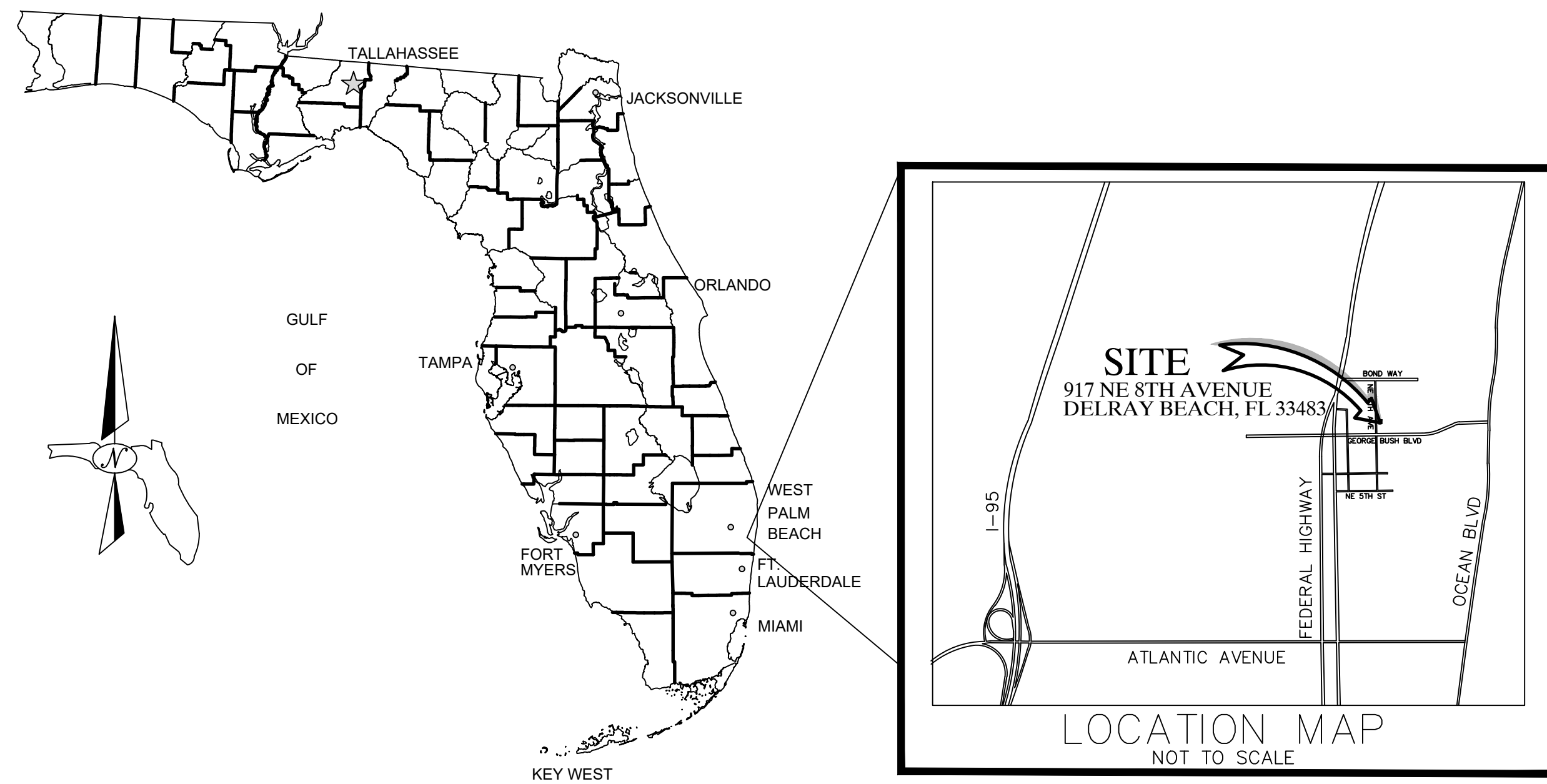


917 NE 8TH AVENUE

PROPOSED TOWNHOMES

DELRAY BEACH, FLORIDA 33483

CIVIL SITE PLAN PACKAGE



SHEET

CS
 PP-1
 PD-1
 PD-1A
 PD-2
 PD-2A
 PD-3
 PD-4 to PD-6
 WS-1
 WS-2, WS-3
 WS-5

DESCRIPTION

Cover Sheet
 Pollution Prevention Plan
 General Notes Plan
 Demolition Plan
 Paving & Grading Plan
 Drainage Plan
 Pavement, Marking & Signage Plan
 Paving & Grading & Drainage Details
 Water Distribution, Sanitary Sewer and Utility Plan
 Water Distribution, & Sanitary Sewer Details
 Composite Utility Plan

REV PER CITY COMMENTS	06/27/22	AJG
REV PER CITY COMMENTS	04/14/22	AJG
REVISIONS	DATE	BY
FILE NAME	9638_Eng.dwg	

CAULFIELD & WHEELER, INC.
 CIVIL ENGINEERING - SURVEYING
 LANDSCAPE ARCHITECTURE - SUITE 100
 7900 GLADES ROAD - SUITE 100
 BOCA RATON, FLORIDA 33434
 PHONE (561)-392-1991 / FAX (561)-750-1452

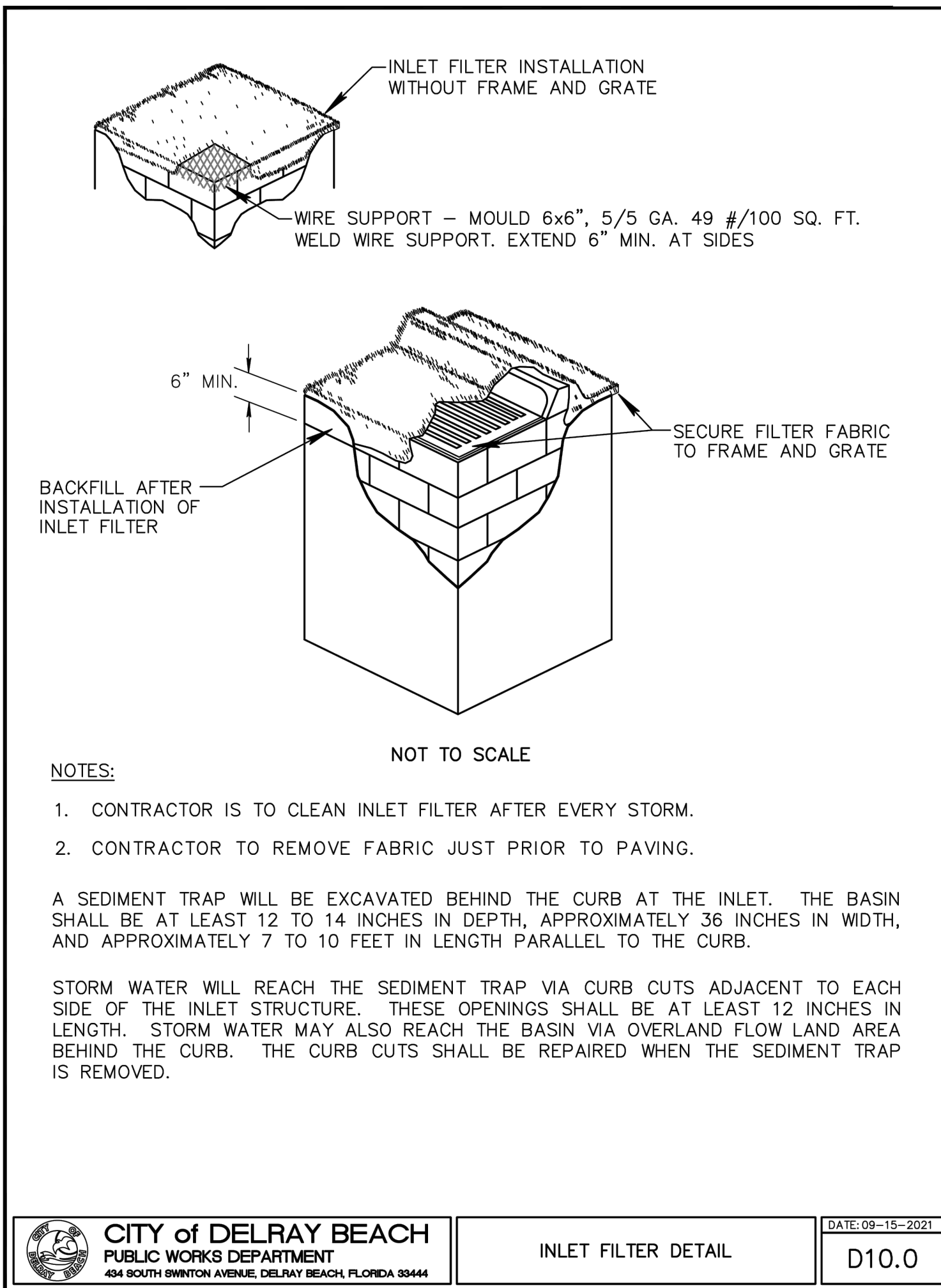
**917 NE 8TH AVENUE
 COVER SHEET**

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DRAWN BY	AJG
F.B. / PG.	----
SCALE	N.T.S.

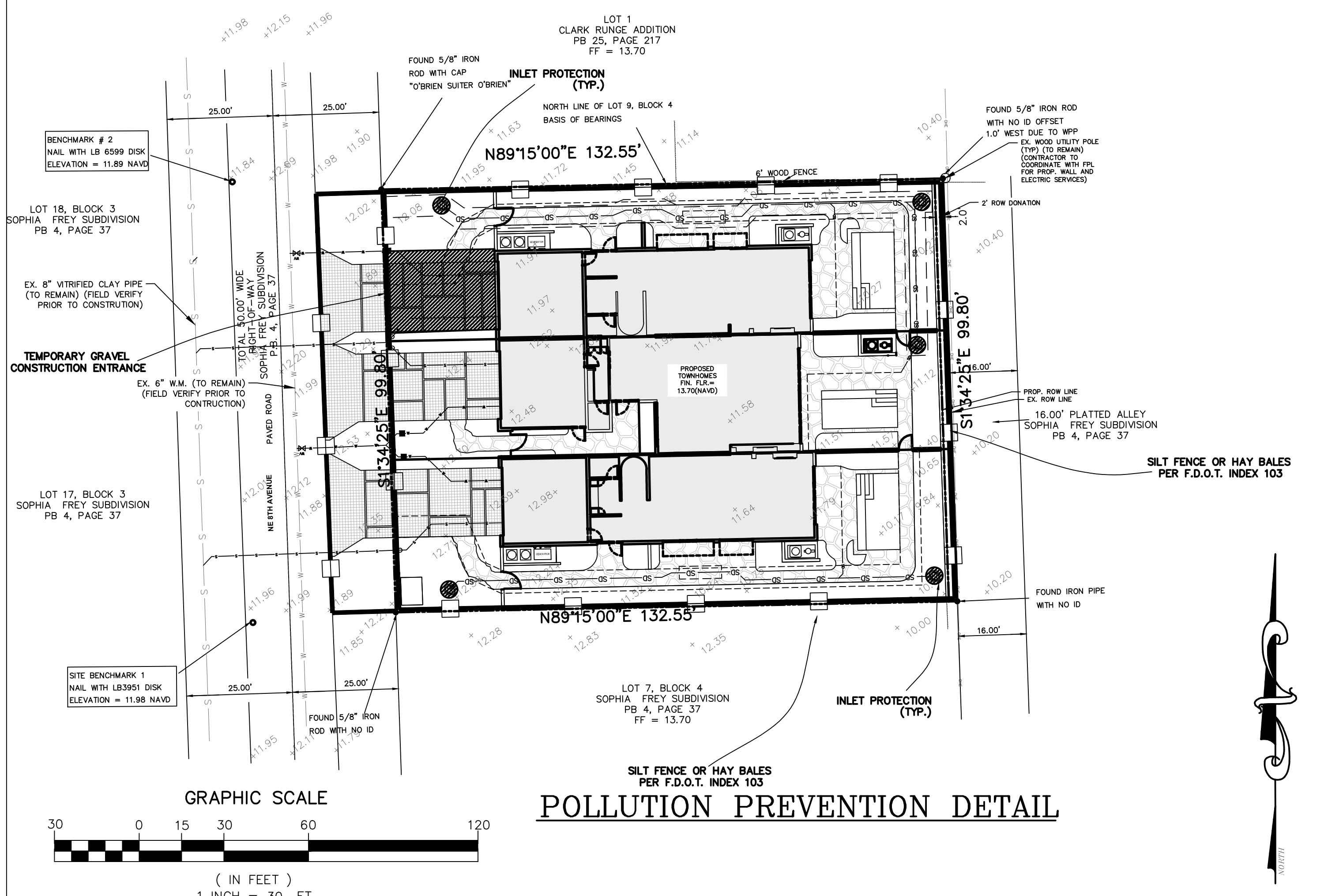
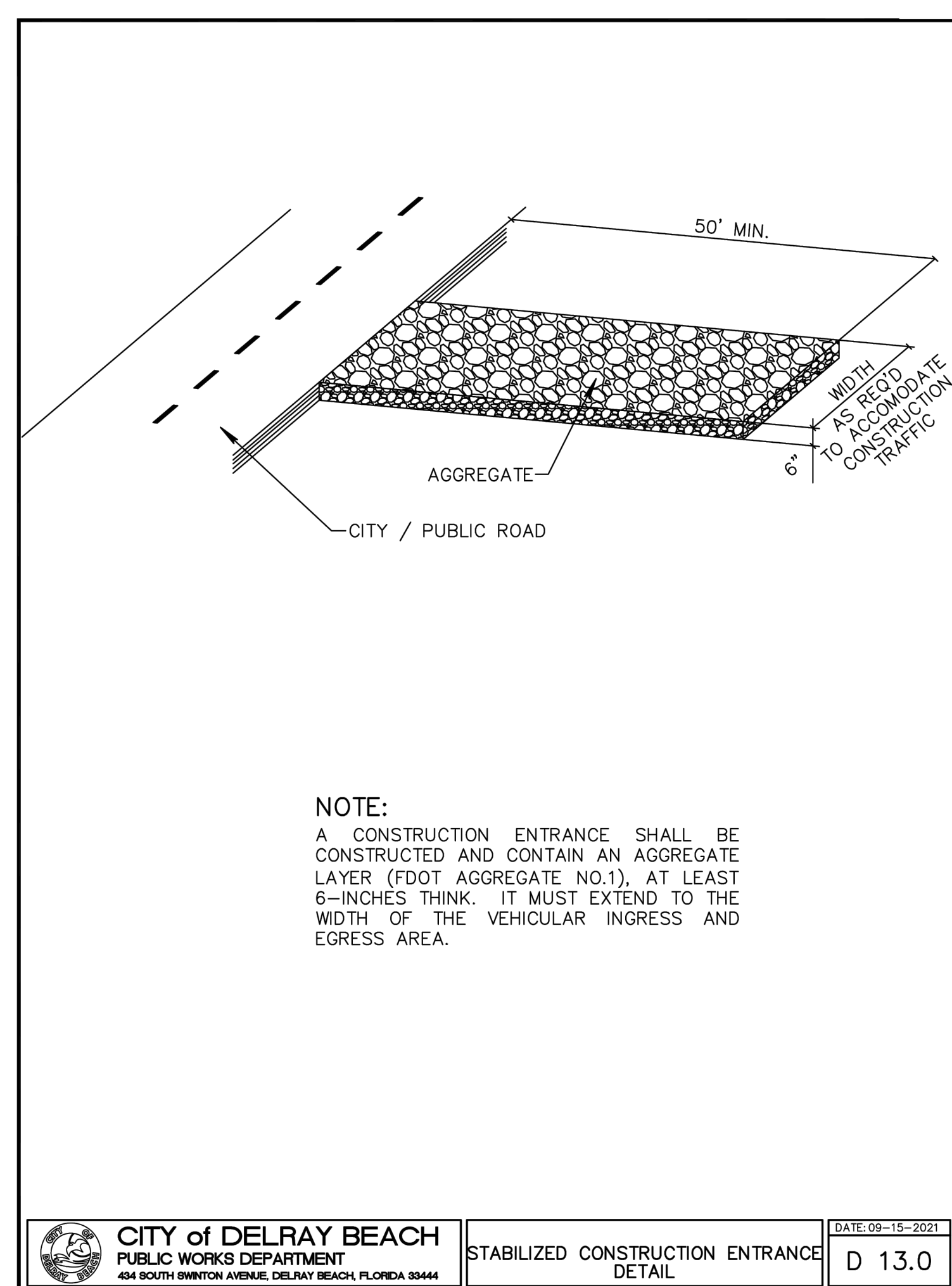
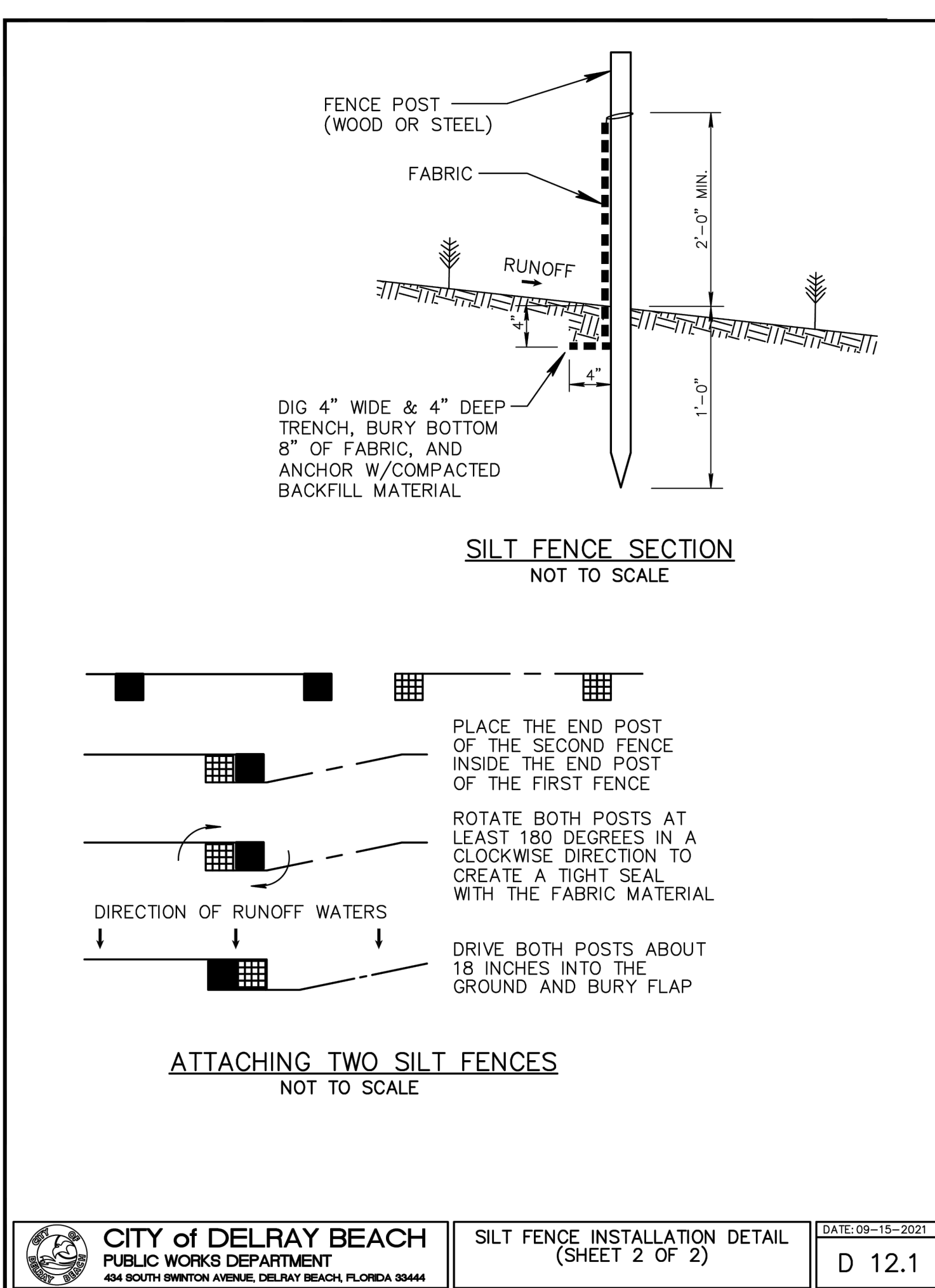
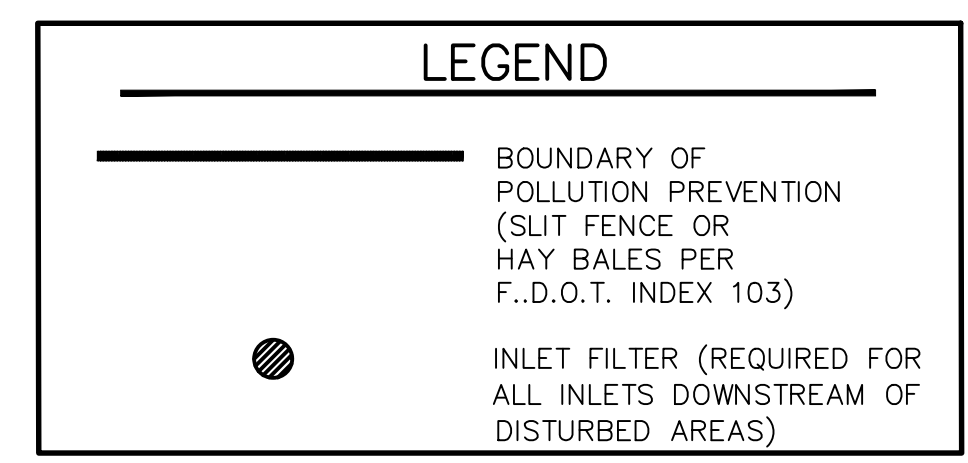
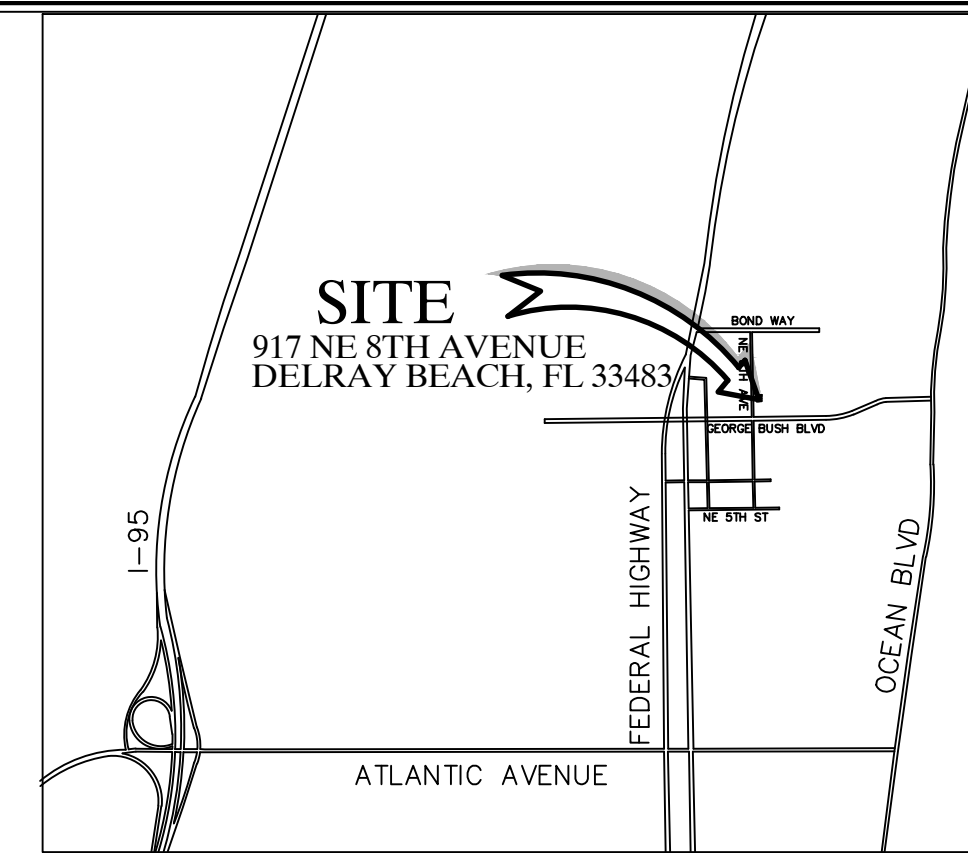
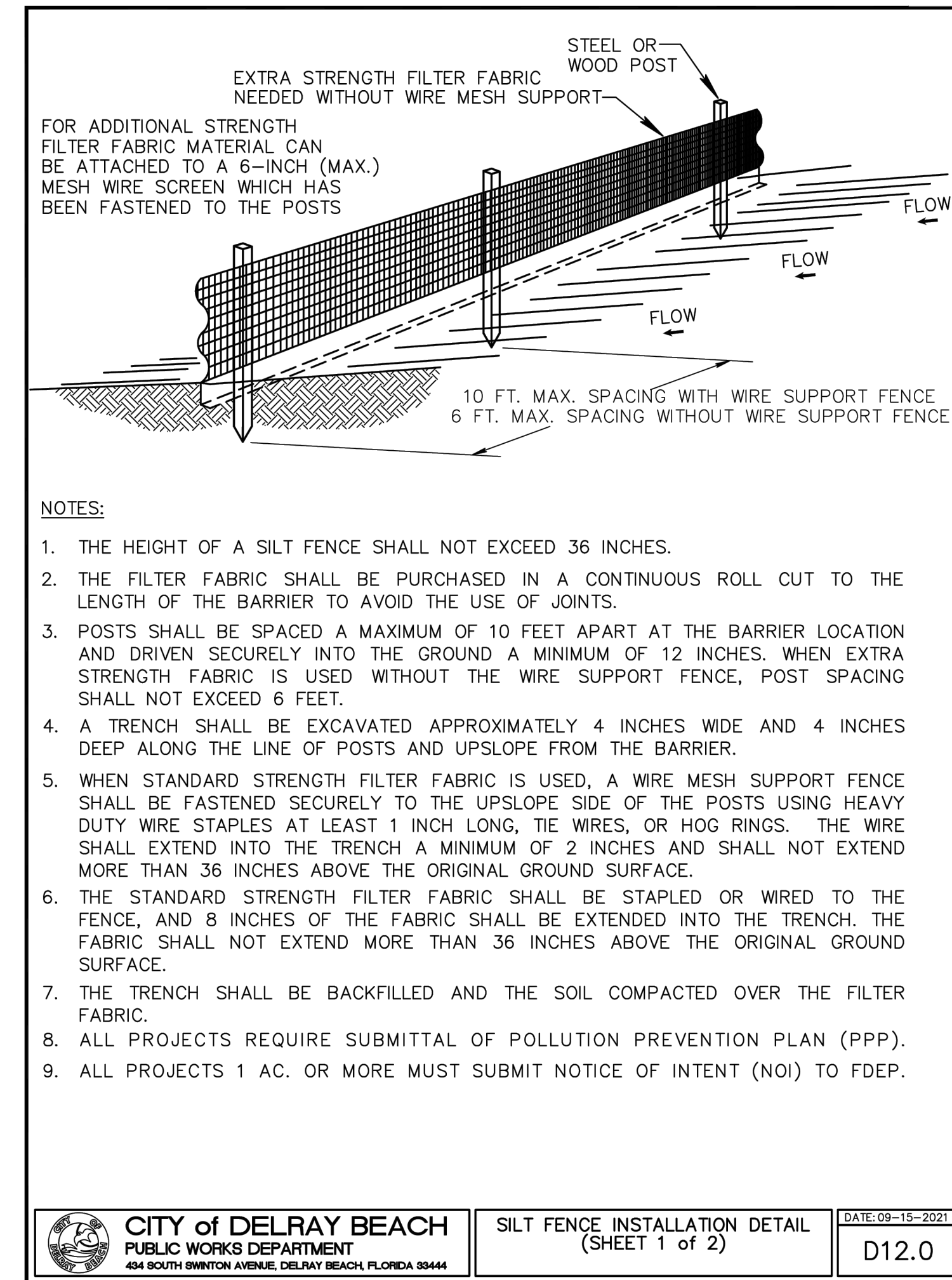
MATTHEW V. KAHN
 PROFESSIONAL ENGINEER
 LICENSE NO. 82227
 STATE OF FLORIDA
 FOR THE FIRM -
 DATE

JOB # 9638
 SH.T.NO.
CS
 OF 14 SHEETS

D:\proj\917 NE 8th Ave\917 NE 8th Ave\917 NE 8th Ave.dwg (12/15/21) (12/15/21)



- EROSION CONTROL NOTES DETAIL**
DATE: 09-15-2021
D 11.0
1. THE INTENT OF EROSION CONTROL MEASURES INDICATED GRAPHICALLY ON PLANS IS TO PROVIDE A BARRIER TO CONTAIN SILT AND SEDIMENT ON THE PROJECT SITE. THIS REPRESENTATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE TEST OF EROSION CONTROL EFFECTIVENESS IS NOT TO BE DETERMINED BY ADHERENCE TO THE REPRESENT SET FORTH ON THE DRAWINGS AND SPECIFICATIONS, BUT BY MEETING THE REGULATIONS SET FORTH BY THE AUTHORITY HAVING JURISDICTION OVER WATER QUALITY CONTROL AND OTHER SEDIMENTATION RESTRICTION REQUIREMENTS IN THE REGION.
 2. APPROVED EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY CLEARING GRADING, EXCAVATION, FILLING, OR OTHER LAND DISTURBANCE ACTIVITIES, EXCEPT THOSE OPERATIONS NEEDED TO INSTALL SUCH MEASURES.
 3. INSPECTION OF ALL EROSION CONTROL MEASURES SHALL BE CONDUCTED WEEKLY, OR AFTER EACH RAINFALL EVENT. REPAIR, AND/OR REPLACEMENT OF SUCH MEASURES SHALL BE MADE PROMPTLY, AS NEEDED.
 4. KEEP DUST WITHIN TOLERABLE LIMITS BY SPRINKLING OR OTHER ACCEPTABLE MEANS.
 5. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED IF DEEMED NECESSARY BY ONSITE INSPECTION.
 6. FAILURE TO PROPERLY INSTALL AND MAINTAIN EROSION CONTROL PRACTICES SHALL RESULT IN CONSTRUCTION BEING HALTED.
 7. DRAINAGE INLETS SHALL BE PROTECTED BY FILTER AND GRADED ROCK AS PER INLET PROTECTION DETAIL.
 8. ANY ACCESS ROUTES TO SITE SHALL BE BASED WITH CRUSHED STONE, WHERE PRACTICAL.
 9. EROSION CONTROL MEASURES ARE TO BE MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
 10. WHENEVER FEASIBLE, NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED.
 11. ALL WORK IS TO BE IN COMPLIANCE WITH THE RULES AND REGULATIONS SET FORTH BY THE STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE CITY OF DELRAY BEACH.
 12. DISCHARGE FROM DEWATERING OPERATIONS SHALL BE RETAINED ONSITE IN A CONTAINMENT AREA.



REV	DATE	BY
08/07/22	AJC	
04/14/22	AJC	
REV PER CITY COMMENTS		
REV PER CITY COMMENTS		
REVISIONS		
FILE NAME	9638_ENG.dwg	

CAULFIELD & WHEELER, INC.
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7900 GLADES ROAD - BOCA RATON, FLORIDA 33434
PHONE (561)-392-1991 / FAX (561)-750-1452

917 NE 8TH AVENUE
POLLUTION PREVENTION PLAN AND DETAILS

DATE: 12/15/21
DRAWN BY: AJG
F.B./PG: ----
SCALE: 1" = 30'
MATTHEW V. KAHN
PROFESSIONAL ENGINEER
LICENSE NO. 82227
STATE OF FLORIDA
FOR THE FIRM -
DATE

JOB # 9638
SHT. NO.
PP-1
OF 14 SHEETS

**GENERAL NOTES
PAVING, GRADING & DRAINAGE**

- ALL DIMENSIONS SHOWN ON THESE DRAWINGS ARE SCALED DISTANCES. THE CONTRACTOR SHALL CONFIRM ALL MEASUREMENTS IN THE FIELD AND NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCY PRIOR TO PERFORMING THE WORK. ALL QUANTITIES SHALL BE PAID ON THE BASIS OF FIELD MEASUREMENTS OF COMPLETED WORK.
- REINFORCED CONCRETE PIPE (R.C.P.) SHALL BE IN ACCORDANCE WITH F.D.O.T. STANDARDS SPECIFICATIONS SEC. 941. CORRUGATED ALUMINUM PIPE (C.A.P.) SHALL BE IN ACCORDANCE WITH F.D.O.T. STANDARDS SPECIFICATIONS SEC. 945.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE SUCH EXAMINATION OF THE SITE OF THE WORK, AND OF ANY MATERIAL SOURCES INDICATED IN THE PLANS, AS MAY BE NECESSARY TO INFORM HIMSELF OF THE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED.
- PROPOSED GRADES SHOWN IN PAVED AREAS REFER TO FINISH PAVEMENT GRADES.
- PAVEMENT MARKING AND GEOMETRICS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND PALM BEACH COUNTY TYPICAL NO. T-P-17.
- ALL LOTS, ROADWAYS AND BORROW AREAS SHALL BE STRIPPED OF ALL DELETERIOUS (UNSUITABLE) MATERIALS AND MATERIALS SHALL BE DISPOSED WITHIN THE SITE.
- ALL GRADING OF STREETS INCLUDING THE REMOVAL OF ALL MATERIALS AND THE FINISHING OF ALL SHOULDERS, SUBGRADE PREPARATION, SWALES AND BACKSLOPES, IN ACCORDANCE WITH THE TYPICAL SECTIONS SHOWN HEREON SHALL BE INCLUDED IN THE BID PRICE FOR PAVING.
- ANY EXISTING ROADWAY AND/OR UTILITY THAT IS DAMAGED BY THE CONTRACTOR SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE ENGINEER AND UTILITY.
- THE FULL DEPTH OF ALL EXISTING ORGANIC AND DELETERIOUS MATERIALS WITHIN THE RIGHT-OF-WAY AND UTILITIES AND DRAINAGE EASEMENT SHALL BE COMPLETELY REMOVED. NO MATERIALS OF F.D.O.T. CLASS A-5, A-7, OR A-8 SHALL BE ALLOWED.
- ANY MUCK POCKETS OR GUMBO ENCOUNTERED SHALL BE REMOVED WITHIN THE ROADWAY TO 1.0' BELOW SUBGRADE AND TO OUTSIDE EDGE OF BOTH SHOULDERS.
- ALL PAVING AND DRAINAGE WORK TO BE CONSTRUCTED IN FULL ACCORDANCE WITH PALM BEACH COUNTY STANDARDS AND SPECIFICATIONS.
- THE SEQUENCE OF CONSTRUCTION SHALL BE SUCH THAT ALL UNDERGROUND INSTALLATIONS OF EVERY KIND THAT WILL BE BENEATH THE PAVEMENT CURRENTLY TO BE CONSTRUCTED SHALL BE INSTALLED PRIOR TO THE COMPLETION OF SUBGRADE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER AND COUNTY ON ALL PIPE, PIPE BANDS, DRAINAGE STRUCTURES, GRATES, FRAMES AND COVERS.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF EXISTING UTILITIES WHETHER SHOWN OR NOT SHOWN ON THESE DRAWINGS AND SHALL VERIFY ALL ELEVATIONS BEFORE STARTING CONSTRUCTION. ALL EXISTING UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE RESTORED TO EXISTING OR BETTER CONDITIONS BY CONTRACTOR AT NO EXPENSE TO OWNER.
- WHERE CONNECTIONS TO AN EXISTING DRAINAGE SYSTEM ARE PROPOSED, SAID EXISTING DRAINAGE STRUCTURES AND LINES SHALL BE PURGED OF ALL SILT AND DEBRIS PRIOR TO SAID CONNECTION, AND WHERE EXISTING DRAINAGE SYSTEM INCLUDES DITCHES, SAID DITCHES SHALL BE CLEARED AND REWORKED, AS NECESSARY, TO RESTORE THEM TO THEIR APPROVED DESIGN SECTION.
- ALL PIPE JOINTS ARE TO BE INSPECTED BY A REPRESENTATIVE OF THE ENGINEER PRIOR TO BACKFILLING. ALL INSPECTIONS SHOULD BE ARRANGED NO LESS THAN 48 HOURS IN ADVANCE.
- ALL CATCH BASIN GRATES MUST HAVE LOCKING CHAINS IN ACCORDANCE WITH FDOT INDEX 201.

- CLEARING AND GRUBBING:**
- WORK SHALL CONSIST OF THE COMPLETE REMOVAL AND DISPOSAL OF ALL BUILDINGS, TIMBER, BRUSH, STUMPS, ROOTS, RUBBISH, AND DEBRIS AND ALL OTHER OBSTRUCTIONS RESTING ON OR PROTRUDING THROUGH THE SURFACE OF THE EXISTING GROUND AND THE SURFACE OF EXCAVATED AREAS, AND OF ALL OTHER STRUCTURES AND OBSTRUCTIONS NECESSARY TO BE REMOVED, INCLUDING SEPTIC TANKS, BUILDING FOUNDATIONS, AND PIPES.
 - ROOTS AND OTHER DEBRIS SHALL BE REMOVED TO A DEPTH OF AT LEAST ONE FOOT BELOW THE GROUND SURFACE. ALL STUMPS WITHIN THE CONSTRUCTION AREA SHALL BE COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR.
 - EXISTING TREES TO REMAIN WHERE SO DIRECTED BY THE ENGINEER, SHALL BE TRIMMED, PROTECTED AND LEFT STANDING.
 - PROPERTY OBSTRUCTIONS WHICH ARE TO REMAIN IN PLACE, SUCH AS BUILDINGS, SEWERS, DRAINS, WATER OR GAS PIPES, CONDUITS, POLES, WALLS, POSTS, BRIDGES, ETC. ARE TO BE CAREFULLY PROTECTED FROM INJURY AND ARE NOT TO BE DISPLACED.
 - CLEARING AND GRUBBING MATERIALS SHALL BE DISPOSED OF BY THE CONTRACTOR IN LOCATIONS AND BY METHODS APPROVED BY THE ENGINEER.

- SUBGRADE:**
- UTILIZATION OF MATERIAL IN SUBGRADE CONSTRUCTION SHALL BE IN ACCORDANCE WITH PLAN DETAILS OR AS DIRECTED BY THE ENGINEER.
 - A PROCTOR TEST SHALL BE PERFORMED ON THE PROPOSED SUBGRADE MATERIAL TO DETERMINE THE OPTIMUM MOISTURE CONTENT AND MAXIMUM DENSITY OF THE MATERIAL. IN-PLACE DENSITY TESTS OF THE FINISH SUBGRADE SHALL BE PERFORMED AT A FREQUENCY OF AT LEAST ONE TEST FOR EVERY 7,000 SQ.FT. OF PROPOSED PAVEMENT AREA TO DETERMINE COMPLIANCE WITH THE DESIGN SPECIFICATIONS OF 100% OF MAX. DENSITY PER AASHTO T-99 TESTING METHODS.
 - STABILIZED SUBGRADE SHALL HAVE A MINIMUM LIMEROCK BEARING RATIO (LBR) OF 40. THE COMPACTED SUBGRADE SHALL CONFORM TO THE LINES, GRADES, AND CROSS-SECTIONS SHOWN ON THE PLANS. ALL ROOTS, STUMPS, OR OBJECTIONABLE MATERIAL PRESENT ON, UNDER, OR PROTRUDING THROUGH THE SURFACE SHALL BE COMPLETELY REMOVED FROM THE SUBGRADE. THE FINISHED SURFACE OF THE SUBGRADE SHALL BE STRING-LINED PRIOR TO PLACEMENT OF ROCK BASE TO VERIFY THAT THE SUBGRADE HAS BEEN CONSTRUCTED TO THE PROPER LINES, CROSS-SECTIONS, AND ELEVATIONS WITHIN AN ALLOWABLE TOLERANCE OF 1/2" OF THE PROPOSED FINISH SUBGRADE ELEVATIONS.

PBC ROAD AND BRIDGE STANDARD NOTES:

- IF DURING THE PROPOSED CONSTRUCTION/CROSSING ANY EXISTING PB COUNTY STORM DRAIN PIPE/STRUCTURES ARE AFFECTED IN ANY WAY PB COUNTY R&B REQUIRES FULL RESTORATION OF THE AFFECTED SYSTEM TO LIKE OR BETTER THEN LIKE CONDITION AND TO PB COUNTY/FDOT STANDARDS.
- ALL AFFECTED ROADWAYS ARE TO BE RESTORED FROM EOP TO EOP, LANE WIDTH MIN, AND 50' IN EITHER DIRECTION.(THOROUGHFARE) AND 25' MIN. RESTORATION (NON-THOROUGHFARE).
- IF ANY ADDITIONAL LANES ARE AFFECTED FOR ANY REASON DURING CONSTRUCTION, PB COUNTY R&B WILL REQUIRE THE ADDITIONAL LANES BE RESTORED TO LIKE OR BETTER THEN LIKE CONDITION AND TO EQUAL DIMENSIONS AS THE ADJACENT LANES.
- IF PB COUNTY SIDEWALK / PATHWAY / C&G / AND OR ADA FACILITIES ARE AFFECTED PB COUNTY R&B WILL REQUIRE RESTORATION OF A MINIMUM OF 10' AND TO BE LIKE OR BETTER THEN LIKE CONDITION PER / FDOT / PB COUNTY STANDARDS.
- SIDEWALKS WILL BE RESTORED BY REPLACING TWO FLAGS IF THE POINT OF CONSTRUCTION IS LOCATED AT A CONTROL JOINT AND THREE FLAGS IF THE POINT OF CONSTRUCTION IS LOCATED BETWEEN CONTROL JOINTS. NO PARTIAL JOINTS ACCEPTED. (PER SITUATION)

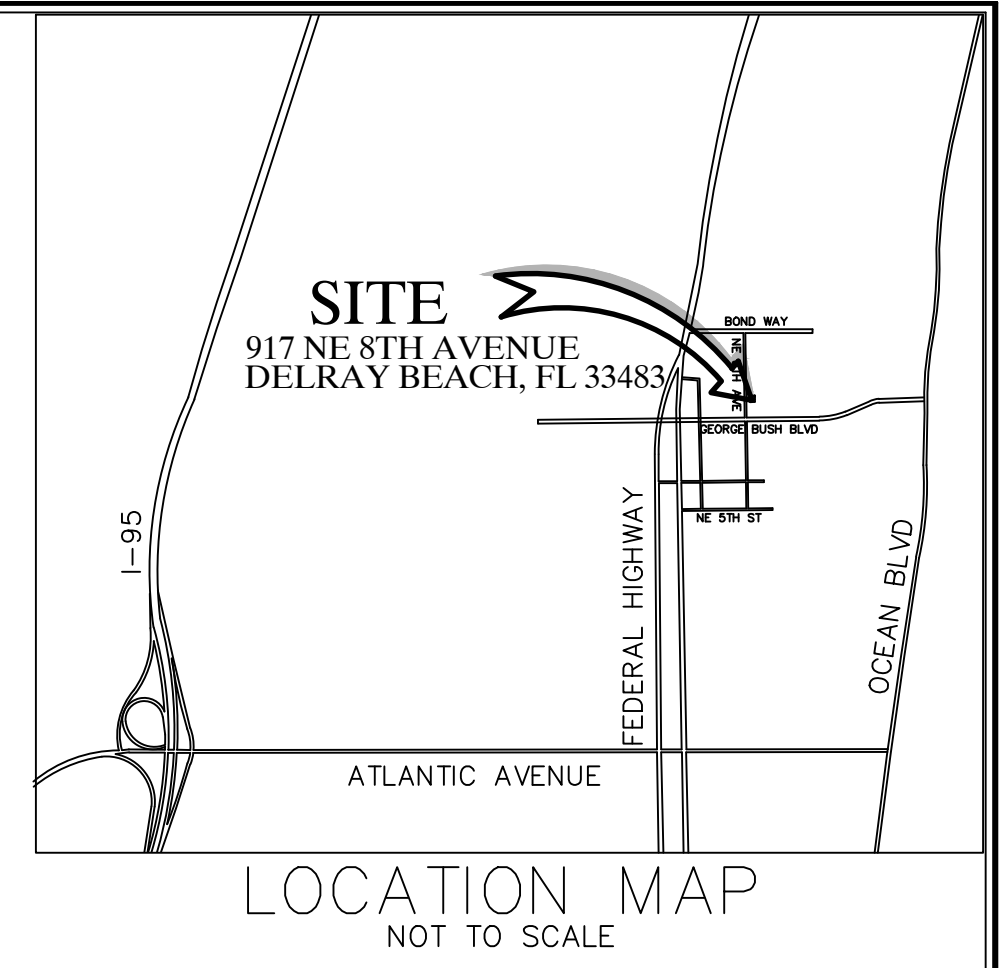
PBC TRAFFIC STANDARD NOTES:

- CONTACT HAROLD REED AT 561 681-4326 BEFORE STARTING CONSTRUCTION PBC-TRAFFIC ITS WILL REMOVE FIBER OPTIC CABLES FROM UNDERGROUND AND OVERHEAD FACILITIES PRIOR CONSTRUCTION. PLEASE PROVIDE 2 WEEKS ADVANCE NOTICE TO REMOVE FIBER OPTIC CABLE.
- CONTRACTOR SHALL CONTACT PALM BEACH COUNTY TRAFFIC OPERATIONS AT 561-233-3900 FORTY-EIGHT(48) HOURS PRIOR TO CONSTRUCTION IF WORK IS BEING DONE WITHIN 10 FEET OF ANY SIGNAL EQUIPMENT.
- DAMAGES TO LOOPS OR ANY SIGNAL EQUIPMENT CAUSED BY CONSTRUCTION OF THIS PROJECT MUST BE REPAIRED OR REPLACED TO ORIGINAL OR BETTER CONDITION AT NO COST TO PALM BEACH COUNTY.
- NO EXCAVATION AROUND PBC SIGNAL POLES WITHIN 6 FT. RADIUS FROM CENTER OF POLE. PLEASE SEE PBC SIGNAL TYPICAL PAGE T-5.3 (SHEET 8 OF 23).

SOLID CONCRETE INTERLOCKING PAVING STONE SPECIFICATIONS

- DESCRIPTION:
 - GENERAL:
 - Scope of Work:
 - Furnish and place sand bedding course.
 - Furnish and install concrete interlocking paving stones in the quality, shape, thickness and a color as specified.
 - Furnish and install all accessory items as required by the contract.
 - Related Work:
 - Furnish and install subgrade per Table 100.6 of the Palm Beach County Land Development Design Standards Manual.
 - Furnish and install base per Table 100.6 of the Palm Beach County Land Development Design Standards Manual.
 - Product Handling:
 - Paving stones shall be delivered and unloaded at jobsite in such a manner that no damage occurs during shipping, handling and storage.
 - References:
 - Solid concrete interlocking paving stones shall meet or exceed the requirements in ASTM C-936 Standard Specifications for Solid Concrete Interlocking Paving Units.
 - MATERIALS:
 - SOLID CONCRETE INTERLOCKING PAVING STONES
 - Thickness, Color and Pattern:
 - Paving stone thickness shall be between 3-1/8" min - 4" max.
 - All paving stones shall be colored through the full depth of paver and not just the surface.
 - A multi-colored paving stone pattern shall be used.
 - Cementitious Mortar:
 - Portland cements shall conform to ASTM C-150.
 - Aggregates:
 - Aggregates shall conform to ASTM C-33 for normal weight concrete except that grading requirements shall not necessarily apply.
 - Other Materials:
 - Paving pigments, air entraining agents, integral water repellents, finely ground silica, etc., shall conform to ASTM standard where applicable or shall be previously established as suitable for use in concrete.
 - Compressive Strength:
 - At the time of delivery to the work site, the average compressive strength shall not be less than 8,000 psi with no individual unit strength less than 7,200 psi, with testing procedures in accordance with ASTM C-140.
 - Absorption:
 - The average absorption shall not be greater than 5% with no individual unit absorption greater than 7%.
 - Proven Field Performance:
 - Satisfying field performance is indicated when paving stones similar in composition, and made with the same manufacturing equipment as those supplied to the purchaser, do not exhibit deterioration after one year.
 - Visual Inspection:
 - All paving stones shall be sound and free of defects that would interfere with the proper placement of the paving stone or impair the strength or permanence of the construction.
 - Minor cracks incidental to the usual methods of manufacture, or chipping resulting from customary methods of handling in shipment and delivery, shall not be deemed grounds for rejection.
 - Sampling and Testing:
 - The purchaser shall be accorded proper facilities to inspect and sample the paving stones at the place of manufacture from lots ready for delivery.
 - Paving stones will be sampled and tested in accordance with ASTM C-140.
 - Rejection:
 - If the shipment fails to conform to the specified requirements, the manufacturer may sort it, and new test paving stones shall be selected at random by the purchaser from the retained lot and tested at the expense of the manufacturer. If the second set of test paving stones fail to conform to the specified requirements, the entire lot shall be rejected.

- BEDDING COURSE:
 - The bedding course shall be a well graded, clean, washed sand with 100% passing a 3/8" sieve and a maximum of 3% passing a No. 200 sieve size. The use of mason sand shall not be approved.
 - The bedding course shall be the responsibility of the paving stone installer.
- EDGE RESTRAINT:
 - All edges of the installed paving stones shall be restrained. The type of edge restraint, shall be approved at locations and to details noted on plans.
- CONSTRUCTION METHODS:
 - PREPARATION OF THE BASE COURSE:
 - A suitable base shall be prepared as specified in Section B.2. of this specification.
 - The base course shall be shaped to grade and cross section with allowable tolerance of 1/4".
 - CONSTRUCTION OF THE BEDDING COURSE:
 - The finished base course shall be approved before the placement of the bedding course.
 - The sand bedding course shall be spread evenly over the area to receive the paving stones and the screeded level to produce a 1" thickness when the paving stones have been placed and vibrated.
 - The final elevation of paving stones should be nominally 1/4" to 3/8" higher than the adjacent curbs, gutter, etc., to allow for free drainage from chatters on paving stone edges.
 - The bedding course shall not be disturbed, once screeded and leveled to the desired elevation.
 - INSTALLATION OF PAVING STONES:
 - The paving stones shall be placed as shown on the drawings.
 - The paving stones shall be placed in such a manner that the desired pattern is maintained and that no intentional space is left between the stones for maximum interlock.
 - String lines should be used to hold all patterns true.
 - The gaps at the edge of the paving stone surface shall be filled with standard edge stone or with stones cut to fit. Cutting of concrete paving stone shall be accomplished to leave a clean edge to the traffic surface using a double-headed breaker or a masonry saw. Whenever possible, no cut should result with a paving stone less than 1/3 of original dimension.
 - Paving stones shall be vibrated into the bedding course using a plat vibrator capable of 3000 to 5000 pounds compaction force with the surface clean and the joints open.
 - After vibration, clean, sharp sand containing at least 30% of 1/8" particles shall be spread over the paving stone surface, allowed to dry and vibrated into the joints with additional plate vibrator passes and brushing so as to completely fill the joints.
 - Surplus material shall then be swept from the surface or left on the surface during construction to insure complete filling of joints during initial use.
 - Upon completion of work covered in this section, the Contractor shall clean up all work areas by removing all debris, surplus material and equipment from the site.
- Paver brick shall conform with Palm Beach County Land Development Design Standards Manual with the following exceptions:
 - Under II Material 2.1 # A.1, Paving stone thickness shall be 3 1/8" (min.) to 4" (max.)
 - Under II Material 2.1 # A.3, The coloring shall be throughout the entire brick with the white and yellow conforming with F.D.O.T. Standard Specifications for Road and Bridge Construction (latest edition) section 710-4.7
 - Glass spheres to meet the requirements of sections 971-1 and 971-14 with retroreflectivity to be not less than 300 minicandies.
 - When header curb is used to outline a crosswalk the curb shall be white concrete with glass beads in the white concrete.
 - The brick shall be pre-approved per project before installation by the Palm Beach County Traffic Engineering Division.



REV.	BY	DATE
06/27/22	AUG	
04/14/22	AUG	
REV. PER CITY COMMENTS		
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REVISIONS		
FILE NAME	9638_ENG.dwg	

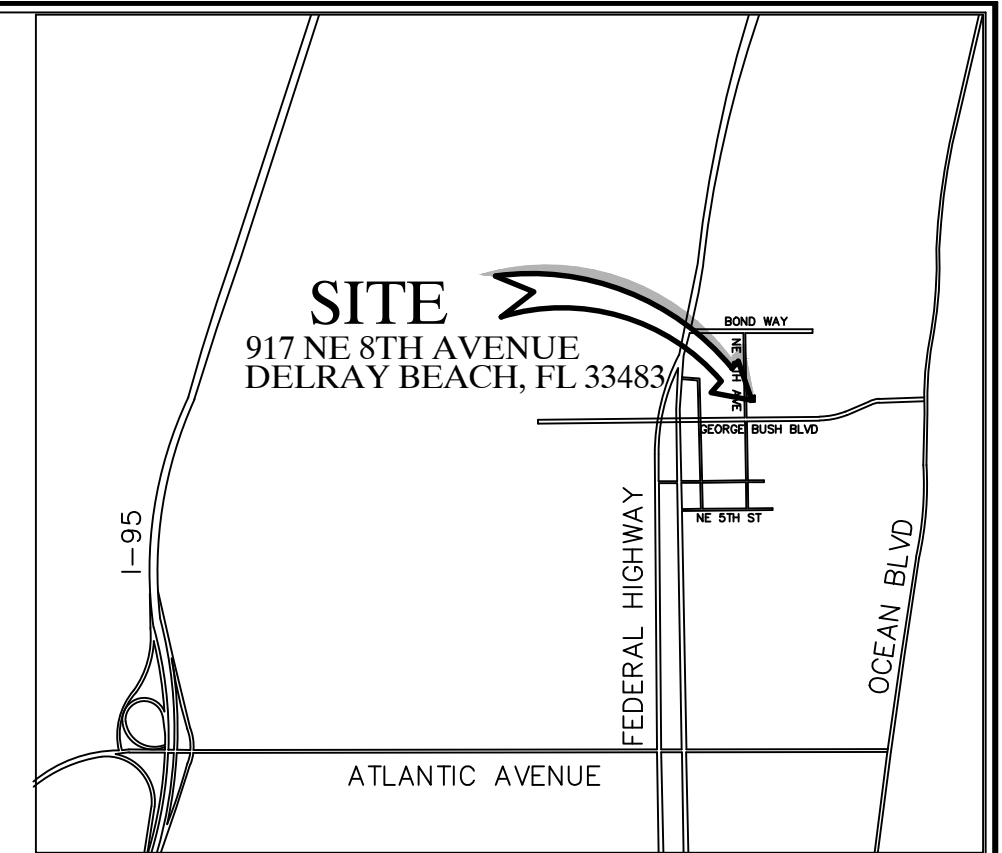
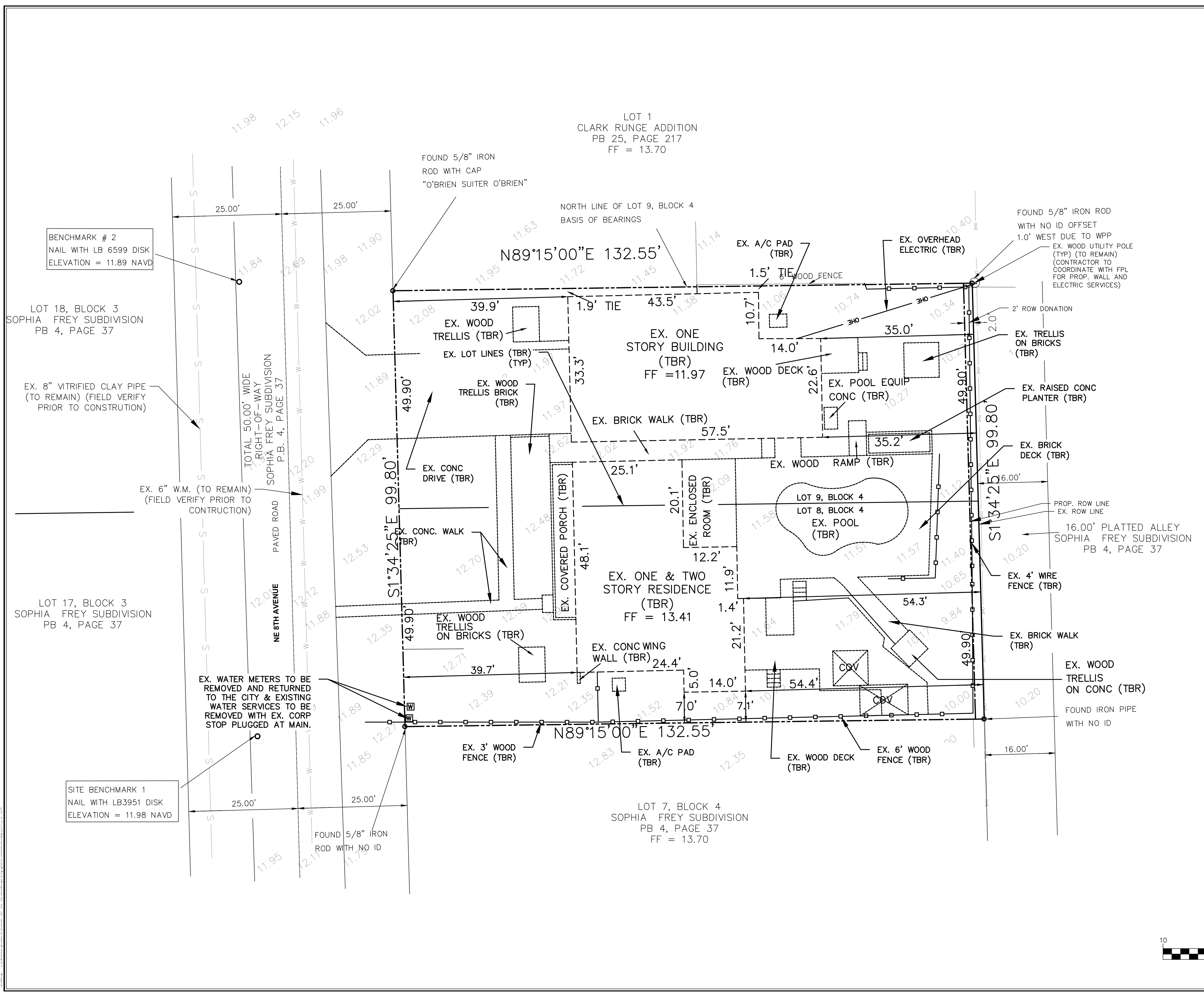
CAULFIELD & WHEELER, INC.
 CIVIL ENGINEERING & SURVEYING
 LANDSCAPE ARCHITECTURE - SURVEYING
 7900 GLADES ROAD - SUITE 100
 BOCA RATON, FLORIDA 33434
 PHONE (561)-392-1981 / FAX (561)-750-1452

917 NE 8TH AVENUE
 GENERAL NOTES PLAN

DATE	12/15/21
DRAWN BY	AUG
F.B./ PG.	----
SCALE	N.T.S.

MATTHEW V. KAHN
 PROFESSIONAL ENGINEER
 LICENSE NO. 82227
 STATE OF FLORIDA
 - FOR THE FIRM -
 DATE

JOB # 9638
 SHT. NO.
PD-1
 OF 14 SHEETS



LOCATION MAP
NOT TO SCALE

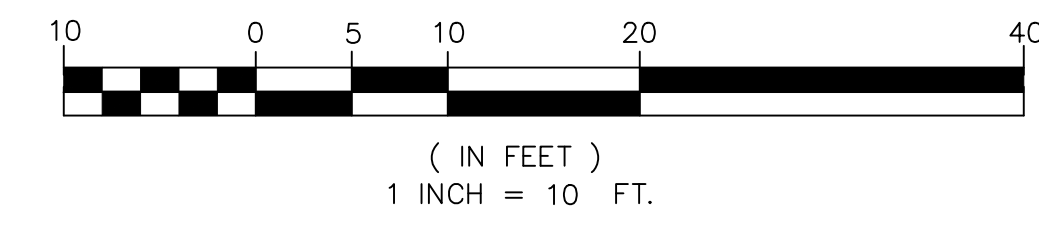
LEGEND

- EX. PROPERTY/ROW LINE
- PROP. PROPERTY/ROW LINE
- PROPOSED DRAINAGE PIPE
- PROPOSED YARD DRAIN
- EXISTING GRADE
- PROPOSED GRADE
- MATCH EXISTING GRADE
- PROPOSED WATER LINE
- EXISTING WATER LINE
- PROPOSED SANITARY SEWER LINE
- EXISTING SANITARY SEWER LINE
- PROPOSED ELECTRIC LINE
- EXISTING OVERHEAD LINE
- PROPOSED TELEPHONE/CABLE LINE
- EXISTING TELEPHONE/CABLE LINE
- PROPOSED GAS LINE
- EXISTING GAS LINE

NOTE:
ELEVATION ARE SHOWN IN NAVD
CONVERSION NAVD+1.54 = NGVD



GRAPHIC SCALE



REV	PER	CITY COMMENTS	DATE	BY
06/27/22	AJC			
04/14/22	AJC			
		REVISIONS		
		FILE NAME: 9638_Eng.dwg		

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917 NE 8TH AVENUE
 PROPOSED
 DEMOLITION PLAN

DATE 12/15/21
 DRAWN BY AJG
 F.B./ PG. ----
 SCALE 1" = 10'

MATTHEW V. KAHN
 PROFESSIONAL ENGINEER
 LICENSE NO. 82227
 STATE OF FLORIDA
 - FOR THE FIRM -
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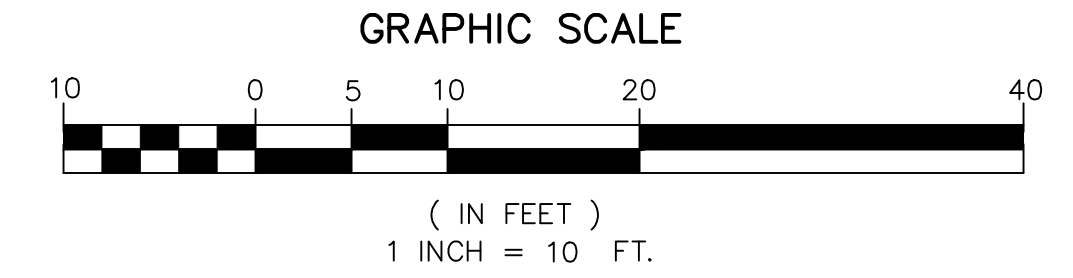
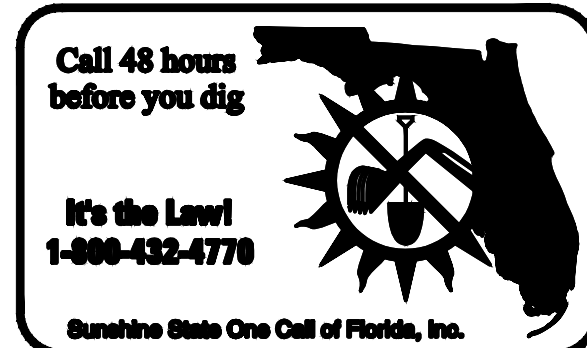
LOCATION MAP
NOT TO SCALE
LEGEND

- EX. PROPERTY/ROW LINE
- - - PROP. PROPERTY/ROW LINE
- PROPOSED DRAINAGE PIPE
- PROPOSED YARD DRAIN
- EXISTING GRADE
- PROPOSED GRADE
- MATCH EXISTING GRADE
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- S EXISTING SANITARY SEWER LINE
- E PROPOSED ELECTRIC LINE
- OH EXISTING OVERHEAD LINE
- T PROPOSED TELEPHONE/CABLE LINE
- T EXISTING TELEPHONE/CABLE LINE
- G PROPOSED GAS LINE
- G EXISTING GAS LINE

- PROPOSED BUILDING
- PROPOSED DRIVEWAY
- PROPOSED WALKWAY

NOTE:
ELEVATION ARE SHOWN IN NAVD
CONVERSION NAVD+1.54 = NGVD

NOTE:
ANY TREES OR SHRUBS PLACED
WITHIN WATER, SEWER OR DRAINAGE
EASEMENTS SHALL CONFORM TO THE
CITY OF DELRAY BEACH STANDARD
DETAILS: LD 1.1 & 1.2



REV	PER	CITY COMMENTS	DATE	BY
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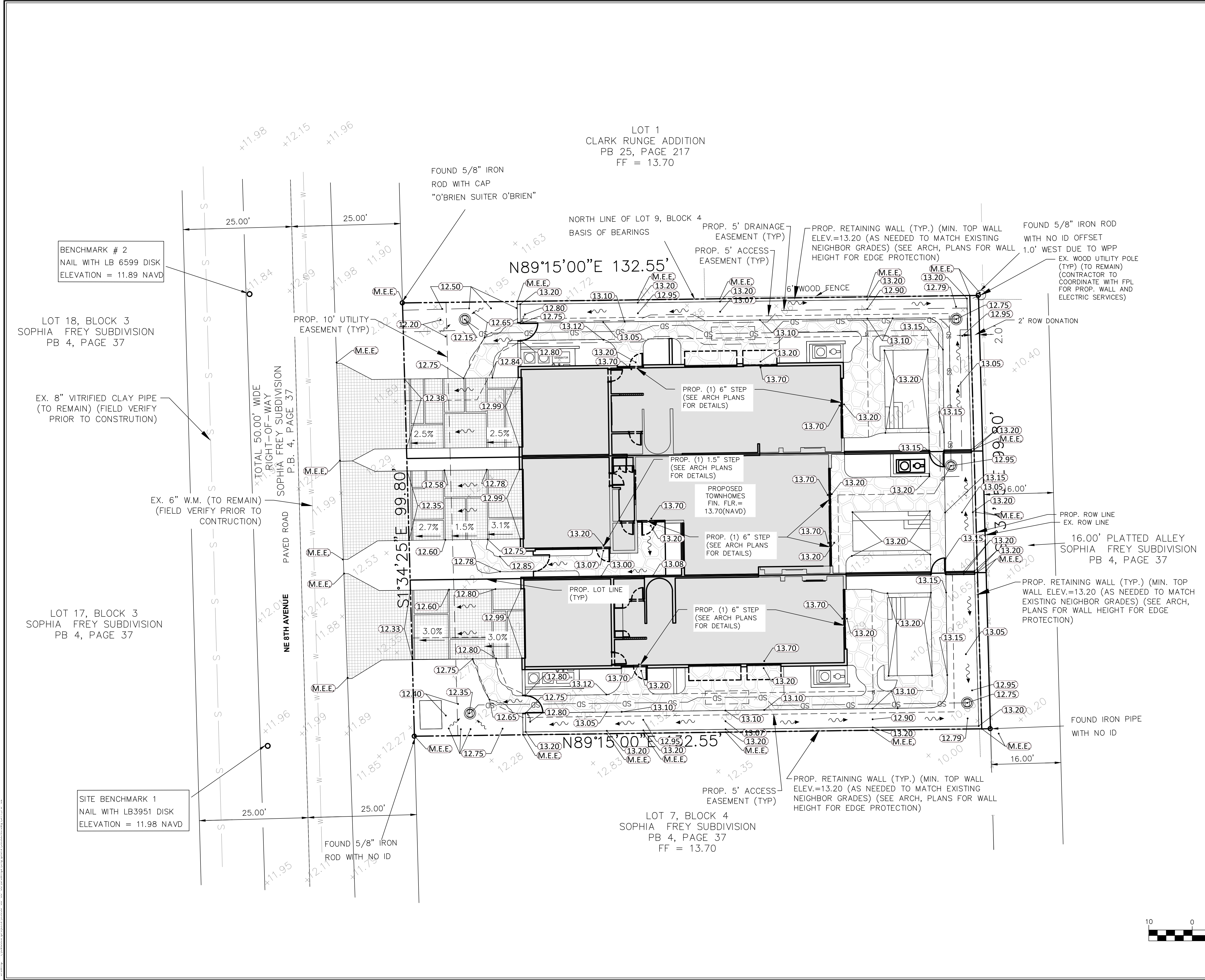
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 7900 GLADES ROAD - SUITE 100
 BOCA RATON, FLORIDA 33434
 PHONE (561)-392-1981 / FAX (561)-750-1452

917 NE 8TH AVENUE
PROPOSED PAVING
& GRADING PLAN

DATE 12/15/21
 DRAWN BY AJG
 F.B./ PG. ----
 SCALE 1" = 10'

MATTHEW V. KAHN
 PROFESSIONAL ENGINEER
 LICENSE NO. 82227
 STATE OF FLORIDA
 - FOR THE FIRM -
 DATE

JOB # 9638
 SHT. NO.
PD-2
 OF 14 SHEETS



LOT 1
 CLARK RUNGE ADDITION
 PB 25, PAGE 217
 FF = 13.70

FOUND 5/8" IRON
 ROD WITH CAP
 "O'BRIEN SUITER O'BRIEN"

BENCHMARK # 2
 NAIL WITH LB 6599 DISK
 ELEVATION = 11.89 NAVD

LOT 18, BLOCK 3
 SOPHIA FREY SUBDIVISION
 PB 4, PAGE 37

EX. 8" VITRIFIED CLAY PIPE
 (TO REMAIN) (FIELD VERIFY
 PRIOR TO CONSTRUCTION)

EX. 6" W.M. (TO REMAIN)
 (FIELD VERIFY PRIOR TO
 CONSTRUCTION)

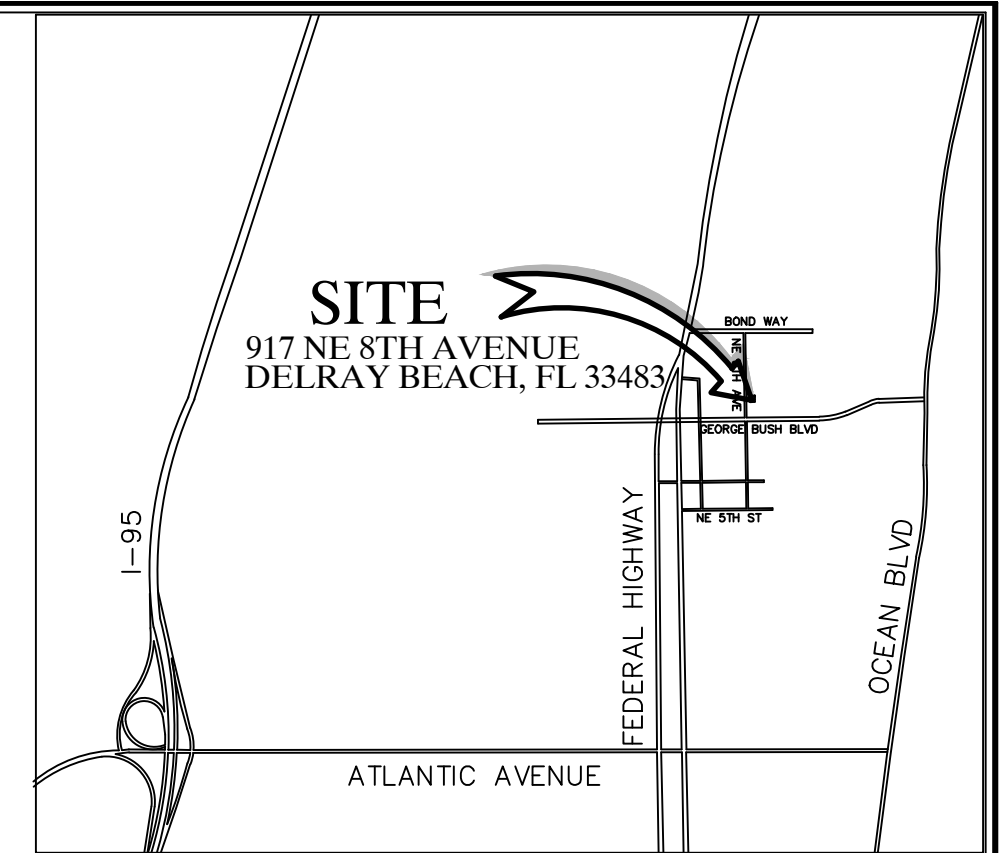
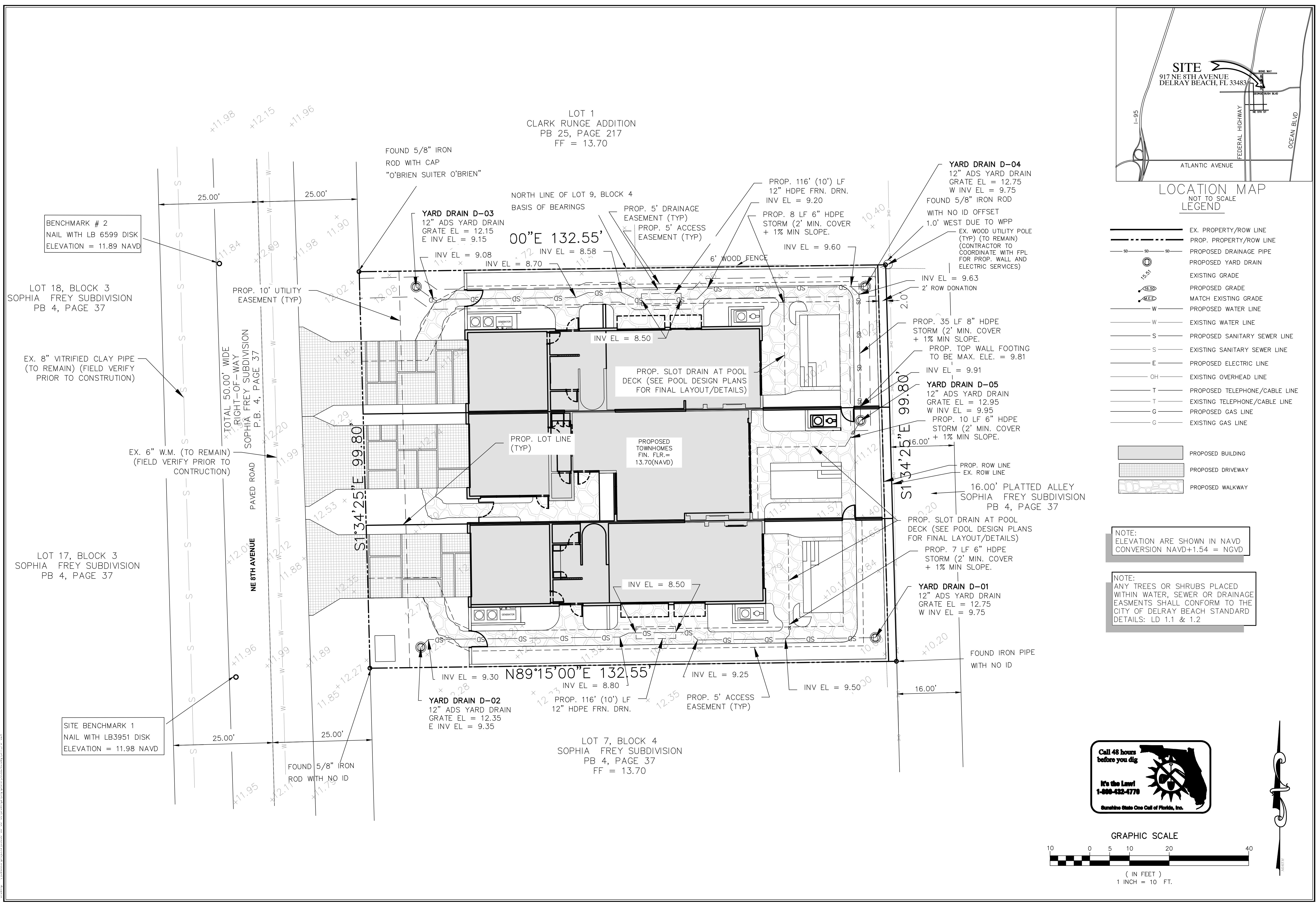
LOT 17, BLOCK 3
 SOPHIA FREY SUBDIVISION
 PB 4, PAGE 37

SITE BENCHMARK 1
 NAIL WITH LB3951 DISK
 ELEVATION = 11.98 NAVD

FOUND 5/8" IRON
 ROD WITH NO ID

LOT 7, BLOCK 4
 SOPHIA FREY SUBDIVISION
 PB 4, PAGE 37
 FF = 13.70

FOUND IRON PIPE
 WITH NO ID



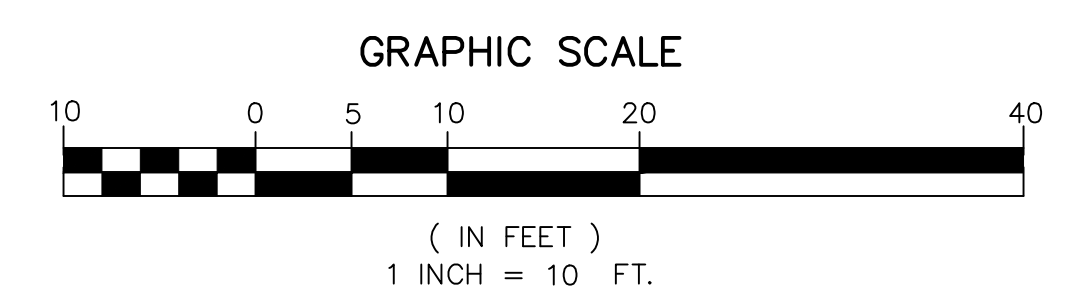
LOCATION MAP
NOT TO SCALE
LEGEND

- EX. PROPERTY/ROW LINE
- PROP. PROPERTY/ROW LINE
- PROPOSED DRAINAGE PIPE
- PROPOSED YARD DRAIN
- EXISTING GRADE
- PROPOSED GRADE
- MATCH EXISTING GRADE
- PROPOSED WATER LINE
- EXISTING WATER LINE
- PROPOSED SANITARY SEWER LINE
- EXISTING SANITARY SEWER LINE
- PROPOSED ELECTRIC LINE
- EXISTING OVERHEAD LINE
- PROPOSED TELEPHONE/CABLE LINE
- EXISTING TELEPHONE/CABLE LINE
- PROPOSED GAS LINE
- EXISTING GAS LINE

- PROPOSED BUILDING
- PROPOSED DRIVEWAY
- PROPOSED WALKWAY

NOTE:
ELEVATION ARE SHOWN IN NAVD
CONVERSION NAVD+1.54 = NGVD

NOTE:
ANY TREES OR SHRUBS PLACED
WITHIN WATER, SEWER OR DRAINAGE
EASMENTS SHALL CONFORM TO THE
CITY OF DELRAY BEACH STANDARD
DETAILS: LD 1.1 & 1.2



REV	PER	DATE	BY
06/27/22	AJG		
04/14/22	AJG		
REVISIONS		DATE	BY
FILE NAME	9638_ENG.dwg		

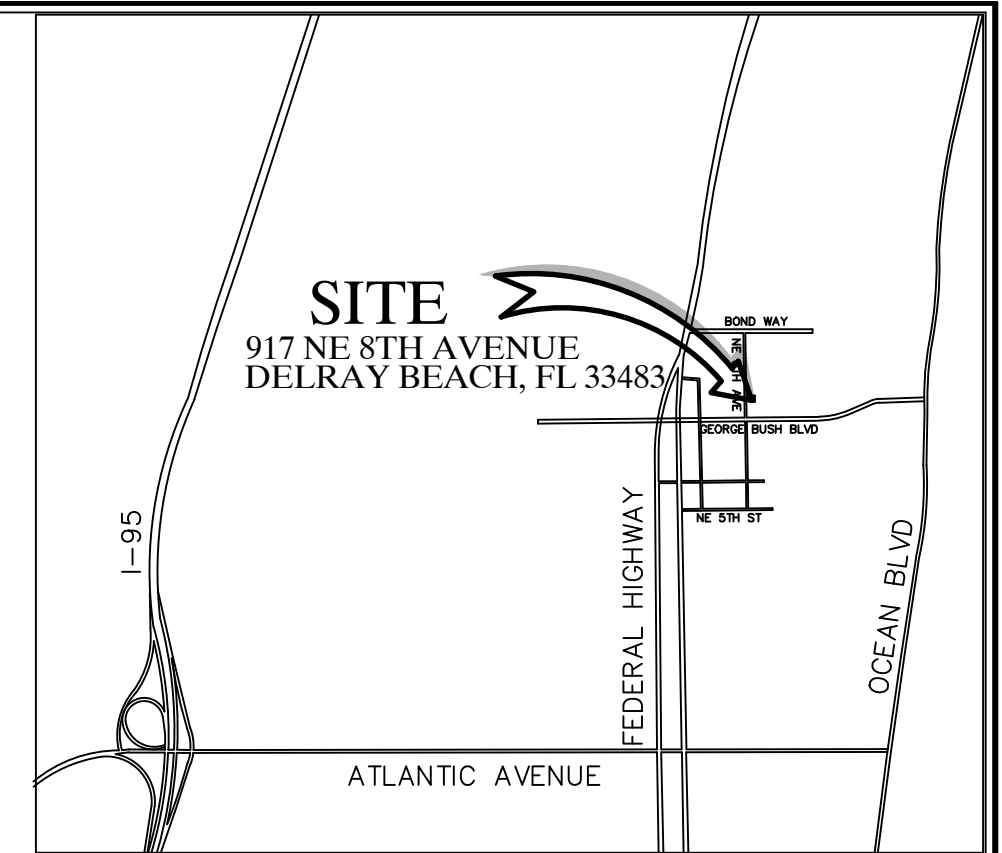
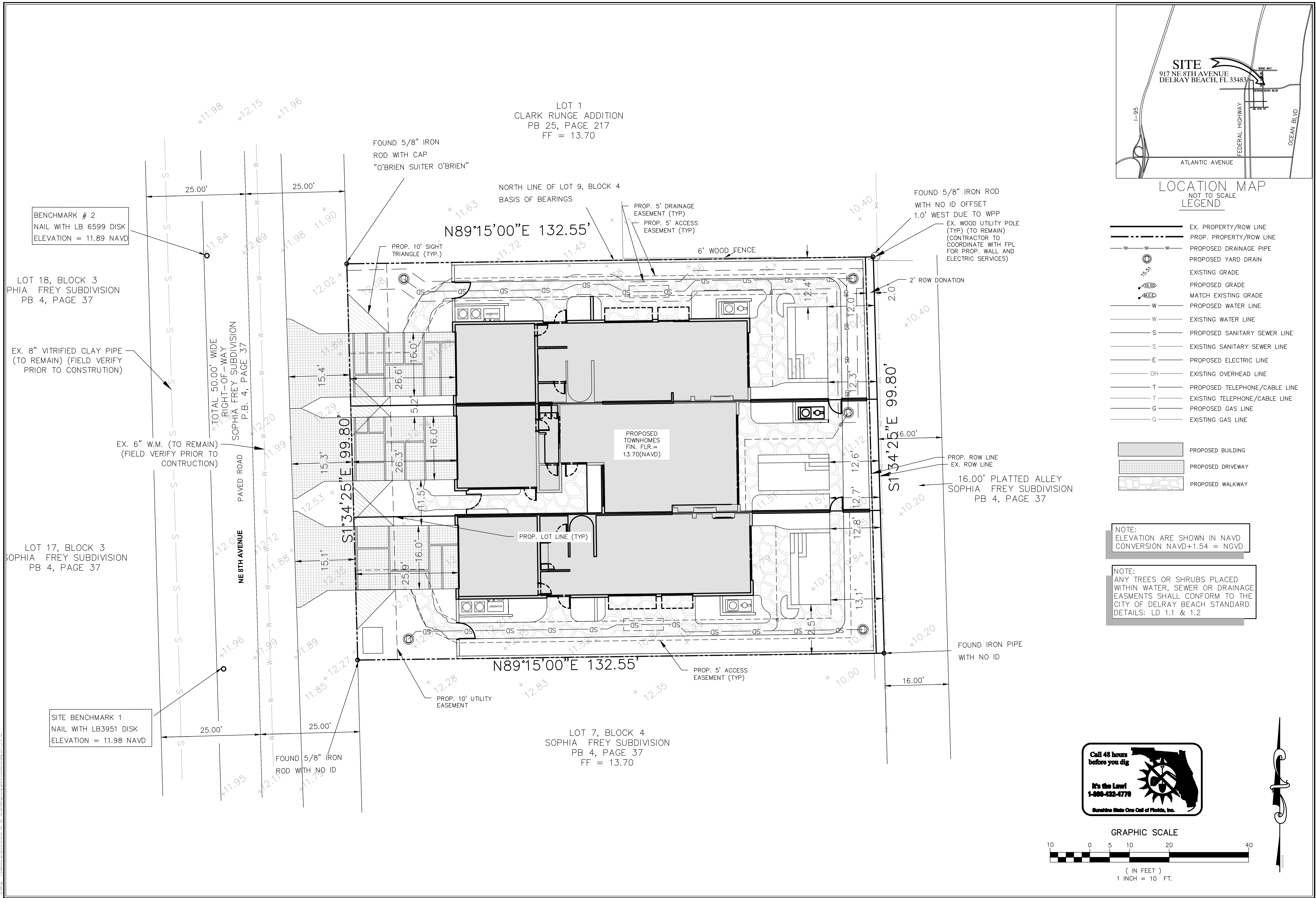
CAULFIELD & WHEELER, INC.
 CIVIL ENGINEERING & SURVEYING
 LANDSCAPE ARCHITECTURE - SURVEYING
 7900 GLADES ROAD - SUITE 100
 BOCA RATON, FLORIDA 33434
 PHONE (561)-392-1981 / FAX (561)-750-1452

917 NE 8TH AVENUE
 PROPOSED
 DRAINAGE PLAN
 DELRAY BEACH, FLORIDA

DATE	12/15/21
DRAWN BY	AJG
F.B./ PG.	----
SCALE	1" = 10'

MATTHEW V. KAHN
 PROFESSIONAL ENGINEER
 LICENSE NO. 82227
 STATE OF FLORIDA
 - FOR THE FIRM -
 DATE

JOB # 9638
 SHT. NO.
PD-2A
 OF 14 SHEETS



LEGEND

	EX. PROPERTY/ROW LINE
	PROP. PROPERTY/ROW LINE
	PROPOSED DRAINAGE PIPE
	PROPOSED YARD DRAIN
	EXISTING GRADE
	PROPOSED GRADE
	MATCH EXISTING GRADE
	PROPOSED WATER LINE
	EXISTING WATER LINE
	PROPOSED SANITARY SEWER LINE
	EXISTING SANITARY SEWER LINE
	PROPOSED ELECTRIC LINE
	EXISTING OVERHEAD LINE
	PROPOSED TELEPHONE/CABLE LINE
	EXISTING TELEPHONE/CABLE LINE
	PROPOSED GAS LINE
	EXISTING GAS LINE

NOTE:
ELEVATION ARE SHOWN IN NAVD
CONVERSION NAVD+1.54 = NGVD

NOTE:
ANY TREES OR SHRUBS PLACED
WITHIN WATER, SEWER OR DRAINAGE
EASMENTS SHALL CONFORM TO THE
CITY OF DELRAY BEACH STANDARD
DETAILS: LD 1.1 & 1.2

Call 48 hours before you dig
It's the Level!
1-800-432-4770
Sunshine State One Call of Florida, Inc.

REV	PER	DATE	BY
06/27/22	AJG		
04/14/22	AJG		
REVISIONS		DATE	BY
FILE NAME	9638_ENG.dwg		

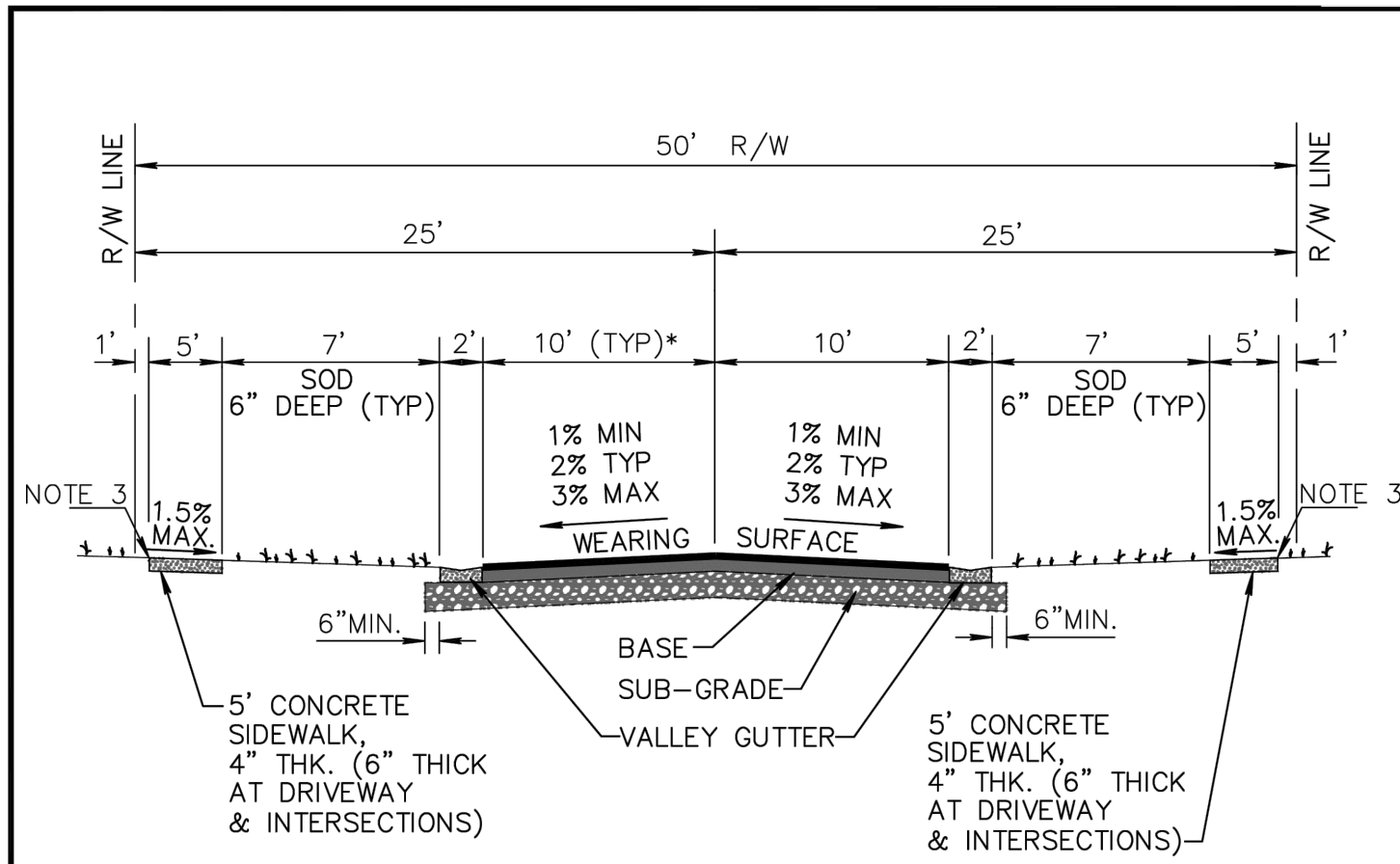
CAULFIELD & WHEELER, INC.
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE - SURVEYING
7900 GLADES ROAD - SUITE 100
BOCA RATON, FLORIDA 33434
PHONE (561)-392-1981 / FAX (561)-750-1452

917 NE 8TH AVENUE
PROPOSED
PAVEMENT, MARKING & SIGNAGE PLAN
DELRAY BEACH, FLORIDA

DATE	12/15/21
DRAWN BY	AJG
F.B./ PG.	----
SCALE	1" = 10'

MATTHEW V. KAHN
PROFESSIONAL ENGINEER
LICENSE NO. 82227
STATE OF FLORIDA
- FOR THE FIRM -
DATE

JOB # 9638
SHT. NO.
PD-3
OF 14 SHEETS



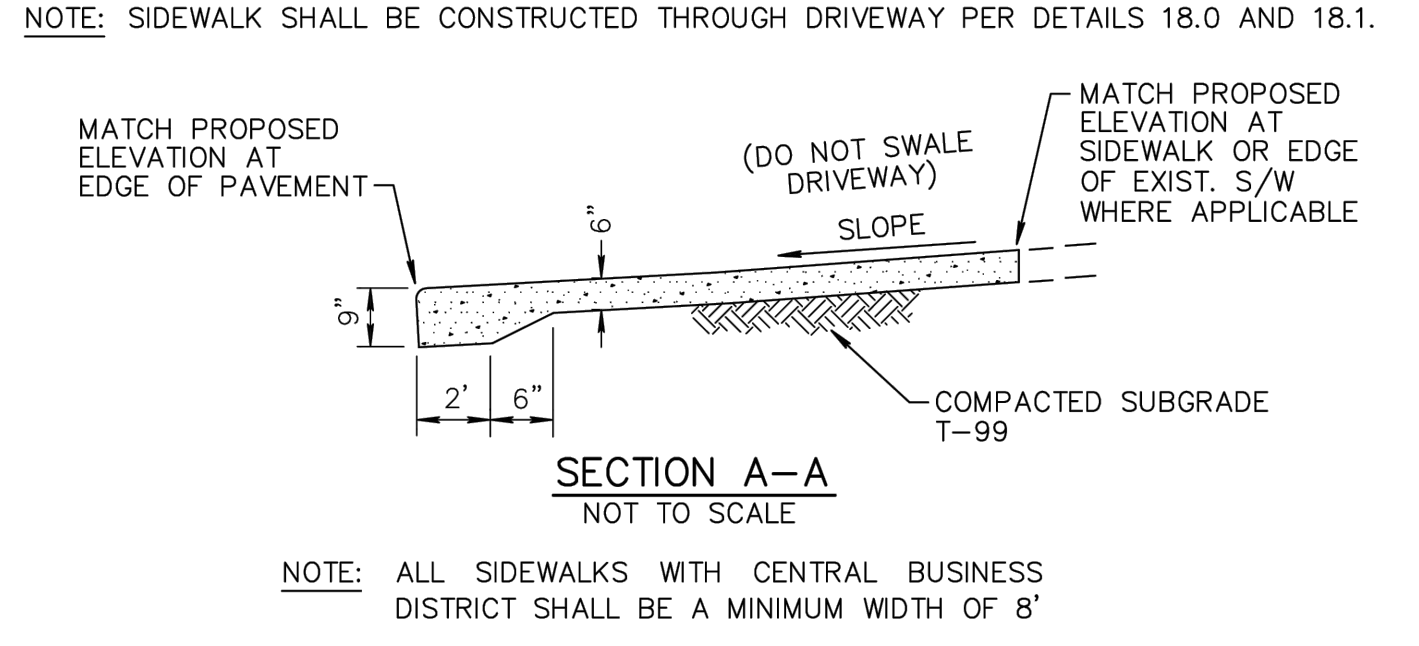
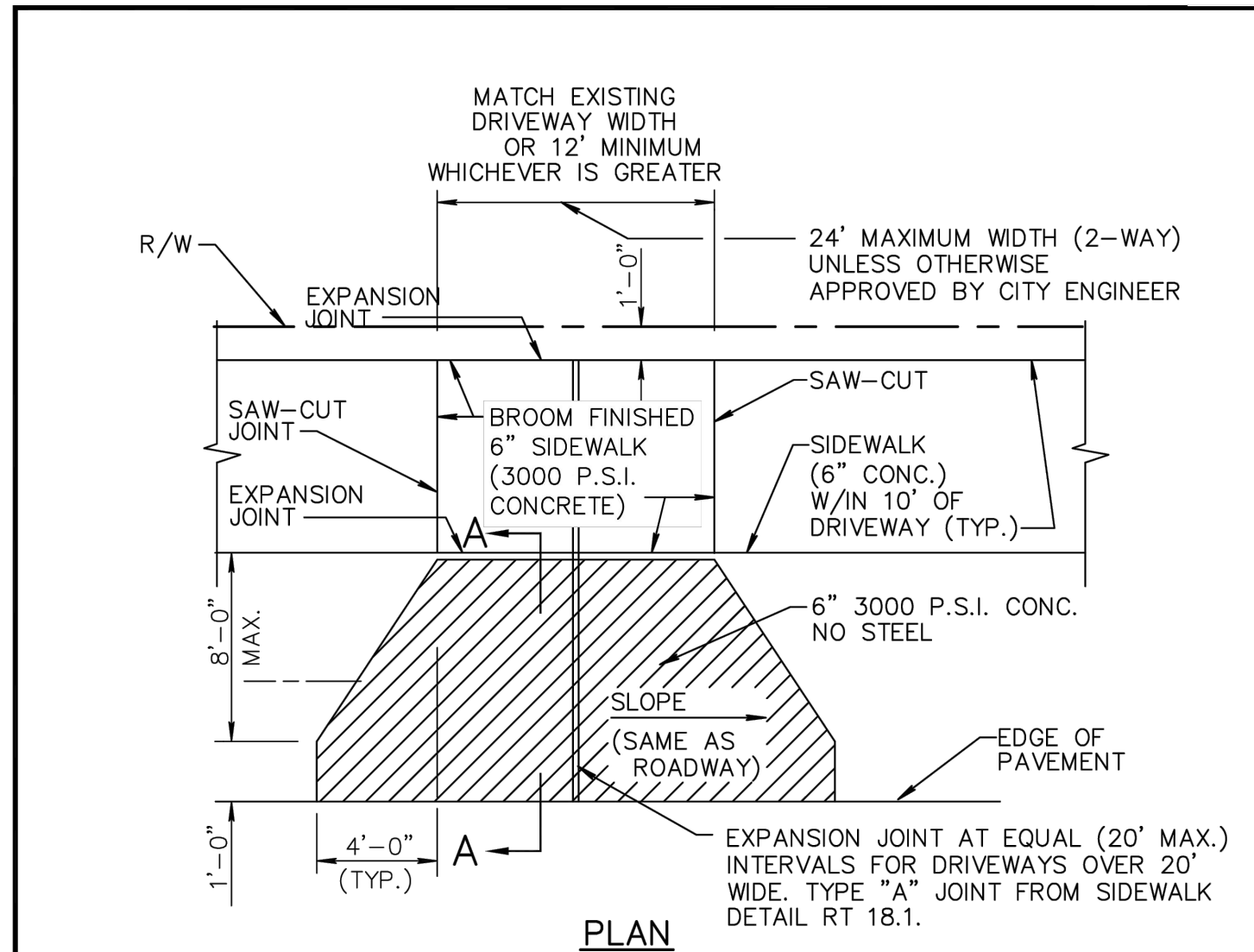
PAVEMENT SPECIFICATIONS	
WEARING SURFACE	3" TYPE S-III (2 LIFTS) AFTER COMPACTION SEE NOTE 2
BASE	8" LIMEROCK OR 10" CRUSHED CONCRETE COMPACTED TO 98% MAX. DENSITY PER AASHTO T-180. PRIME & TACK COAT PER FDOT SECTION 300.
SUBGRADE	12" STABILIZED (75 P.S.I. FBV) AND COMPACTED TO 98% MAX. DENSITY PER AASHTO T-180.

- NOTE:**
- VARIATION FROM MATERIAL SPECIFICATIONS WILL BE CONSIDERED ON A CASE BY CASE BASIS BY THE CITY ENGINEER.
 - 2ND LIFT SHALL NOT BE PAVED UNTIL CONSTRUCTION VEHICLES AND EQUIPMENT HAVE COMPLETED WORK.
 - IN UNDEVELOPED LOCATION, ELEVATION TO BE SET EQUAL TO ROADWAY CROWN. IN PREVIOUSLY DEVELOPED AREAS, MATCH EXISTING GRADES.
- * LANE WIDTHS MUST BE APPROVED BY CITY ENGINEERING PRIOR TO DESIGN.

CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

TYPICAL 50' R/W SECTION WITH VALLEY GUTTER

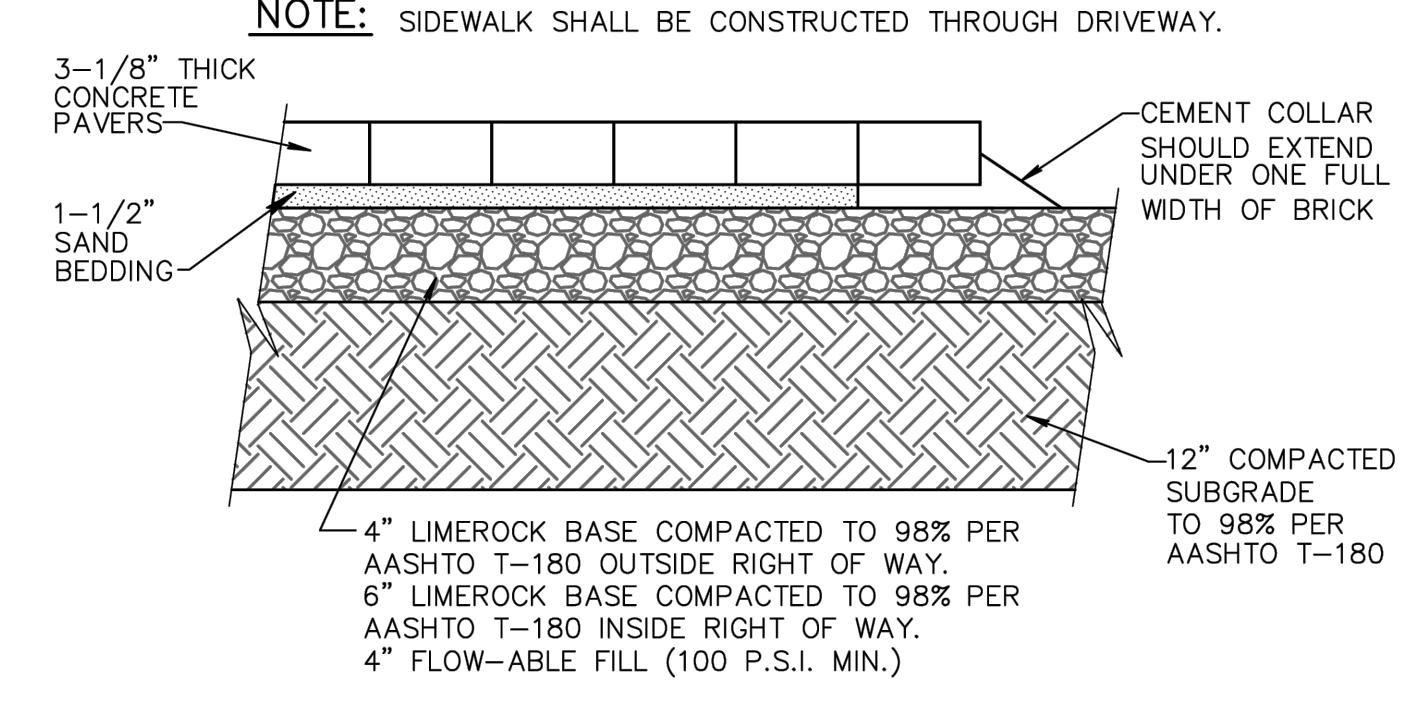
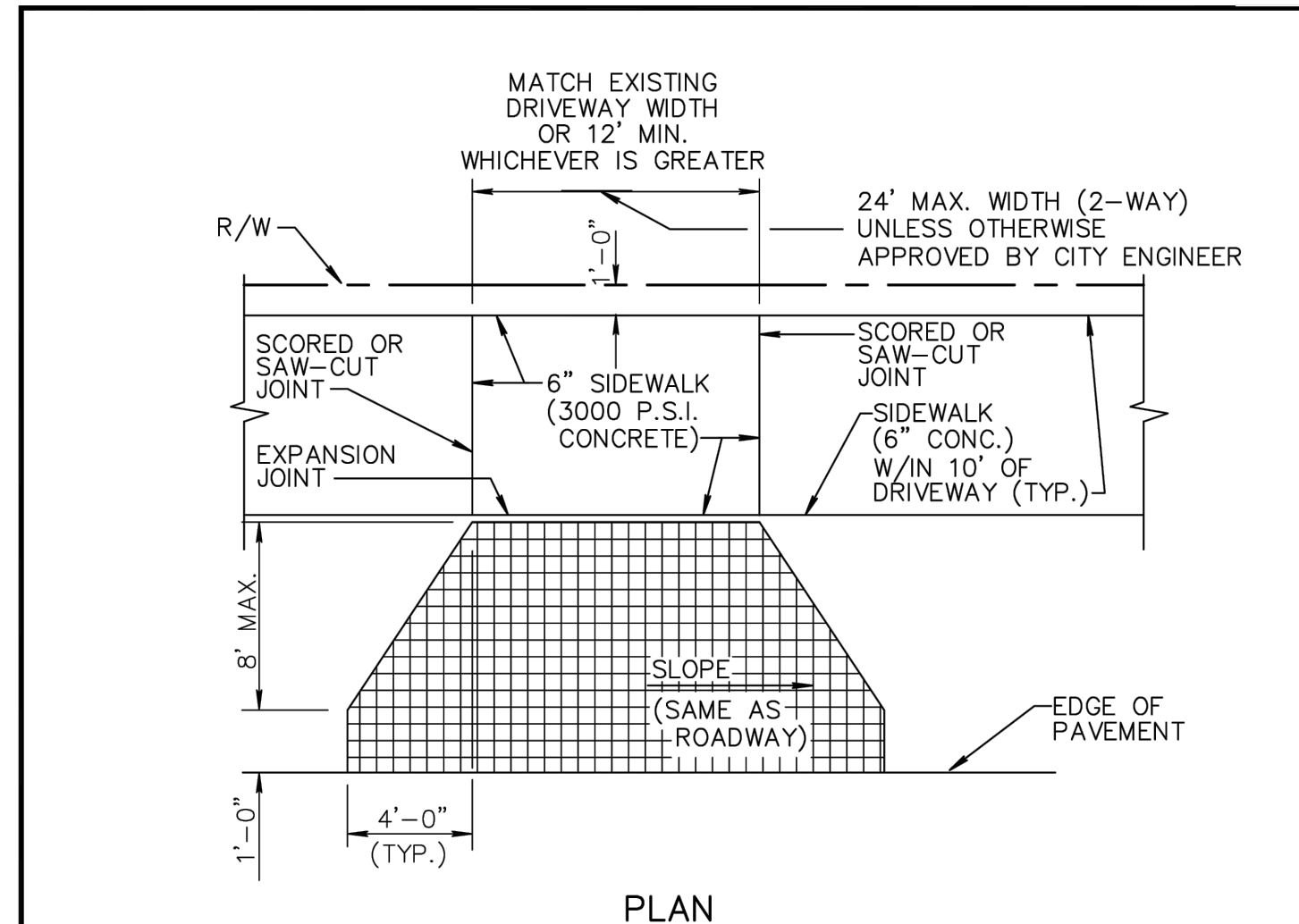
DATE: 09-15-2021
RT 1.0



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

CONCRETE DRIVEWAY APRON

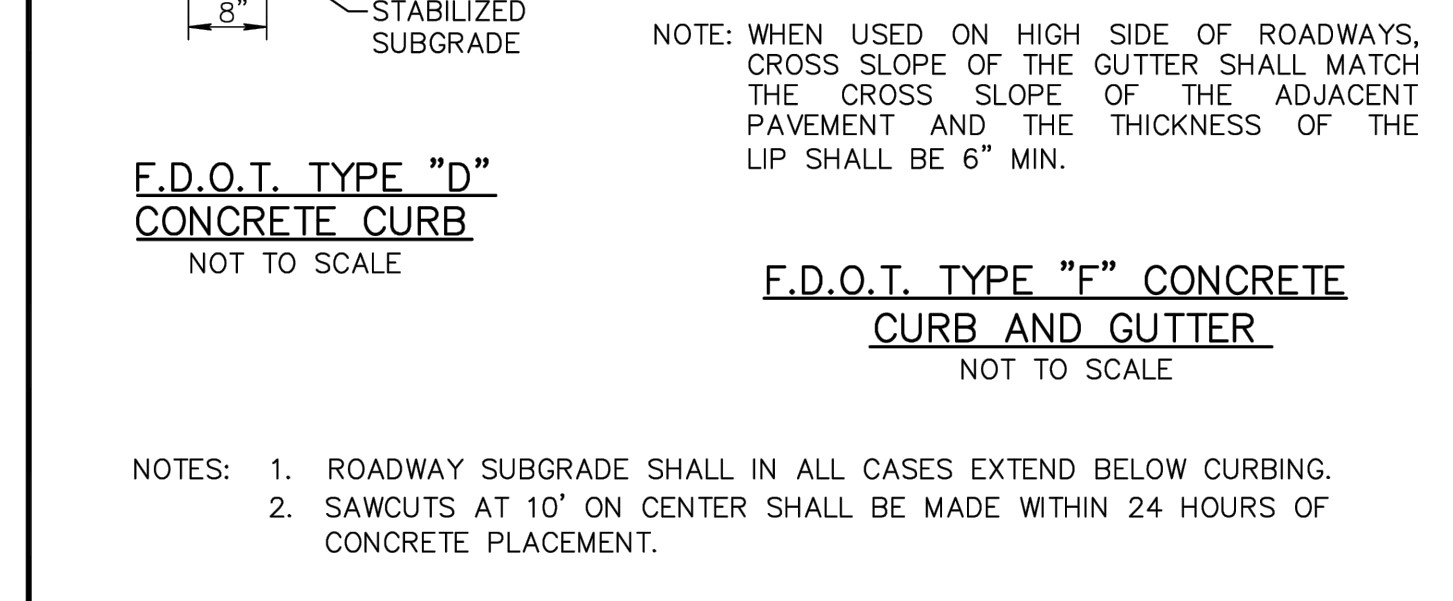
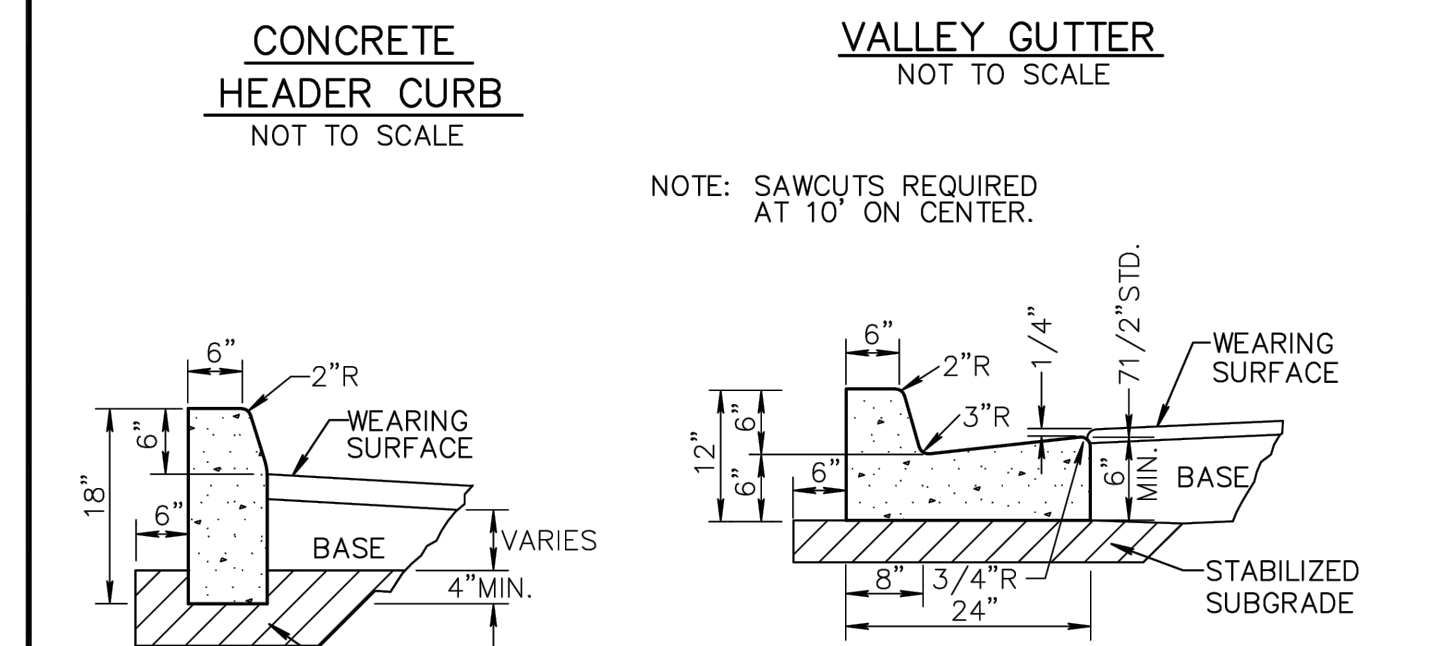
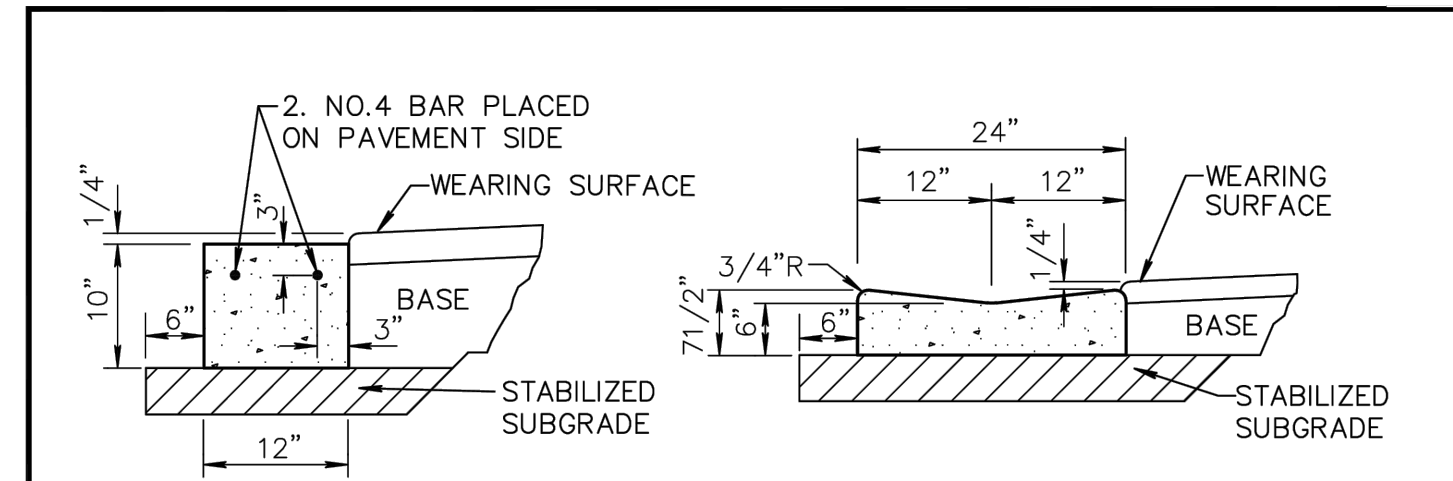
DATE: 09-15-2021
RT 23.0



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

PAVER BRICK DRIVEWAY APRON

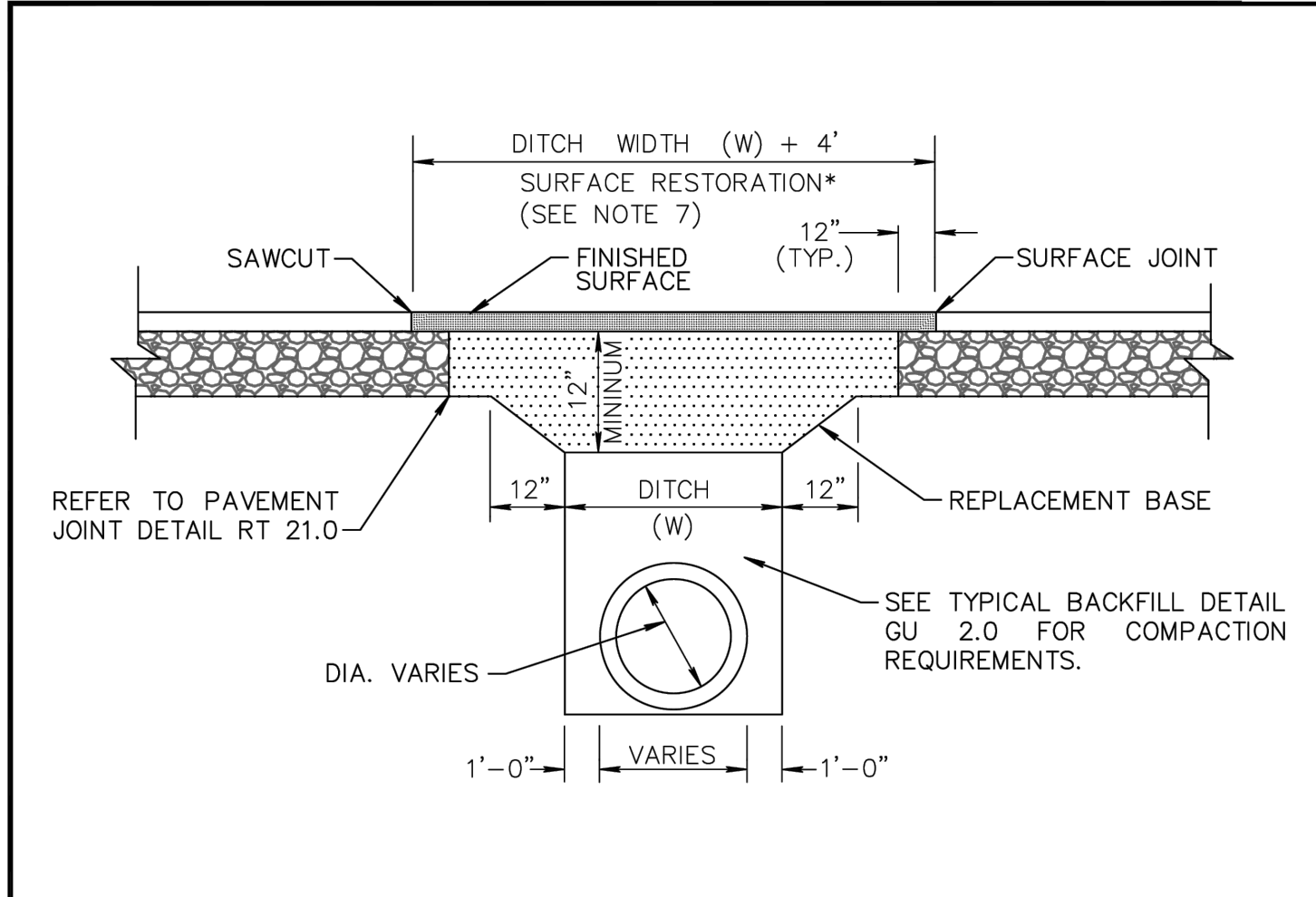
DATE: 09-15-2021
RT 28.0



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

CURB AND GUTTER SECTIONS

DATE: 9-15-2021
RT 19.0

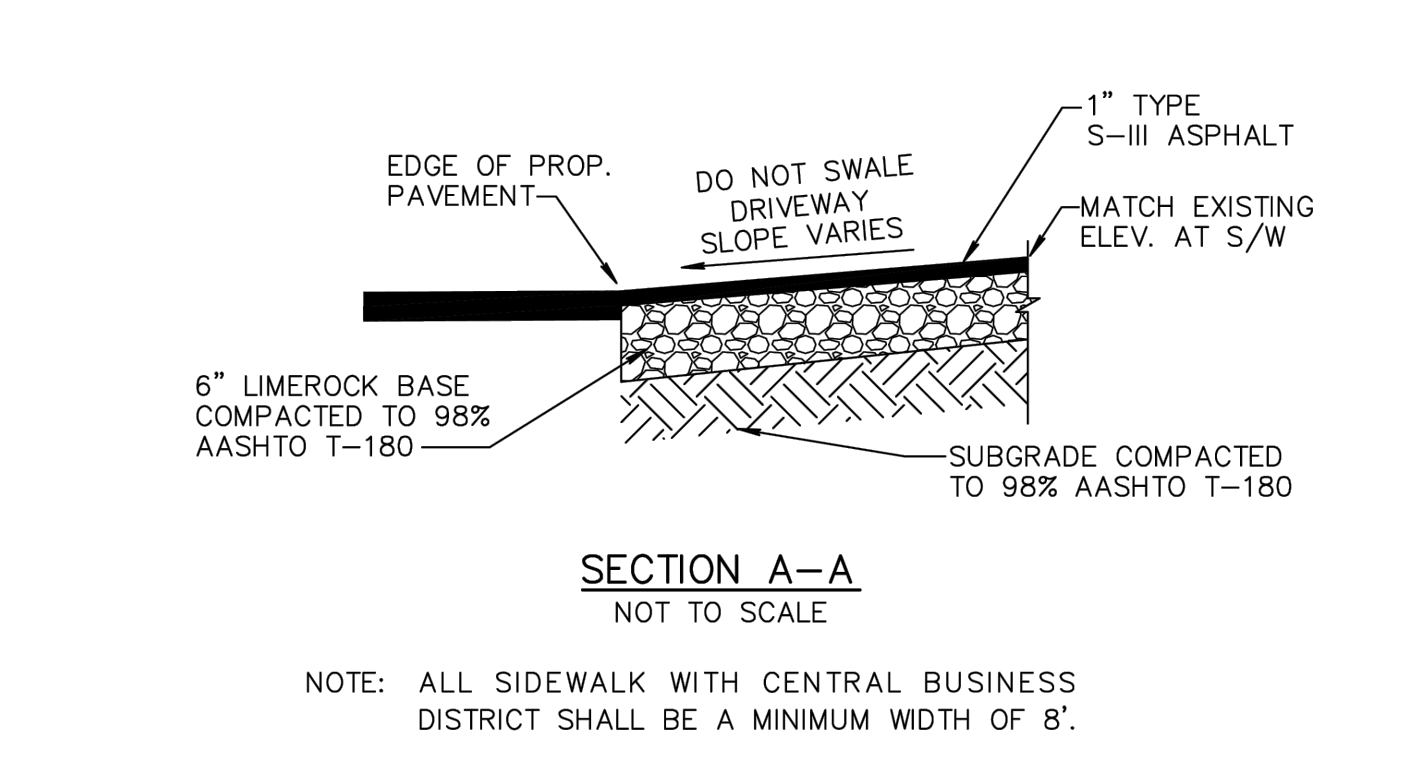
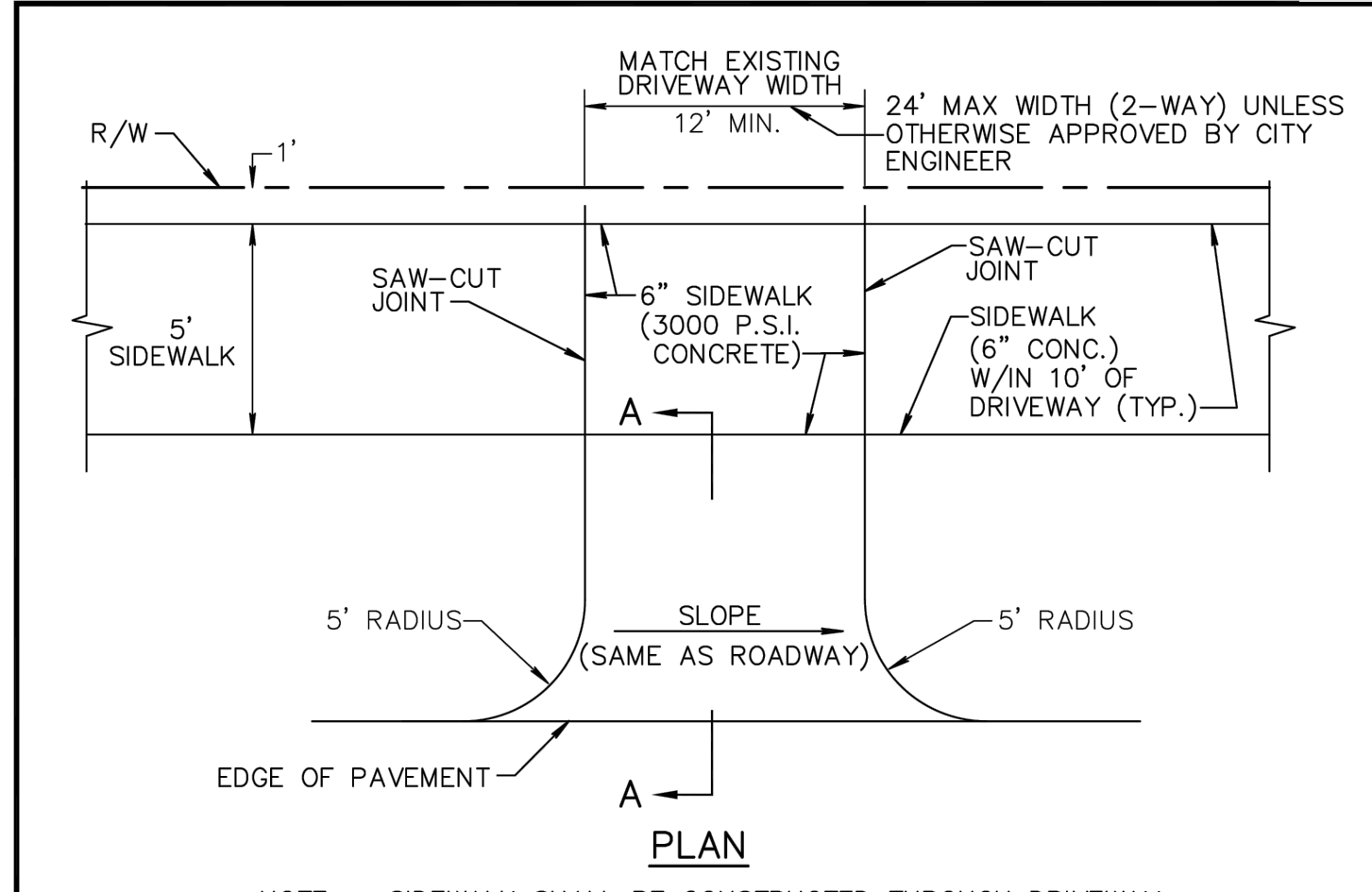


- REPLACEMENT BASE TO BE AT MIN. 12" THICK.
- BASE MATERIAL SHALL BE PLACED IN TWO LIFTS AND EACH LIFT COMPACTED TO 98% MAXIMUM DENSITY PER AASHTO T-180 (MAX. LIFT THICKNESS = 6").
- 24" EXCAVATABLE FLOWABLE FILL MIN. 100 P.S.I. MAY BE USED IN LIEU OF 12" BASE.
- ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED.
- ALL DISTURBED PAVEMENT MARKINGS SHALL BE RESTORED IN ACCORDANCE WITH CITY STANDARDS.
- SURFACE MATERIAL SHALL BE S-III ASPHALTIC CONCRETE (THICKNESS SHOULD BE TWICE THE THICKNESS OF THE ADJACENT EXISTING ASPHALT).
- ANY PAVEMENT CUTS SHALL BE COLD PATCHED AT END OF EACH WORKING DAY TO FACILITATE UNHINDERED TRAFFIC FLOW.
- ROADWAYS SHALL BE MILLED AND RESURFACED 50' IN EACH DIRECTION AT TIME OF PAVEMENT REPAIR THE SURFACE RESTORATION SHALL EXTEND 50' IN EACH DIRECTION.

CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

PAVEMENT REPAIR DETAIL

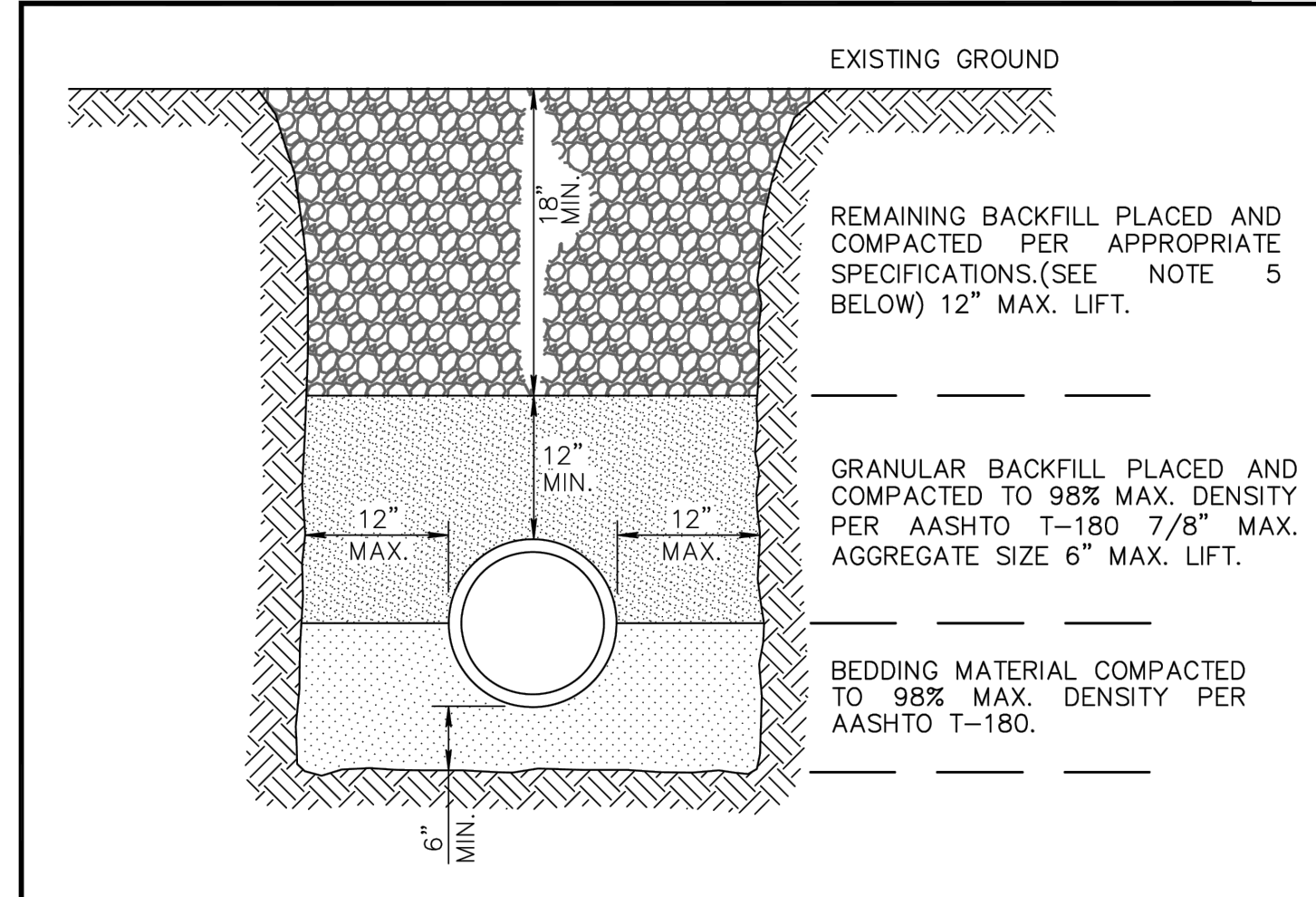
DATE: 09-15-2021
GU 1.0



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

ASPHALT DRIVEWAY APRON

DATE: 09-15-2021
RT 24.0

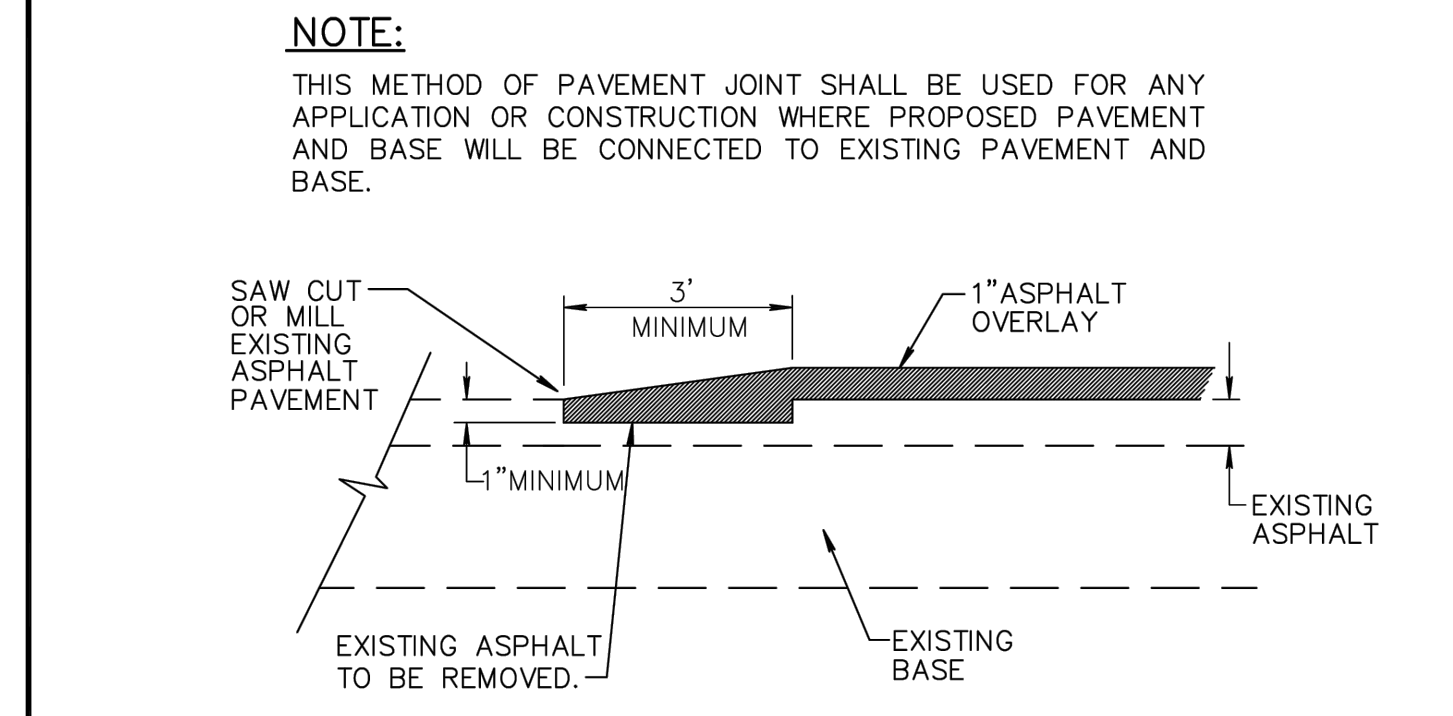
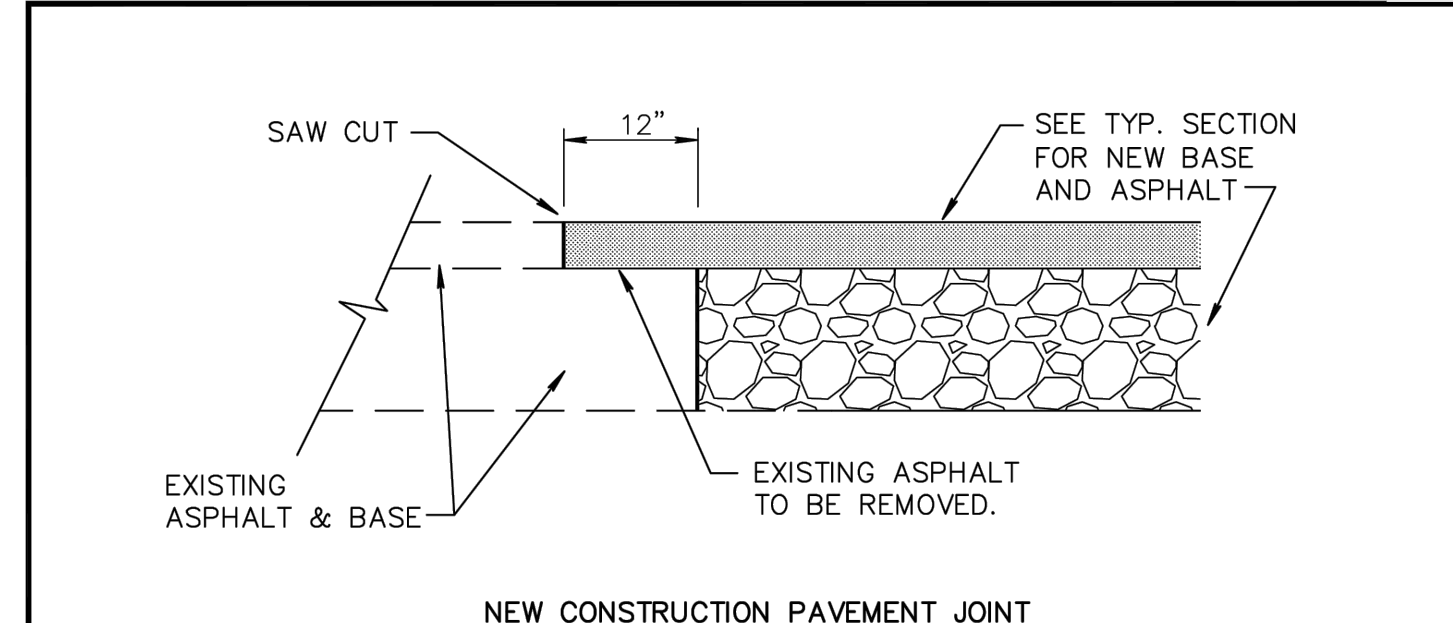


- NOTES:**
- UNSUITABLE IN-SITU MATERIALS SUCH AS MUCK, DEBRIS AND LARGE ROCKS SHALL BE REMOVED OFF SITE AND DISPOSED IN A PROPER LANDFILL; BEDDING MATERIAL AND BACKFILL CONSISTING OF WASHED AND GRADED LIMEROCK 3/8" - 7/8" SIZING.
 - THE PIPE AND/OR STRUCTURE SHALL BE FULLY SUPPORTED FOR ITS ENTIRE LENGTH WITH APPROPRIATE COMPACTION UNDER THE PIPE HAUNCHES.
 - THE PIPE AND/OR STRUCTURE SHALL BE PLACED IN A DRY TRENCH.
 - BACKFILL SHALL BE FREE OF UNSUITABLE MATERIAL SUCH AS LARGE ROCK, MUCK, AND DEBRIS.
 - COMPACT BACKFILL TO 98% DENSITY UNDER PAVEMENT AND TO 95% DENSITY ELSEWHERE (AASHTO T-180)
 - COMPACTION AND DENSITY TESTS SHALL BE COMPLETED DURING BACKFILL OPERATIONS, CONTRACTORS NOT FOLLOWING THIS PROCEDURE, FOR WHATEVER REASONS, SHALL BE REQUIRED TO RE-EXCAVATE THE AREA IN QUESTION, DOWN TO THE BEDDING MATERIAL, THEN BACKFILL FOLLOWING THE ABOVE PROCEDURES.

CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

TYPICAL BACKFILL DETAIL

DATE: 09-15-2021
GU 2.0



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

PAVEMENT JOINT DETAIL

DATE: 09-15-2021
RT 21.0

REV. NO.	DATE	BY
06/27/22	AJG	
04/14/22	AJG	
REVISIONS	DATE	BY
FILE NAME: 9535_Eng.dwg		

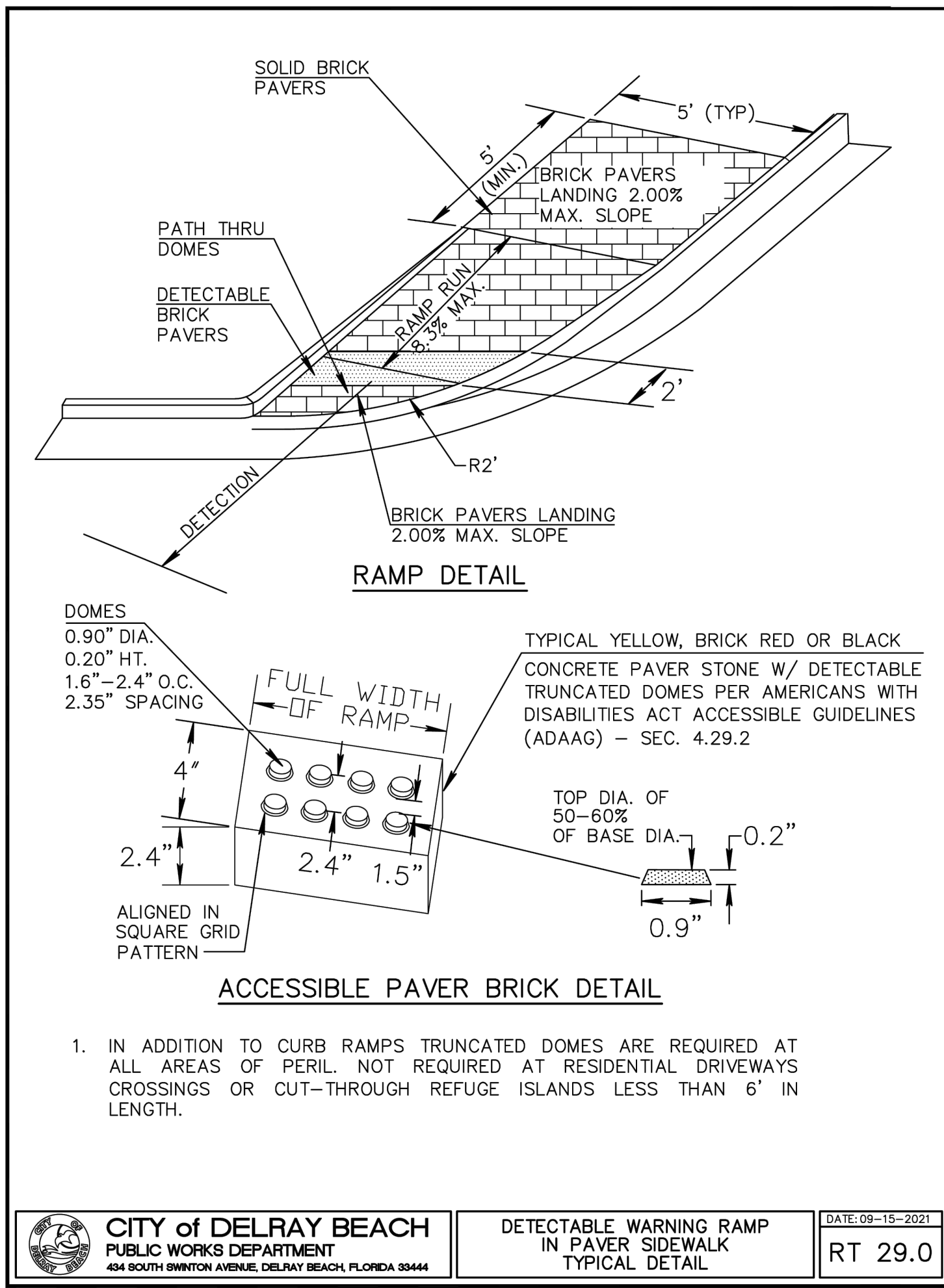
CAULFIELD & WHEELER, INC.
CIVIL ENGINEERING - SURVEYING
LANDSCAPE ARCHITECTURE - SUITE 100
7900 GLADES ROAD - BOCA RATON, FLORIDA 33434
PHONE (561) 392-1991 / FAX (561) 750-1452

917 NE 8TH AVENUE
PAVING, GRADING, &
DRAINAGE DETAILS
DELRAY BEACH, FLORIDA

DATE	12/15/21
DRAWN BY	AJG
F.B./ PG.	---
SCALE	N/A

MATTHEW V. KAHN
PROFESSIONAL ENGINEER
LICENSE NO. 82227
STATE OF FLORIDA
- FOR THE FIRM -
DATE

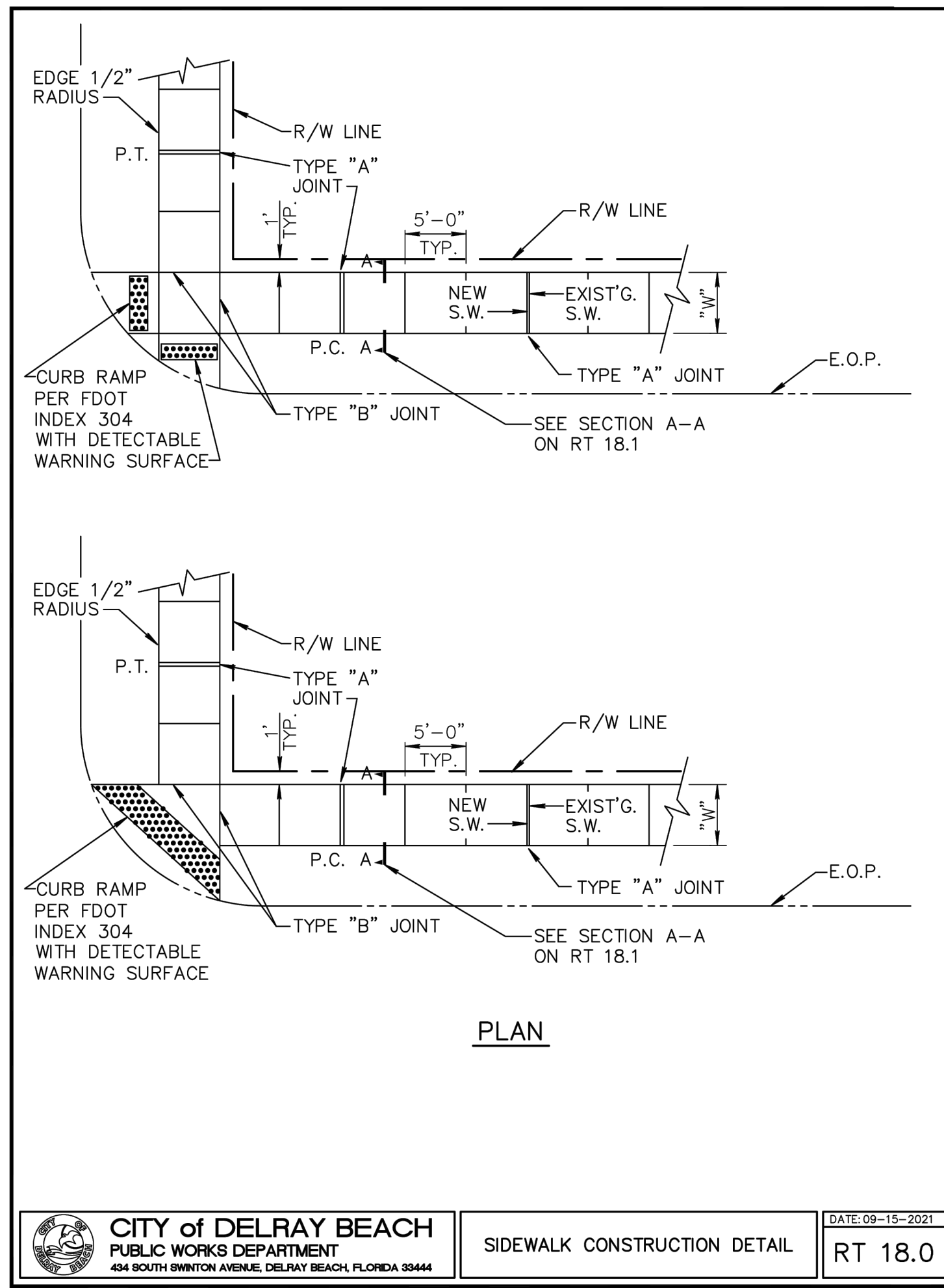
JOB # 9638
SHEET NO.
PD-4
OF 14 SHEETS



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

DETECTABLE WARNING RAMP IN PAVER SIDEWALK TYPICAL DETAIL

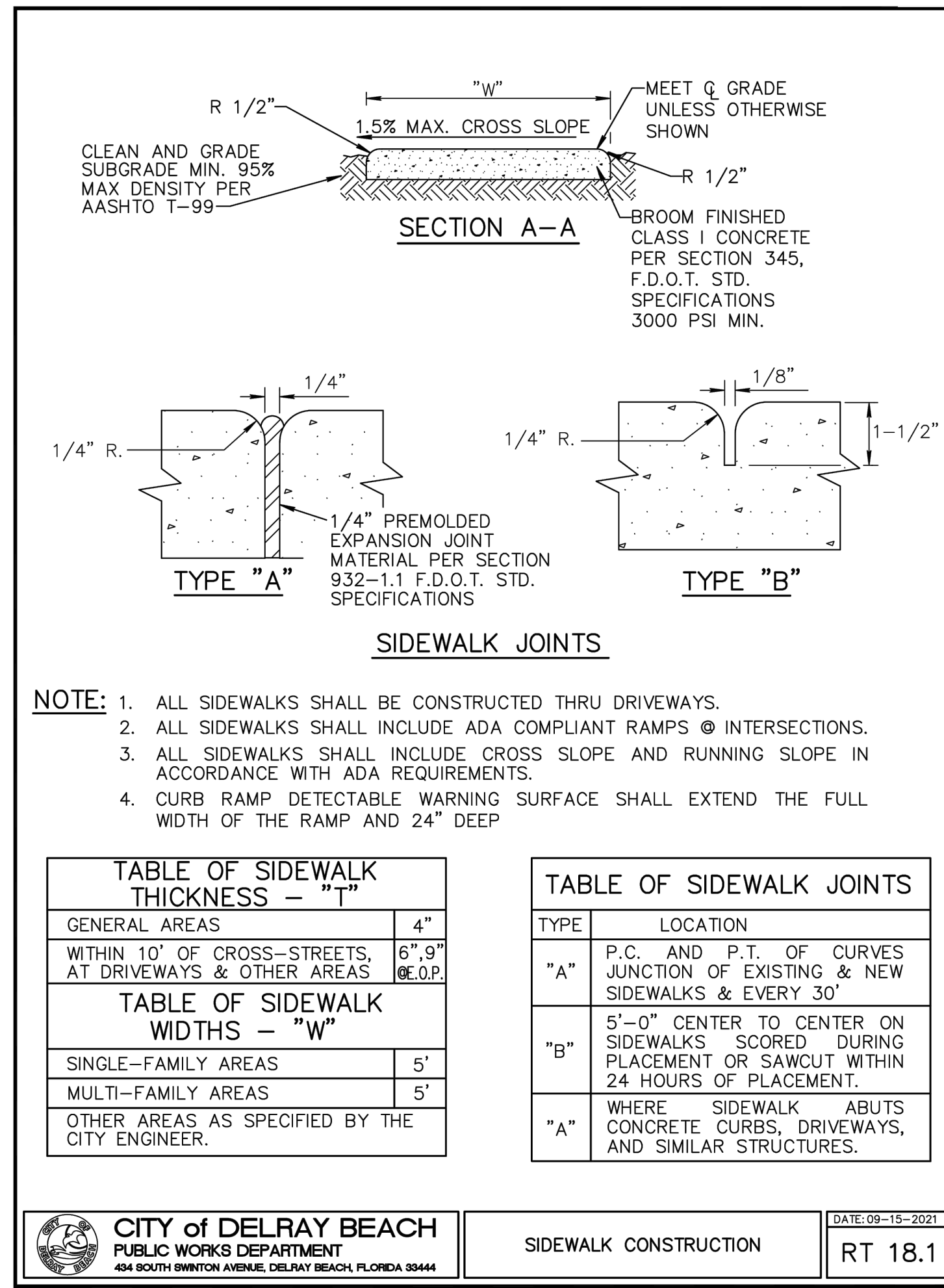
DATE: 09-15-2021
RT 29.0



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

SIDEWALK CONSTRUCTION DETAIL

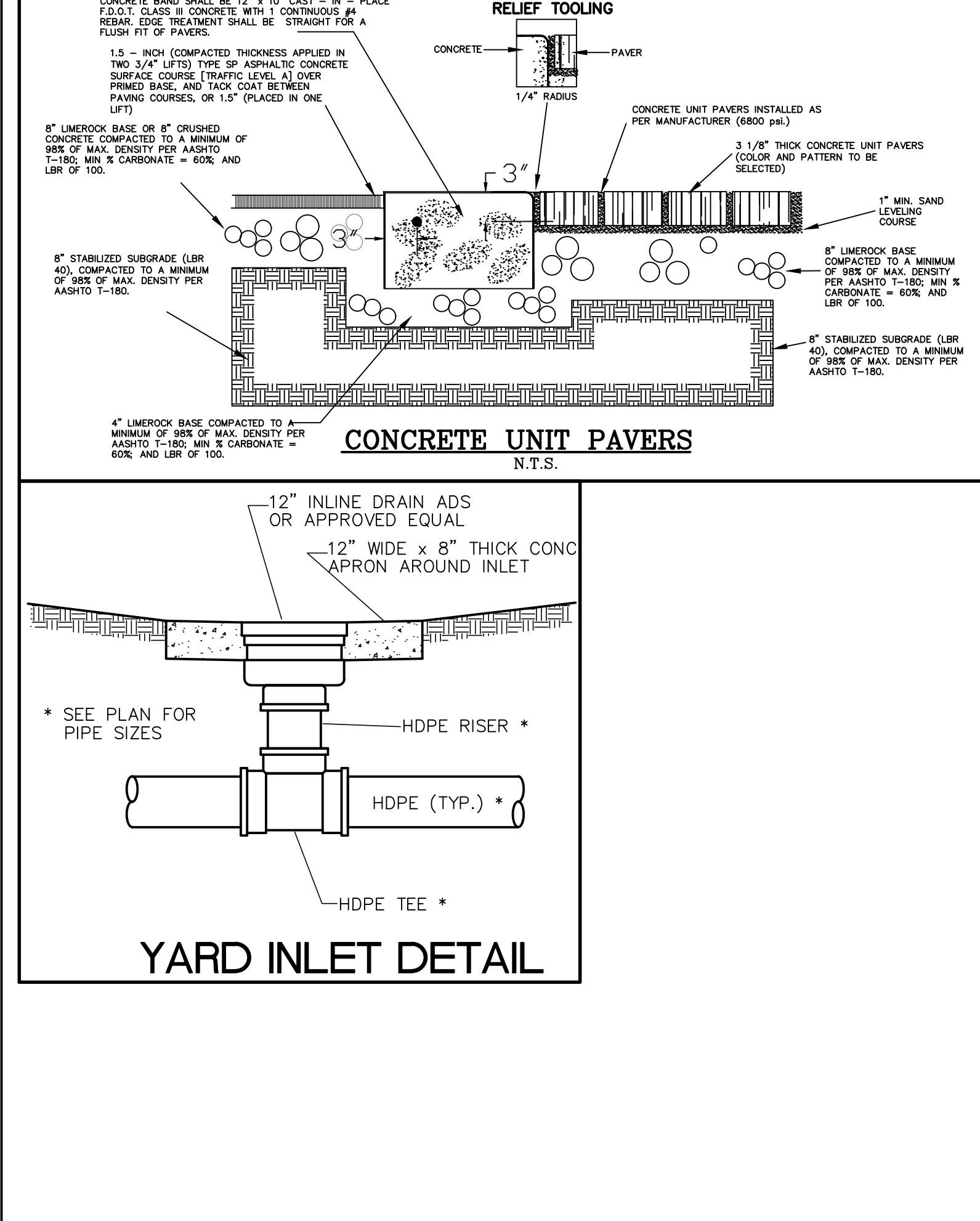
DATE: 09-15-2021
RT 18.0



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

SIDEWALK CONSTRUCTION

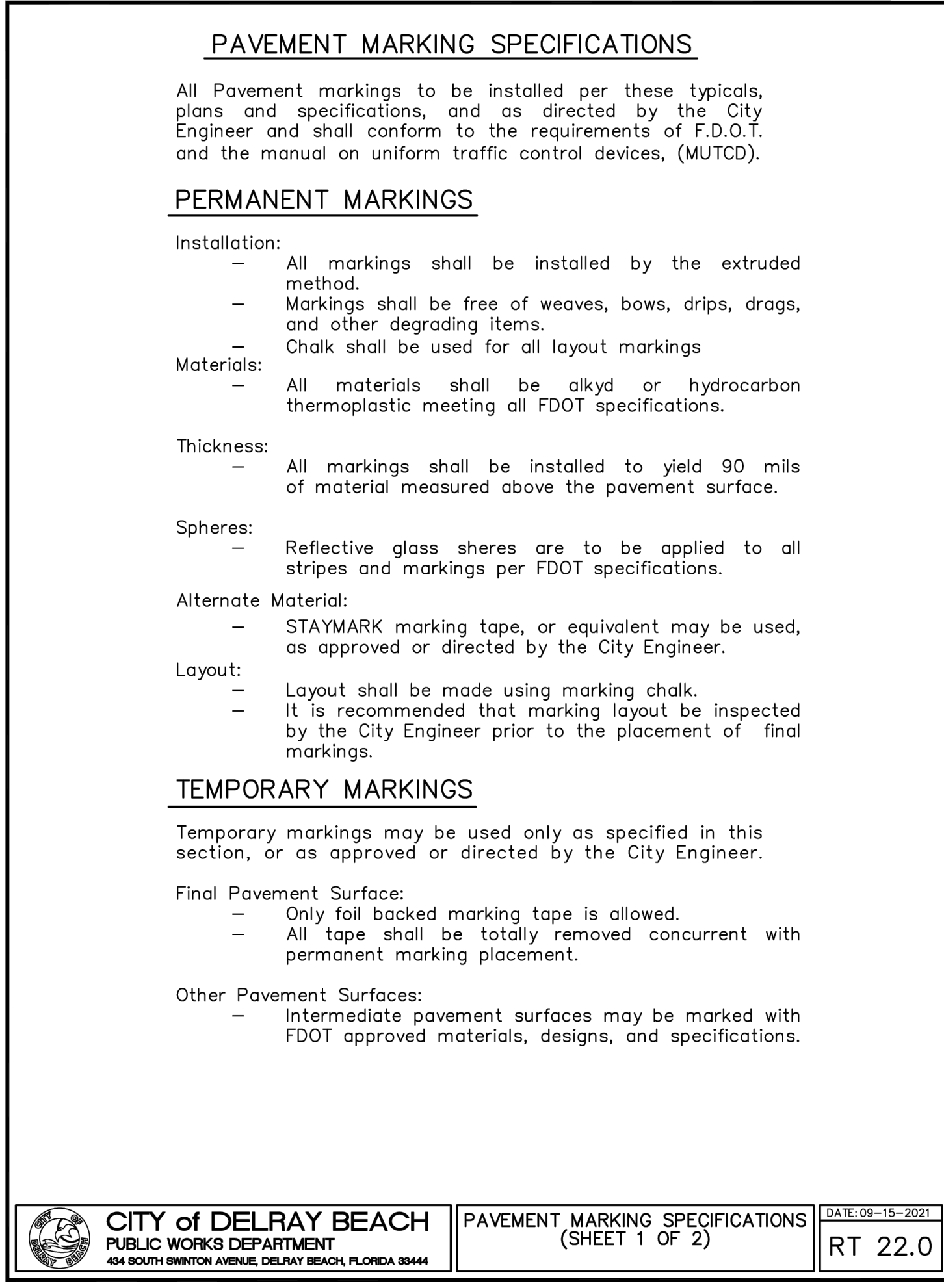
DATE: 09-15-2021
RT 18.1



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

CONCRETE UNIT PAVERS

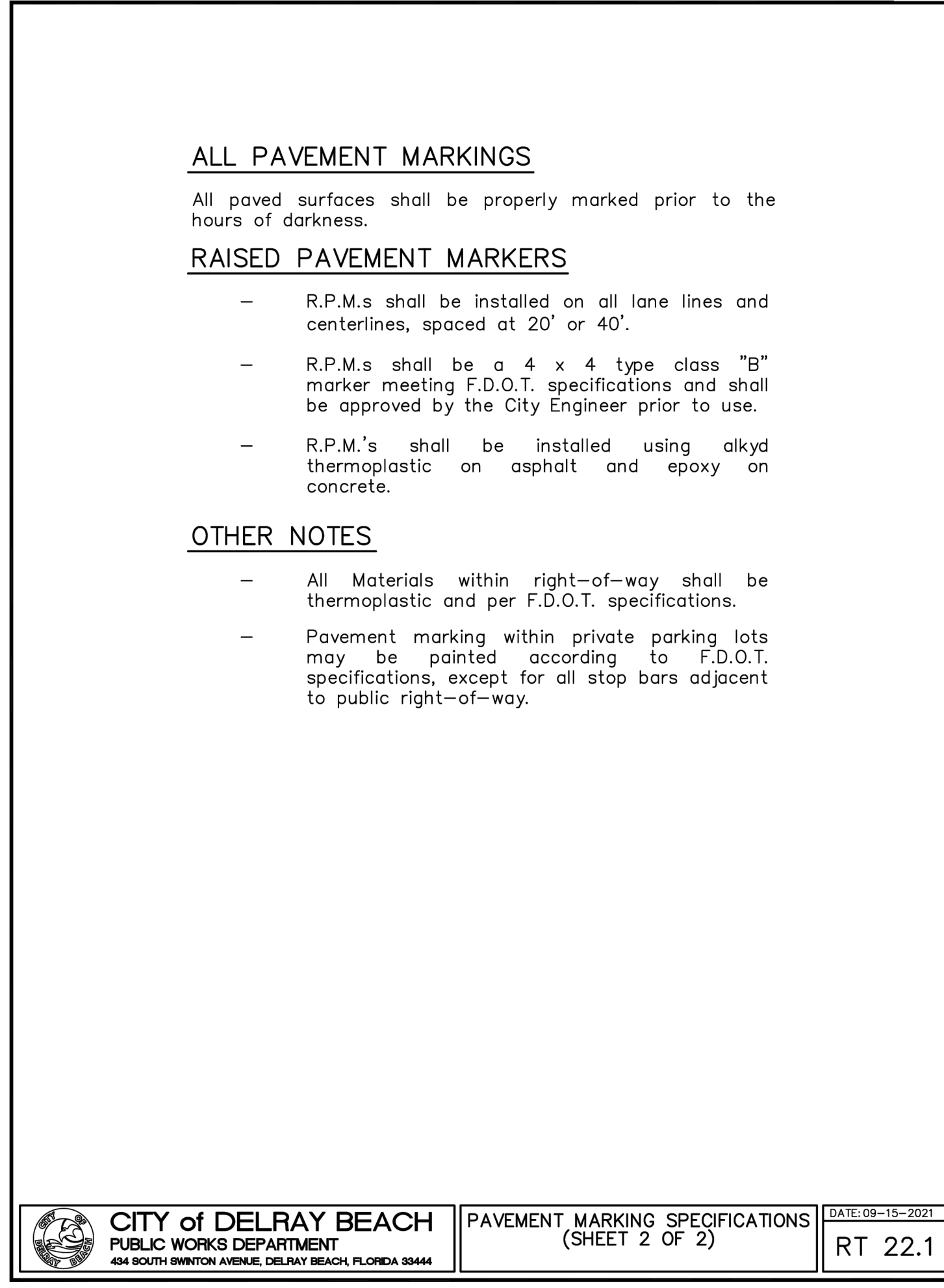
DATE: 09-15-2021
RT 18.1



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

PAVEMENT MARKING SPECIFICATIONS (SHEET 1 OF 2)

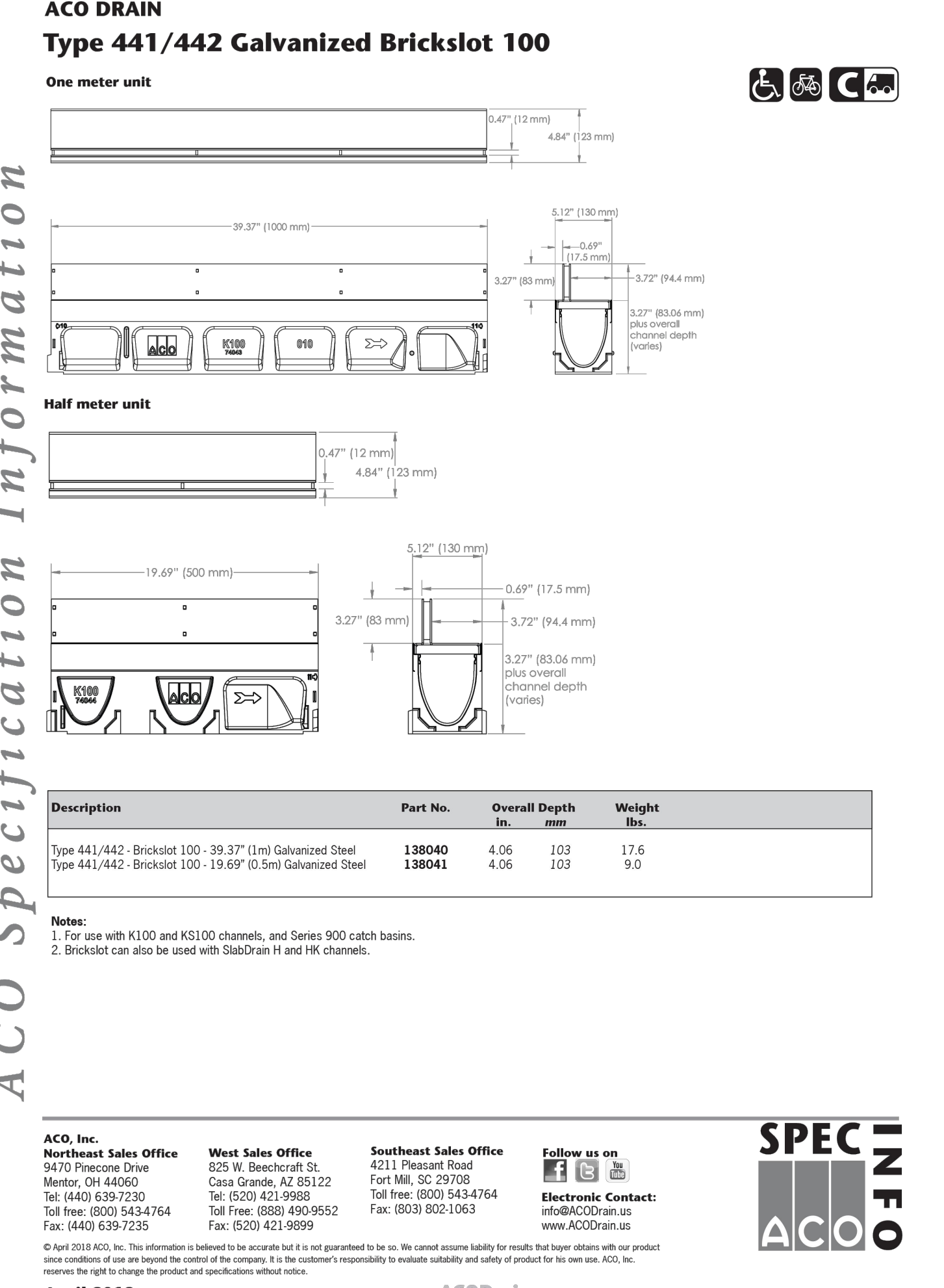
DATE: 09-15-2021
RT 22.0



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

PAVEMENT MARKING SPECIFICATIONS (SHEET 2 OF 2)

DATE: 09-15-2021
RT 22.1



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

ACO DRAIN

DATE: 09-15-2021
RT 22.1

REV	PER CITY COMMENTS	DATE	BY
06/27/22			AJC
04/14/22			AJC

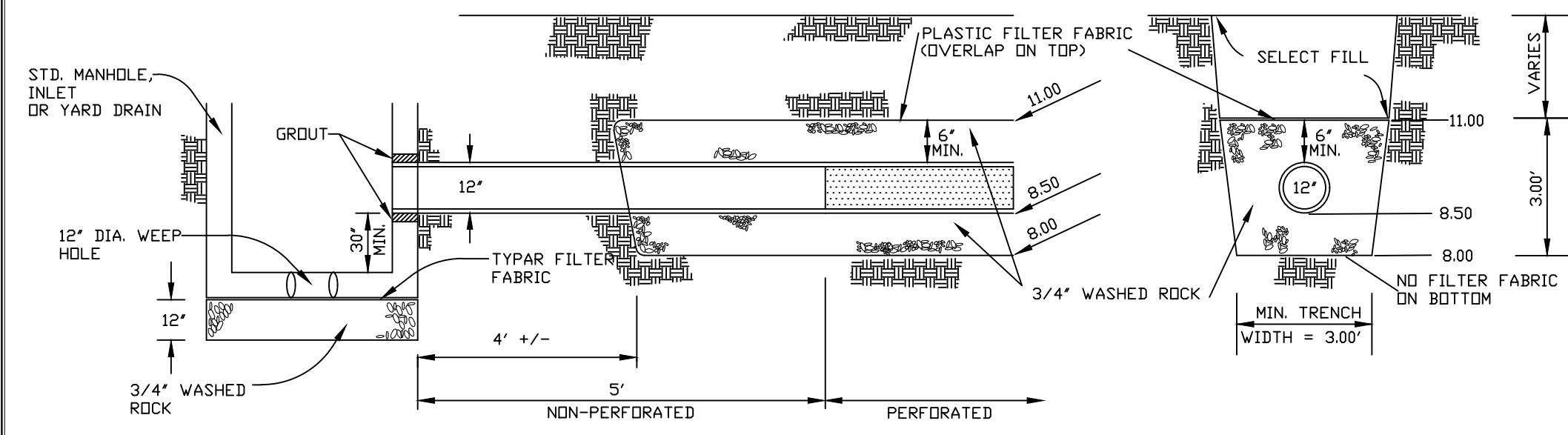
CAULFIELD & WHEELER, INC.
CIVIL ENGINEERING - SURVEYING
LANDSCAPE ARCHITECTURE - SUITE 100
7900 GLADES ROAD - BOCA RATON, FLORIDA 33434
PHONE (561) 392-1991 / FAX (561) 750-1452

917 NE 8TH AVENUE
PAVING, GRADING, & DRAINAGE DETAILS
DELRAY BEACH, FLORIDA

DATE	12/15/21
DRAWN BY	AJC
F.B./ PG.	---
SCALE	N/A

MATTHEW V. KAHN
PROFESSIONAL ENGINEER
LICENSE NO. 82227
STATE OF FLORIDA
- FOR THE FIRM -
DATE

JOB # 9638
SHT. NO.
PD-5
OF 14 SHEETS



LONGITUDINAL VIEW

CROSS - SECTION

NOTES:

1. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT CONTAMINATION OF THE TRENCH BY SAND, SILT, OR OTHER MATERIAL.
2. THE CONTRACTOR SHALL INSTALL
 - A. PERFORATED RCP IN ACCORDANCE WITH F.D.O.T. REQUIREMENTS.
 - B. CORRUGATED ALUMINUM IN ACCORDANCE WITH F.D.O.T. REQUIREMENTS.
3. NO PIPE PERFORATIONS FOR THE FIRST 5 FEET FROM THE INLET OR MANHOLE.
4. PIPE PERFORATIONS SHALL BE PER FDOT REQUIREMENTS
5. SEE DETAILS OF MANHOLE AND/OR INLET FOR CONSTRUCTION DETAILS OF SAME.
6. PLASTIC FILTER FABRIC SHALL CONFORM TO D.O.T. SECTION 985 OR APPROVED EQUAL.
7. PRIOR TO BACKFILLING ANY DRAINAGE STRUCTURES, THE CITY ENGINEERING DEPARTMENT SHALL BE GIVEN 24 HOURS NOTICE IN ORDER TO SCHEDULE AN INSPECTION OF THE FACILITY.

FRENCH DRAIN DETAIL

N.T.S.

REV	DATE	BY
REV PER CITY COMMENTS	06/27/22	AJG
REV PER CITY COMMENTS	04/14/22	AJG
REVISIONS	DATE	BY
FILE NAME	B358_ENG.dwg	

CAULFIELD & WHEELER, INC.
 CIVIL ENGINEERING
 LANDSCAPE ARCHITECTURE - SURVEYING
 7900 GLADES ROAD - SUITE 100
 BOCA RATON, FLORIDA 33434
 PHONE (561) 392-1991 / FAX (561) 750-1452

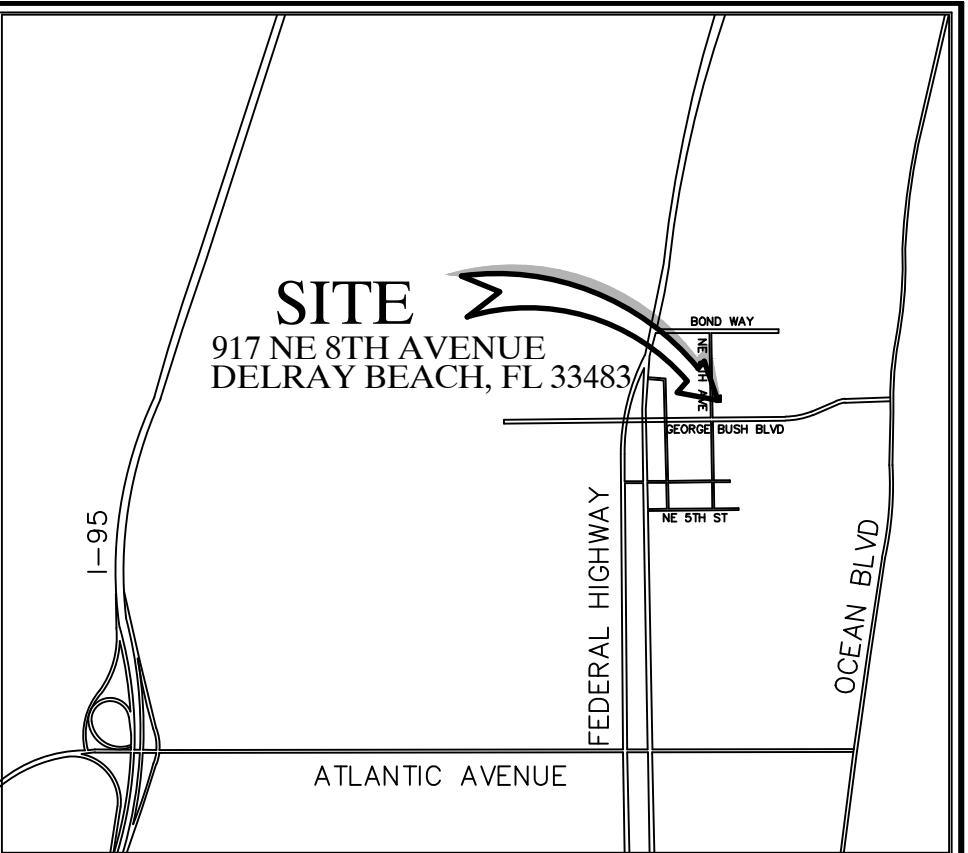
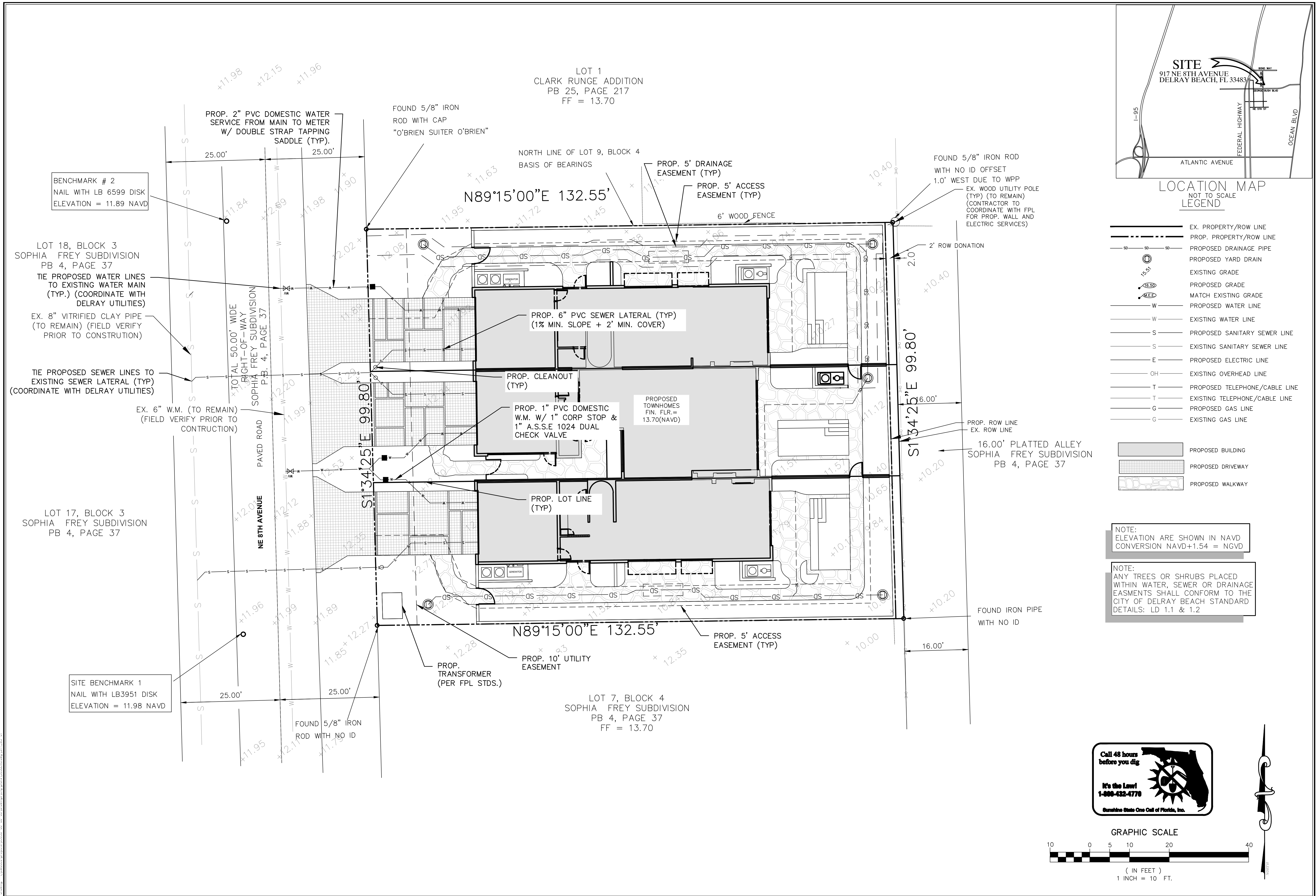
917 NE 8TH AVENUE
PAVING, GRADING, &
DRAINAGE DETAILS
 DELRAY BEACH, FLORIDA

DATE	12/15/21
DRAWN BY	AJG
F.B. / PG.	---
SCALE	1" = 40'

MATTHEW V. KAHN
 PROFESSIONAL ENGINEER
 LICENSE NO. 82227
 STATE OF FLORIDA
 - FOR THE FIRM -
 DATE

JOB # 9638
 SH1.N0.
PD-6
 OF 14 SHEETS

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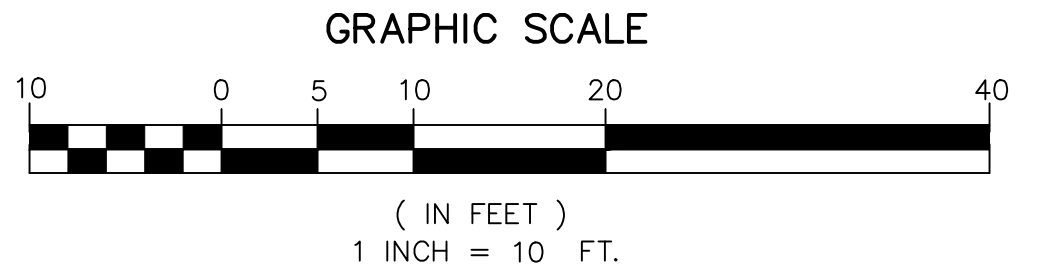


LOCATION MAP
NOT TO SCALE
LEGEND

- EX. PROPERTY/ROW LINE
 - PROP. PROPERTY/ROW LINE
 - PROPOSED DRAINAGE PIPE
 - PROPOSED YARD DRAIN
 - EXISTING GRADE
 - PROPOSED GRADE
 - MATCH EXISTING GRADE
 - PROPOSED WATER LINE
 - EXISTING WATER LINE
 - PROPOSED SANITARY SEWER LINE
 - EXISTING SANITARY SEWER LINE
 - PROPOSED ELECTRIC LINE
 - EXISTING OVERHEAD LINE
 - PROPOSED TELEPHONE/CABLE LINE
 - EXISTING TELEPHONE/CABLE LINE
 - PROPOSED GAS LINE
 - EXISTING GAS LINE
- PROPOSED BUILDING
 - PROPOSED DRIVEWAY
 - PROPOSED WALKWAY

NOTE:
ELEVATION ARE SHOWN IN NAVD
CONVERSION NAVD+1.54 = NGVD

NOTE:
ANY TREES OR SHRUBS PLACED
WITHIN WATER, SEWER OR DRAINAGE
EASMENTS SHALL CONFORM TO THE
CITY OF DELRAY BEACH STANDARD
DETAILS: LD 1.1 & 1.2



REV	DATE	BY
06/27/22	AJC	
04/14/22	AJC	
REVISIONS	DATE	BY
FILE NAME: 9638_ENC.dwg		

CAULFIELD & WHEELER, INC.
 CIVIL ENGINEERING - SURVEYING
 LANDSCAPE ARCHITECTURE - SUITE 100
 7900 GLADES ROAD - BOCA RATON, FLORIDA 33434
 PHONE: (561)-392-1981 / FAX: (561)-750-1452

917 NE 8TH AVENUE
 PROPOSED WATER DISTRIBUTION,
 SANITARY SEWER & UTILITY PLAN
 DELRAY BEACH, FLORIDA

DATE	12/15/21
DRAWN BY	AJC
F.B./ PG.	----
SCALE	1" = 10'

MATTHEW V. KAHN
 PROFESSIONAL ENGINEER
 LICENSE NO. 82227
 STATE OF FLORIDA
 - FOR THE FIRM -
 DATE

JOB #	9638
SHT. NO.	WS-1
OF 14 SHEETS	

PRESSURE PIPE NOTES:

- FOR PIPE SIZES 4"-8" THERE SHALL BE 30" MINIMUM COVER FROM FINISHED GRADE TO TOP OF PIPE. FOR PIPE SIZE 10" AND LARGER THERE SHALL BE 36" MINIMUM COVER.
- DUCTILE IRON PIPE (DIP) FOR FORCE MAINS SHALL BE CLASS 350 WITH 401 EPOXY LINED IN ACCORDANCE WITH AWWA C550.
- DUCTILE IRON PIPE (DIP) FOR WATER MAINS SHALL BE CLASS 350 IN ACCORDANCE WITH AWWA C151 (ANSI A21.51), AND SHALL HAVE AN INTERNAL LINING OF CEMENT MORTAR IN ACCORDANCE WITH AWWA C104/ A21.4.
- C-900 PVC PRESSURE PIPE MAY BE USED IN LIEU OF DIP WATER MAIN WITH METAL TAPE AND WIRE ABOVE THE PIPE.
- ALL FITTINGS FOR FORCE MAIN SHALL BE CLASS 350 DUCTILE IRON WITH MECHANICAL JOINTS AND 401 EPOXY LINING.
- WATER MAIN VALVES 12 INCHES AND SMALLER SHALL BE RESILIENT-SEAL WEDGE GATE VALVES IN ACCORDANCE WITH AWWA C509. WATER MAIN VALVES LARGER THAN 12 INCHES SHALL BE BUTTERFLY VALVES IN ACCORDANCE WITH AWWA C504. SEWAGE FORCE MAIN VALVES SHALL BE RESILIENT-SEAL PLUG VALVES IN ACCORDANCE WITH AWWA C517.
- ALL TRENCHING, PIPE-LAYING, BACKFILL, PRESSURE TESTING, AND DISINFECTION MUST COMPLY WITH CITY AND LOCAL GOVERNMENTAL REGULATIONS AND STANDARDS.
- WATER AND FORCE MAINS SHALL BE PIGGED A MINIMUM OF TWO TIMES, AND ADDITIONALLY, IF REQUIRED BY ENGINEER OF RECORD, AS WELL AS, PRESSURE TESTED FOR A PERIOD OF NOT LESS THAN TWO HOURS AT 150 PSI IN ACCORDANCE WITH ANSI/AWWA C600 LATEST STANDARDS. ALLOWABLE LEAKAGE SHALL BE DETERMINED AS FOLLOWS:

$$L = \frac{SD\sqrt{P}}{148,000}$$

WHERE:
L = ALLOWABLE LEAKAGE (GALLONS PER HOUR)
S = PIPE LENGTH (FEET)
D = NOMINAL DIAMETER OF PIPE (INCHES)
P = AVERAGE TEST PRESSURE (PSI)
- RESTRAINTS SHALL BE PROVIDED AT ALL FITTINGS AS SHOWN ON PP 2.0 AND 2.1
- PRIOR TO ANY TESTING UNDER FUTURE PAVEMENT, ROCK SHALL BE FINISHED & PRIMED OR 1ST LIFT OF ASPHALT PLACED.
- PIG SIZE SHALL BE PIPE DIAMETER PLUS 2" OR NEXT LARGER DIAMETER.
- NO PROPOSED STRUCTURES SHALL BE INSTALLED WITHIN A HORIZONTAL DISTANCE OF 10- FEET FROM ANY EXISTING OR PROPOSED WATER OR FORCE MAINS.
- LINE STOPS SHALL BE INSTALLED A MINIMUM OF 3 PIPE LENGTHS FROM LOCATION OF PIPE REMOVED AND PROVIDE NECESSARY JOINT RESTRAINTS.

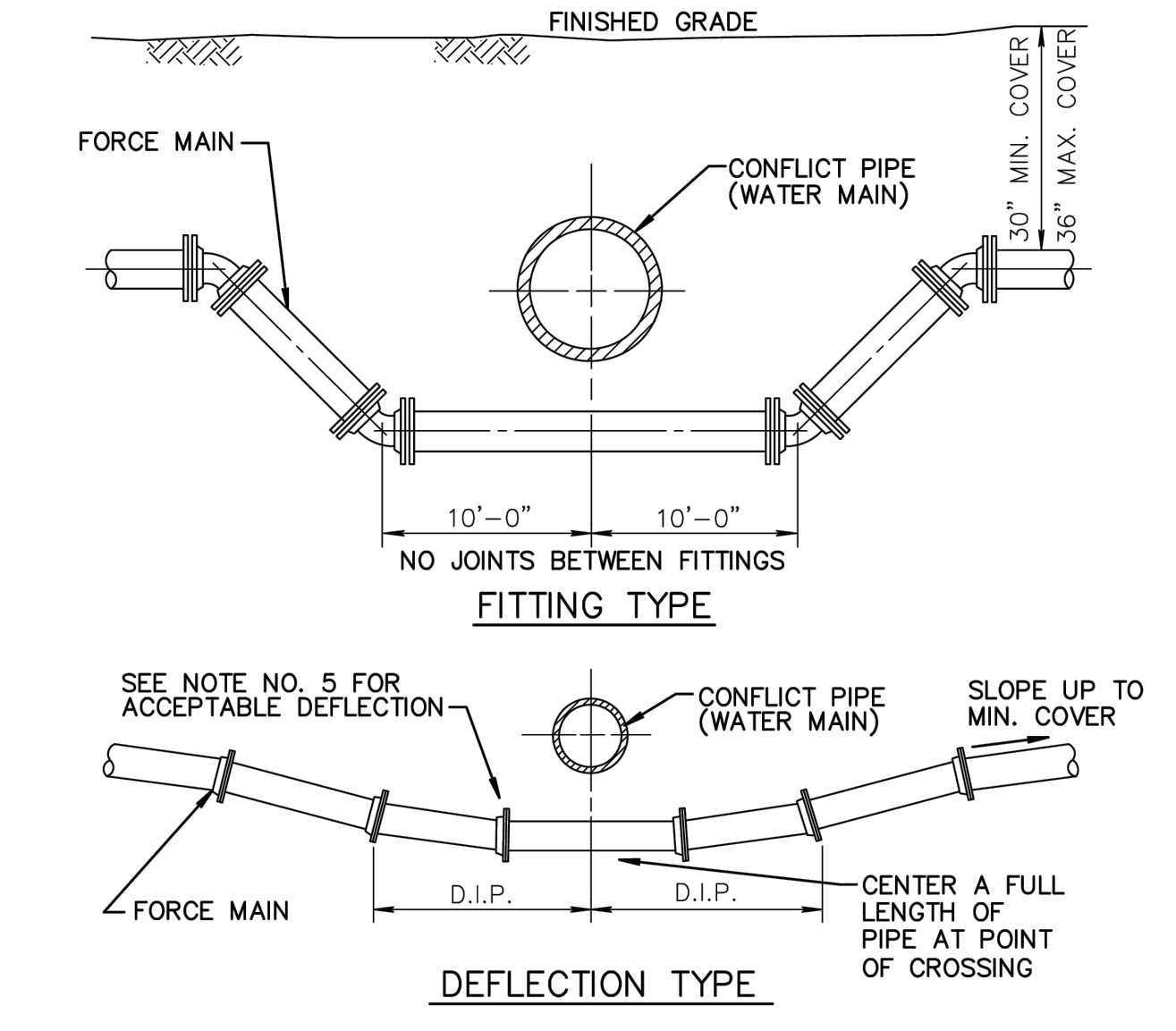
MINIMUM LENGTHS OF PIPE (FT) TO BE RESTRAINED

FITTING TYPE	PIPE SIZE								
	4"	6"	8"	10"	12"	16"	20"	24"	
90° HORIZ. BEND	14	20	25	30	35	45	54	62	
45° HORIZ. BEND	6	8	11	13	15	19	22	26	
22.5° HORIZ. BEND	3	4	5	6	7	9	11	12	
11.25° HORIZ. BEND	1	2	3	3	4	4	5	6	
90° VERT. OFFSET	UPPER BEND	55	79	103	125	147	189	228	266
	LOWER BEND	22	38	49	59	69	88	106	123
45° VERT. OFFSET	UPPER BEND	22	32	42	51	60	77	93	109
	LOWER BEND	10	14	19	23	28	35	43	50
22.5° VERT. OFFSET	UPPER BEND	7	12	17	21	26	34	42	49
	LOWER BEND	2	4	6	8	10	14	17	21
11.25° VERT. OFFSET	UPPER BEND	3	4	6	9	11	15	19	22
	LOWER BEND	1	1	1	2	3	5	7	8
PLUG (DEAD END)	32	45	59	70	83	107	129	151	
INLINE VALVE	32	45	59	70	83	107	129	151	
TEE (BRANCH RESTRAINT)	4" X 6"	23							
	6" X 6"	21	35						
	8" X 6"	18	34	47					
	10" X 6"	16	32	46	58				
	12" X 6"	13	30	44	57	69			
	16" X 6"	7	26	41	55	67	90		
REDUCER (LARGER PIPE RESTRAINT)	20" X 6"	1	21	38	52	65	88	109	
	24" X 6"	1	16	34	49	62	86	108	129
	6" X 8"	23							
	8" X 8"	38	25						
	10" X 8"	57	43	24					
	12" X 8"	72	60	44	41				
16" X 8"	99	90	78	75	45				
20" X 8"	123	116	107	105	81	45			
24" X 8"	146	140	132	131	111	82	45		

RESTRAIN PIPE ONE BELL PAST MINIMUM DISTANCE

NOTES:

- THE DATA IN THE PREVIOUS TABLE IS BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:
SOIL TYPESAND
TEST PRESSURE150 PSI, 200 PSI FOR PIPES LARGER THAN 24"
DEPTH OF BURY3'
TRENCH TYPE3'
SAFETY FACTOR1.5
VERTICAL OFF-SET3'
MINIMUM PIPE LENGTHS ALONG TEE RUN5'
- THE RESTRAINED PIPE LENGTHS APPLY TO DUCTILE IRON PIPE AND PVC PIPE.
- ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.
- RESTRAINED PIPE LENGTHS FOR VALVES APPLY TO PIPE ON BOTH SIDES OF VALVES
- THE PREVIOUS TABLE SHALL SERVE AS A GENERAL DESIGN GUIDE ONLY. IT IS THE ENGINEER OF RECORD'S RESPONSIBILITY TO JUSTIFY AND DOCUMENT ANY DEVIATIONS FROM THE PIPE LENGTHS SPECIFIED IN THE PREVIOUS TABLE.
- SOURCES: EBAA IRON RESTRAINT LENGTH CALCULATION PROGRAM FOR PVC PIPE, RELEASE 3.1 (LATEST EDITION) AND DIPRA RESTRAINT FOR DUCTILE IRON PIPE, RELEASE 3.2 (LATEST EDITION).
- RESTRAINED JOINTS SHALL EXTEND ONE JOINT BEYOND MINIMUM LENGTH REQUIRED.



NOTES:

- THERE SHALL BE IN ALL CASES A MINIMUM OF 18" VERTICAL SEPARATION BETWEEN WATER MAINS AND FORCE MAINS.
- WHEREVER POSSIBLE WATER MAINS SHALL PASS OVER FORCE MAINS OR STORM SEWERS.
- FITTINGS SHALL BE RESTRAINED WITH MECHANICAL JOINT RESTRAINTS.
- THE DEFLECTION TYPE CROSSING IS PREFERRED.
- DO NOT EXCEED 75% OF MANUFACTURERS RECOMMENDED MAXIMUM JOINT DEFLECTION.
- REFER TO TYPICAL RESTRAINING DETAIL PP 2.0 AND 2.1

CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
404 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

PRESSURE PIPE NOTES

PP 1.0

DATE: 09-15-2021

CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
404 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

PIPE RESTRAINT TABLE
PRESSURE PIPE
(SHEET 1 OF 2)

PP 2.0

DATE: 09-15-2021

CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
404 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

PIPE RESTRAINT TABLE
PRESSURE PIPE
(SHEET 2 OF 2)

PP 2.1

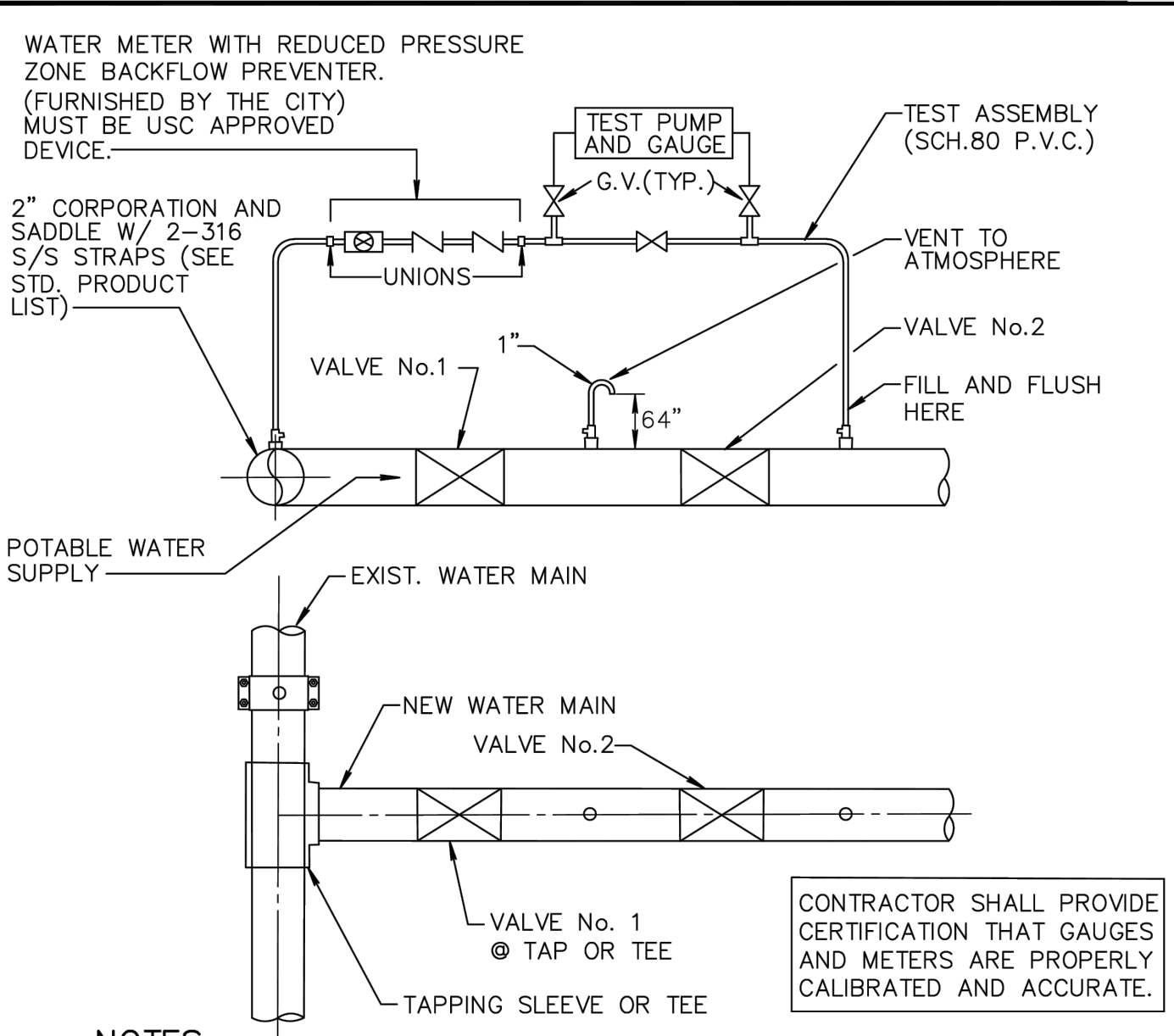
DATE: 09-15-2021

CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
404 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

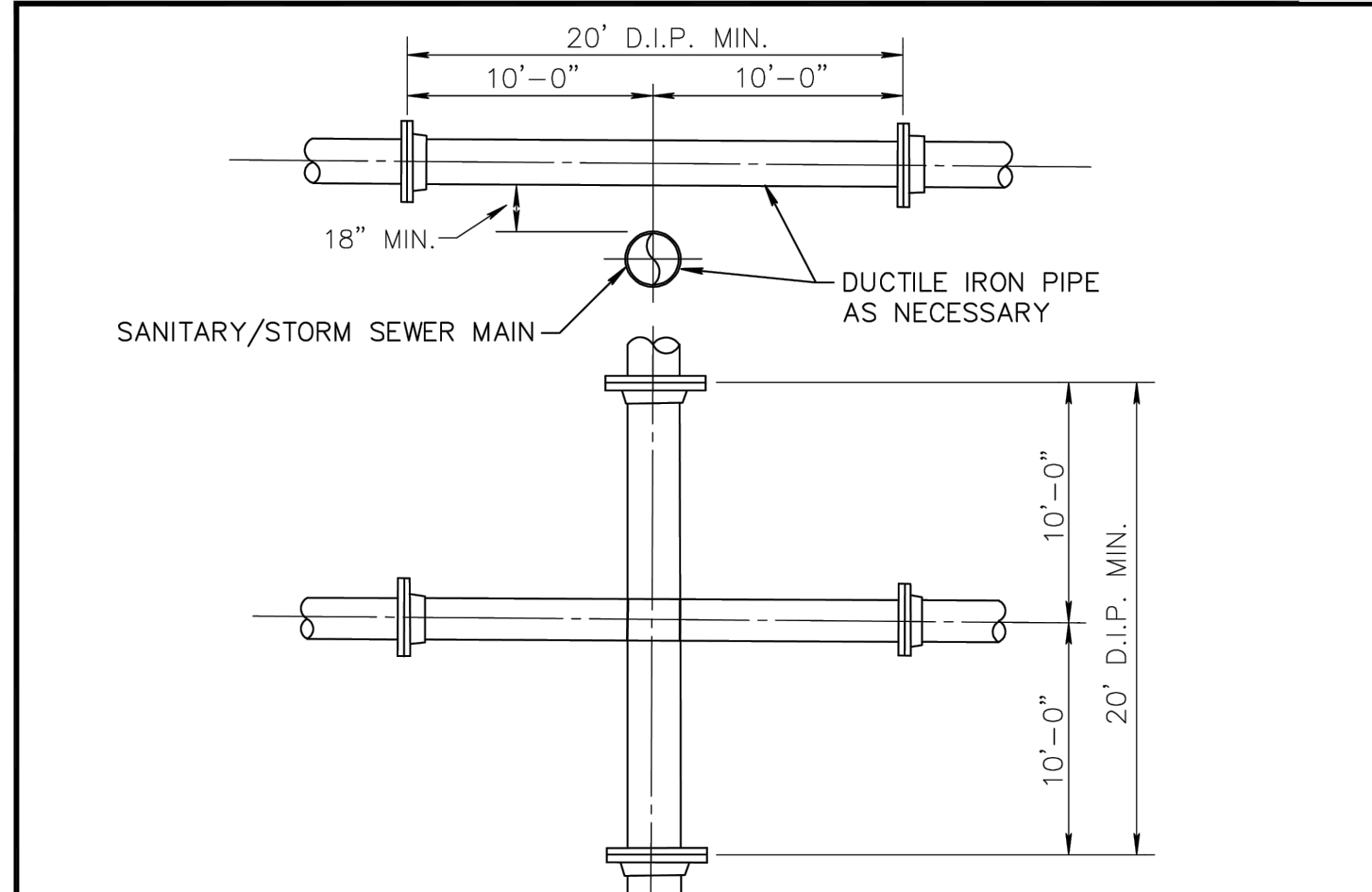
PRESSURE PIPE CONFLICT TABLE

PP 3.0

DATE: 09-15-2021



- NOTES:**
- BOTH VALVES SHALL BE KEPT CLOSED UNTIL FILLING, FLUSHING, AND BACTERIOLOGICAL TESTING IS COMPLETED AND APPROVED.
 - GAUGE AND RISER TO BE REMOVED AFTER PRESSURE TEST.
 - CITY SHALL BE NOTIFIED BEFORE FILLING AND FLUSHING.
 - AFTER RELEASE FROM THE HEALTH DEPARTMENT, BOTH VALVES TO BE LEFT OPEN WITH VALVE BOX INSTALLED ON BOTH VALVES.
 - PRESSURE TEST PUMP MAY CONNECT TO SERVICE LINE, FIRE HYDRANTS OR BLOWOFF. NO EXTRA TAPS ARE PERMITTED SOLELY FOR TESTING PURPOSES UNLESS PRECEDING ARE NOT PRESENT IN TEST SECTION.
 - TAPPING SADDLE OR SLEEVE (PER CURRENT CITY PRODUCT LIST) IS REQUIRED ON EXISTING MAIN.
 - SETUP FOR ALL DOUBLE VALVE CONNECTIONS TO INCLUDE ATMOSPHERE VENTS AS SHOWN ABOVE.
 - OUTLET ON VENT TO ATMOSPHERE A MINIMUM 24" ABOVE EXISTING GRADE.
- CONTRACTOR SHALL PROVIDE CERTIFICATION THAT GAUGES AND METERS ARE PROPERLY CALIBRATED AND ACCURATE.



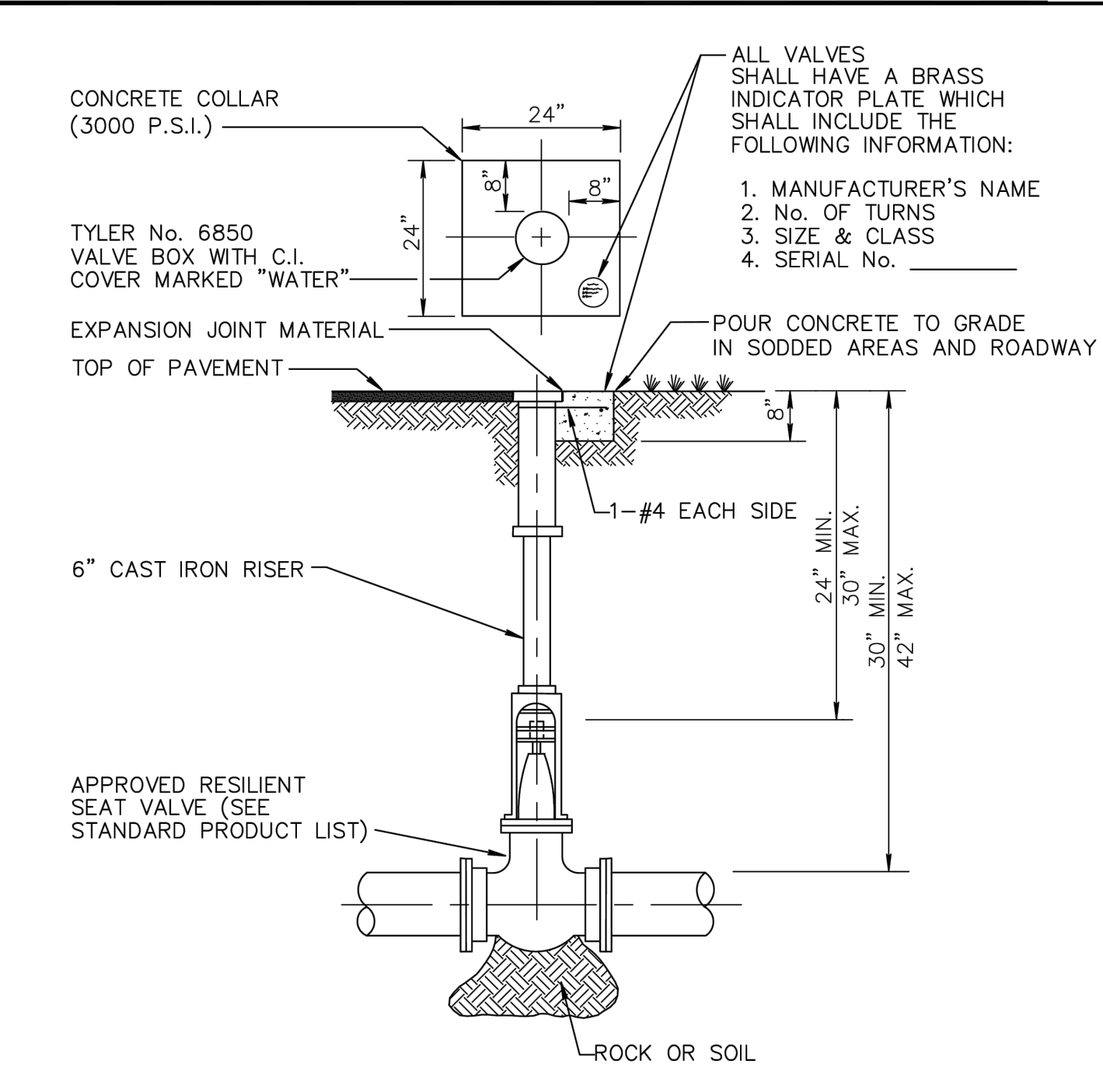
- NOTES:**
- STORM AND SANITARY SEWERS CROSSING UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND WATER MAIN JOINTS ARE EQUIDISTANT FROM POINT OF CROSSING WITH NO LESS THAN (10) FEET BETWEEN ANY TWO JOINTS AND BOTH PIPES SHALL BE D.I.P. AND THE MINIMUM VERTICAL SEPARATION SHALL BE 6 INCHES. WHERE THERE IS NO ALTERNATIVE TO SEWER PIPES CROSSING OVER A WATER MAIN, THE CRITERIA FOR MINIMUM 18" VERTICAL SEPARATION BETWEEN LINES AND JOINT ARRANGEMENT, AS STARTED ABOVE, SHALL BE REQUIRED AND BOTH PIPES SHALL BE CLASS 350 D.I.P. IRRESPECTIVE OF SEPARATION. D.I.P. IS NOT REQUIRED FOR STORM SEWERS.
 - MAINTAIN (10) FEET HORIZONTAL DISTANCE BETWEEN WATER MAIN AND STORM OR SANITARY SEWER MAIN, AS A MINIMUM.
 - FORCE MAIN CROSSING WATER MAIN SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE FORCE MAIN AND THE OUTSIDE OF THE WATER MAIN WITH WATER MAIN CROSSING OVER FORCE MAIN.
 - SEWER SERVICE LATERALS SHALL CROSS UNDER WATER MAINS WITH A MINIMUM VERTICAL SEPARATION OF EIGHTEEN (18) INCHES. IF EIGHTEEN (18) INCHES VERTICAL SEPARATION CANNOT BE MAINTAINED, THEN THE WATER MAIN SHALL BE D.I.P. AND THE SANITARY LATERAL C-900 SDR18 OR BETTER AND THE MINIMUM SEPARATION SHALL BE SIX (6) INCHES.
 - WHEN IT IS NOT POSSIBLE FOR THE WATER MAIN TO CROSS OVER THE SEWER SERVICE LATERAL A MINIMUM VERTICAL SEPARATION OF AT LEAST TWELVE (12) INCHES MUST BE MAINTAINED. THE WATER MAIN SHALL BE D.I.P. AND THE SEWER LATERAL SHALL BE C-900 SDR-18 OR BETTER.

CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
404 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

WATER MAIN & SEWER CONFLICTS

PW 2.0

DATE: 09-15-2021



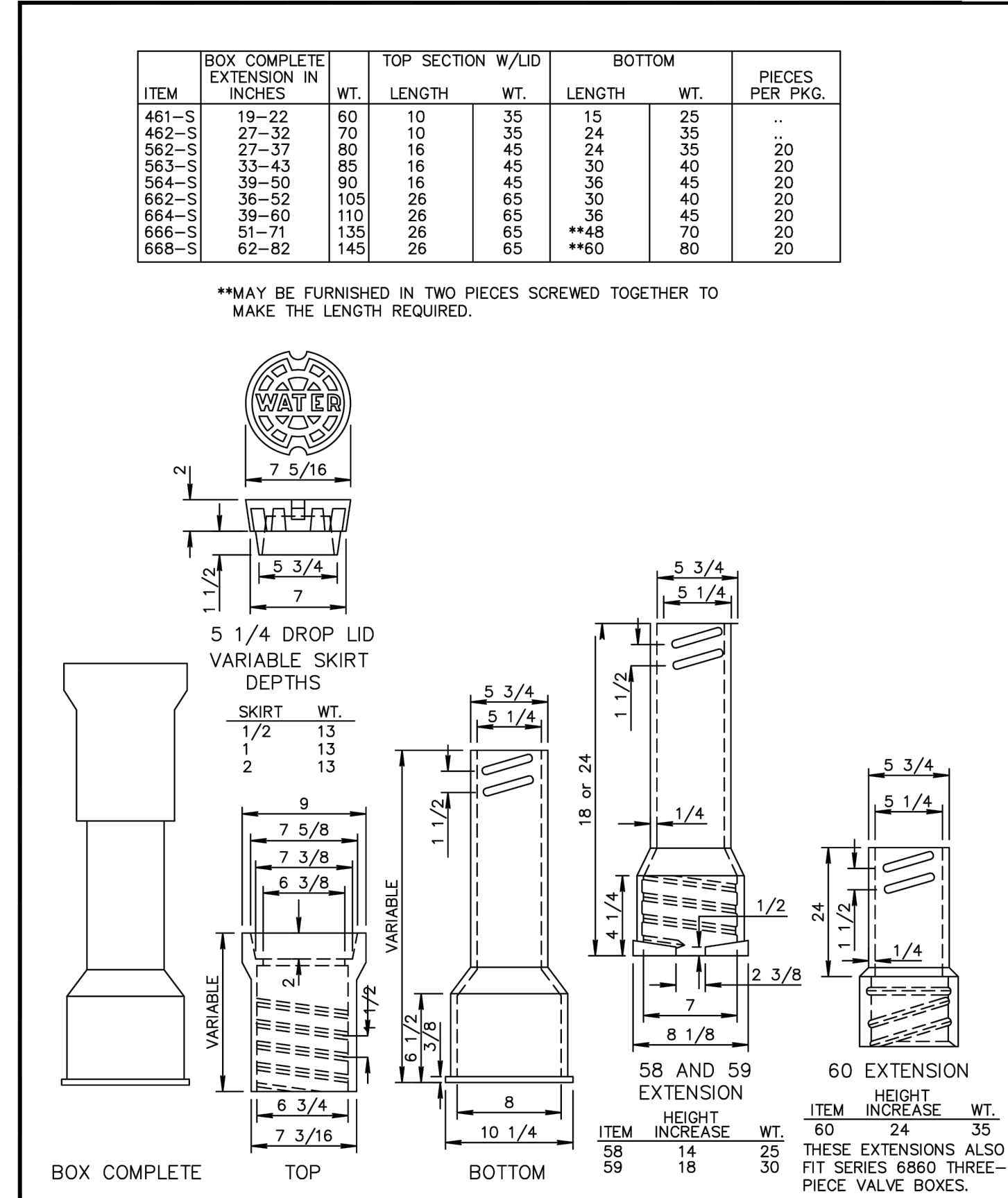
- NOTES:**
- WHEN VALVE IS DEEPER THAN 30" AN EXTENSION WITH UNIVERSAL JOINT SHALL BE REQUIRED TO BRING OPERATING NUT 24"-30" BELOW FINISHED GRADE. EXTENSION BOLTS & NUTS SHALL BE 316 STAINLESS STEEL. A 316 STAINLESS STEEL CENTERING PLATE SHALL ALSO BE REQUIRED.
 - AT DEAD END OR WHERE MAIN LINES CHANGE DIRECTION, VALVES SHALL BE RESTRAINED USING MECHANICAL JOINT RESTRAINTS, TIE RODS, OR OTHER RESTRAINT APPROVED BY UTILITIES DEPARTMENT (NO THRUST BLOCKS ALLOWED).

CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
404 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

TYPICAL GATE VALVE DETAIL
4" THRU 12"

PW 3.0

DATE: 09-15-2021



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
404 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444

CAST IRON VALVE BOXES FOR TEMPORARY DEADENDS
TWO PIECE

PW 4.0

DATE: 09-15-2021

REV	BY	DATE
	AJG	06/27/22
	AJG	04/14/22
	AJG	04/14/22

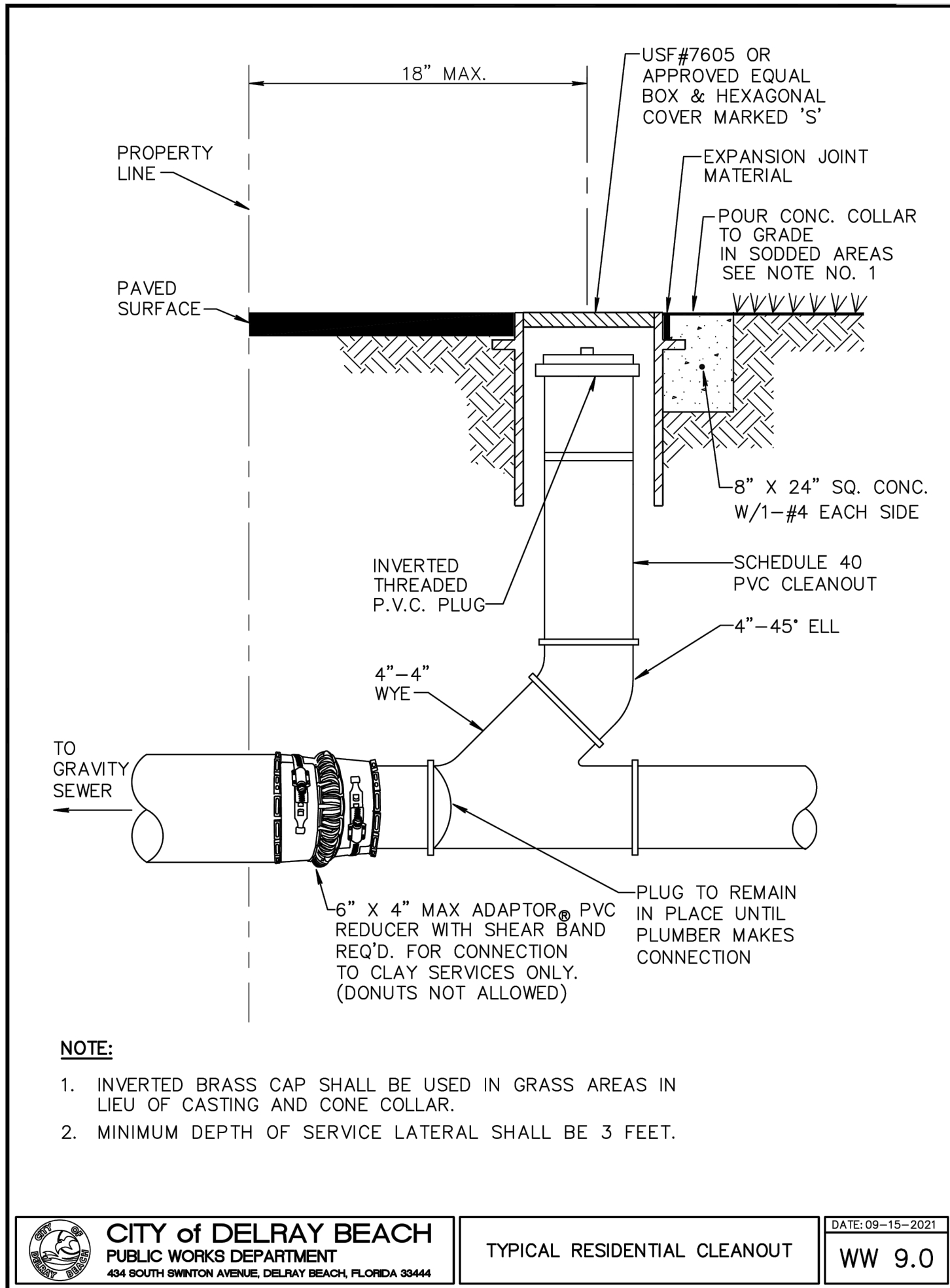
CAULFIELD & WHEELER, INC.
CIVIL ENGINEERING - SURVEYING
LANDSCAPE ARCHITECTURE - SUITE 100
7900 GLADES ROAD - FLORIDA 33434
BOCA RATON, FLORIDA 33434
PHONE (561) 392-1991 / FAX (561) 750-1452

917 NE 8TH AVENUE
WATER DISTRIBUTION &
SANITARY SEWER DETAILS
DELRAY BEACH, FLORIDA

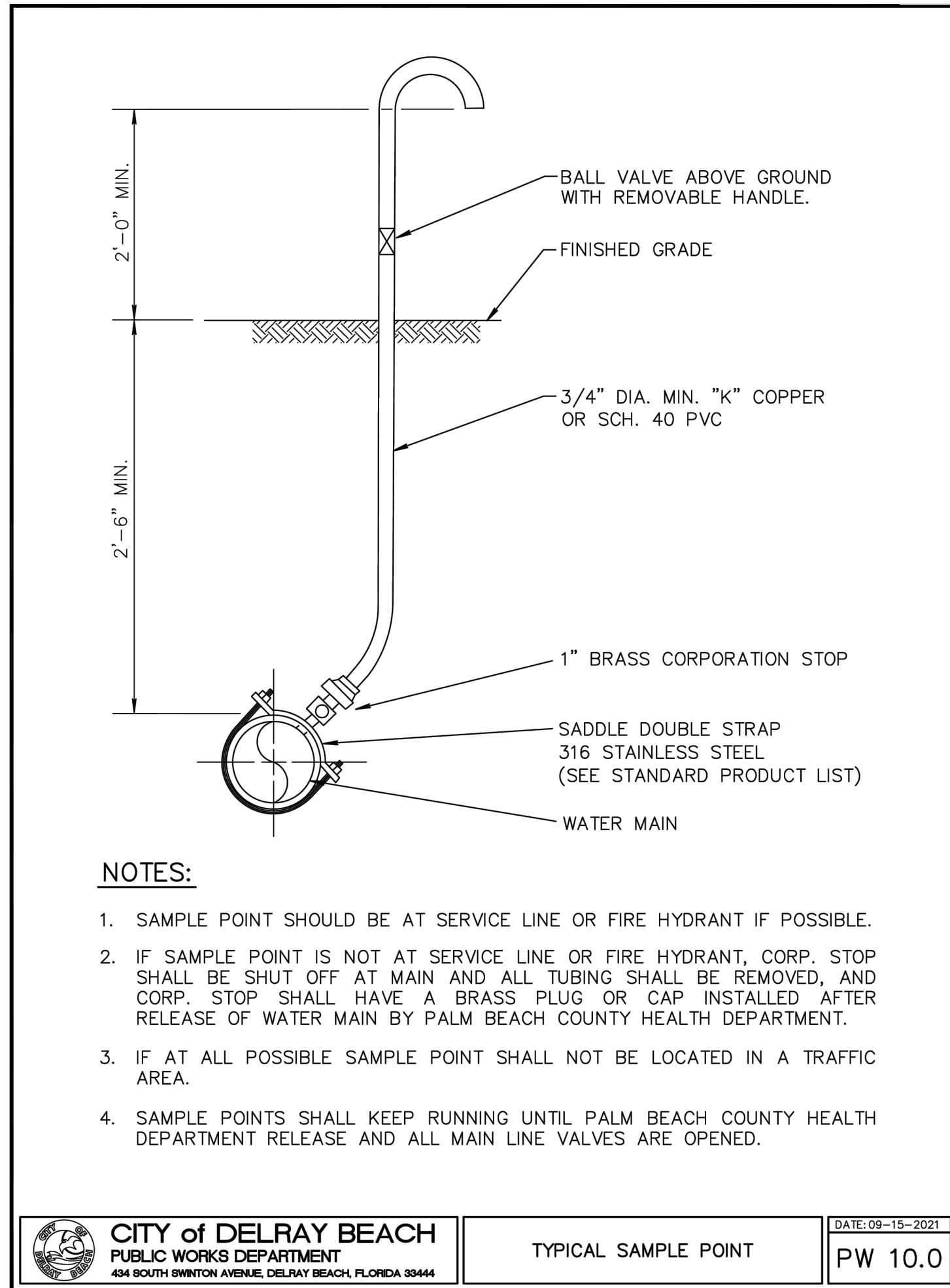
DATE 12/15/21
DRAWN BY AJG
F.B./ PG. ---
SCALE N/A

MATTHEW V. KAHN
PROFESSIONAL ENGINEER
LICENSE NO. 82227
STATE OF FLORIDA
FOR THE FIRM -
DATE

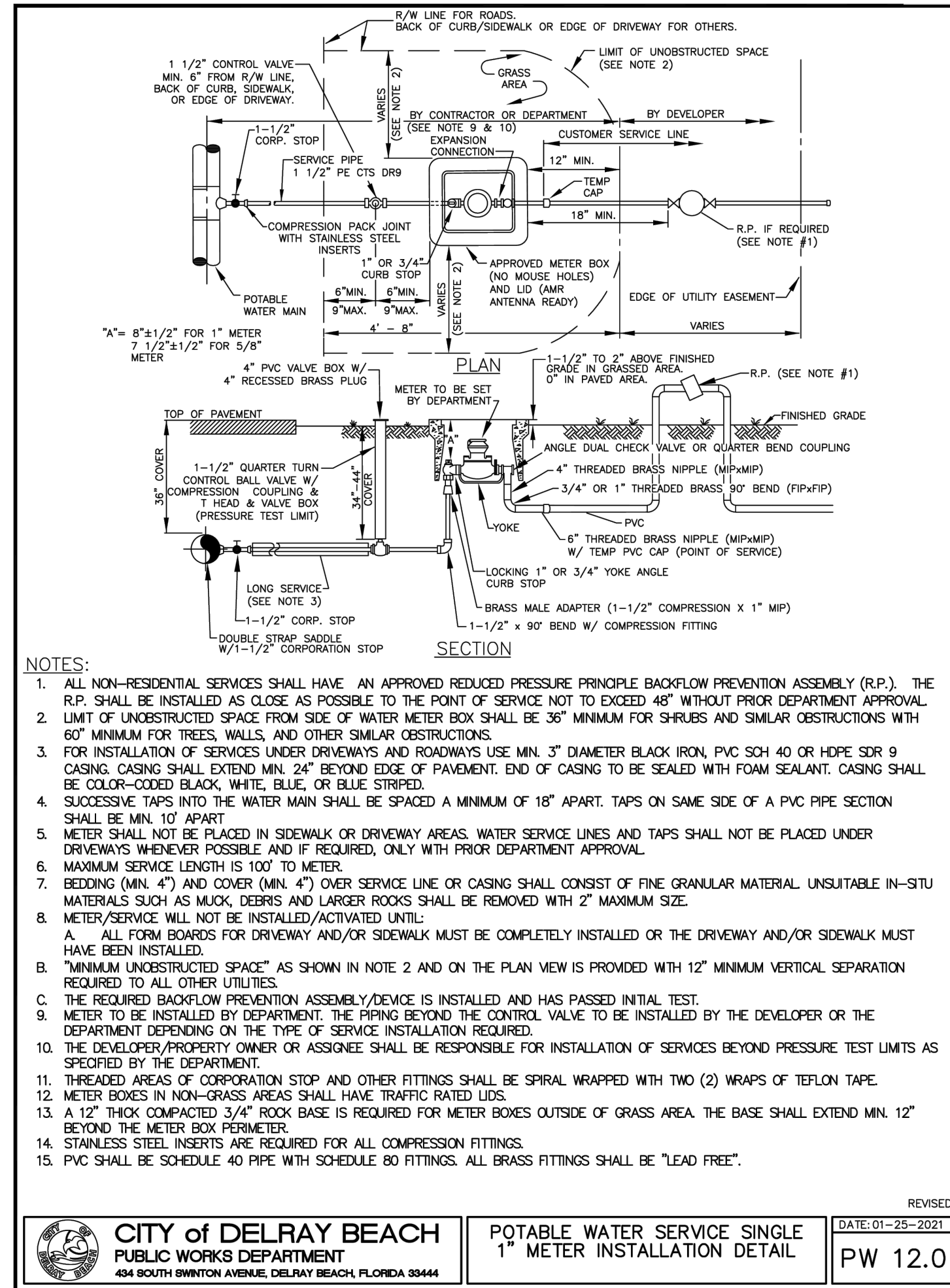
JOB # 9638
SHT. NO.
WS-2
OF 14 SHEETS



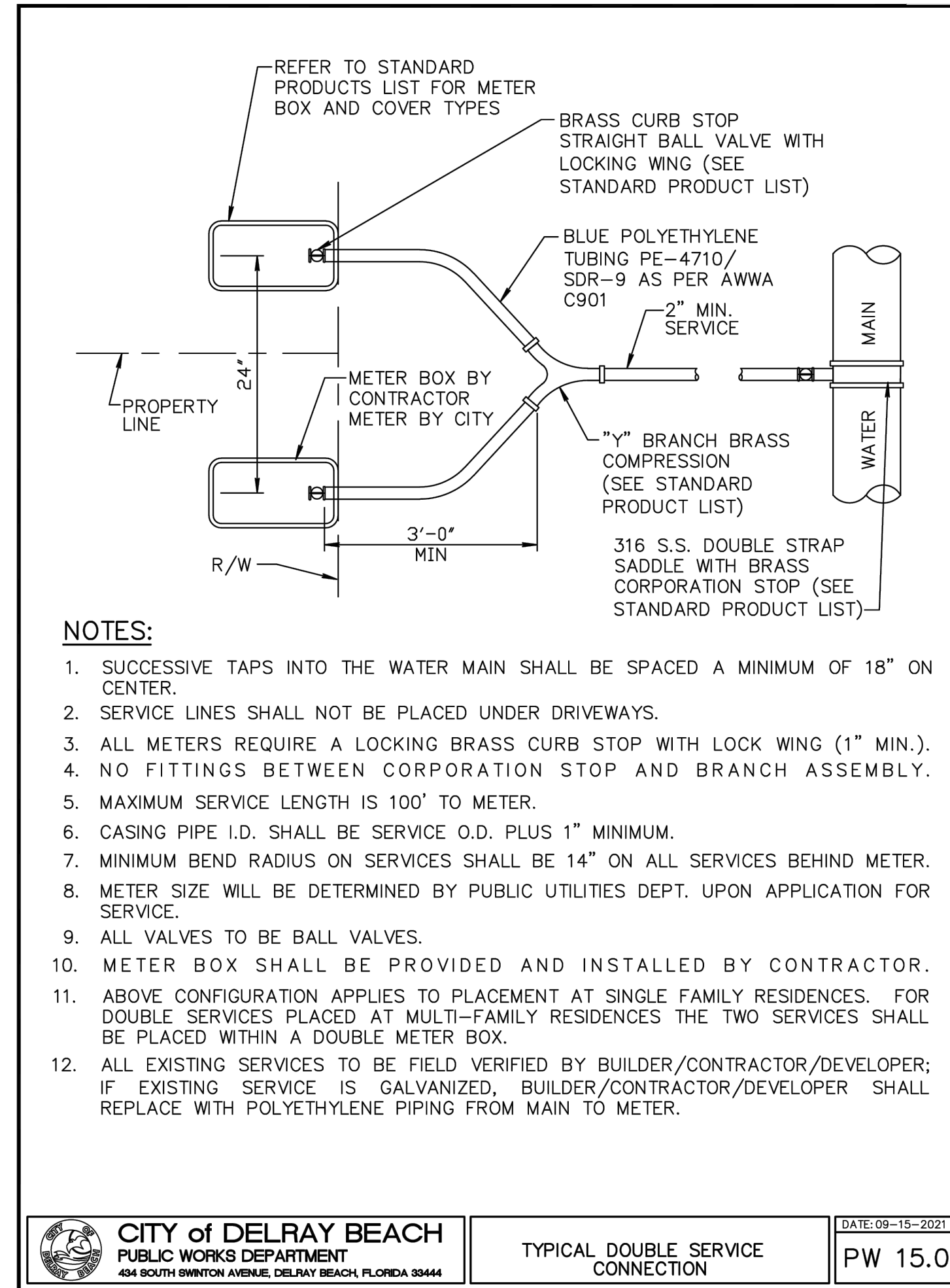
CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444
TYPICAL RESIDENTIAL CLEANOUT
DATE: 09-15-2021
WW 9.0



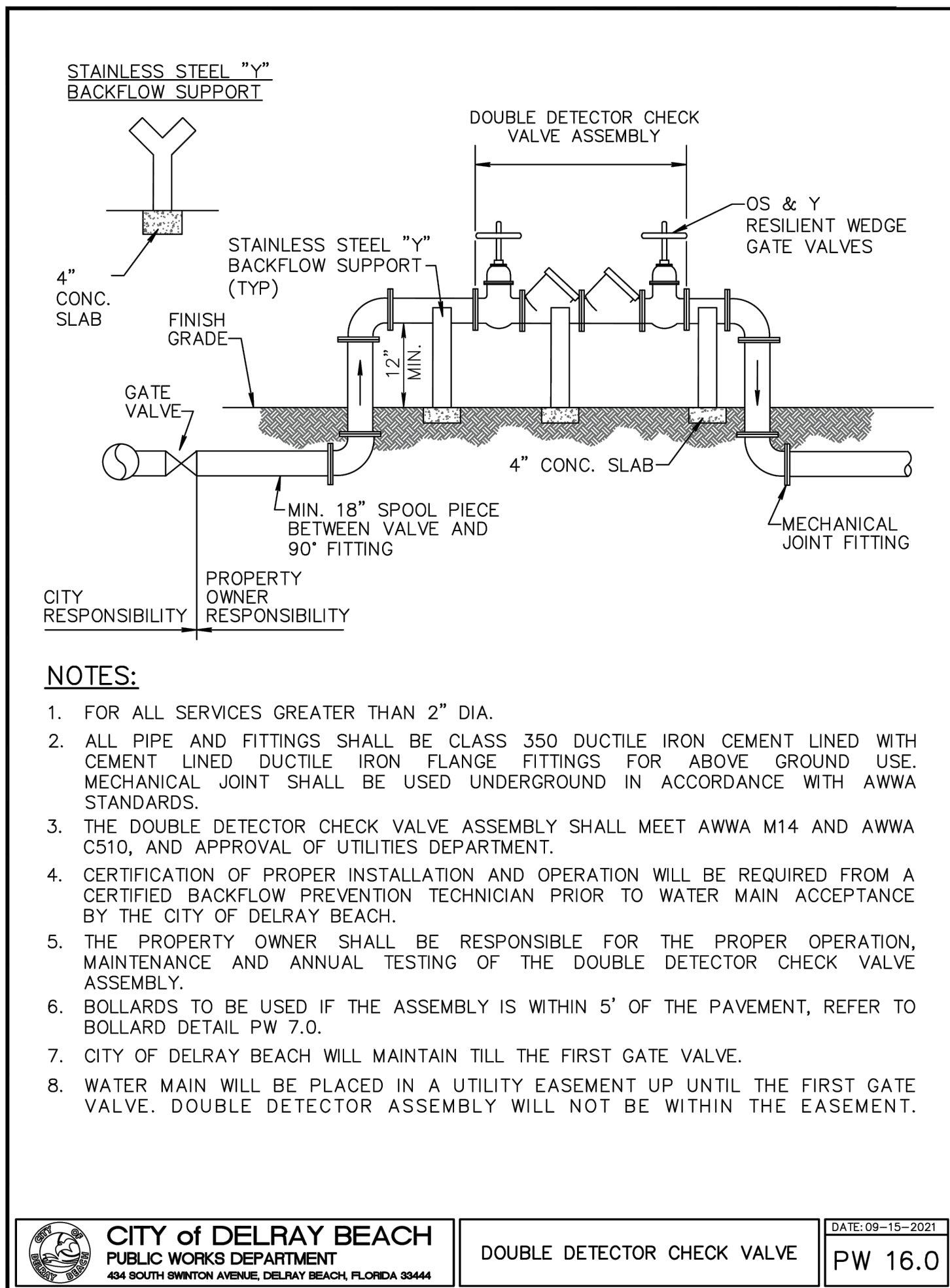
CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444
TYPICAL SAMPLE POINT
DATE: 09-15-2021
PW 10.0



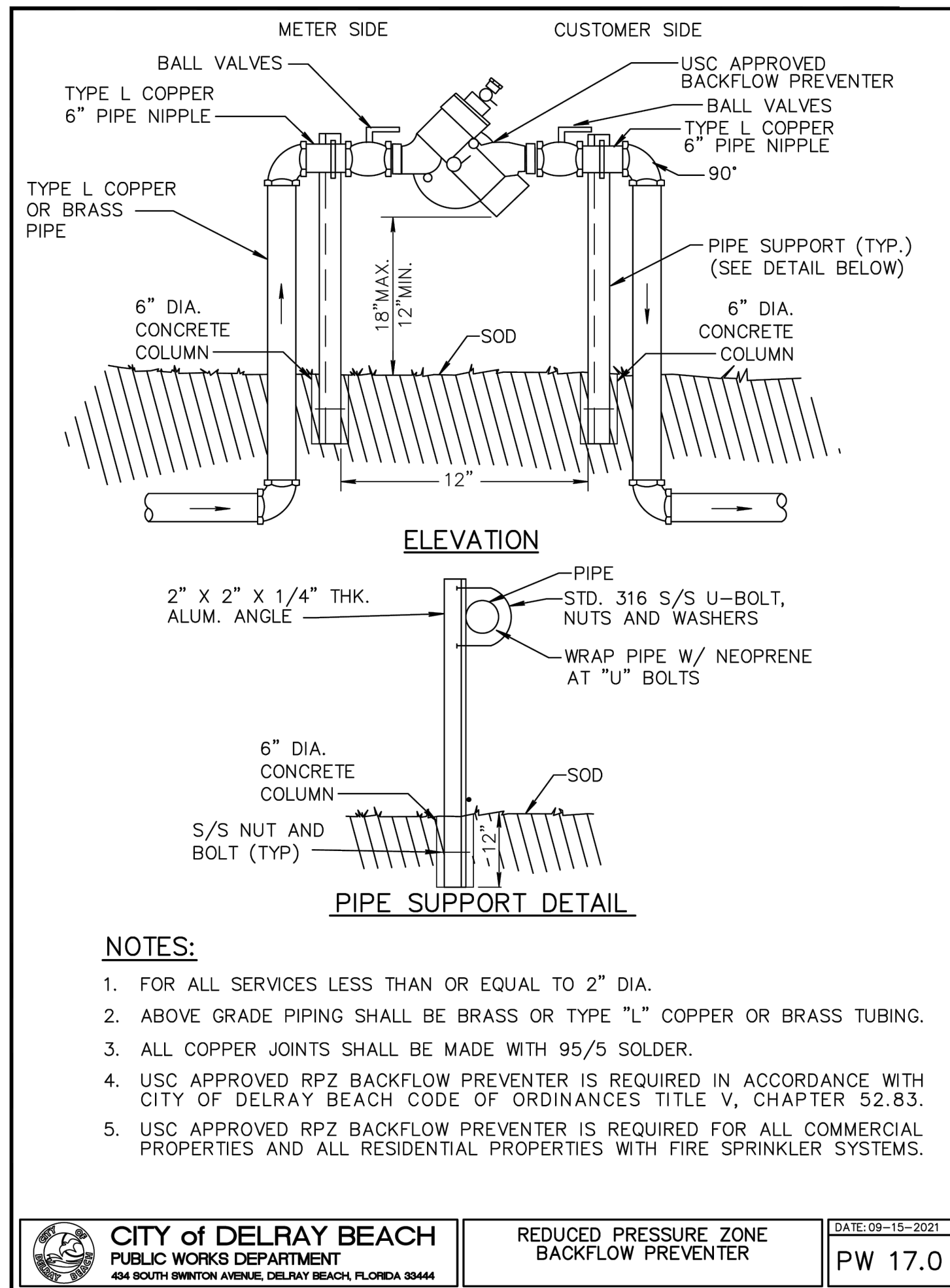
CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444
POTABLE WATER SERVICE SINGLE 1" METER INSTALLATION DETAIL
DATE: 01-25-2021
PW 12.0



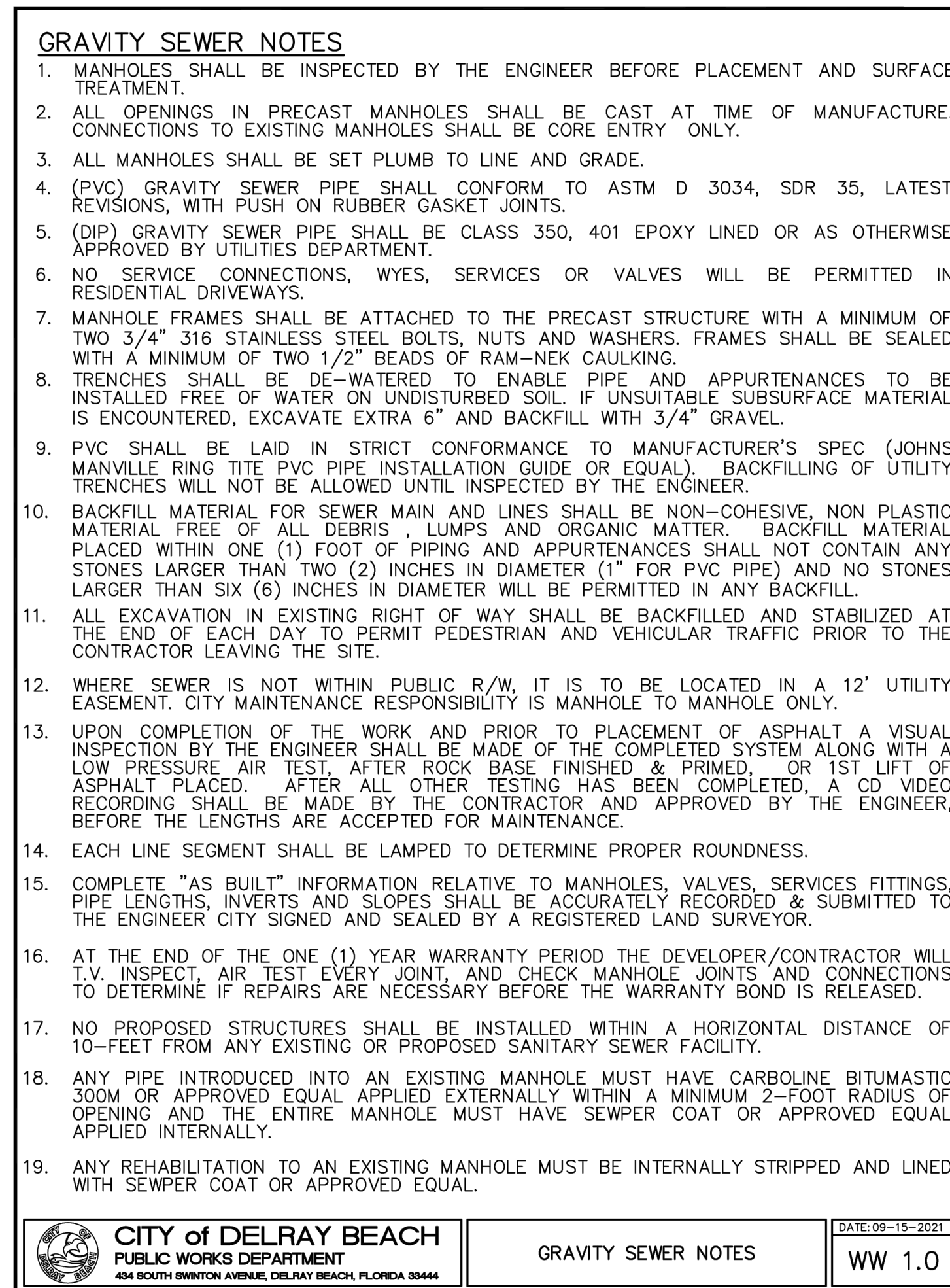
CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444
TYPICAL DOUBLE SERVICE CONNECTION
DATE: 09-15-2021
PW 15.0



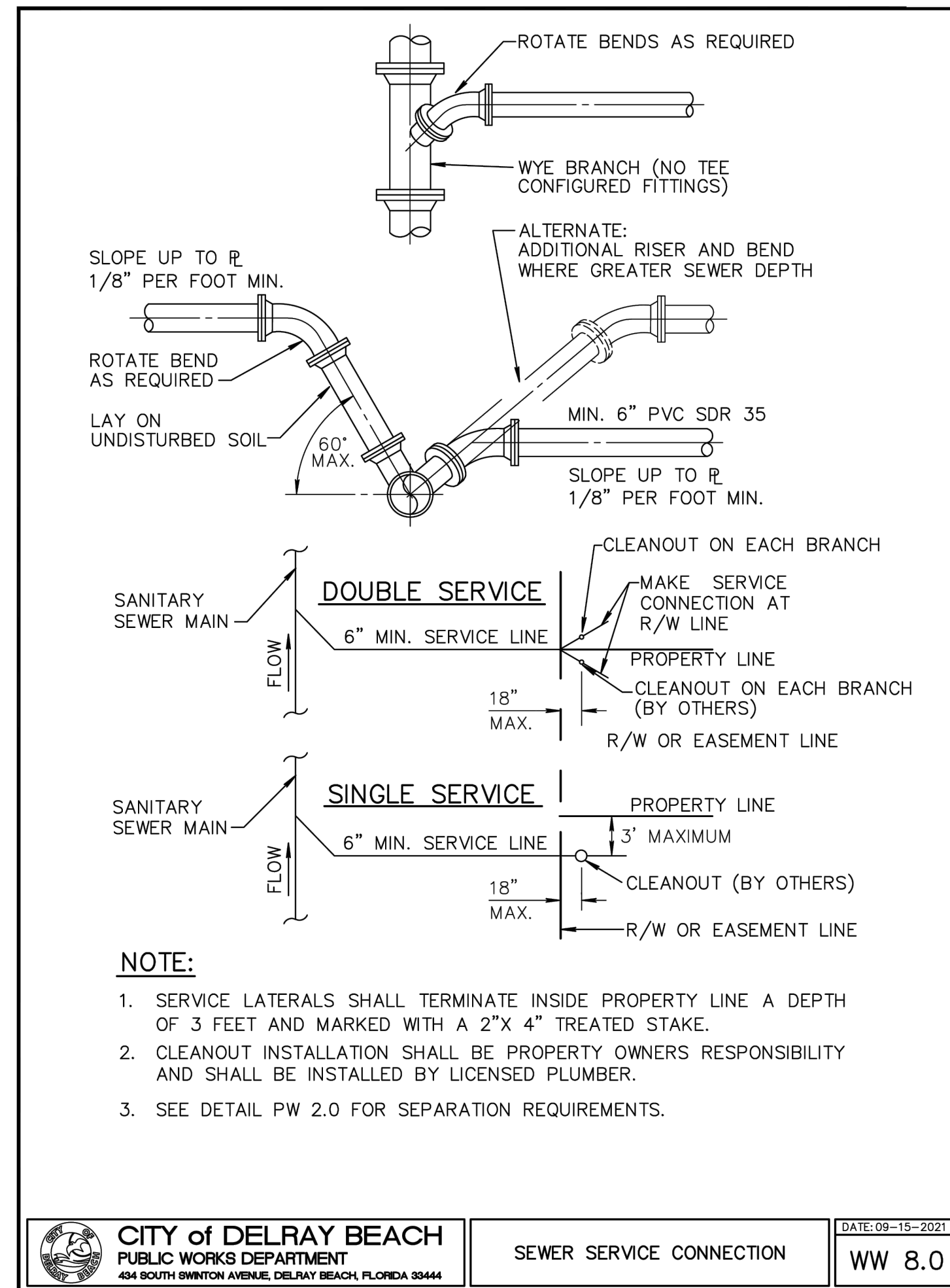
CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444
DOUBLE DETECTOR CHECK VALVE
DATE: 09-15-2021
PW 16.0



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444
REDUCED PRESSURE ZONE BACKFLOW PREVENTER
DATE: 09-15-2021
PW 17.0



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444
GRAVITY SEWER NOTES
DATE: 09-15-2021
WW 1.0



CITY of DELRAY BEACH
PUBLIC WORKS DEPARTMENT
434 SOUTH SWINTON AVENUE, DELRAY BEACH, FLORIDA 33444
SEWER SERVICE CONNECTION
DATE: 09-15-2021
WW 8.0

REV. PER CITY COMMENTS	06/27/22	AJG	BY
REV PER CITY COMMENTS	04/14/22	AJG	
REVISIONS			DATE
FILE NAME	B35E_ENG.dwg		

CAULFIELD & WHEELER, INC.
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE - SURVEYING
7900 GLADES ROAD - SUITE 100
BOCA RATON, FLORIDA 33434
PHONE (561) 392-1991 / FAX (561) 750-1452

724 LAKE AVENUE NORTH
WATER DISTRIBUTION &
SANITARY SEWER DETAILS
DELRAY BEACH, FLORIDA

DATE	12/15/21
DRAWN BY	AJG
F.B./PG.	---
SCALE	N/A

MATTHEW V. KAHN
PROFESSIONAL ENGINEER
LICENSE NO. 82227
STATE OF FLORIDA
- FOR THE FIRM -
DATE

JOB # 9638
SHT. NO.
WS-3
OF 14 SHEETS

LOT 1
CLARK RUNGE ADDITION
PB 25, PAGE 217
FF = 13.70



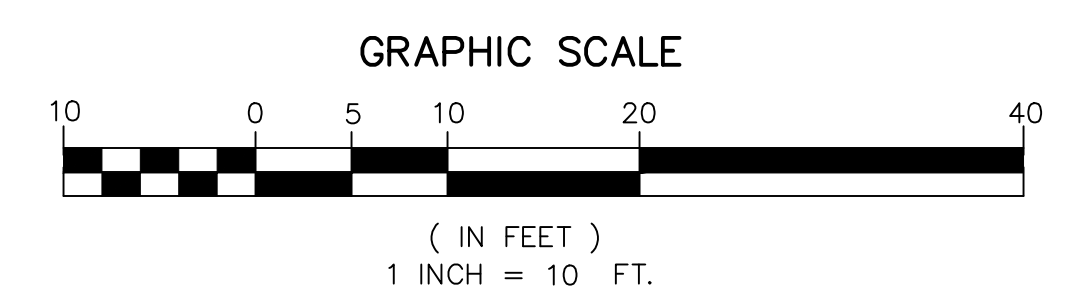
LOCATION MAP
NOT TO SCALE
LEGEND

- EX. PROPERTY/ROW LINE
- PROP. PROPERTY/ROW LINE
- PROPOSED DRAINAGE PIPE
- PROPOSED YARD DRAIN
- EXISTING GRADE
- PROPOSED GRADE
- MATCH EXISTING GRADE
- W --- PROPOSED WATER LINE
- W --- EXISTING WATER LINE
- S --- PROPOSED SANITARY SEWER LINE
- S --- EXISTING SANITARY SEWER LINE
- E --- PROPOSED ELECTRIC LINE
- OH --- EXISTING OVERHEAD LINE
- T --- PROPOSED TELEPHONE/CABLE LINE
- T --- EXISTING TELEPHONE/CABLE LINE
- G --- PROPOSED GAS LINE
- G --- EXISTING GAS LINE

- ▒ PROPOSED BUILDING
- ▒ PROPOSED DRIVEWAY
- ▒ PROPOSED WALKWAY

NOTE:
ELEVATION ARE SHOWN IN NAVD
CONVERSION NAVD+1.54 = NGVD

NOTE:
ANY TREES OR SHRUBS PLACED
WITHIN WATER, SEWER OR DRAINAGE
EASMENTS SHALL CONFORM TO THE
CITY OF DELRAY BEACH STANDARD
DETAILS: LD 1.1 & 1.2



REV.	PER	CITY COMMENTS	DATE	BY
06/27/22	AUG			
04/14/22	AUG			
		REVISIONS		
		FILE NAME: 9638_Eng.dwg		

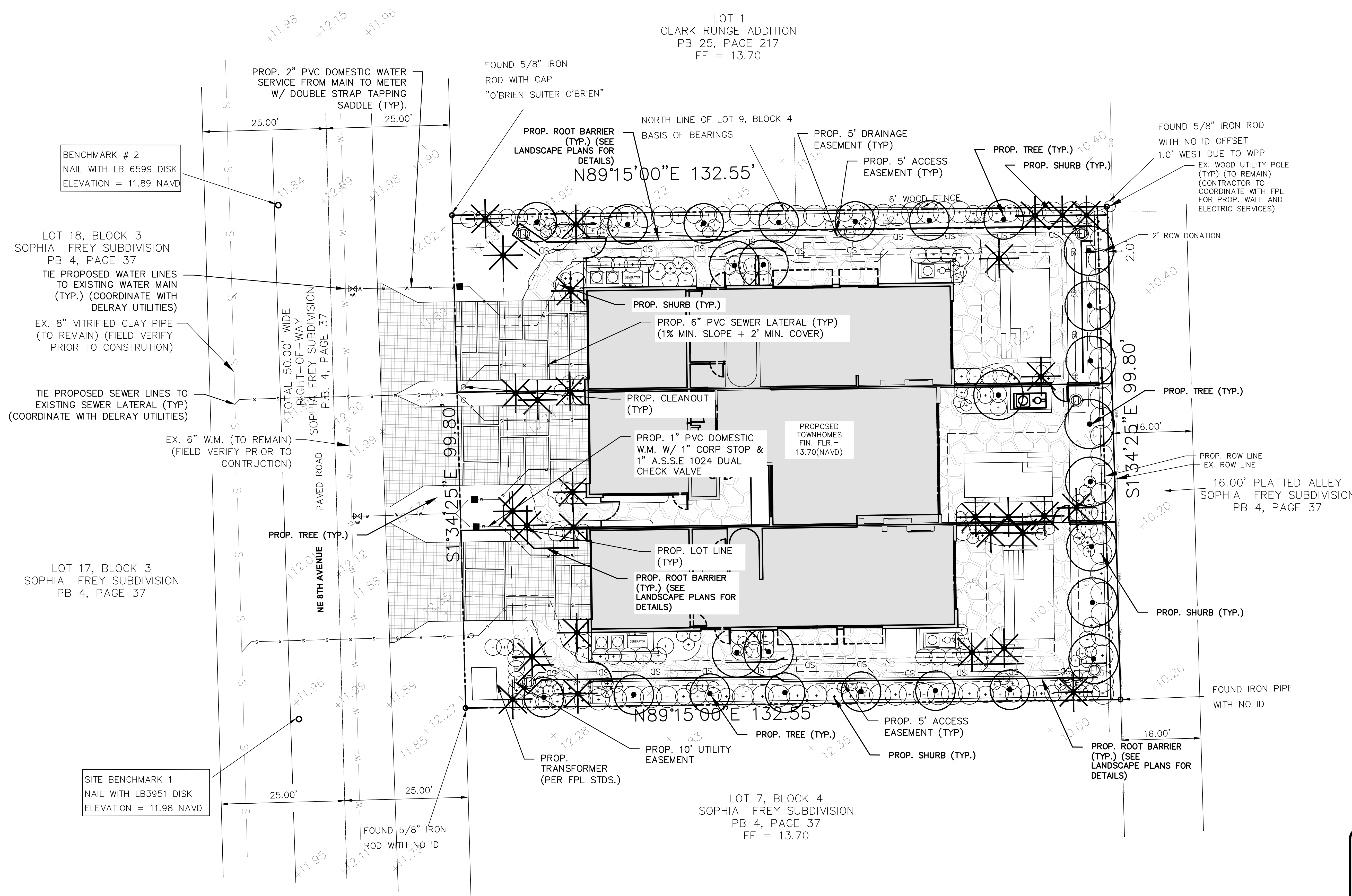
CAULFIELD & WHEELER, INC.
 CIVIL ENGINEERING - SURVEYING
 LANDSCAPE ARCHITECTURE - SUITE 100
 7900 GLADES ROAD - BOCA RATON, FLORIDA 33434
 PHONE: (561)-392-1981 / FAX: (561)-750-1452

917 NE 8TH AVENUE
 PROPOSED COMPOSITE
 UTILITY PLAN
 DELRAY BEACH, FLORIDA

DATE 12/15/21
 DRAWN BY AJG
 F.B./ PG. ----
 SCALE 1" = 10'

MATTHEW V. KAHN
 PROFESSIONAL ENGINEER
 LICENSE NO. 82227
 STATE OF FLORIDA
 - FOR THE FIRM -
 DATE

JOB # 9638
 SHT. NO.
WS-5
 OF 14 SHEETS



BENCHMARK # 2
NAIL WITH LB 6599 DISK
ELEVATION = 11.89 NAVD

LOT 18, BLOCK 3
SOPHIA FREY SUBDIVISION
PB 4, PAGE 37
TIE PROPOSED WATER LINES
TO EXISTING WATER MAIN
(TYP.) (COORDINATE WITH
DELRAY UTILITIES)
EX. 8" VITRIFIED CLAY PIPE
(TO REMAIN) (FIELD VERIFY
PRIOR TO CONSTRUCTION)

TIE PROPOSED SEWER LINES TO
EXISTING SEWER LATERAL (TYP.)
(COORDINATE WITH DELRAY UTILITIES)

LOT 17, BLOCK 3
SOPHIA FREY SUBDIVISION
PB 4, PAGE 37

SITE BENCHMARK 1
NAIL WITH LB3951 DISK
ELEVATION = 11.98 NAVD

LOT 7, BLOCK 4
SOPHIA FREY SUBDIVISION
PB 4, PAGE 37
FF = 13.70