTERIOR: 3/4" PT FURRING STRIPS @ 24" O.C., VINYL SIDING (TYP.) W/ OPTION OF STONE BASE
   STRUCTURE: 8" CMU BLOCK REF. TO STRUCTURAL FOR REINFORCING & FILLED CELLS.
   INTERIOR: 7/8" GALV. MTL HAT CHANNELS @ 16' O.C., 3/4" RIGID ISO FOAM INSULATION, PERFORATED VAPOR BARRIER, 5/8" GYP. BOARD
2. NON RATED - INT. WALL
   3 5/8" 20G CFMF STUDS @ 24" O.C. (1) LAYER OF 5/8" GYP. BD. EA. SIDE ****
3. NON RATED - INT. WALL
   6" 20G CFMF STUDS @ 24" O.C. (1) LAYER OF 5/8" GYP. BD. EA. SIDE ****
4. 1-HOUR RATED - INT. WALL
   3 5/8" 20G CFMF STUDS @ 24" O.C. (1) LAYER OF TYPE X 5/8" GYP. BD. EA. SIDE ****

**** NOTE: W.P. GYP BOARD TO BE USED IN WET LOCATIONS

GROSS AREA CALC.

LEASING OFFICE (A/C)	750 SF
MAINTENANCE OFFICE (A/C)	168 SF
FITNESS SPACE & YOGA ROOM (A/C)	1,664 SF
PET SPA & MECH/ELECT (A/C)	240 SF
MENS & WOMENS RESTROOMS (A/C)	492 SF
TOTAL UNDER ROOF (A/C)	3,314 SF
PORCHES & BREEZEWAY	652 SF
TOTAL UNDER ROOF	3,966 SF

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 7TH EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 138 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-16
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1	

THE COVE AT NEW SMYRNA:

BUILDING A:
AMENITIES/FITNESS BUILDING

OWNER/REP.: CHARLES MARSHALL, PRESIDENT, MARSHALL PROPERTY SERVICES LLC. 4400 EAST 100 NORTH SHELBYVILLE, IN 46176
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL 32168
GENERAL CONTRACTOR: T.B.D.

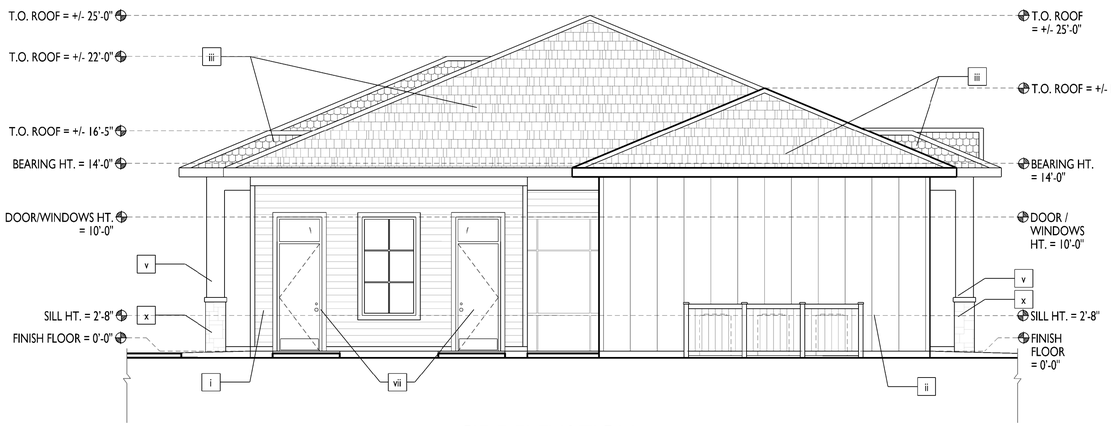
BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH#: (386) 257-0202 FX#: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

AMENITIES BUILDING

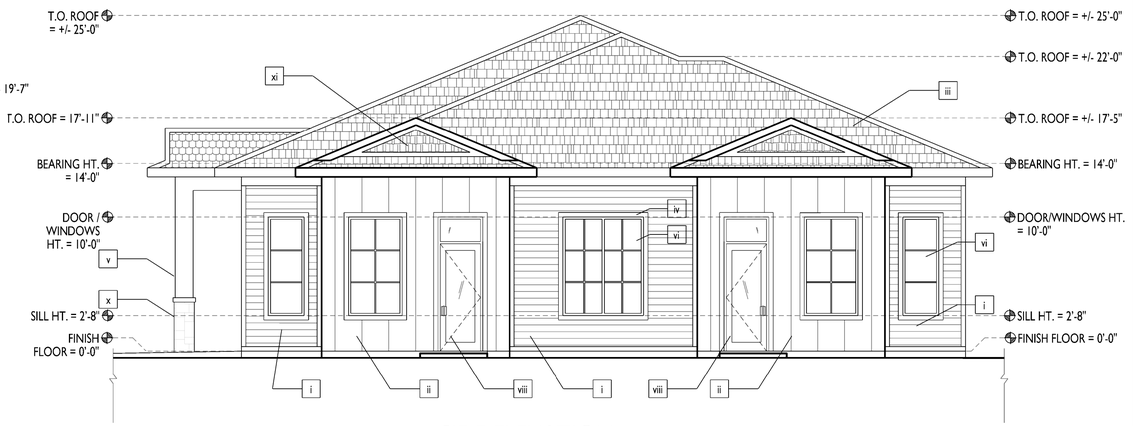
DRAWN BY: EJ & TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-2.0
SCALE: 1/4"=1'-0"	

0 1' 3' 7' 10'

ARCHITECT'S / ENGINEER'S SEAL



D A-A3.0 **SIDE ELEVATION**
AMENITIES BUILDING: GYM/RESTROOMS
SCALE: 3/16" = 1'-0"

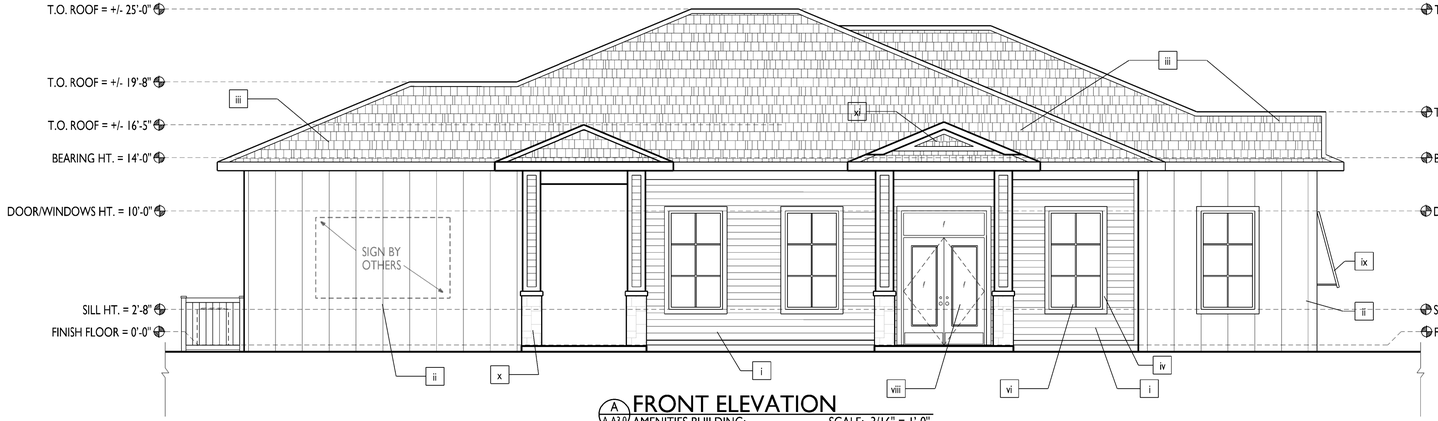


C A-A3.0 **SIDE ELEVATION**
AMENITIES BUILDING: GYM/RESTROOMS
SCALE: 3/16" = 1'-0"



B A-A3.0 **REAR ELEVATION**
AMENITIES BUILDING: GYM/RESTROOMS
SCALE: 3/16" = 1'-0"

MATERIAL & COLOR SCHEDULE			
NO.	BUILDING ELEMENT:	MATERIAL:	COLOR SCHEME: A1
i	BUILDING WALLS A	HORIZONTAL CEMENT SIDING	EVENING BLUE
ii	BUILDING WALLS B	CEMENT BOARD & BATTEN	ARTIC WHITE
iii	TYPICAL ROOF	ASPHALT SHINGLE ROOF	BLUE GRAY
iv	WINDOW DOOR & ACCENT TRIM	4" CEMENT BOARD TRIM	MANUF. WHITE
v	COLUMNS SIDING	CEMENT BOARD SIDING & TRIM	EVENING BLUE
vi	WINDOWS	VINYL FRAME, LOW-E, TINTED	MANUF: WHITE
vii	MAN DOORS	HOLLOW MTL. FRAME, MTL. DOOR	EVENING BLUE
viii	STOREFRONT WINDOWS DOORS	VINYL FRAME, LOW E., TINTED	MANUF. WHITE
ix	BAHAMA SHUTTERS	NOT USED	--
x	COLUMN BASE	STONE VENEER	GRAY FLAGSTONE (OWNER TO SPECIFY)
xi	DUTCH HIP ACCENT	SHAKE SIDING	ARTIC WHITE



A A-A3.0 **FRONT ELEVATION**
AMENITIES BUILDING: GYM/RESTROOMS
SCALE: 3/16" = 1'-0"

EQUIPMENT SCREENING NOTE:
1) ALL EXT CU TO BE SCREENED W/ 4'-0" HT. OPAQUE FENCING AS INDICATED UNLESS CITY ALLOWS FOR SCREENING WITH LANDSCAPE

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 7TH EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 138 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-16
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1	

THE COVE AT NEW SMYRNA:

BUILDING A:
AMENITIES/FITNESS BUILDING

OWNER/REP.: CHARLES MARSHALL, PRESIDENT, MARSHALL PROPERTY SERVICES LLC. 4400 EAST 100 NORTH SHELBYVILLE, IN 46176
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

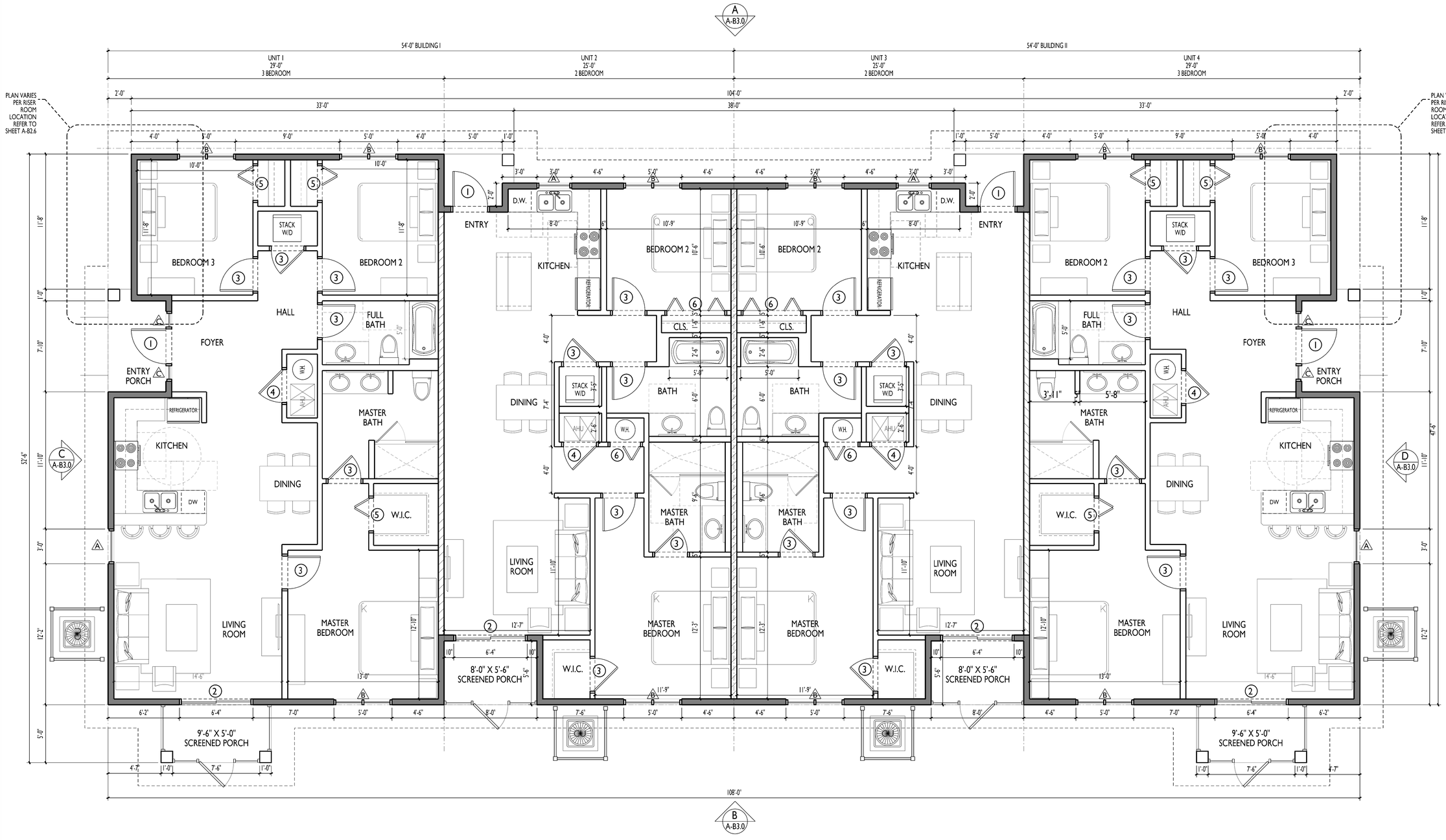
BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

BUILDING A ELEVATIONS

DRAWN BY: EJ & TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-A3.0
SCALE: 3/16"=1'-0"	

0 1' 4' 8' 12'

ARCHITECT'S / ENGINEER'S SEAL



GROSS AREA CALC.

BUILDING 1			BUILDING 2		
UNIT 1 (3 BDRM/2BTH):	A/C SPACE (PER UNIT)	1,313 SF	UNIT 1 (3 BDRM/2BTH):	A/C SPACE (PER UNIT)	1,313 SF
	PORCHES & COVERED ENTRIES (PER UNIT)	90 SF		PORCHES & COVERED ENTRIES (PER UNIT)	90 SF
UNIT 2 (2 BDRM/2BTH):	A/C SPACE (PER UNIT)	1,071 SF	UNIT 2 (2 BDRM/2BTH):	A/C SPACE (PER UNIT)	1,071 SF
	PORCHES & COVERED ENTRIES (PER UNIT)	69 SF		PORCHES & COVERED ENTRIES (PER UNIT)	69 SF
	TOTAL A/C SPACE (BUILDING 1)	2,384 SF		TOTAL A/C SPACE (BUILDING 1)	2,384 SF
	TOTAL NON-A/C (BUILDING 1)	159 SF		TOTAL NON-A/C (BUILDING 1)	159 SF
	TOTAL UNDER ROOF (BUILDING 1)	2,543 SF		TOTAL UNDER ROOF (BUILDING 1)	2,543 SF

A A-B2.0 QUADPLEX FLOOR PLAN

BUILDING TYPE B: (2) 3 BDRM/ 2BTH -- (2) 2 BDRM/ 2BTH

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2017 EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1	

BUILDING B:
2 BDRM & 3 BDRM
QUADPLEX

THE COVE AT NEW SMYRNA:

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0202 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

BLDG B PROPOSED FLOOR PLAN

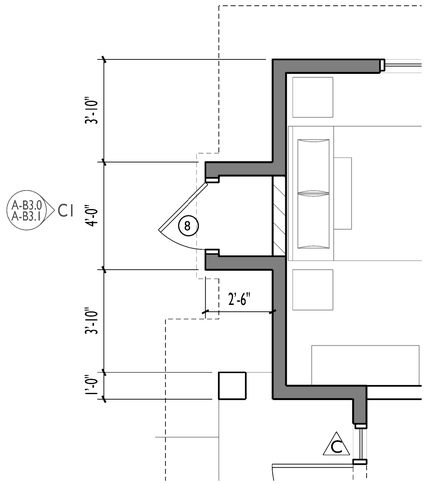
DRAWN BY: MW & TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-B2.0
SCALE: 1/4"=1'-0"	

0 1' 3' 7' 10'

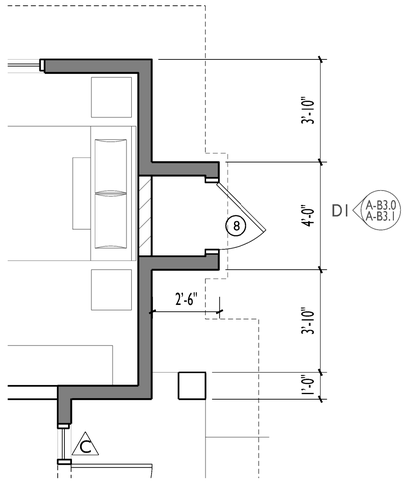
ARCHITECT'S / ENGINEER'S SEAL

RISER ROOM OPTION BY BUILDING # (TYPE B- 2 & 3 BDRM QUADPLEX)		
BUILDING #	FIRE RISER ROOM OPT A (UNIT 4)	FIRE RISER ROOM OPT B (UNIT 1)
22		
23		
24		
40		
41		
42		
43		

*NOTE:
REFER TO SITE PLAN SHEETS A-C1 THRU A-C5 FOR GRAPHIC REPRESENTATION OF RISER ROOM LOCATIONS



B A-B2.6 FIRE RISER ROOM OPT B
RISER ROOM LOCATED @ UNIT 1 ENDCAP SCALE: 3/8"=1'-0"



A A-B2.6 FIRE RISER ROOM OPT A
RISER ROOM LOCATED @ UNIT 4 ENDCAP SCALE: 3/8"=1'-0"

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2017 EDITION (EXPOSURE "C")
OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD
AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1

THE COVE AT NEW SMYRNA:

BUILDING B:
2 BDRM & 3 BDRM
QUADPLEX

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

BPF DESIGN INCORPORATED
Building Design and Architecture

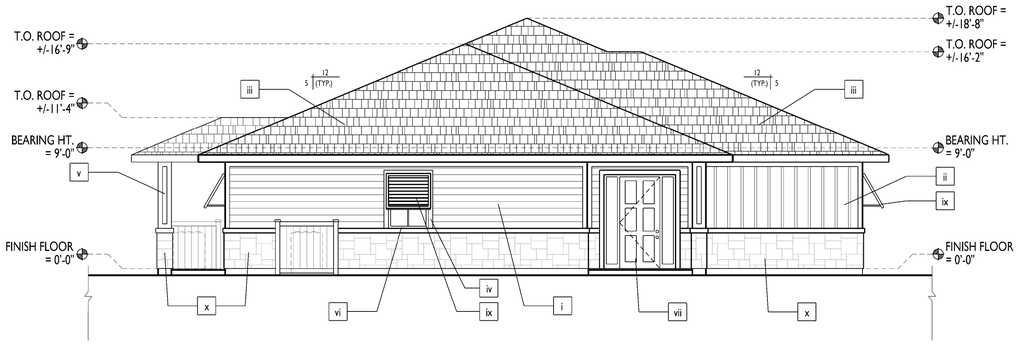
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0202 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

FIRE RISER ROOM LOCATION OPTIONS

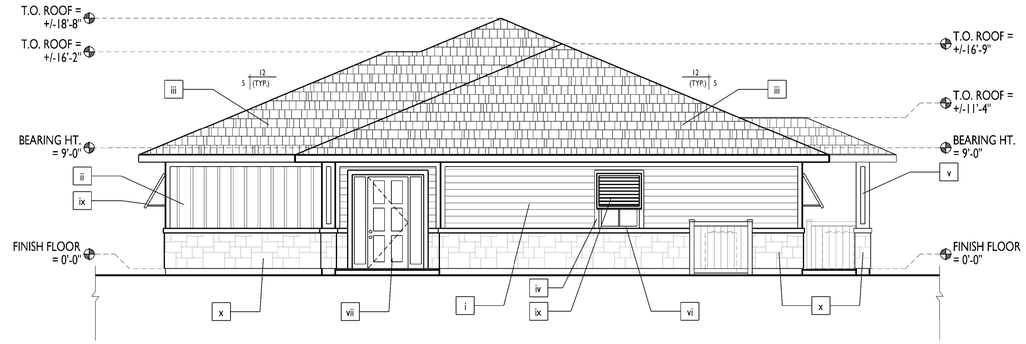
DRAWN BY: EJ, MW & TEM	CHECKED BY: DBP & BPF
DATE: FEBRUARY 22, 2022	SHT NO. A-B2.6
SCALE: 3/8"=1'-0"	

0 1 2 3 4 5 6 7

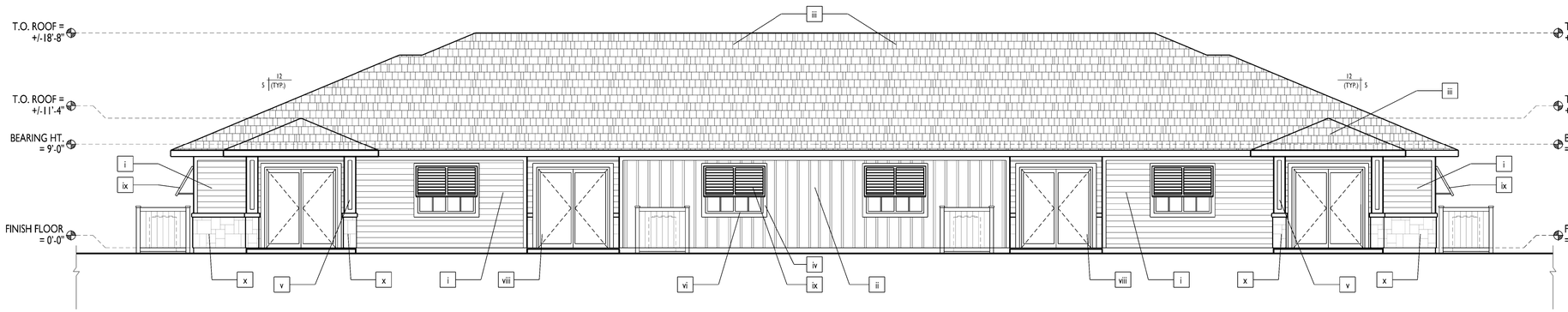
ARCHITECT'S / ENGINEER'S SEAL



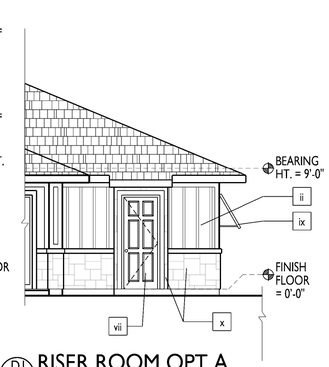
D SIDE ELEVATION
A-B3.0 BUILDING TYPE B1 SCALE: 3/16" = 1'-0"



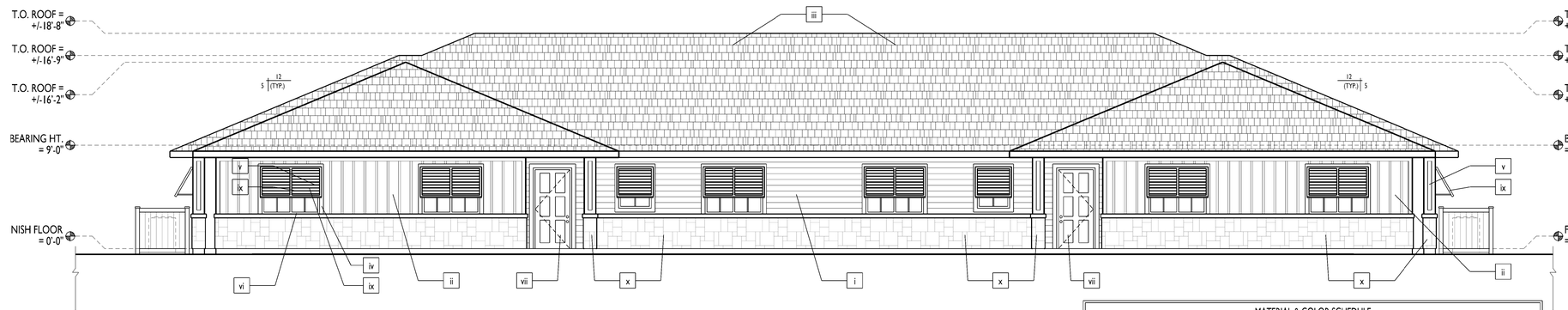
C SIDE ELEVATION
A-B3.0 BUILDING TYPE B1 SCALE: 3/16" = 1'-0"



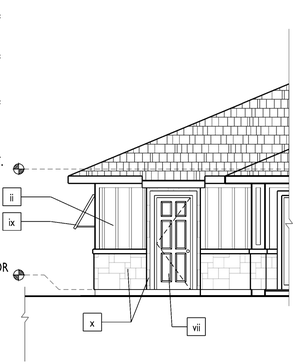
B REAR ELEVATION
A-B3.0 BUILDING TYPE B1 SCALE: 3/16" = 1'-0"



D1 RISER ROOM OPT A
A-B3.0 BUILDING TYPE B1 SCALE: 3/16" = 1'-0"



A FRONT ELEVATION
A-B3.0 BUILDING TYPE B1 SCALE: 3/16" = 1'-0"



C1 RISER ROOM OPT B
A-B3.0 BUILDING TYPE B1 SCALE: 3/16" = 1'-0"

ELEVATION NOTES:

1) ALL REAR PORCHES TO BE SCREENED (REFER TO PLAN). SCREENS NOTE SHOWN ON ELEVATIONS FOR CLARITY

2) ALL EXT CU TO BE SCREENED W/ 4'-0" HT. OPAQUE FENCING AS INDICATED UNLESS CITY ALLOWS FOR SCREENING WITH LANDSCAPE

MATERIAL & COLOR SCHEDULE

NO.	BUILDING ELEMENT:	MATERIAL:	COLOR SCHEME: 1	COLOR SCHEME: 2	COLOR SCHEME: 3
i	BUILDING WALLS A	HORIZONTAL CEMENT SIDING	EVENING BLUE	SAGE	FARM HOUSE WHITE
ii	BUILDING WALLS B	CEMENT BOARD & BATTEN	ARTIC WHITE	LIGHT MIST	ARTIC WHITE
iii	TYPICAL ROOF	ASPHALT SHINGLE ROOF	BLUE GRAY	LIGHT GRAY	TAUPE/BEIGE
iv	WINDOW DOOR & ACCENT TRIM	4" CEMENT BOARD TRIM	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
v	COLUMNS SIDING	CEMENT BOARD SIDING & TRIM	EVENING BLUE	SAGE	FARM HOUSE WHITE
vi	WINDOWS	VINYL FRAME, LOW-E, TINTED	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
vii	EXT. DOORS	WOOD SOLID CORE 6 PANEL	EVENING BLUE	SAGE	FARM HOUSE WHITE
viii	SLIDING GLASS DOOR	VINYL FRAME, LOW E., TINTED	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
ix	BAHAMA SHUTTERS	COMPOSITE MATERIAL, SMOOTH FINISH	EVENING BLUE	SAGE	FARM HOUSE WHITE
x	STONE	STONE VENEER	GRAY FLAGSTONE (OWNER TO SPECIFY)	OFF-WHITE FLAGSTONE (OWNER TO SPECIFY)	TAUPE/BEIGE FLAGSTONE (OWNER TO SPECIFY)

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2017 EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1

BUILDING B:
2 BDRM & 3 BDRM
QUADPLEX

THE COVE AT NEW SMYRNA:

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL 32168
GENERAL CONTRACTOR: T.B.D.

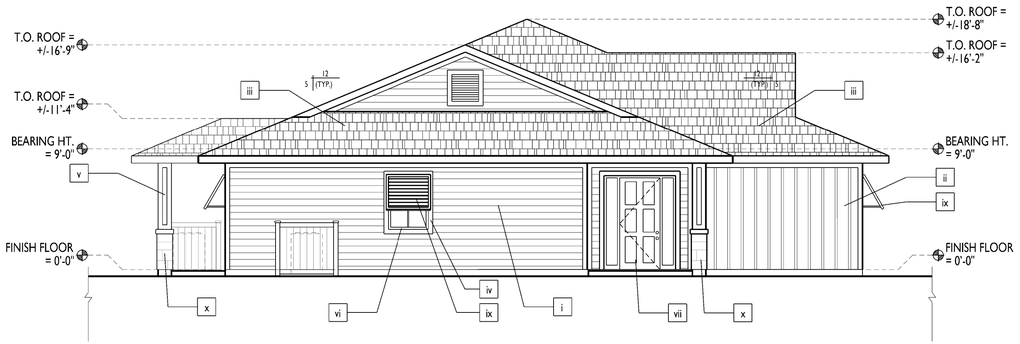
BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

BUILDING B ELEVATION OPT I

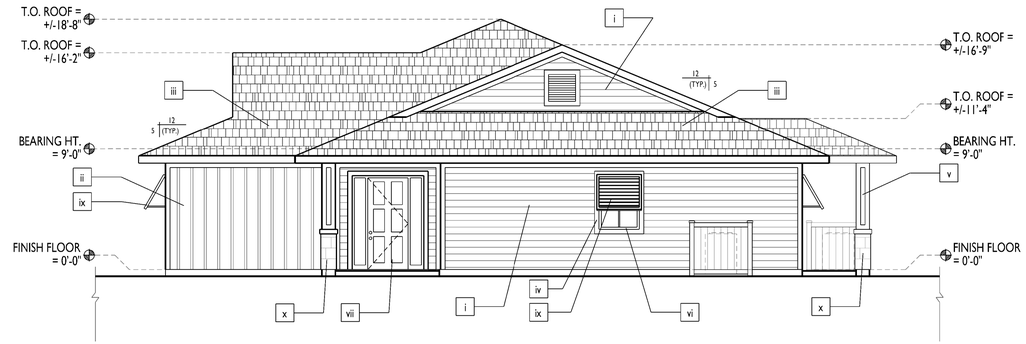
DRAWN BY: MW & TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-B3.0
SCALE: 3/16"=1'-0"	

0 1' 4' 10' 12'

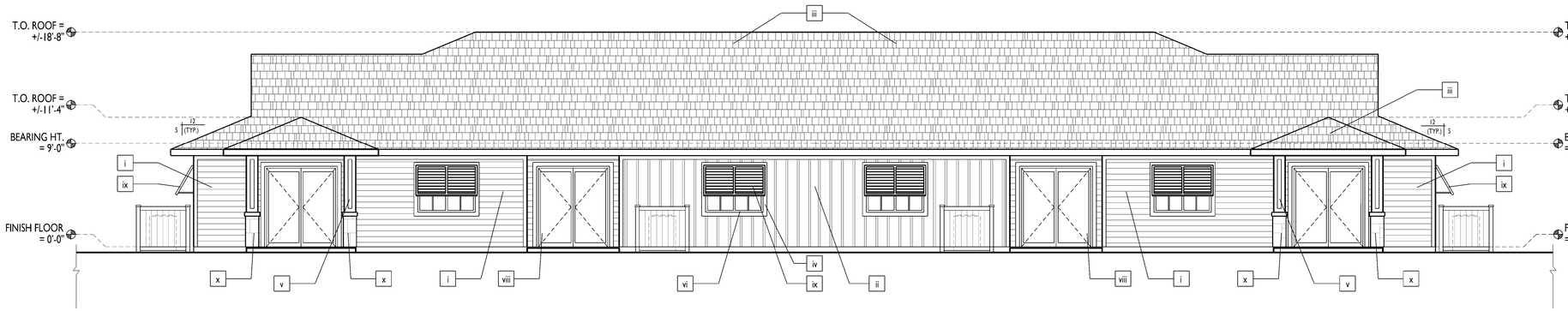
ARCHITECT'S / ENGINEER'S SEAL



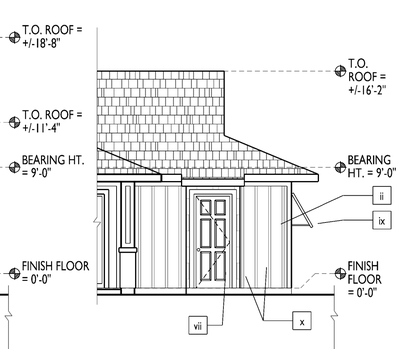
D A-B3.1 SIDE ELEVATION
BUILDING TYPE B2 SCALE: 3/16" = 1'-0"



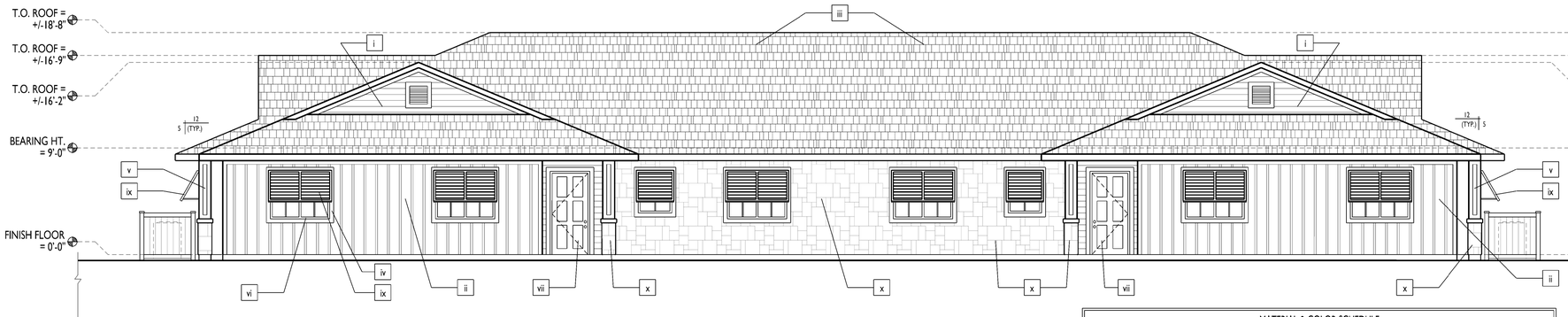
C A-B3.1 SIDE ELEVATION
BUILDING TYPE B2 SCALE: 3/16" = 1'-0"



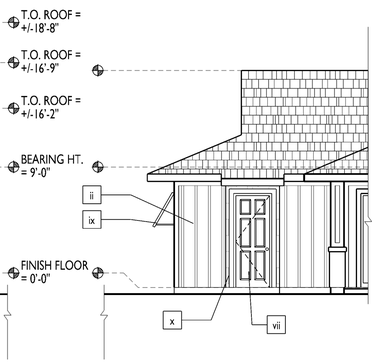
B A-B3.1 REAR ELEVATION
BUILDING TYPE B2 SCALE: 3/16" = 1'-0"



D1 A-B3.1 RISER ROOM OPT A
BUILDING TYPE B2 SCALE: 3/16" = 1'-0"



A A-B3.1 FRONT ELEVATION
BUILDING TYPE B2 SCALE: 3/16" = 1'-0"



C1 A-B3.1 RISER ROOM OPT B
BUILDING TYPE B2 SCALE: 3/16" = 1'-0"

ELEVATION NOTES:

1) ALL REAR PORCHES TO BE SCREENED (REFER TO PLAN). SCREENS NOTE SHOWN ON ELEVATIONS FOR CLARITY

2) ALL EXT CU TO BE SCREENED W/ 4'-0" HT. OPAQUE FENCING AS INDICATED UNLESS CITY ALLOWS FOR SCREENING WITH LANDSCAPE

MATERIAL & COLOR SCHEDULE

NO.	BUILDING ELEMENT:	MATERIAL:	COLOR SCHEME: 1	COLOR SCHEME: 2	COLOR SCHEME: 3
i	BUILDING WALLS A	HORIZONTAL CEMENT SIDING	EVENING BLUE	SAGE	FARM HOUSE WHITE
ii	BUILDING WALLS B	CEMENT BOARD & BATTEN	ARTIC WHITE	LIGHT MIST	ARTIC WHITE
iii	TYPICAL ROOF	ASPHALT SHINGLE ROOF	BLUE GRAY	LIGHT GRAY	TAUPE/BEIGE
iv	WINDOW DOOR & ACCENT TRIM	4" CEMENT BOARD TRIM	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
v	COLUMNS SIDING	CEMENT BOARD SIDING & TRIM	EVENING BLUE	SAGE	FARM HOUSE WHITE
vi	WINDOWS	VINYL FRAME, LOW-E, TINTED	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
vii	EXT. DOORS	WOOD SOLID CORE 6 PANEL	EVENING BLUE	SAGE	FARM HOUSE WHITE
viii	SLIDING GLASS DOOR	VINYL FRAME, LOW E., TINTED	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
ix	BAHAMA SHUTTERS	COMPOSITE MATERIAL, SMOOTH FINISH	EVENING BLUE	SAGE	FARM HOUSE WHITE
x	STONE	STONE VENEER	GRAY FLAGSTONE (OWNER TO SPECIFY)	OFF WHITE FLAGSTONE (OWNER TO SPECIFY)	TAUPE/BEIGE FLAGSTONE (OWNER TO SPECIFY)

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2017 EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1

BUILDING B:
2 BDRM & 3 BDRM
QUADPLEX

THE COVE AT NEW SMYRNA:

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL 32168
GENERAL CONTRACTOR: T.B.D.

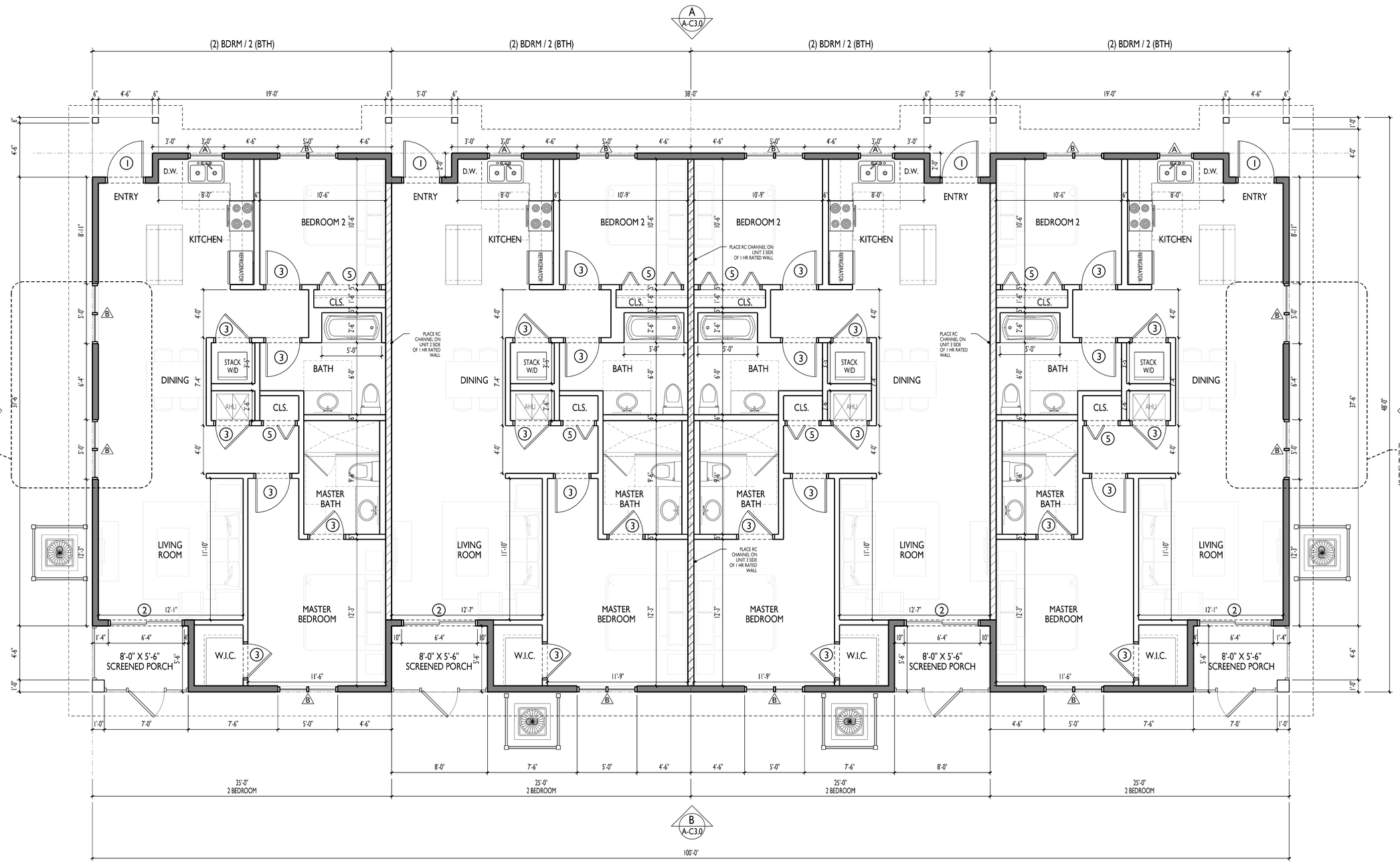
BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

BUILDING B ELEVATION OPT 2

DRAWN BY: MW & TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-B3.1
SCALE: 3/16"=1'-0"	

0 1' 4' 10' 12'

ARCHITECT'S / ENGINEER'S SEAL



GROSS AREA CALC.	
PER 2BDR/2BTH	
A/C SPACE (PER UNIT)	1,071 SF
PORCHES & COVERED ENTRIES (PER UNIT)	74 SF
TOTAL UNDER ROOF (PER UNIT)	1,145 SF
BUILDING TOTALS	
TOTAL A/C SPACE	4,284 SF
TOTAL UNDER ROOF (PER BUILDING)	4,580 SF

A A-C2.0 QUADPLEX FLOOR PLAN

BUILDING TYPE C: (4) 2 BDRM/ 2BTH

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 7TH EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 132 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2021 BPF DESIGN INCORPORATED

REVISIONS

1	

THE COVE AT NEW SMYRNA: BUILDING C: 2 BDRM QUADPLEX

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

BLDG C PROPOSED FLOOR PLAN

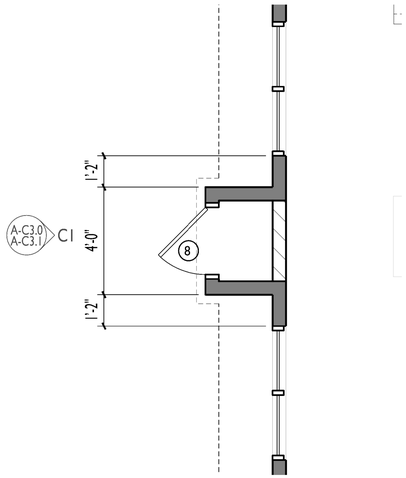
DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-C2.0
SCALE: 1/4"=1'-0"	

0 1" 3" 7" 10"

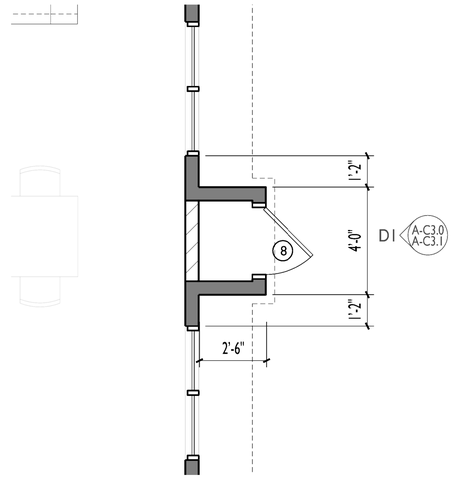
ARCHITECT'S / ENGINEER'S SEAL

RISER ROOM OPTION BY BUILDING # (TYPE D- 1 BDRM QUADPLEX)		
BUILDING #	FIRE RISER ROOM OPT A (UNIT 4)	FIRE RISER ROOM OPT B (UNIT 1)
1	■	
2		■
3	■	
4		■
5	■	
6		■
7	■	
8		■
10		■
11	■	
14		■
15	■	
20		■
21	■	
36	■	
37		■
38	■	
39		■
46	■	

*NOTE:
REFER TO SITE PLAN SHEETS A-C1 THRU A-C5 FOR GRAPHIC REPRESENTATION OF RISER ROOM LOCATIONS



B A-D2.6 FIRE RISER ROOM OPT B
RISER ROOM LOCATED @ UNIT 1 ENDCAP SCALE: 3/8"=1'-0"



A A-D2.6 FIRE RISER ROOM OPT A
RISER ROOM LOCATED @ UNIT 4 ENDCAP SCALE: 3/8"=1'-0"

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 7TH EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 132 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1	

THE COVE AT NEW SMYRNA: BUILDING C: 2 BDRM QUADPLEX

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

BPF DESIGN INCORPORATED
Building Design and Architecture

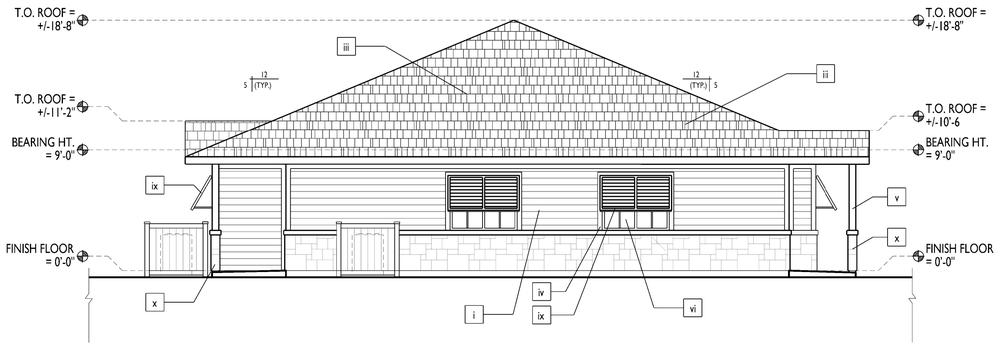
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-2502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

FIRE RISER ROOM LOCATION OPTIONS

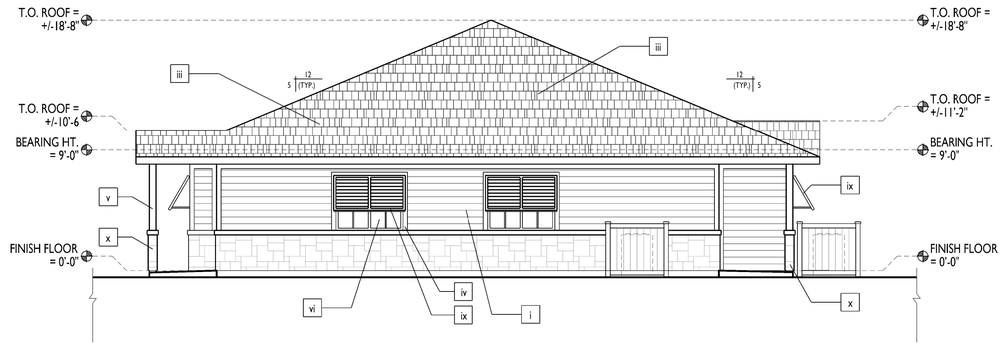
DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-C2.6
SCALE: 3/8"=1'-0"	

0 1 2 3 4 5 6 7

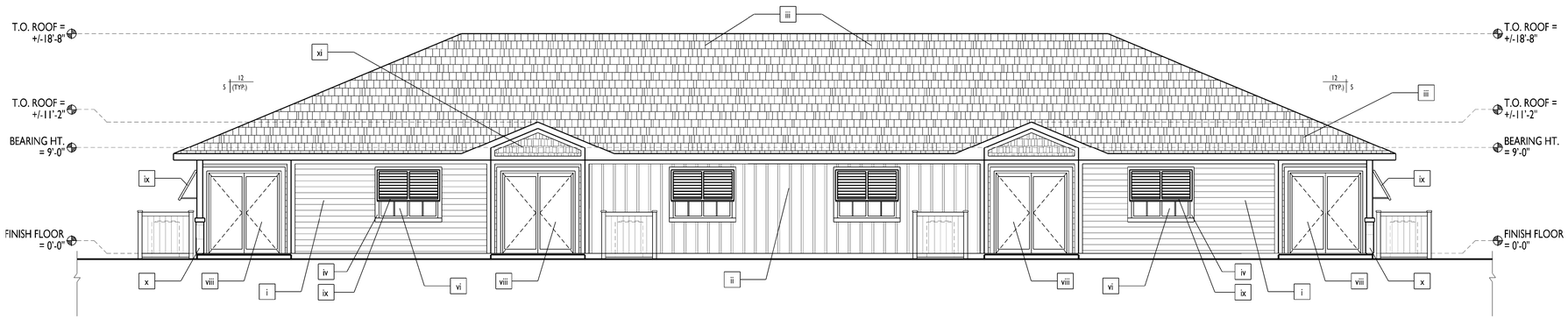
ARCHITECT'S / ENGINEER'S SEAL



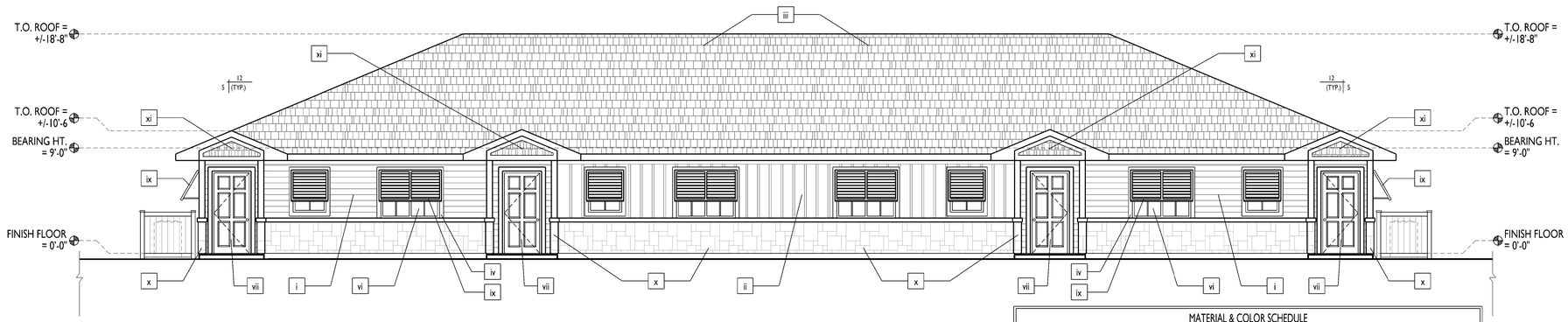
D SIDE ELEVATION
A-C3.0 BUILDING TYPE C1 SCALE: 3/16" = 1'-0"



C SIDE ELEVATION
A-C3.0 BUILDING TYPE C1 SCALE: 3/16" = 1'-0"



B REAR ELEVATION
A-C3.0 BUILDING TYPE C1 SCALE: 3/16" = 1'-0"



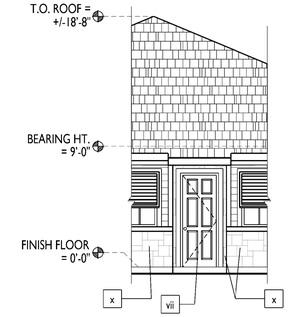
A FRONT ELEVATION
A-C3.0 BUILDING TYPE C1 SCALE: 3/16" = 1'-0"

ELEVATION NOTES:

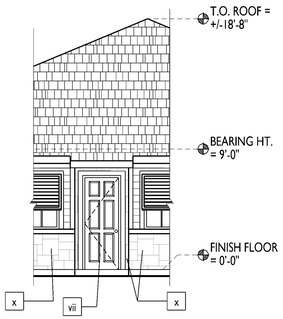
1) ALL REAR PORCHES TO BE SCREENED (REFER TO PLAN). SCREENS NOTE SHOWN ON ELEVATIONS FOR CLARITY

2) ALL EXT CU TO BE SCREENED W/ 4'-0" HT. OPAQUE FENCING AS INDICATED UNLESS CITY ALLOWS FOR SCREENING WITH LANDSCAPE

MATERIAL & COLOR SCHEDULE					
NO.	BUILDING ELEMENT:	MATERIAL:	COLOR SCHEME: 1	COLOR SCHEME: 2	COLOR SCHEME: 3
i	BUILDING WALLS A	HORIZONTAL CEMENT SIDING	EVENING BLUE	SAGE	FARM HOUSE WHITE
ii	BUILDING WALLS B	CEMENT BOARD & BATTEN	ARTIC WHITE	LIGHT MIST	ARTIC WHITE
iii	TYPICAL ROOF	ASPHALT SHINGLE ROOF	BLUE GRAY	LIGHT GRAY	TAUPE/BEIGE
iv	WINDOW DOOR & ACCENT TRIM	4" CEMENT BOARD TRIM	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
v	COLUMNS SIDING	CEMENT BOARD SIDING & TRIM	EVENING BLUE	SAGE	FARM HOUSE WHITE
vi	WINDOWS	VINYL FRAME, LOW-E, TINTED	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
vii	EXT. DOORS	WOOD SOLID CORE 6 PANEL	EVENING BLUE	SAGE	FARM HOUSE WHITE
viii	SLIDING GLASS DOOR	VINYL FRAME, LOW E, TINTED	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
ix	BAHAMA SHUTTERS	COMPOSITE MATERIAL, SMOOTH FINISH	EVENING BLUE	SAGE	FARM HOUSE WHITE
x	STONE	STONE VENEER	GRAY FLAGSTONE (OWNER TO SPECIFY)	OFF WHITE FLAGSTONE (OWNER TO SPECIFY)	TAUPE/BEIGE FLAGSTONE (OWNER TO SPECIFY)
xi	ROOFLINE ACCENT SIDING	SHAKE SIDING	EVENING BLUE	SAGE	FARM HOUSE WHITE



D1 RISER ROOM OPT A
A-C3.0 BUILDING TYPE C1 SCALE: 3/16" = 1'-0"



C1 RISER ROOM OPT B
A-C3.0 BUILDING TYPE C1 SCALE: 3/16" = 1'-0"

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 7TH EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 132 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1	

THE COVE AT NEW SMYRNA:
BUILDING C:
2 BDRM QUADPLEX

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL 32168
GENERAL CONTRACTOR: T.B.D.

BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

BUILDING C ELEVATION OPT 1

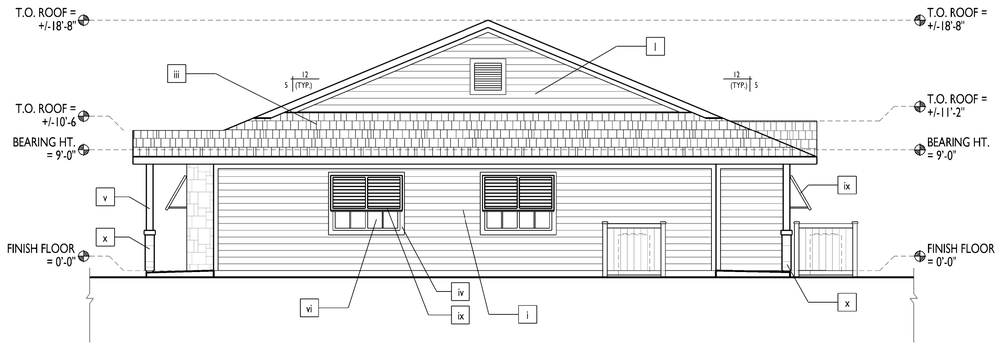
DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-C3.0
SCALE: 3/16"=1'-0"	

0 1' 4' 10' 12'

ARCHITECT'S / ENGINEER'S SEAL



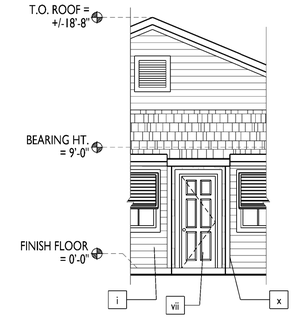
D A-C3.1 SIDE ELEVATION
BUILDING TYPE C2 SCALE: 3/16" = 1'-0"



C A-C3.1 SIDE ELEVATION
BUILDING TYPE C2 SCALE: 3/16" = 1'-0"



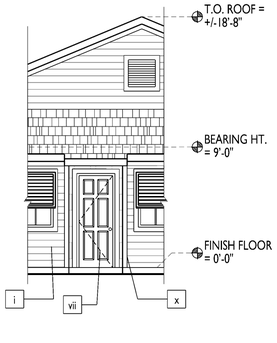
B A-C3.1 REAR ELEVATION
BUILDING TYPE C2 SCALE: 3/16" = 1'-0"



D1 A-C3.1 RISER ROOM OPT A
BUILDING TYPE C2 SCALE: 3/16" = 1'-0"



A A-C3.1 FRONT ELEVATION
BUILDING TYPE C2 SCALE: 3/16" = 1'-0"



C1 A-C3.1 RISER ROOM OPT B
BUILDING TYPE C2 SCALE: 3/16" = 1'-0"

ELEVATION NOTES:

1) ALL REAR PORCHES TO BE SCREENED (REFER TO PLAN). SCREENS NOTE SHOWN ON ELEVATIONS FOR CLARITY

2) ALL EXT CU TO BE SCREENED W/ 4'-0" HT. OPAQUE FENCING AS INDICATED UNLESS CITY ALLOWS FOR SCREENING WITH LANDSCAPE

MATERIAL & COLOR SCHEDULE

NO.	BUILDING ELEMENT:	MATERIAL:	COLOR SCHEME: 1	COLOR SCHEME: 2	COLOR SCHEME: 3
i	BUILDING WALLS A	HORIZONTAL CEMENT SIDING	EVENING BLUE	SAGE	FARM HOUSE WHITE
ii	BUILDING WALLS B	CEMENT BOARD & BATTEN	ARTIC WHITE	LIGHT MIST	ARTIC WHITE
iii	TYPICAL ROOF	ASPHALT SHINGLE ROOF	BLUE GRAY	LIGHT GRAY	TAUPE/BEIGE
iv	WINDOW DOOR & ACCENT TRIM	4" CEMENT BOARD TRIM	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
v	COLUMNS SIDING	CEMENT BOARD SIDING & TRIM	EVENING BLUE	SAGE	FARM HOUSE WHITE
vi	WINDOWS	VINYL FRAME, LOW-E, TINTED	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
vii	EXT. DOORS	WOOD SOLID CORE 6 PANEL	EVENING BLUE	SAGE	FARM HOUSE WHITE
viii	SLIDING GLASS DOOR	VINYL FRAME, LOW E, TINTED	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
ix	BAHAMA SHUTTERS	COMPOSITE MATERIAL, SMOOTH FINISH	EVENING BLUE	SAGE	FARM HOUSE WHITE
x	STONE	STONE VENEER	GRAY FLAGSTONE (OWNER TO SPECIFY)	OFF WHITE FLAGSTONE (OWNER TO SPECIFY)	TAUPE/BEIGE FLAGSTONE (OWNER TO SPECIFY)
xi	ROOFLINE ACCENT SIDING	SHAKE SIDING	EVENING BLUE	SAGE	FARM HOUSE WHITE

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 7TH EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 132 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1

THE COVE AT NEW SMYRNA:
BUILDING C:
2 BDRM QUADPLEX

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL 32168
GENERAL CONTRACTOR: T.B.D.

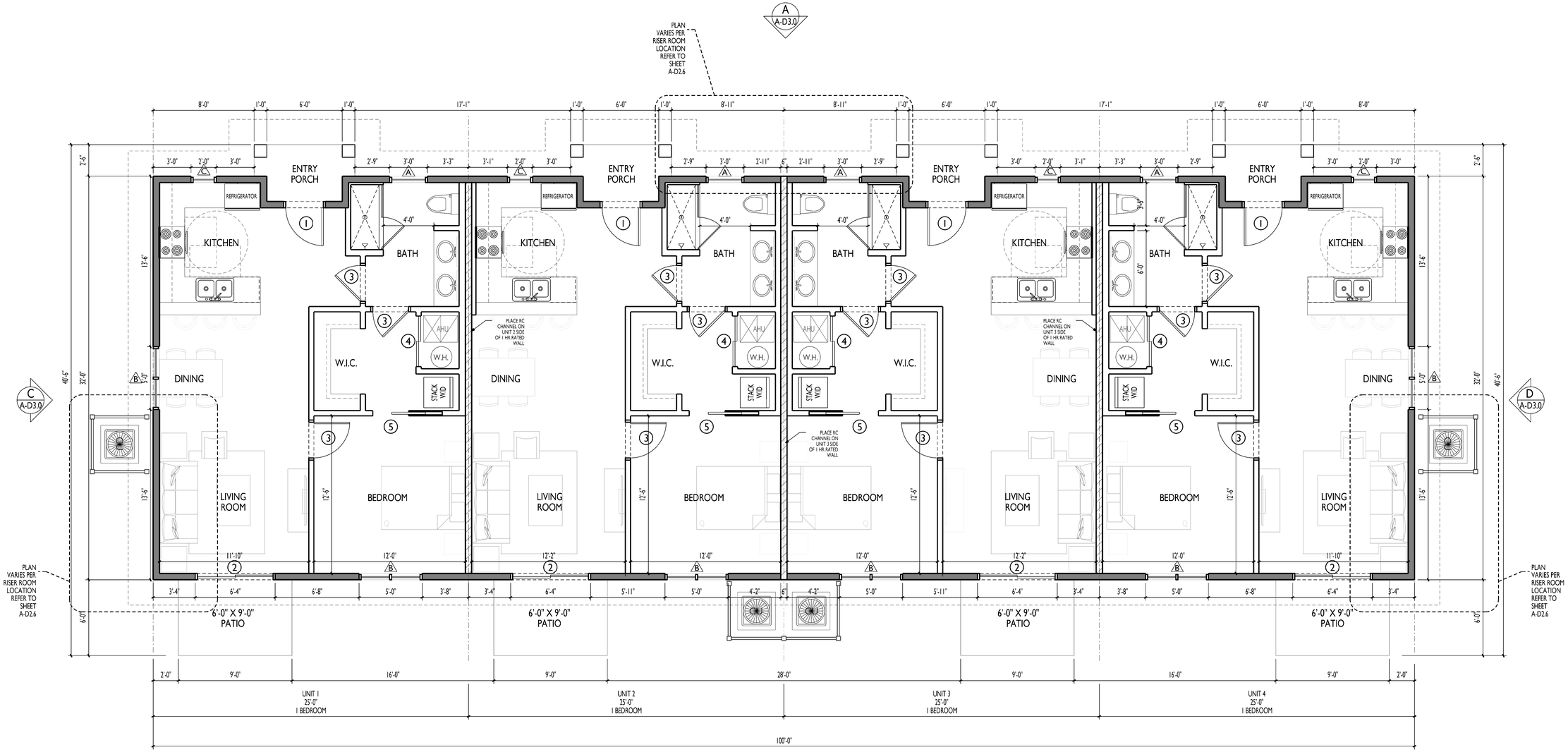
BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

BUILDING C ELEVATION OPT 2

DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-C3.1
SCALE: 3/16"=1'-0"	

0 1' 4' 10' 12'

ARCHITECT'S / ENGINEER'S SEAL



B
A-D3.0

GROSS AREA CALC.

BUILDING 1			**BUILDING 2**		
UNIT 1 (1 BDRM/1BTH):	A/C SPACE (PER UNIT)	788 SF	UNIT 1 (1 BDRM/1BTH):	A/C SPACE (PER UNIT)	788 SF
	PORCHES & COVERED ENTRIES (PER UNIT)	86 SF		PORCHES & COVERED ENTRIES (PER UNIT)	86 SF
UNIT 2 (1 BDRM/1BTH):	A/C SPACE (PER UNIT)	788 SF	UNIT 2 (1 BDRM/1BTH):	A/C SPACE (PER UNIT)	788 SF
	PORCHES & COVERED ENTRIES (PER UNIT)	86 SF		PORCHES & COVERED ENTRIES (PER UNIT)	86 SF
	TOTAL A/C SPACE (BUILDING 1)	1,576 SF		TOTAL A/C SPACE (BUILDING 2)	1,576 SF
	TOTAL NON-A/C (BUILDING 1)	172 SF		TOTAL NON-A/C (BUILDING 2)	172 SF
	TOTAL UNDER ROOF (BUILDING 1)	1,748 SF		TOTAL UNDER ROOF (BUILDING 2)	1,748 SF

A A-D2.0 QUADPLEX FLOOR PLAN

BUILDING TYPE D:
(4) 1 BDRM/ 1 BTH

SCALE: 1/4" = 1'-0"

WALL LEGEND

1		NON RATED EXTERIOR BEARING WALL ASSEMBLY EXTERIOR: (1) LAYER OF 1/2" PLYWOOD SHEATING, TYVEK BUILDING WRAP, VINYL SIDING (TYP.) W/ OPTION OF STONE BASE STRUCTURE: 2 X 4 No 2. STUDS @ 16" O.C. W/ R-13 BATT INSUL. INTERIOR: (1) LAYER OF 5/8" GYP. BD.
2		1 HR/60 MIN. UL U327 ASSEMBLY:- INT. WALL 2 x 4 No 2. STUDS @ 16" O.C. SOUND BATT INSULATION RC-1 CHANNEL OF EQUIV. @ 24" O.C. VERT ONE SIDE (1) LAYER OF 5/8" GYP. BD. TYPE "X" EA. SIDE
3		NON RATED - INT. WALL 2 x 4 No 2. STUDS @ 24" O.C. (1) LAYER OF 5/8" GYP. BD. EA. SIDE ****
4		NON RATED - INT. WALL 2 x 6 No 2. STUDS @ 24" O.C. (1) LAYER OF 5/8" GYP. BD. EA. SIDE ****

**** NOTE: W.P. GYP BOARD TO BE USED IN WET LOCATIONS

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 7TH EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1	

THE COVE AT NEW SMYRNA: BUILDING D: 1 BDRM QUADPLEX

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0202 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

BLDG D PROPOSED FLOOR PLAN

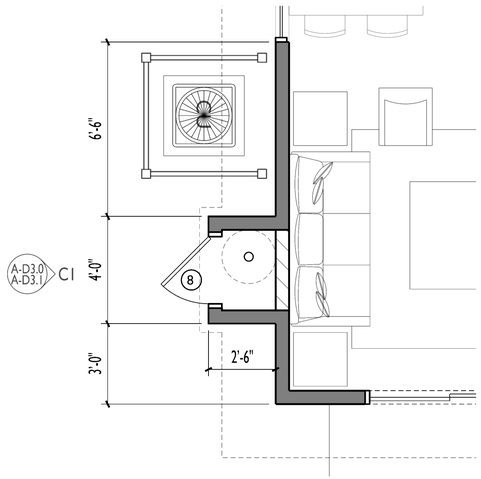
DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-D2.0
SCALE: 1/4"=1'-0"	

0 1' 3' 7' 10'

ARCHITECT'S / ENGINEER'S SEAL

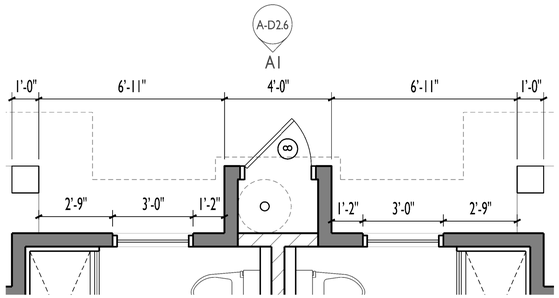
RISER ROOM OPTION BY BUILDING # (TYPE D- 1 BDRM QUADPLEX)			
BUILDING #	FIRE RISER ROOM OPT A (UNIT 4)	FIRE RISER ROOM OPT B (CENTERED)	FIRE RISER ROOM OPT C (UNIT 1)
9			■
12	■		
13			■
16	■		
17			■
18	■		
19			■
25		■	
26		■	
27		■	
28		■	
29		■	
30		■	
31		■	
32		■	
33		■	
34		■	
35		■	
44		■	
45		■	
47		■	

*NOTE:
REFER TO SITE PLAN SHEETS A-C1 THRU A-C5 FOR GRAPHIC REPRESENTATION OF RISER ROOM LOCATIONS



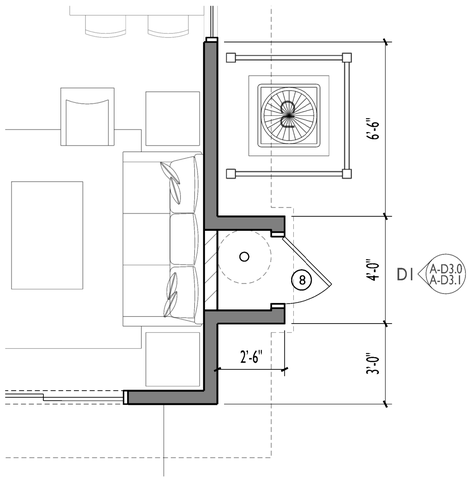
E / A-D2.6 FIRE RISER ROOM OPT C

RISER ROOM LOCATED @ UNIT 1 ENDCAP SCALE: 3/8"=1'-0"



C / A-D2.6 FIRE RISER ROOM OPT B

RISER ROOM CENTERED ON FRONT SCALE: 3/8"=1'-0"



A / A-D2.6 FIRE RISER ROOM OPT A

RISER ROOM LOCATED @ UNIT 4 ENDCAP SCALE: 3/8"=1'-0"

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 7TH EDITION (EXPOSURE "C")
OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD
AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1	

THE COVE AT NEW SMYRNA:

BUILDING D:
1 BDRM QUADPLEX

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL 32168
GENERAL CONTRACTOR: T.B.D.

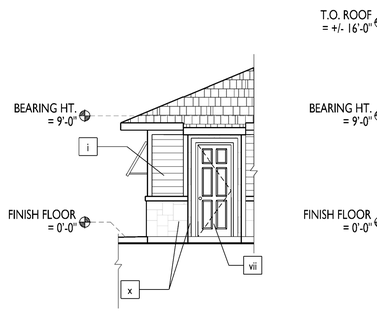
BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0202 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

FIRE RISER ROOM LOCATION OPTIONS

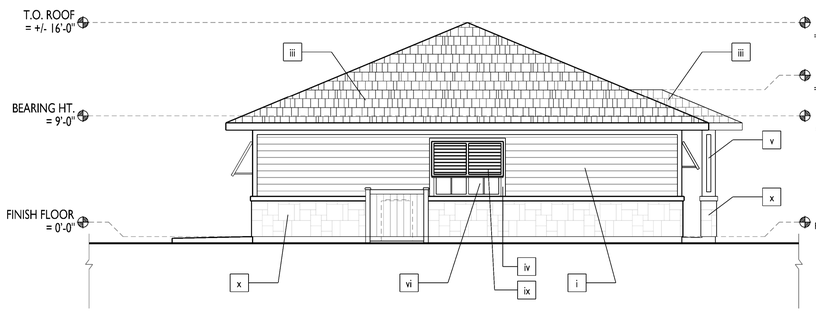
DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-D2.6
SCALE: 3/8"=1'-0"	

0 1 2 3 4 5 6 7

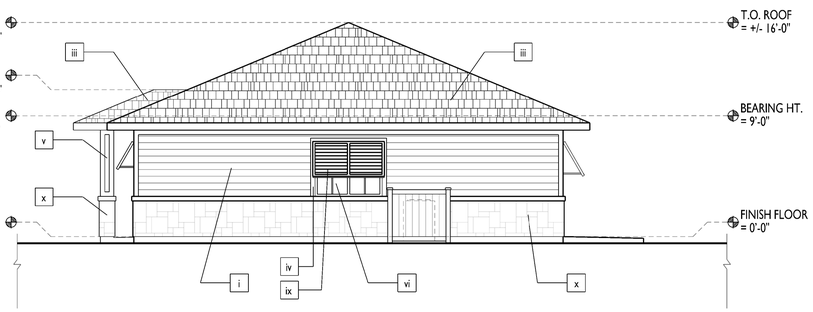
ARCHITECT'S / ENGINEER'S SEAL



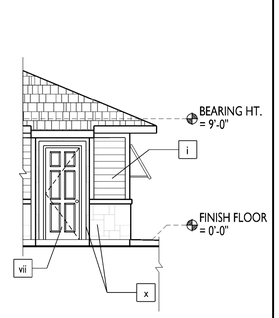
D1 A-D3.0 RISER ROOM OPT A
BUILDING TYPE D1 SCALE: 3/16" = 1'-0"



D A-D3.0 SIDE ELEVATION
BUILDING TYPE D1 SCALE: 3/16" = 1'-0"



C A-D3.0 SIDE ELEVATION
BUILDING TYPE D1 SCALE: 3/16" = 1'-0"



C1 A-D3.0 RISER ROOM OPT C
BUILDING TYPE D1 SCALE: 3/16" = 1'-0"



B A-D3.0 REAR ELEVATION
BUILDING TYPE D1 SCALE: 3/16" = 1'-0"



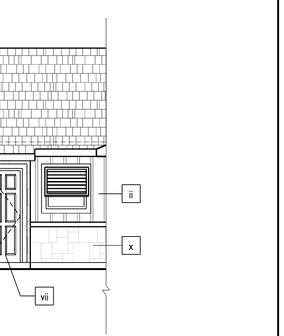
A A-D3.0 FRONT ELEVATION
BUILDING TYPE D1 SCALE: 3/16" = 1'-0"

ELEVATION NOTES:

ALL EXT CU TO BE SCREENED W/ 4'-0" HT. OPAQUE FENCING AS INDICATED UNLESS CITY ALLOWS FOR SCREENING WITH LANDSCAPE

MATERIAL & COLOR SCHEDULE

NO.	BUILDING ELEMENT:	MATERIAL:	COLOR SCHEME: 1	COLOR SCHEME: 2	COLOR SCHEME: 3
i	BUILDING WALLS A	HORIZONTAL CEMENT SIDING	EVENING BLUE	SAGE	FARM HOUSE WHITE
ii	BUILDING WALLS B	CEMENT BOARD & BATTEN	ARTIC WHITE	LIGHT MIST	ARTIC WHITE
iii	TYPICAL ROOF	ASPHALT SHINGLE ROOF	BLUE GRAY	LIGHT GRAY	TAUPE/BEIGE
iv	WINDOW DOOR & ACCENT TRIM	4" CEMENT BOARD TRIM	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
v	COLUMNS SIDING	CEMENT BOARD SIDING & TRIM	EVENING BLUE	SAGE	FARM HOUSE WHITE
vi	WINDOWS	VINYL FRAME, LOW-E, TINTED	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
vii	EXT. DOORS	WOOD SOLID CORE 6 PANEL	EVENING BLUE	SAGE	FARM HOUSE WHITE
viii	SLIDING GLASS DOOR	VINYL FRAME, LOW E, TINTED	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
ix	BAHAMA SHUTTERS	COMPOSITE MATERIAL, SMOOTH FINISH	EVENING BLUE	SAGE	FARM HOUSE WHITE
x	STONE	STONE VENEER	GRAY FLAGSTONE (OWNER TO SPECIFY)	OFF WHITE FLAGSTONE (OWNER TO SPECIFY)	TAUPE/BEIGE FLAGSTONE (OWNER TO SPECIFY)



A1 A-D3.0 RISER ROOM OPT B
BUILDING TYPE D1 SCALE: 3/16" = 1'-0"

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 7TH EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION.
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

⚠	

THE COVE AT NEW SMYRNA:

BUILDING D:
1 BDRM QUADPLEX

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

BPF
DESIGN INCORPORATED
Building Design and Architecture

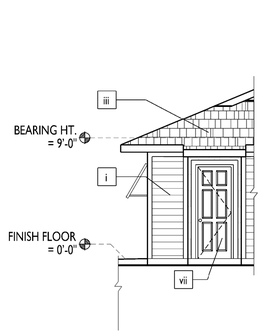
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH#: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

BUILDING D ELEVATION OPT 1

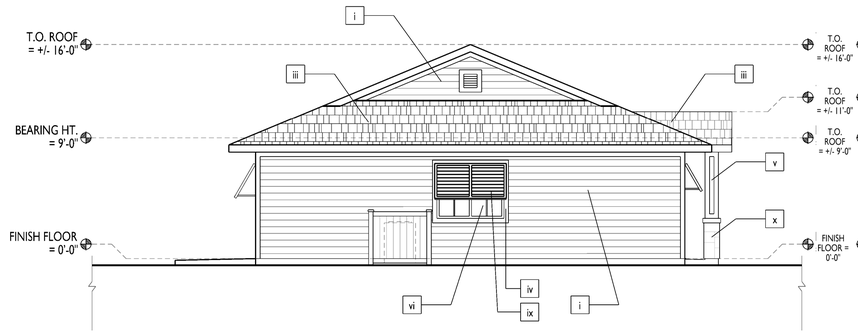
DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-D3.0
SCALE: 3/16"=1'-0"	

0 1' 4' 10' 12'

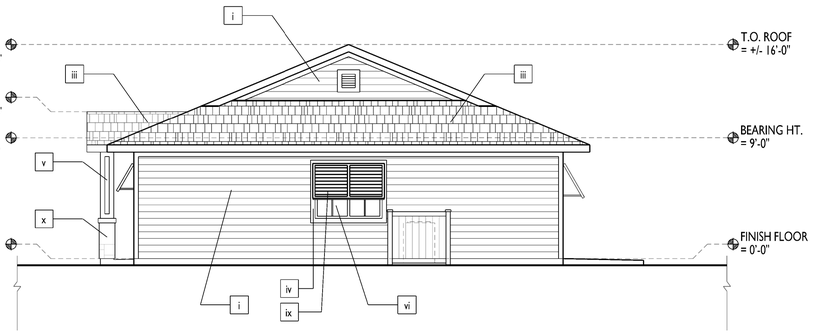
ARCHITECT'S / ENGINEER'S SEAL



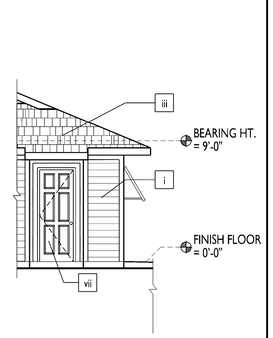
D1 A-D3.1 RISER ROOM OPT A
BUILDING TYPE D2 SCALE: 3/16" = 1'-0"



D A-D3.1 SIDE ELEVATION
BUILDING TYPE D2 SCALE: 3/16" = 1'-0"



C A-D3.1 SIDE ELEVATION
BUILDING TYPE D2 SCALE: 3/16" = 1'-0"



C1 A-D3.1 RISER ROOM OPT C
BUILDING TYPE D2 SCALE: 3/16" = 1'-0"



B A-D3.1 REAR ELEVATION
BUILDING TYPE D2 SCALE: 3/16" = 1'-0"



A A-D3.1 FRONT ELEVATION
BUILDING TYPE D2 SCALE: 3/16" = 1'-0"

ELEVATION NOTES:

1) ALL EXT CU TO BE SCREENED W/ 4'-0" HT. OPAQUE FENCING AS INDICATED UNLESS CITY ALLOWS FOR SCREENING WITH LANDSCAPE

MATERIAL & COLOR SCHEDULE

NO.	BUILDING ELEMENT:	MATERIAL:	COLOR SCHEME: 1	COLOR SCHEME: 2	COLOR SCHEME: 3
i	BUILDING WALLS A	HORIZONTAL CEMENT SIDING	EVENING BLUE	SAGE	FARM HOUSE WHITE
ii	BUILDING WALLS B	CEMENT BOARD & BATTEN	ARTIC WHITE	LIGHT MIST	ARTIC WHITE
iii	TYPICAL ROOF	ASPHALT SHINGLE ROOF	BLUE GRAY	LIGHT GRAY	TAUPE/BEIGE
iv	WINDOW DOOR & ACCENT TRIM	4" CEMENT BOARD TRIM	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
v	COLUMNS SIDING	CEMENT BOARD SIDING & TRIM	EVENING BLUE	SAGE	FARM HOUSE WHITE
vi	WINDOWS	VINYL FRAME, LOW-E, TINTED	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
vii	EXT. DOORS	WOOD SOLID CORE 6 PANEL	EVENING BLUE	SAGE	FARM HOUSE WHITE
viii	SLIDING GLASS DOOR	VINYL FRAME, LOW E, TINTED	MANUF. WHITE	MANUF. WHITE	MANUF. WHITE
ix	BAHAMA SHUTTERS	COMPOSITE MATERIAL, SMOOTH FINISH	EVENING BLUE	SAGE	FARM HOUSE WHITE
x	STONE	STONE VENEER	GRAY FLAGSTONE (OWNER TO SPECIFY)	OFF WHITE FLAGSTONE (OWNER TO SPECIFY)	TAUPE/BEIGE FLAGSTONE (OWNER TO SPECIFY)

A1 A-D3.1 RISER ROOM OPT B
BUILDING TYPE D2 SCALE: 3/16" = 1'-0"

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 7TH EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION.
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1	

THE COVE AT NEW SMYRNA:

BUILDING D:
1 BDRM QUADPLEX

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

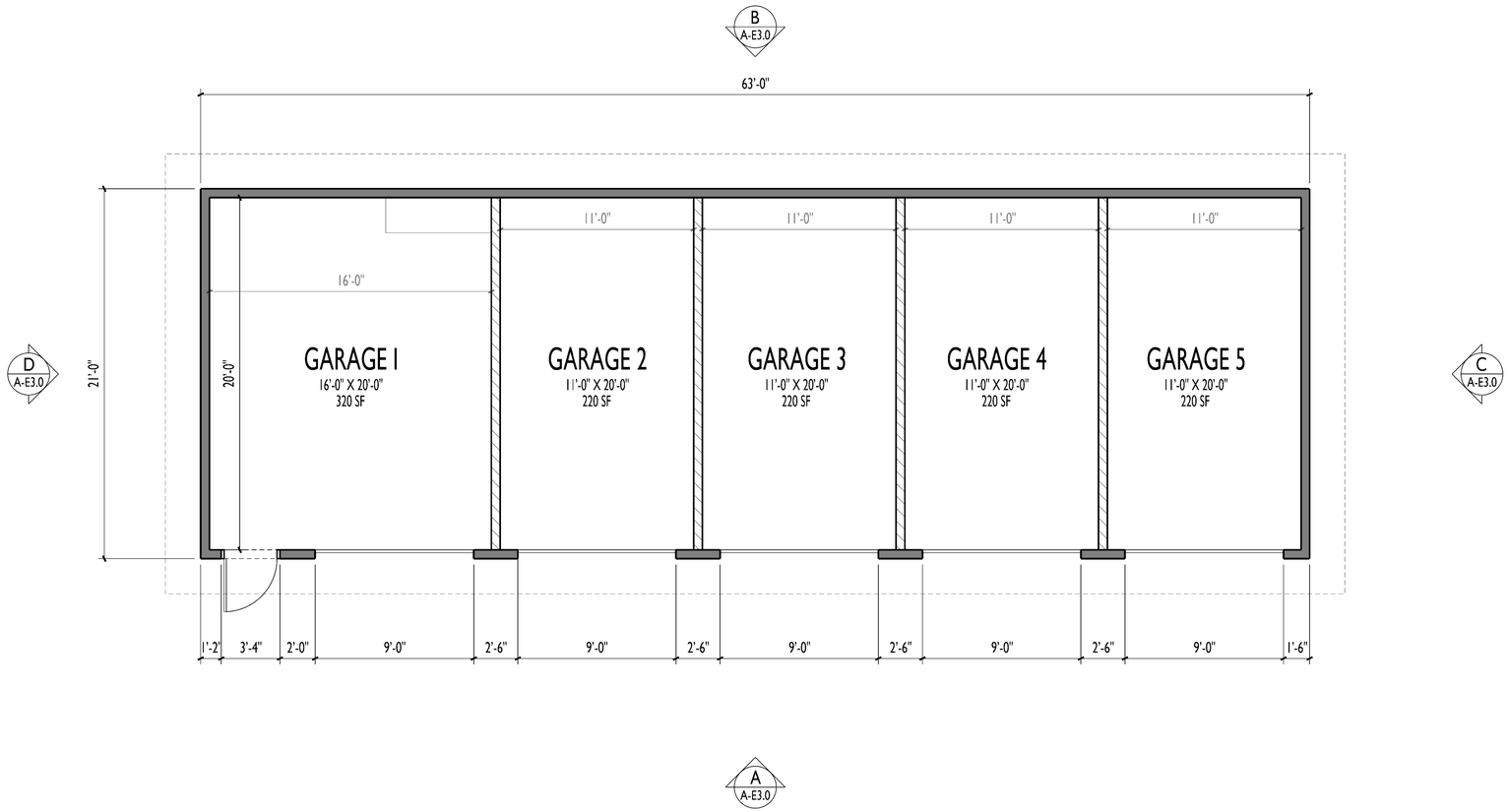
BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH#: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

BUILDING D ELEVATION OPT 2

DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-D3.1
SCALE: 3/16"=1'-0"	

0 1' 4' 10' 12'

ARCHITECT'S / ENGINEER'S SEAL



A A-E2.0 PROPOSED FLOOR PLAN

BUILDING TYPE D: 5-BAY GARAGE SCALE: 1/4" = 1'-0"

GROSS AREA CALC.	
TOTAL NON A/C UNDER ROOF	1,323 SF

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2017 EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2020 BPF DESIGN INCORPORATED

REVISIONS

1	

THE COVE AT NEW SMYRNA:

BUILDING E
5 BAY GARAGE
BUILDING

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

BPF DESIGN INCORPORATED
Building Design and Architecture

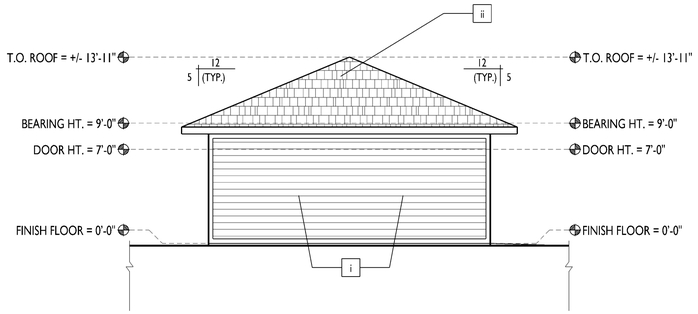
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

PROPOSED FLOOR PLAN (5 BAY GARAGE)

DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2021	SHT NO. A-E2.0
SCALE: 1/4"=1'-0"	

0 1" 3" 7" 10"

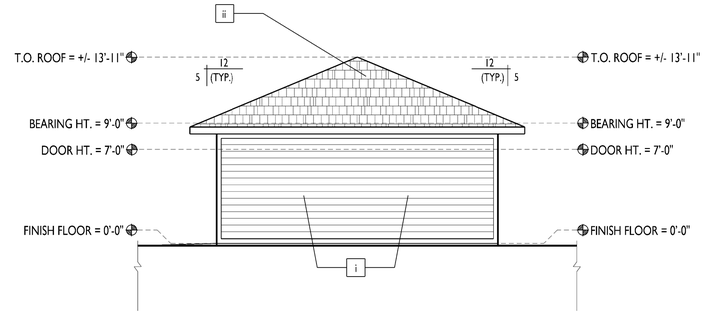
ARCHITECT'S / ENGINEER'S SEAL



D A-E3.0 SIDE ELEVATION

BUILDING TYPE E: 5 BAY GARAGE

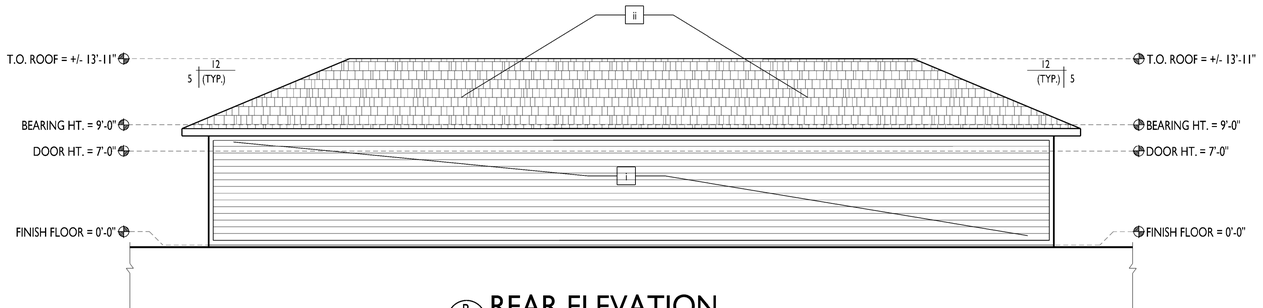
SCALE: 3/16" = 1'-0"



C A-E3.0 SIDE ELEVATION

BUILDING TYPE E: 5 BAY GARAGE

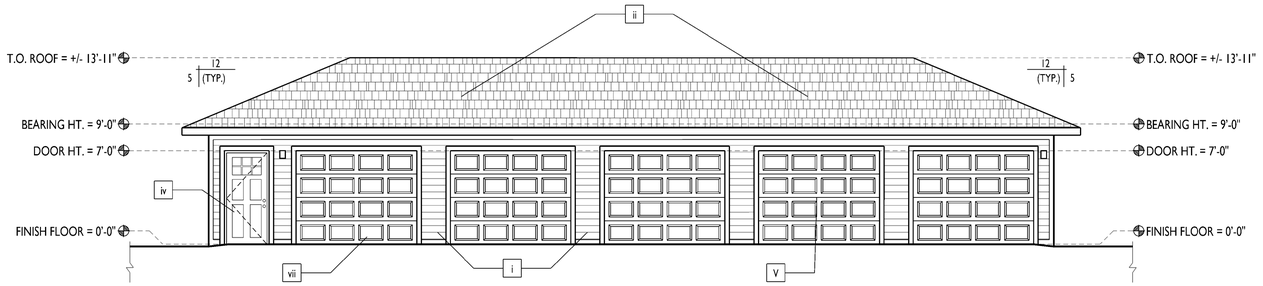
SCALE: 3/16" = 1'-0"



B A-E3.0 REAR ELEVATION

BUILDING TYPE E: 5 BAY GARAGE

SCALE: 3/16" = 1'-0"



A A-E3.0 FRONT ELEVATION

BUILDING TYPE E: 5 BAY GARAGE

SCALE: 3/16" = 1'-0"

MATERIAL & COLOR SCHEDULE			
NO.	BUILDING ELEMENT:	MATERIAL:	COLOR SCHEME 1
i	BUILDING WALLS	HORIZONTAL CEMENT SIDING	EVENING BLUE
ii	TYPICAL ROOF	ASPHALT SHINGLE ROOF	BLUE GRAY
iii	WINDOW DOOR & ACCENT TRIM	4" CEMENT BOARD TRIM	MANUF. WHITE
iv	UNIT ENTRY DOORS	WOOD SOLID CORE 6 PANEL W/ VIEW WINDOW.	MANUF. WHITE
v	ROLL-UP GARAGE DOORS	ALUMINUM	MANUF. WHITE
vi	ROOFLINE ACCENT SIDING	SHAKE SIDING	NOT USED

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2017 EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2020 BPF DESIGN INCORPORATED

REVISIONS

1	

THE COVE AT NEW SMYRNA:

BUILDING E
5 BAY GARAGE BUILDING

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

BPF DESIGN INCORPORATED
Building Design and Architecture

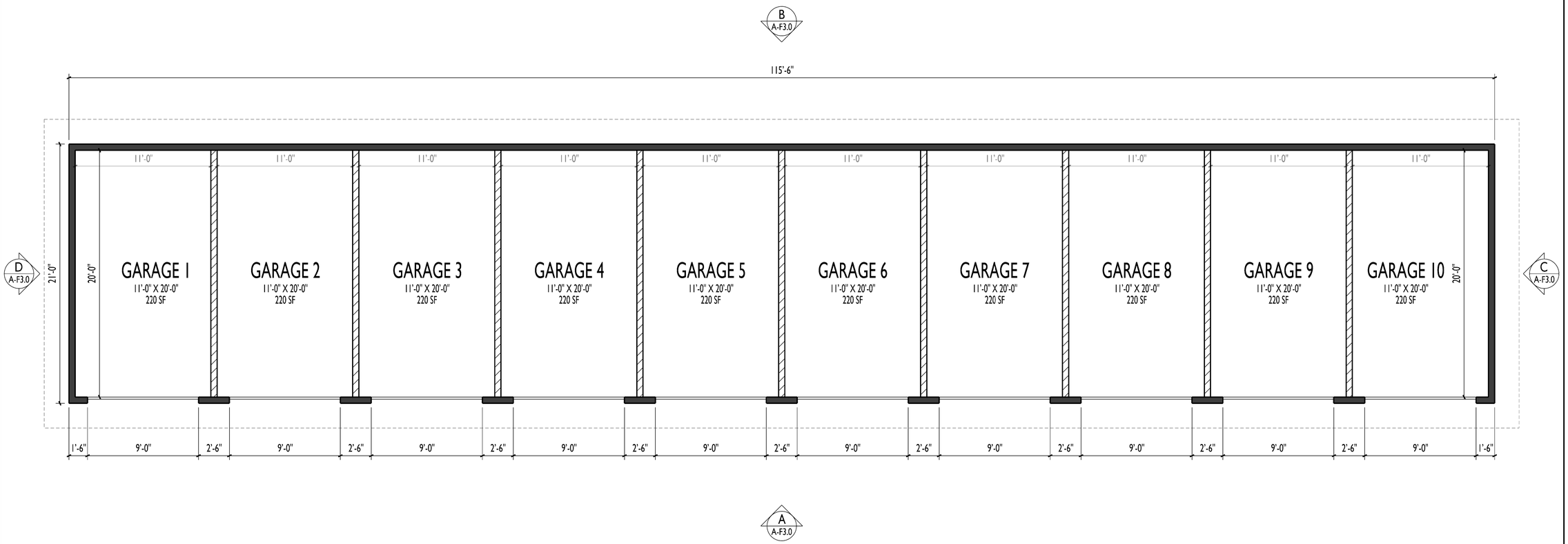
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

PROPOSED ELEVATIONS (BLDG E)

DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2021	SHT NO. A-E3.0
SCALE: 3/16"=1'-0"	

0 1" 4' 10' 12'

ARCHITECT'S / ENGINEER'S SEAL



A PROPOSED FLOOR PLAN
A-F2.0 BUILDING TYPE F: 10 BAY GARAGE SCALE: 1/4" = 1'-0"

GROSS AREA CALC.	
TOTAL NON A/C UNDER ROOF	2,426 SF

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 7TH EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2021 BPF DESIGN INCORPORATED

REVISIONS

1	

BUILDING F:
10 BAY GARAGE BUILDING

THE COVE AT NEW SMYRNA:

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

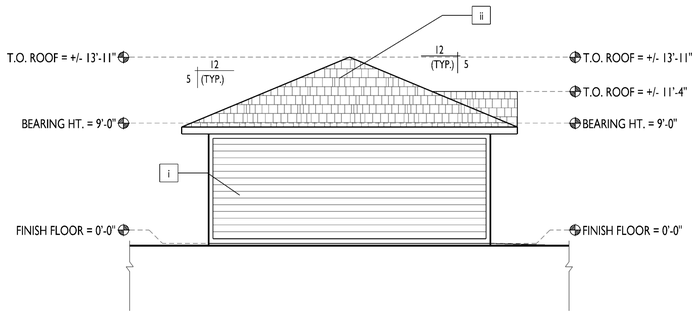
BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

PROPOSED FLOOR PLAN (10 BAY GARAGE)

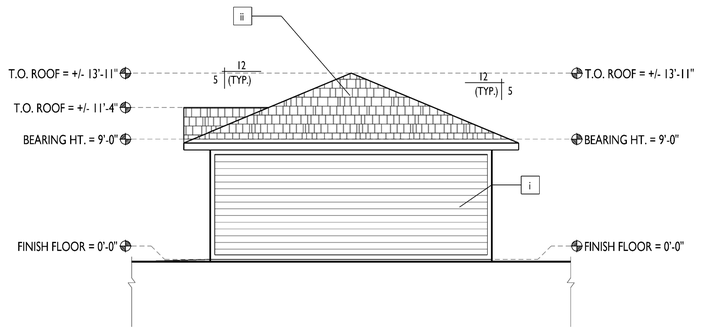
DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2021	SHT NO. A-F2.0
SCALE: 1/4"=1'-0"	

0 1' 3' 7' 10'

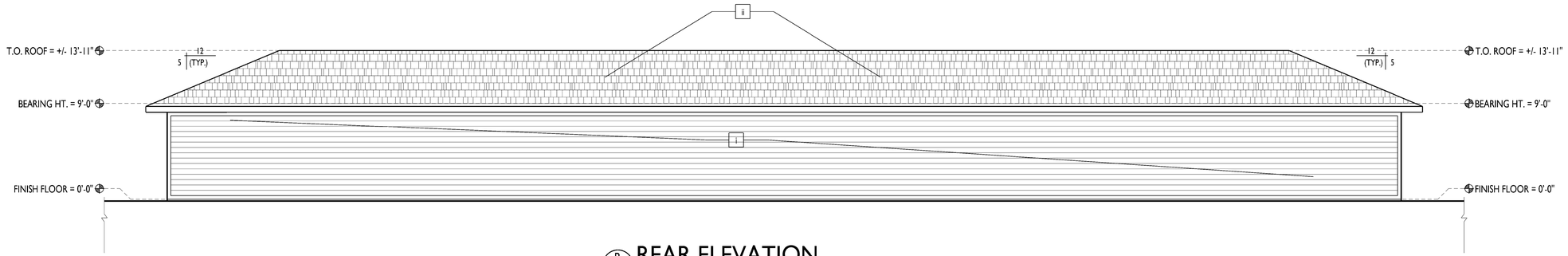
ARCHITECT'S / ENGINEER'S SEAL



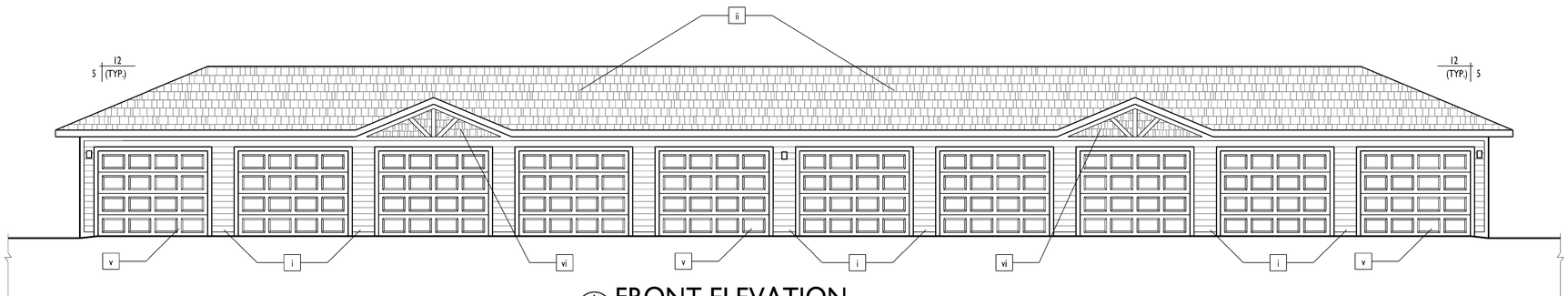
D A-F3.0 **SIDE ELEVATION**
BUILDING TYPE F:
10 BAY GARAGE
SCALE: 3/16" = 1'-0"



C A-F3.0 **SIDE ELEVATION**
BUILDING TYPE F:
10 BAY GARAGE
SCALE: 3/16" = 1'-0"



B A-F3.0 **REAR ELEVATION**
BUILDING TYPE F:
10 BAY GARAGE
SCALE: 3/16" = 1'-0"



A A-F3.0 **FRONT ELEVATION**
BUILDING TYPE F:
10 BAY GARAGE
SCALE: 3/16" = 1'-0"

MATERIAL & COLOR SCHEDULE				
NO.	BUILDING ELEMENT:	MATERIAL:	COLOR SCHEME 1	COLOR SCHEME 2
i	BUILDING WALLS	HORIZONTAL CEMENT SIDING	EVENING BLUE	SAGE / FARM HOUSE WHITE
ii	TYPICAL ROOF	ASPHALT SHINGLE ROOF	BLUE GRAY	LIGHT GRAY / TAUPE/BEIGE
iii	WINDOW DOOR & ACCENT TRIM	4" CEMENT BOARD TRIM	MANUF. WHITE	MANUF. WHITE / MANUF. WHITE
iv	UNIT ENTRY DOORS	WOOD SOLID CORE 6 PANEL W/ VIEW WINDOW.	MANUF. WHITE	MANUF. WHITE / MANUF. WHITE
v	ROLL-UP GARAGE DOORS	ALUMINUM	MANUF. WHITE	MANUF. WHITE / MANUF. WHITE
vi	ROOFLINE ACCENT SIDING	SHAKE SIDING	ARTIC WHITE	ARCTIC WHITE / FARM HOUSE WHITE

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 7TH EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-10
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2021 BPF DESIGN INCORPORATED

REVISIONS

1	

THE COVE AT NEW SMYRNA:

BUILDING F:
10 BAY GARAGE
BUILDING

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL 32168
GENERAL CONTRACTOR: T.B.D.

BPF DESIGN INCORPORATED
Building Design and Architecture

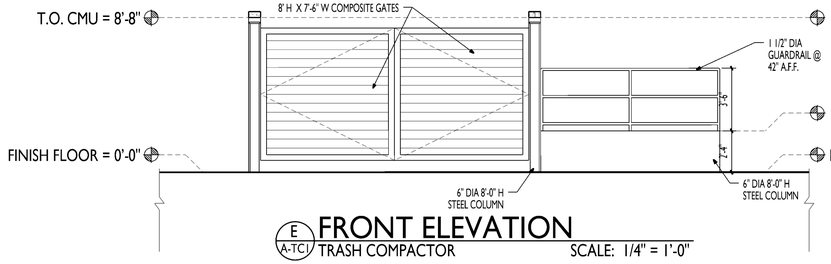
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0502 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

PROPOSED ELEVATIONS (BLDG F)

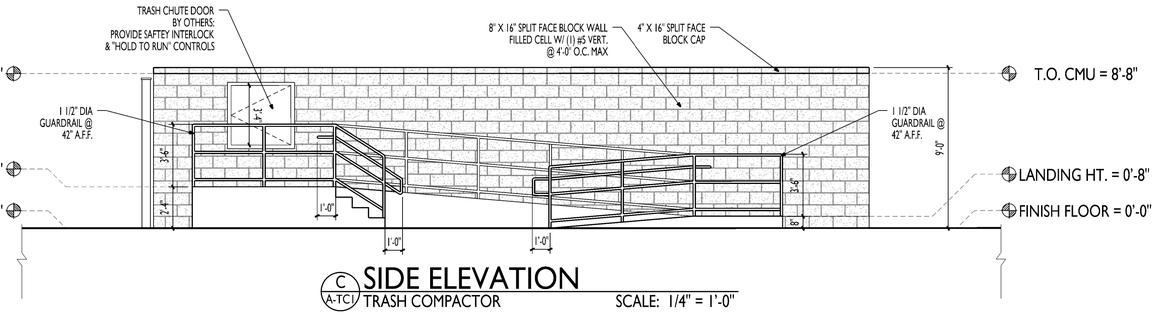
DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2021	SHT NO. A-F3.0
SCALE: 3/16"=1'-0"	

0 1' 4' 10' 12'

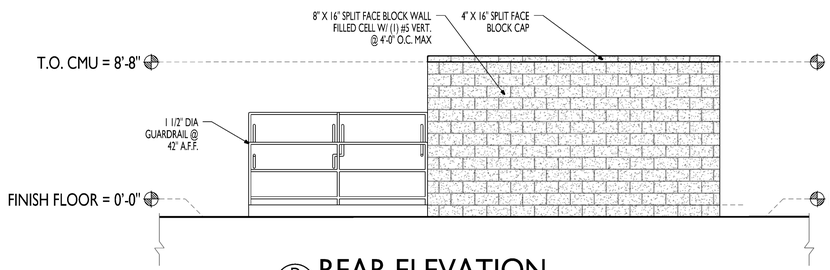
ARCHITECT'S / ENGINEER'S SEAL



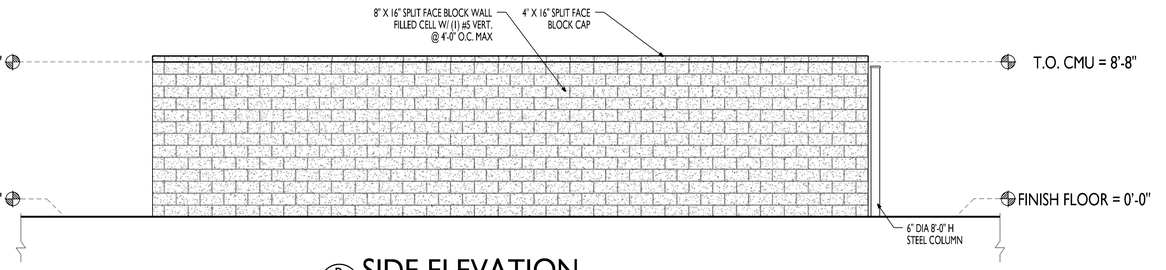
E A-TCI **FRONT ELEVATION**
TRASH COMPACTOR SCALE: 1/4" = 1'-0"



C A-TCI **SIDE ELEVATION**
TRASH COMPACTOR SCALE: 1/4" = 1'-0"

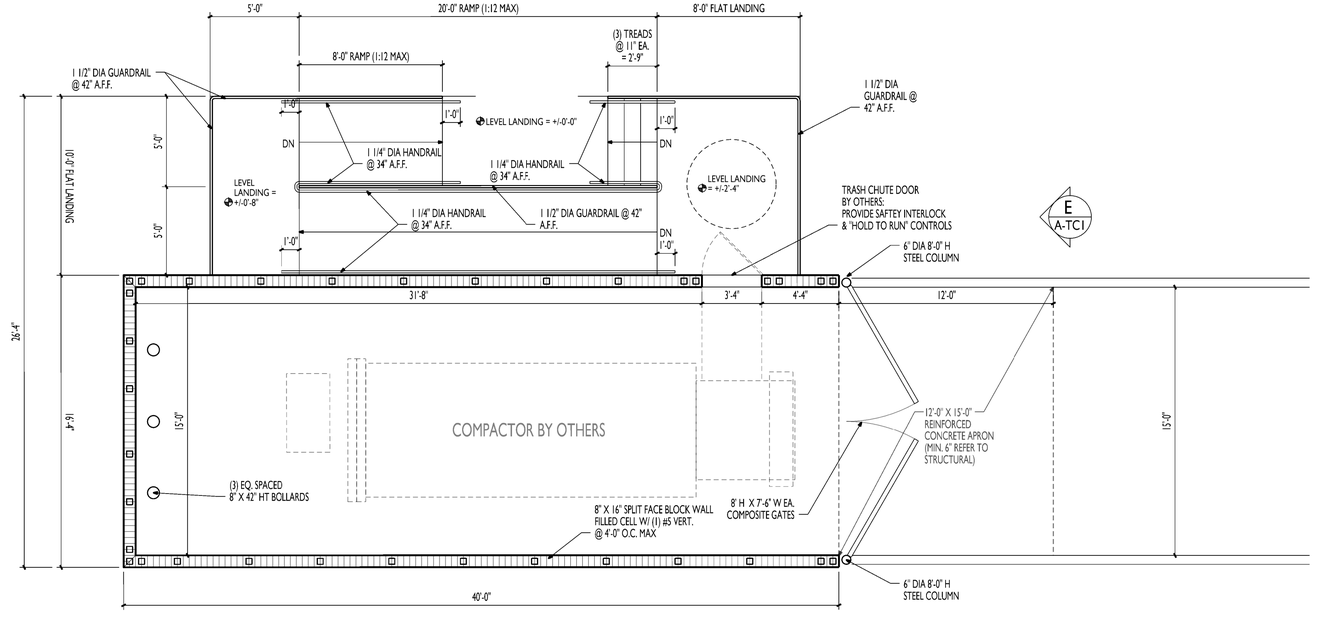


D A-TCI **REAR ELEVATION**
TRASH COMPACTOR SCALE: 1/4" = 1'-0"



B A-TCI **SIDE ELEVATION**
TRASH COMPACTOR SCALE: 1/4" = 1'-0"

C A-TCI



D A-TCI

E A-TCI

B A-TCI

A A-TCI **ENCLOSURE PLAN**
TRASH COMPACTOR SCALE: 1/4" = 1'-0"

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-16
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

REVISIONS

1	

BUILDING A: AMENITIES/FITNESS BUILDING

THE COVE AT NEW SMYRNA:

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

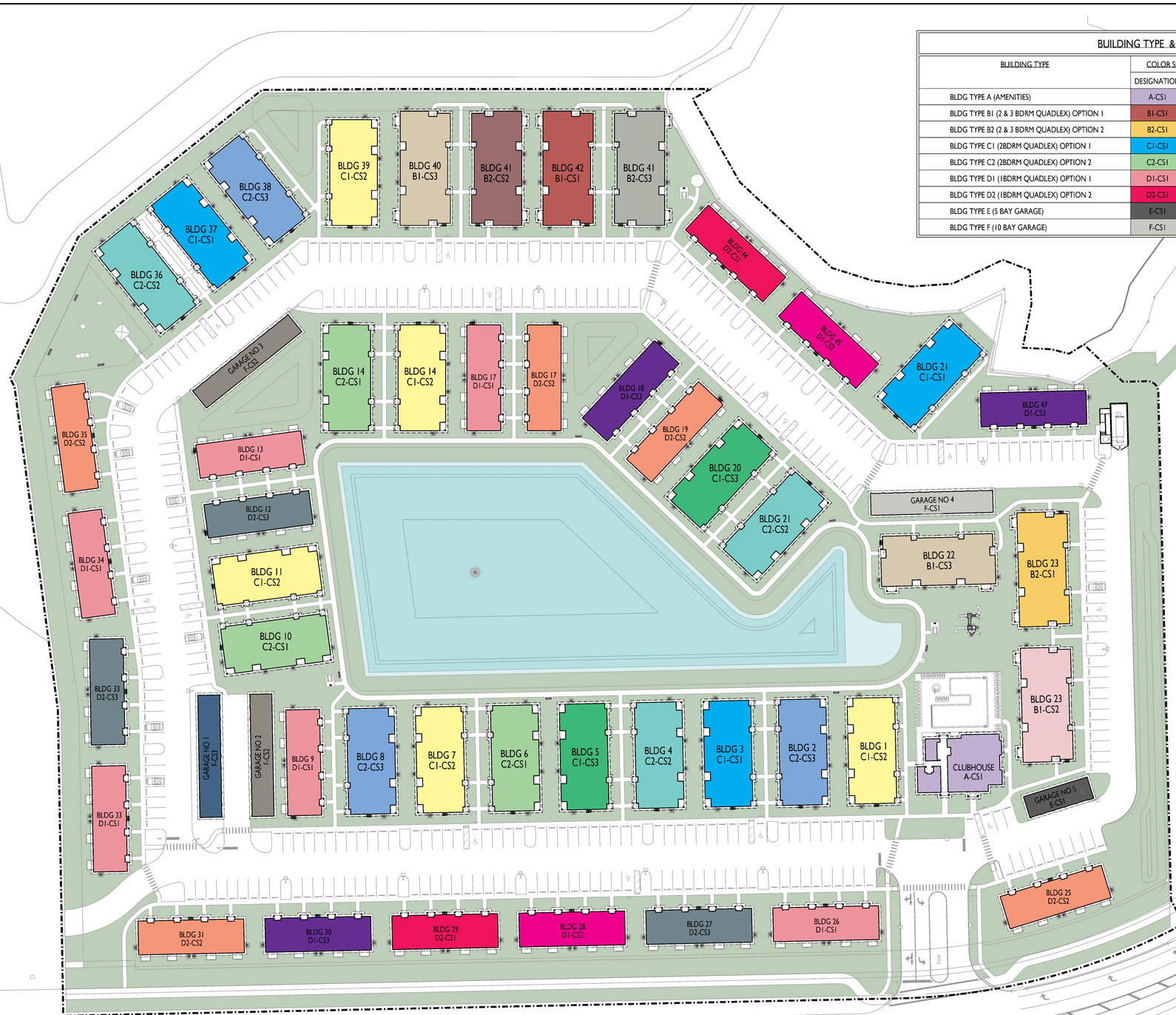
BPF DESIGN INCORPORATED
Building Design and Architecture
BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0202 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

TRASH COMPACTOR ENCLOSURE PLANS & ELEVATIONS

DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 1, 2022	SHT NO. A-TCI
SCALE: 1/4"=1'-0"	

0 1' 3' 7' 10'

ARCHITECT'S / ENGINEER'S SEAL



BUILDING TYPE & COLOR VARIATIONS

BUILDING TYPE	COLOR SCHEME 1 (CS1)		COLOR SCHEME 2 (CS2)		COLOR SCHEME 3 (CS3)	
	DESIGNATION	QUANTITY	DESIGNATION	QUANTITY	DESIGNATION	QUANTITY
BLDG TYPE A (AMENITIES)	A-CS1	1	--	--	--	--
BLDG TYPE B1 (2 & 3 BDRM QUADLEX) OPTION 1	B1-CS1	1	B1-CS2	1	B1-CS3	2
BLDG TYPE B2 (2 & 3 BDRM QUADLEX) OPTION 2	B2-CS1	1	B2-CS2	1	B2-CS3	1
BLDG TYPE C1 (2BDRM QUADLEX) OPTION 1	C1-CS1	3	C1-CS2	5	C1-CS3	2
BLDG TYPE C2 (2BDRM QUADLEX) OPTION 2	C2-CS1	3	C2-CS2	3	C2-CS3	3
BLDG TYPE D1 (1BDRM QUADLEX) OPTION 1	D1-CS1	6	D1-CS2	2	D1-CS3	3
BLDG TYPE D2 (1BDRM QUADLEX) OPTION 2	D2-CS1	2	D2-CS2	5	D2-CS3	3
BLDG TYPE E (5 BAY GARAGE)	E-CS1	1	--	--	--	--
BLDG TYPE F (10 BAY GARAGE)	F-CS1	1	F-CS2	2	F-CS3	1

0 50' 150'

GENERAL NOTES:

ALL DIMENSIONS ARE TO FINISH FACE UNLESS NOTED OTHERWISE
ALL GENERAL & SUB-CONTRACTORS TO FIELD VERIFY ALL DIMENSIONS, ELECTRICAL, WATER, SEWER AND GAS SERVICE LOCATIONS.
ALL WORK MUST COMPLY WITH THE 2020 EDITION (EXPOSURE "C") OF THE FLORIDA BUILDING CODE SECT. 1609/ 139 MPH WIND LOAD AND THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION
ALL DOOR & WINDOW OPENINGS TO MEET OR EXCEED DESIGN PRESSURE RANGE
THE BUILDING RISK CATEGORY IS "II"
INTERNAL PRESSURE COEFFICIENT IS +/- .18 IN ACCORDANCE WITH ASCE 7-16
ALL GLAZING IS TO BE NON-IMPACT RESISTANT

© COPYRIGHT 2022 BPF DESIGN INCORPORATED

A
A-C1

ARCHITECTURAL SITE PLAN

W/ BUILDING TYPE INFORMATION SCALE: 1" = 50'-0"

REVISIONS

1

THE COVE AT NEW SMYRNA:

OWNER/REP.: MARSHALL PROPERTY SERVICES
PROJECT LOCATION: 306 SUGAR MILL DRIVE, NEW SMYRNA BEACH, FL. 32168
GENERAL CONTRACTOR: T.B.D.

BPF DESIGN INCORPORATED
Building Design and Architecture

BRIAN P. FREDLEY, ASSOCIATE AIA, PROJECT MANAGER
DALLAS B. PEACOCK, ARCHITECT
#AR 0009706
207 FAIRVIEW AVENUE
DAYTONA BEACH, FL 32114 PH: (386) 257-0202 FX: (386) 257-1050
EMAIL: bfredley@bpfdesign.com WEBSITE: bpfdesign.com

ARCHITECTURAL SITE PLAN

DRAWN BY: TEM	CHECKED BY: DBP & BPF
DATE: MARCH 16, 2022	SHT NO. A-C1
SCALE: AS NOTED	

ARCHITECT'S / ENGINEER'S SEAL