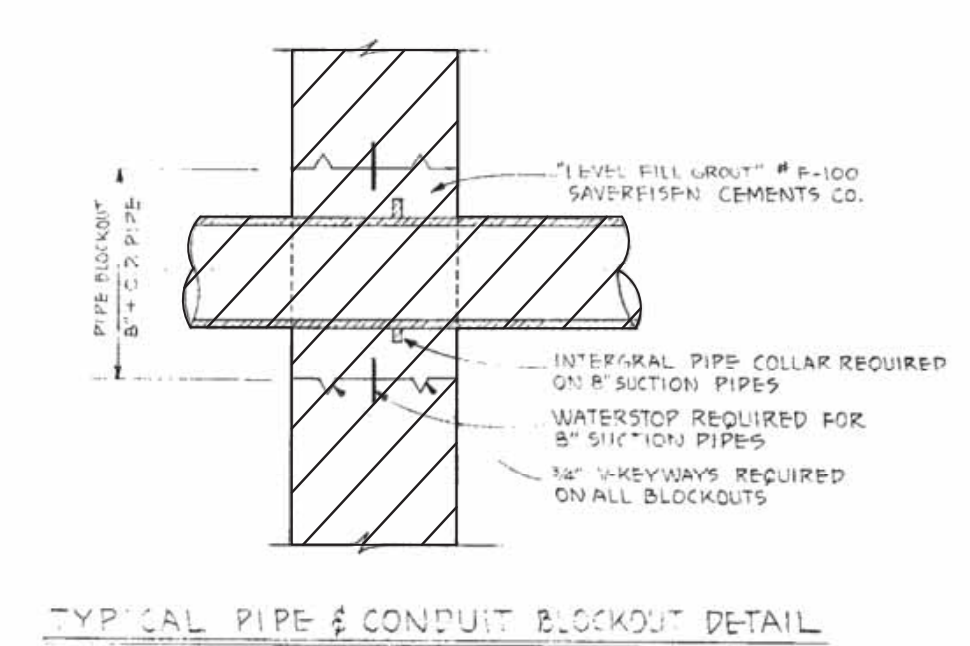
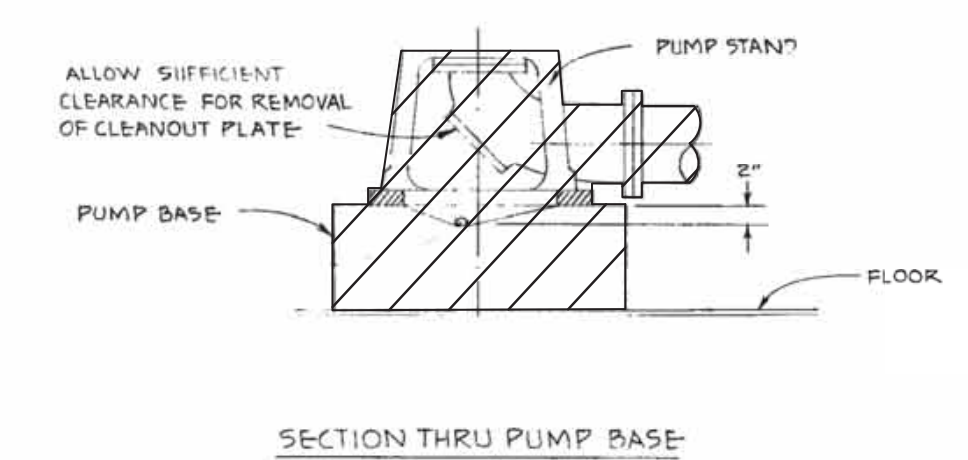
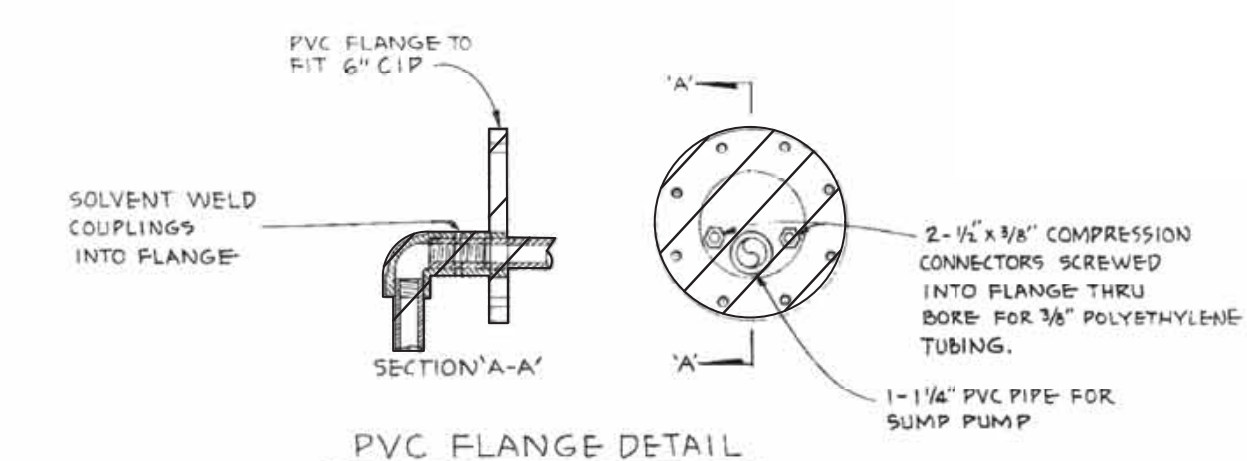
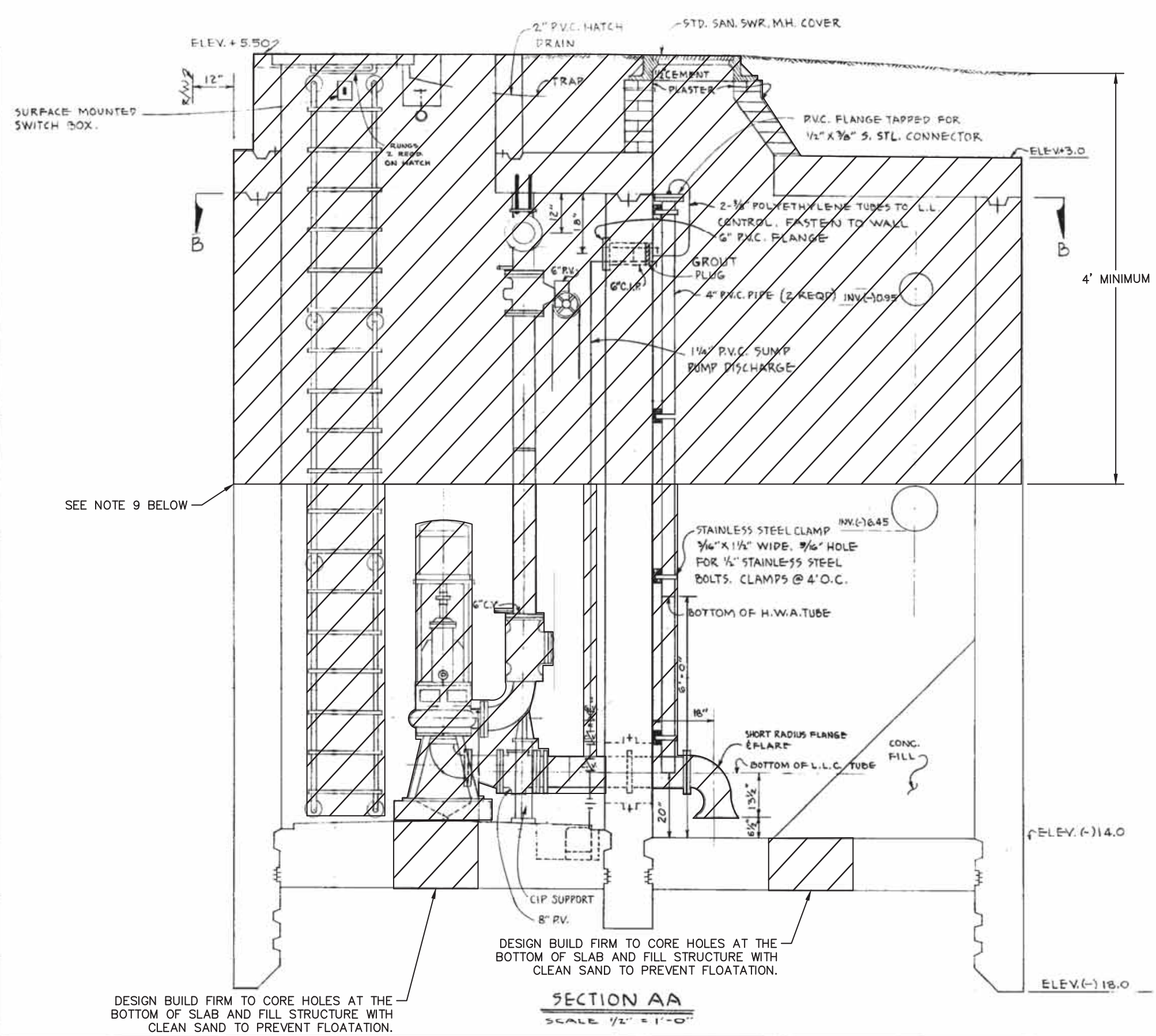
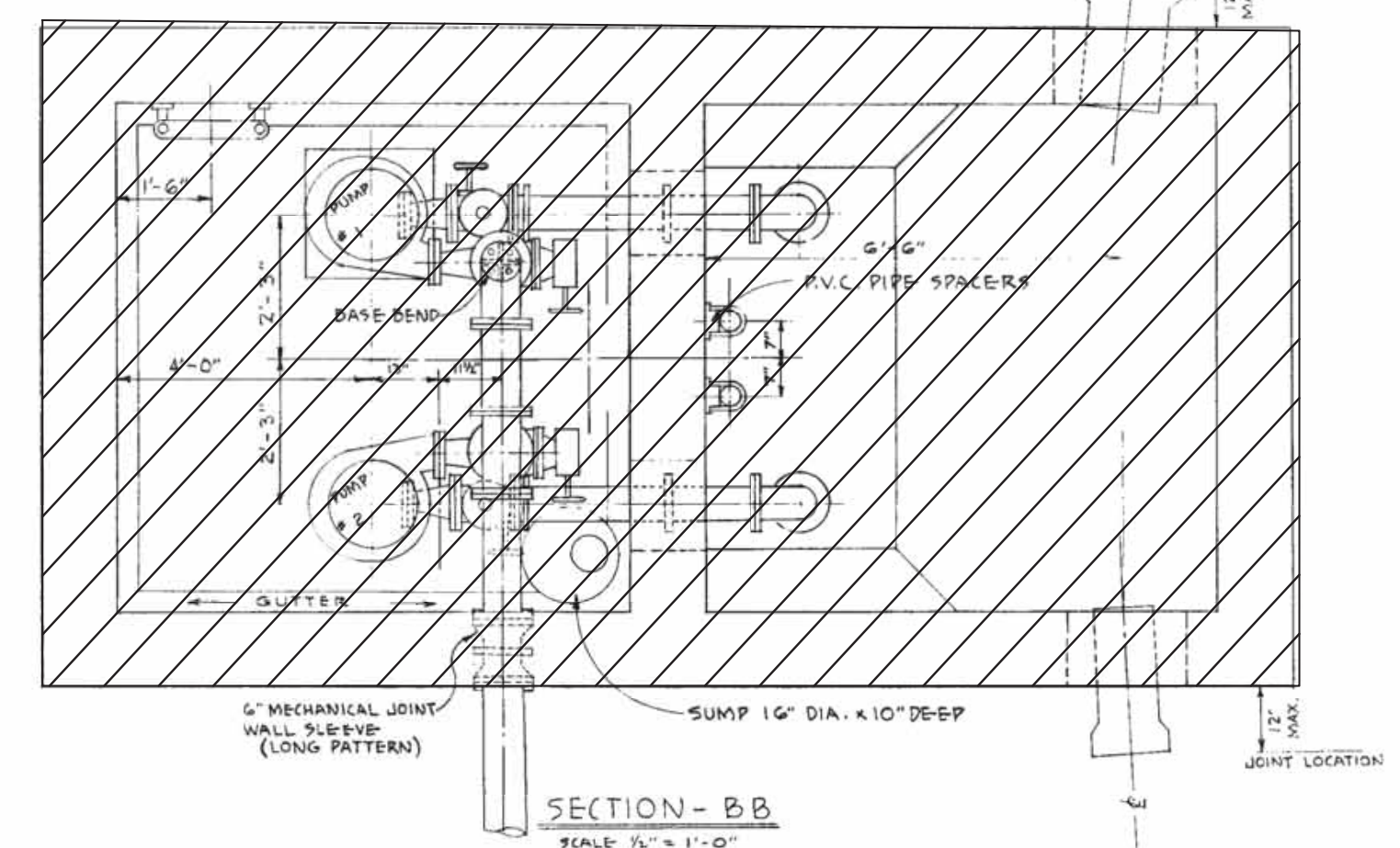
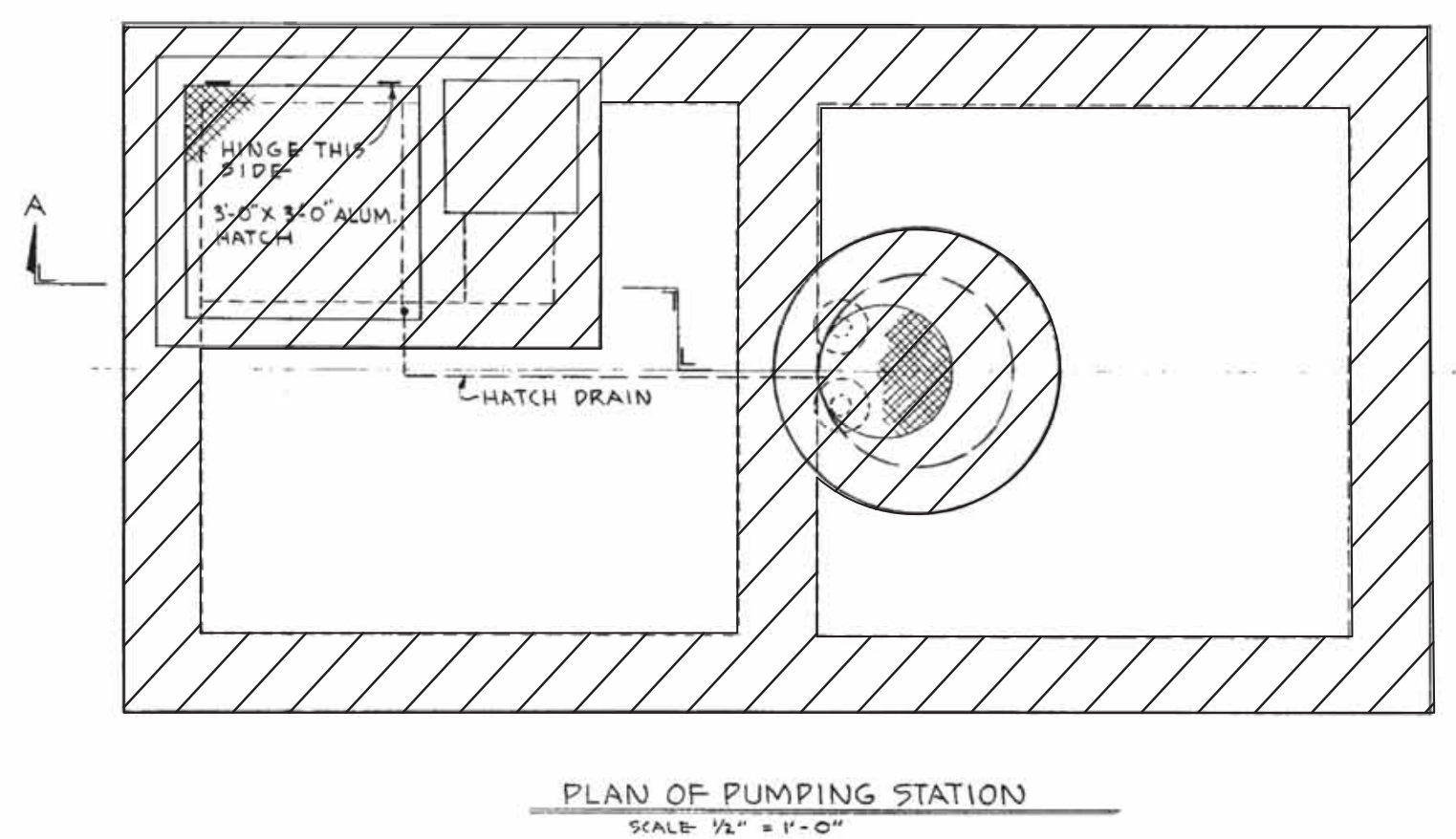


EXISTING PUMP STATION A-16 TO BE DEMOLISHED



- GENERAL NOTES**
- ELEVATIONS REFER TO M.S.L. + 0.00 (USCGS)
 - ALL PVC PIPE SHALL BE SCHEDULE 80 TYPE II WITH SOLVENT WELDED OR SCREWED JOINTS.
 - CONCRETE SHALL BE CLASS 'A' WITH AIR ENTRAINMENT.
 - ALL BRACKETS SHALL BE OF NON-FERROUS METAL OR PLASTIC WITH TYPE 316 STAINLESS STEEL FASTENERS.

- LEGEND**
- X - GATE VALVE (UNLESS SPECIFIED OTHERWISE)
 - Z - SWING CHECK VALVE
 - U - UNION
 - PV - PLUG VALVE
 - CV - CHECK VALVE

CITY OF FORT LAUDERDALE, FLORIDA
PROJECT 3129
SEWAGE PUMPING STATION
A-16
MECHANICAL

V/AS DRAWN BY	17 DEC 09
DATE	DATE
OFFICE OF CITY ENGINEER	A/S NOTED
SCALE	SCALE
NON-FIELD BOOK	2 OF 4 SHEET

REVISIONS

NO.	DATE	BY	CHK.	REMARKS

FILE NO. 4-65-32

LEGEND:
 TO BE DECOMMISSIONED/DEMOLISHED

- NOTES:**
- THIS PREVIOUS DESIGN PLAN IS INCLUDED FOR INFORMATIONAL PURPOSES. ALL EQUIPMENT IS NOT INSTALLED EXACTLY AS SHOWN. PLANS NOT TO SCALE.
 - ELEVATIONS PROVIDED ON THIS PREVIOUS DESIGN PLAN ARE ASSUMED TO REFERENCE THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).
 - FLOOD ZONE: AH.
 - BASE FLOOD ELEVATION (BFE): 6.0' NAVD 1988.
 - THE ITEMS DEPICTED FOR DEMOLITION ARE GENERAL ONLY. ALL ANCILLARY STRUCTURES, PIPING AND OTHER ASSOCIATED EQUIPMENT ARE TO BE INCLUDED IN THE DEMOLITION WORK.
 - AFTER DEMOLITION, ALL DEBRIS IS TO BE REMOVED AND LEGALLY DISPOSED BY THE DESIGN BUILD FIRM IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
 - AFTER DISPOSAL OF MATERIAL, THE DESIGN BUILD FIRM SHALL RE-GRADE THE AREA TO MATCH SURROUNDING GRADE AND DRAINAGE PATTERNS. DESIGN BUILD FIRM TO OBTAIN REQUIRED FILL NEEDED TO LEVEL AREAS WHERE STRUCTURES PREVIOUSLY EXISTED.
 - DESIGN BUILD FIRM SHALL BACKFILL, COMPACT AND RESTORE SURFACE CONDITIONS AT ALL AREAS OF PIPE/STRUCTURE DEMOLITION AND REMOVAL. COMPACT TO 98% ASTM D-1557, IN 12" LIFTS.
 - DESIGN BUILD FIRM SHALL REMOVE ALL PIPING, VALVES, AND APPURTENANCES FROM STRUCTURES TO FIRST BEND BELOW GRADE OR MINIMUM OF 4 FEET BELOW GRADE WITHIN 50 FEET OF THE LOCATION. ALL PIPING TO BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. DESIGN BUILD FIRM TO VERIFY WITH CITY THAT ANY SYSTEM TO BE REMOVED IS OUT OF SERVICE BEFORE DEMOLITION.



PREPARED BY:
Kimley»Horn
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 8201 PETERS ROAD, SUITE 2200, PLANTATION, FL 33324
 PHONE: 954-535-5100 FAX: 954-739-2247
 WWW.KIMLEY-HORN.COM REGISTRY NO. 696

DESIGN CRITERIA PACKAGE

PROJECT # 12412
 PUMP STATION A-16 UPGRADE
 WASTEWATER DESIGN CRITERIA PACKAGE
 DEMOLITION PLAN

SHEET NO.	OF
2	31
CAD FILE: 12412-MULTI-DEMO	
DRAWING FILE NO. 4-142-31	

NO.	DATE	BY	CHK'D	DESCRIPTION

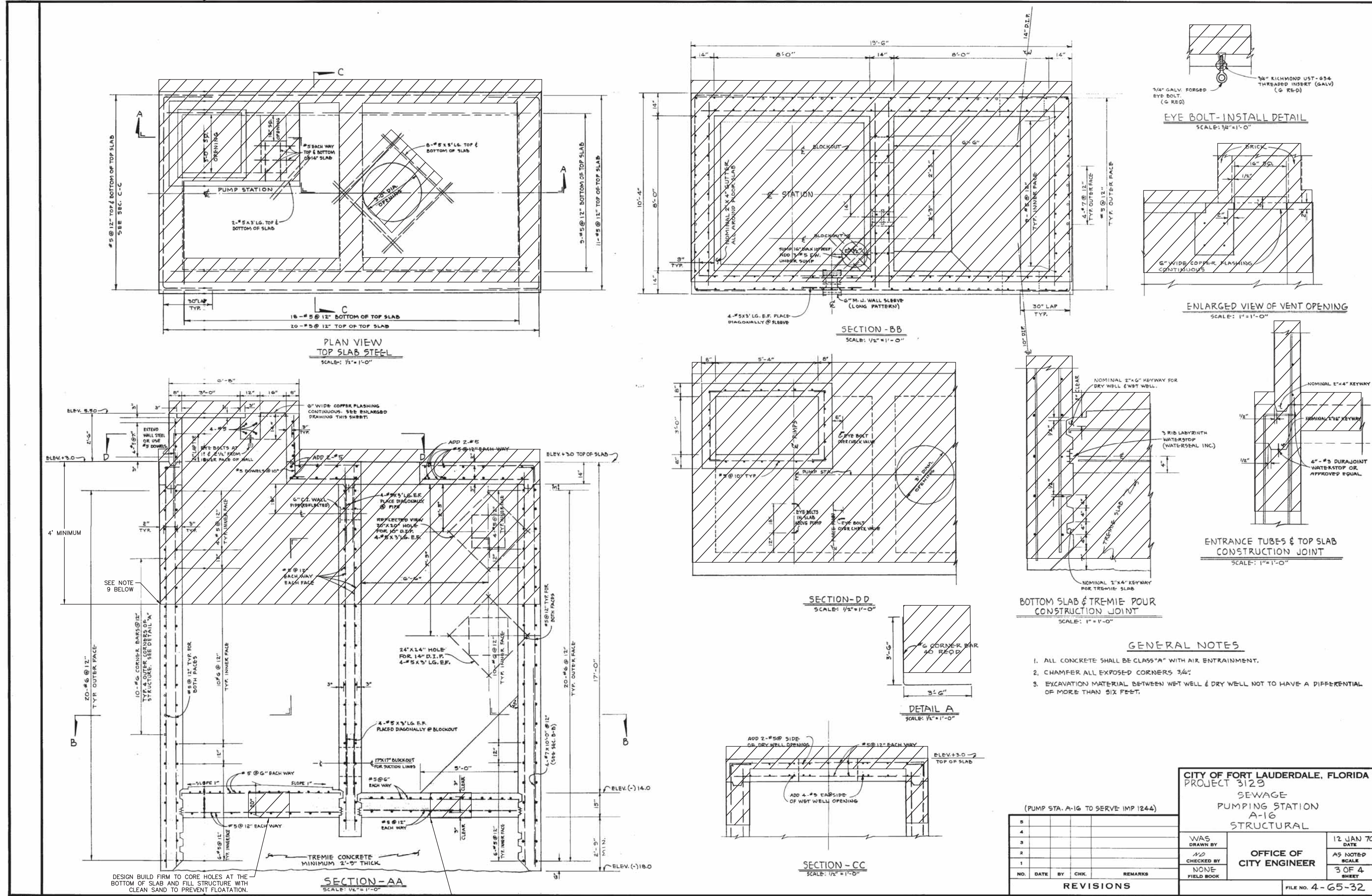
CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING & ARCHITECTURE
 100 North Andrews Avenue, Fort Lauderdale, Florida 33301

DATE:	MAR 2021
DESIGNED BY:	SCALE: AS NOTED
CHECKED BY:	GR
FIELD BOOK:	GR

ENGINEER:
 GARY R. RATAV, P.E.
 REG. NO. 46682
 DATE: 9/29/2021
 TEL: (954) 856-5100
 FAX:

Plotted By: Moring, Morissa Sheet: Set: PUMP STATION A-16 DESIGN CRITERIA PACKAGE Layout: 2-MULTI-DEMO September 28, 2021 04:12:46pm K:\VPL\ch\1043_jba\043184\01_cms 12464-416 ps a-16 rev location\CAD\plansheets\12412-MULTI-DEMO.dwg This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Release of and/or improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

EXISTING PUMP STATION A-16 TO BE DEMOLISHED



LEGEND:
 TO BE DECOMMISSIONED/DEMOLISHED

NOTES:
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 3. FLOOD ZONE: AH.
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 8. DESIGN BUILD FIRM SHALL BACKFILL, COMPACT AND RESTORE SURFACE CONDITIONS AT ALL AREAS OF PIPE/STRUCTURE DEMOLITION AND REMOVAL. COMPACT TO 98% ASTM D-1557, IN 12\"/>

CITY OF FORT LAUDERDALE, FLORIDA
 PROJECT 3123
 SEWAGE PUMP STATION A-16
 STRUCTURAL

WAS DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 NONE FIELD BOOK

12 JAN 20
 AS NOTED
 3 OF 4 SHEET

OFFICE OF CITY ENGINEER

FILE NO. 4-G5-32

NO.	DATE	BY	CHK.	REMARKS

ENGINEER: GARY R. RAY, P.E.
 REG. NO. 46682
 DATE: 9/29/2021

DRAWN BY: AL
 DESIGNED BY: GR
 CHECKED BY: GR
 FIELD BOOK:

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING & ARCHITECTURE
 100 North Andrews Avenue, Fort Lauderdale, Florida 33301

NO.	DATE	BY	CHKD	DESCRIPTION

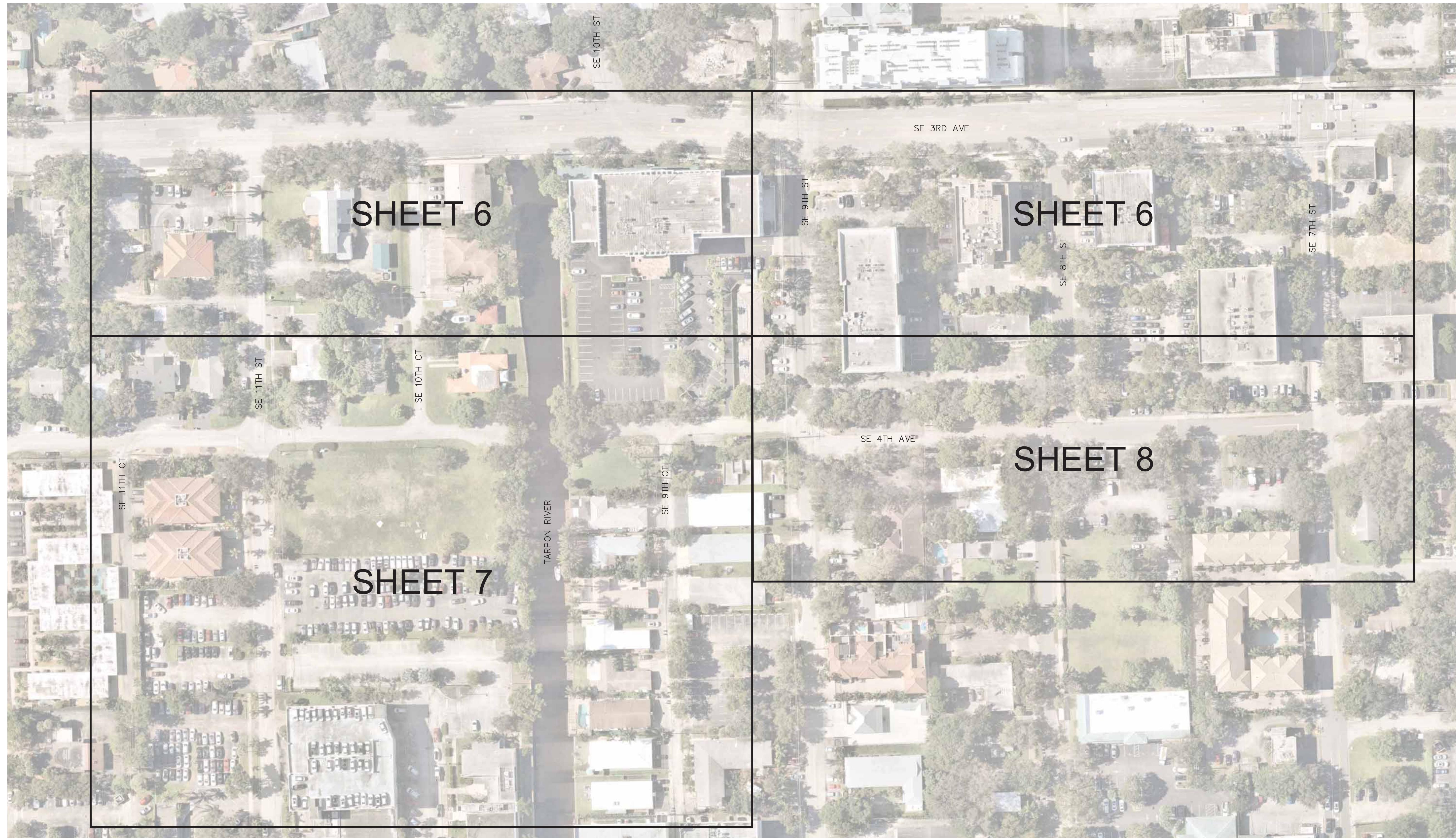
DESIGN CRITERIA PACKAGE
 PROJECT # 12412
 PUMP STATION A-16 UPGRADE
 WASTEWATER DESIGN CRITERIA PACKAGE
 DEMOLITION PLAN

SHEET NO. 3 OF 31
 GAD FILE: 12412-MULTI-DEMO
 DRAWING FILE NO. 4-142-31

PREPARED BY:
Kimley»Horn
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 PHONE: 954-535-5100 FAX: 954-739-2247
 WWW.KIMLEY-HORN.COM REGISTRY NO. 696



Plotted By: Moring, Morissa Sheet: Sct.PUMP STATION A-16 DESIGN CRITERIA PACKAGE Layout:5 KEY MAP September 28, 2021 04:13:13pm K:\1\civil\043 jobs\043184401.cadna 12412-416 ps a-16 rev location\CAD\layouts\12412-KEY-MAP.dwg
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DESIGN CRITERIA PACKAGE

**PROJECT # 12412
 PUMP STATION A-16 UPGRADE
 WASTEWATER DESIGN CRITERIA PACKAGE
 KEY MAP**

SHEET NO.	OF
5	31
CAD FILE: 12412-KEY-MAP	
DRAWING FILE NO. 4-142-31	

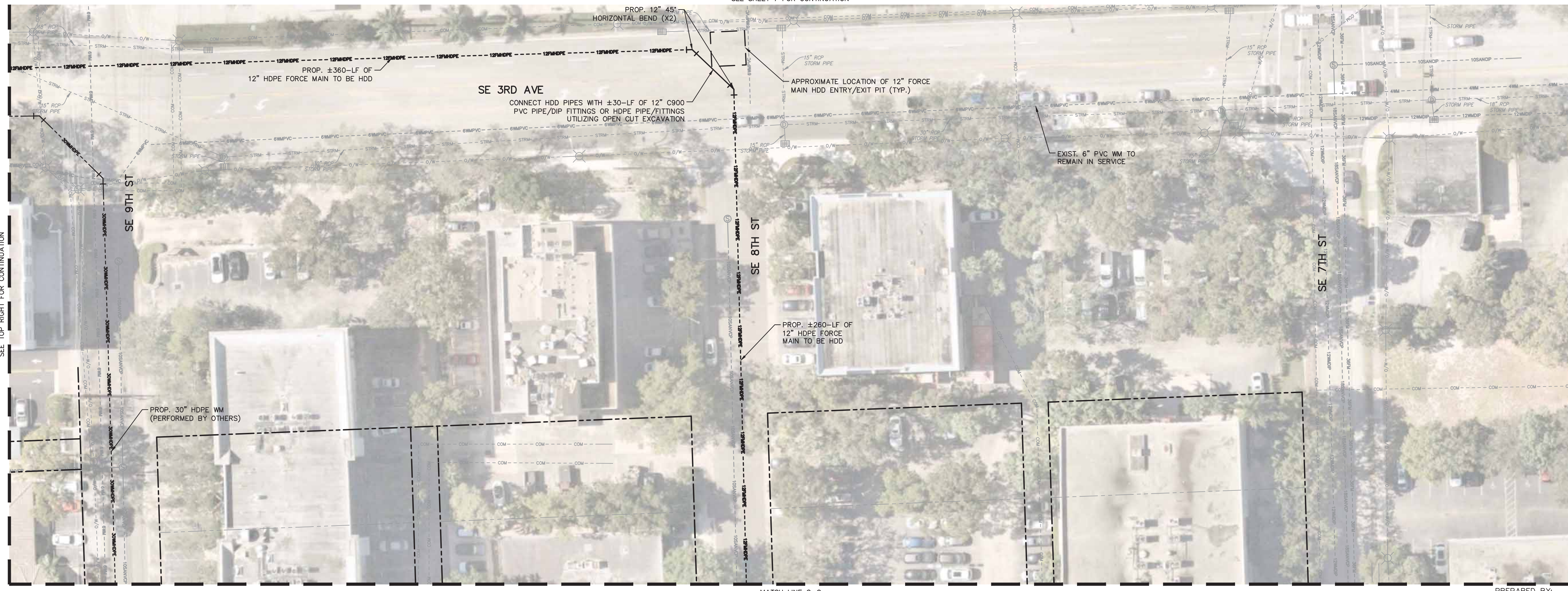
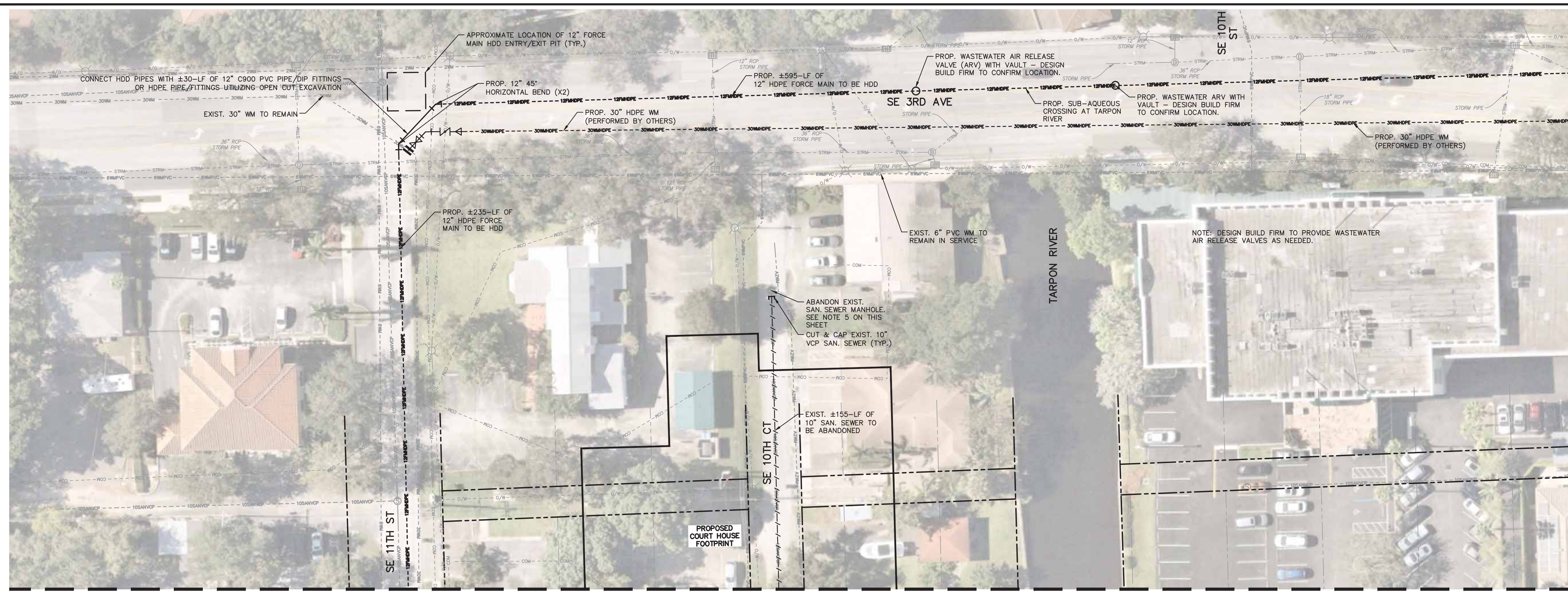
REVISIONS		DESCRIPTION
NO.	DATE	BY (CHKD)

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING & ARCHITECTURE
 100 North Andrews Avenue, Fort Lauderdale, Florida 33301

DRAWN BY:	AL	DATE:	MAR 2021
DESIGNED BY:	GR	SCALE:	AS NOTED
CHECKED BY:	GR	FIELD BOOK:	

ENGINEER:
 GARY R. RAY, P.E.
 REG. No. 46682
 DATE: 9/29/2021
 TEL: (954) 856-5100
 FAX:

Plotted By: Moring, Morissa Sheet: Sct.PUMP STATION A-16 DESIGN CRITERIA PACKAGE Layout:6 CONCEPTUAL UTILITY PLAN September 28, 2021 04:13:27pm K:\VTL\civil\043 jobs\043184401 cno 12484-416 ps 0-16 rev location\CAD\plan sheets\12412-MULTI-PLAN-add alternate.dwg
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SEE BOTTOM LEFT FOR CONTINUATION

SEE TOP RIGHT FOR CONTINUATION

SEE BOTTOM LEFT FOR CONTINUATION

SEE TOP RIGHT FOR CONTINUATION

PREPARED BY:

LEGEND

- PROPERTY LINE/ROW
- 8" SANITARY SEWER
- 8" VCP SANITARY SEWER
- 10" VCP SANITARY SEWER
- 15" VCP SANITARY SEWER
- 18" VCP SANITARY SEWER
- 10" DIP SANITARY SEWER
- 10" SAN. SEWER TO BE ABANDONED
- FM EXIST. FORCE MAIN
- 6" EXIST. WATER MAIN
- 2" EXIST. WATER MAIN
- 4" EXIST. WATER MAIN
- 6" EXIST. WATER MAIN
- 8" PVC EXIST. WATER MAIN
- 12" DIP EXIST. WATER MAIN
- 30" EXIST. WATER MAIN
- 12" PVC EXIST. WATER MAIN
- 6" ABANDONED WATER MAIN
- 2" ABANDONED WATER MAIN
- BCTD EXIST. BCTD
- O/W EXIST. OVERHEAD WIRE
- COM EXIST. COMMUNICATION LINE
- UNKN EXIST. UNKNOWN UTILITY
- ABAN EXIST. ABANDONED UTILITY
- STRM EXIST. STORMWATER PIPE
- STRM EXIST. STORMWATER STRUCTURE
- 12" HDPE PROP. 12" HDPE FORCE MAIN
- SM EXIST. SANITARY SEWER MANHOLE
- SM PROP. SANITARY SEWER MANHOLE
- UT PROP. UTILITY CAP
- B PROP. BENDS
- T PROP. TAPPING SLEEVE AND VALVE
- V PROP. WASTEWATER ARV WITH VAULT
- X EXIST. PIPE TO BE ABANDONED, CUT & CAPPED, NO GROUT



NOTE:

- ELEVATIONS INDICATED HEREON ARE IN FEET AND DECIMALS, RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988).
- THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR ADDRESSING THIS ISSUE AND OBTAINING ALL NECESSARY PERMITS.
- FLOOD ZONE: AH
- BASE FLOOD ELEVATION (BFE): 6.0' NAVD 1988
- ALL SANITARY MANHOLES TO BE FILLED WITH SAND AND ABANDONED IN PLACE.

- DESIGN BUILD FIRM SHALL CONTACT CITY OPERATION STAFF ONE WEEK IN ADVANCE PRIOR TO WATER AND FORCE MAIN CONNECTIONS TO ENSURE ALL VALVES ARE WORKING. DESIGN BUILD FIRM TO ADVISE CITY OPERATION STAFF OF PROPOSED CONNECTION PROCEDURE.
- DESIGN BUILD FIRM IS RESPONSIBLE FOR TREE REMOVAL PERMITS.
- DESIGN BUILD FIRM IS RESPONSIBLE TO PROVIDE SURVEY/SKETCH AND LEGAL DRAWINGS AS NEEDED TO ASSIST THE CITY WITH OBTAINING ALL TEMPORARY AND/OR PERMANENT EASEMENTS FOR THE INSTALLATION OF ALL PUMP STATION AND UTILITY WORK NOT IN THE PUBLIC RIGHT-OF-WAY.

Kimley»Horn

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DESIGN CRITERIA PACKAGE

PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
CONCEPTUAL UTILITY PLAN

SHEET NO.	OF
6	31
CAD FILE: 12412-MULTI-PLAN-ADD	
DRAWING FILE NO. ALTERNATE	
4-142-31	

NO.	DATE	BY	CHKD	DESCRIPTION

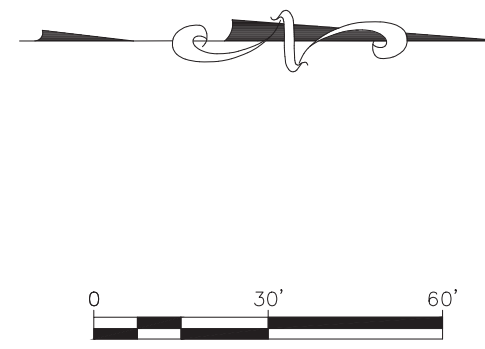
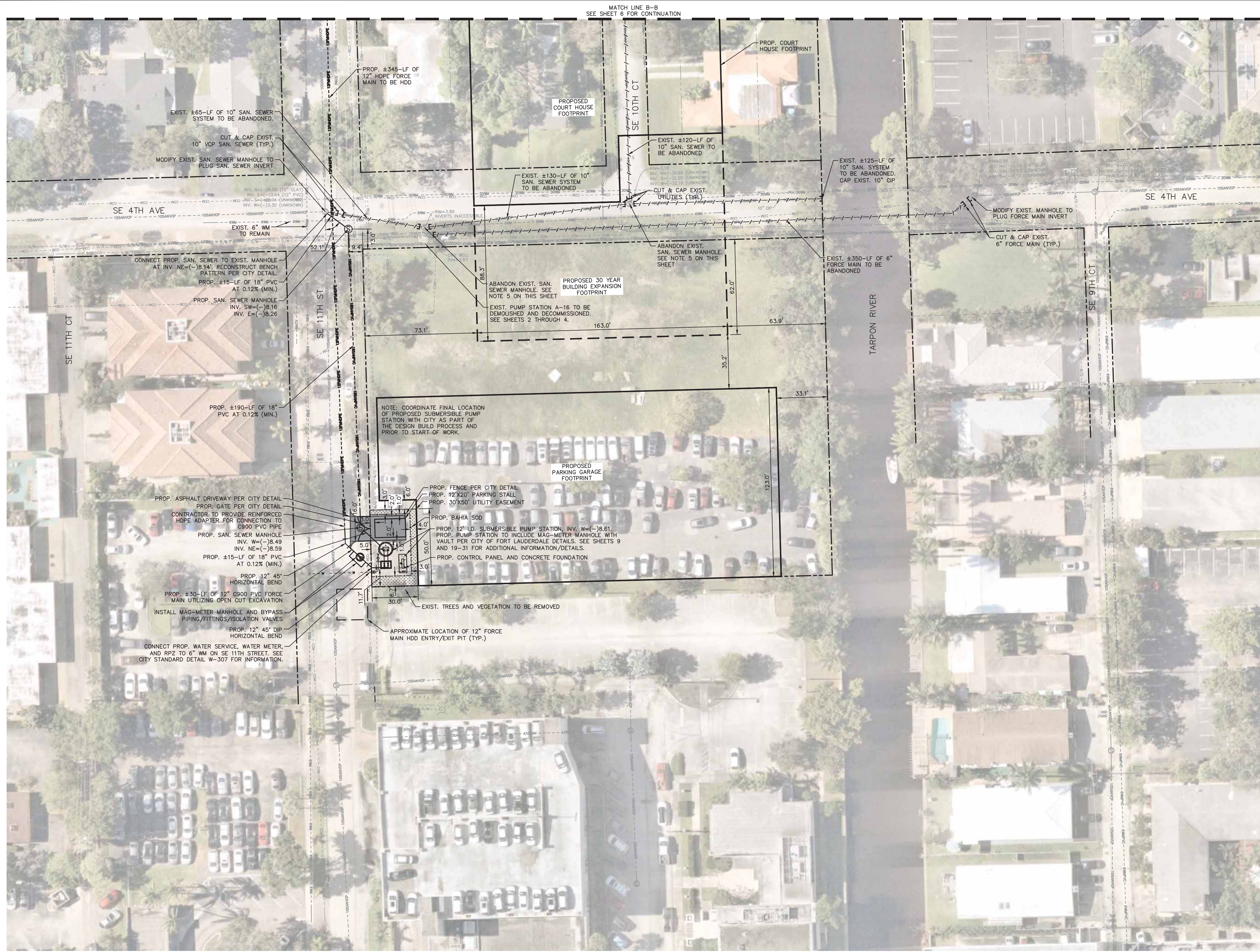
CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE

100 North Andrews Avenue, Fort Lauderdale, Florida 33301

ENGINEER:	GARY R. RATAJ, P.E.
REG. NO.:	46682
DATE:	9/29/2021
DRAWN BY:	AL
DATE:	MAR 2021
DESIGNED BY:	GR
AS NOTED	
CHECKED BY:	GR
FIELD BOOK:	

TEL: (954) 535-5100
 FAX:

Plotted By: Moring, Morissa Sheet: Sct-PUMP STATION A-16 DESIGN CRITERIA PACKAGE Layout: 7 CONCEPTUAL UTILITY PLAN September 28, 2021 04:13:37pm K:\VTL\civil\043 jobs\043184401 ceno 12464-416 ps 0-16 location\CAD\plan sheets\12412-MULTI-PLAN.dwg
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LEGEND

---	PROPERTY LINE/ROW
---	EXIST. 8" SANITARY SEWER
---	EXIST. 8" VCP SANITARY SEWER
---	EXIST. 10" VCP SANITARY SEWER
---	EXIST. 15" VCP SANITARY SEWER
---	EXIST. 18" VCP SANITARY SEWER
---	EXIST. 10" CP SANITARY SEWER
---	ABANDONED 10" SANITARY SEWER
---	EXIST. FORCE MAIN
---	EXIST. 6" FORCE MAIN
---	EXIST. WATER MAIN
---	EXIST. 2" WATER MAIN
---	EXIST. 4" WATER MAIN
---	EXIST. 6" WATER MAIN
---	EXIST. 8" PVC WATER MAIN
---	EXIST. 12" DIP WATER MAIN
---	EXIST. 30" WATER MAIN
---	EXIST. 12" PVC WATER MAIN
---	ABANDONED 6" WATER MAIN
---	ABANDONED 2" WATER MAIN
---	ABANDONED WATER MAIN
---	EXIST. BCTED
---	EXIST. OVERHEAD WIRE
---	EXIST. COMMUNICATION LINE
---	EXIST. UNKNOWN UTILITY
---	EXIST. ABANDONED UTILITY
---	EXIST. STORMWATER PIPE
---	EXIST. STORMWATER STRUCTURE
---	PROP. 12" HDPE FORCE MAIN
---	EXIST. SANITARY SEWER MANHOLE
---	PROP. SANITARY SEWER MANHOLE
---	PROP. UTILITY CAP
---	PROP. BENDS
---	PROP. TAPPING SLEEVE AND VALVE
---	PROP. WASTEWATER ARRY WITH VAULT
---	EXIST. PIPE TO BE ABANDONED, CUT & CAPPED, NO GROUT

- NOTE:**
- ELEVATIONS INDICATED HEREON ARE IN FEET AND DECIMALS, RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988).
 - THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR ADDRESSING THIS ISSUE AND OBTAINING ALL NECESSARY PERMITS.
 - FLOOD ZONE: AH
 - BASE FLOOD ELEVATION (BFE): 6.0' NAVD 1988
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 - DESIGN BUILD FIRM SHALL CONTACT CITY OPERATION STAFF ONE WEEK IN ADVANCE PRIOR TO WATER AND FORCE MAIN CONNECTIONS TO ENSURE ALL VALVES ARE WORKING. DESIGN BUILD FIRM TO ADVISE CITY OPERATION STAFF OF PROPOSED CONNECTION PROCEDURE.
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 PHONE: 954-535-5100 FAX: 954-739-2247
 WWW.KIMLEY-HORN.COM REGISTRY No. 696

DESIGN CRITERIA PACKAGE

PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
CONCEPTUAL UTILITY PLAN

SHEET NO.	OF
7	31
CAD FILE: 12412-MULTI-PLAN	
DRAWING FILE NO. 4-142-31	

NO.	DATE	BY	CHKD	DESCRIPTION

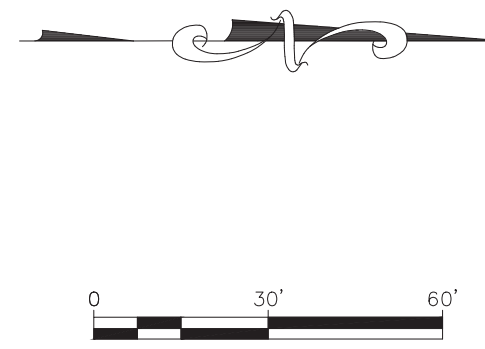
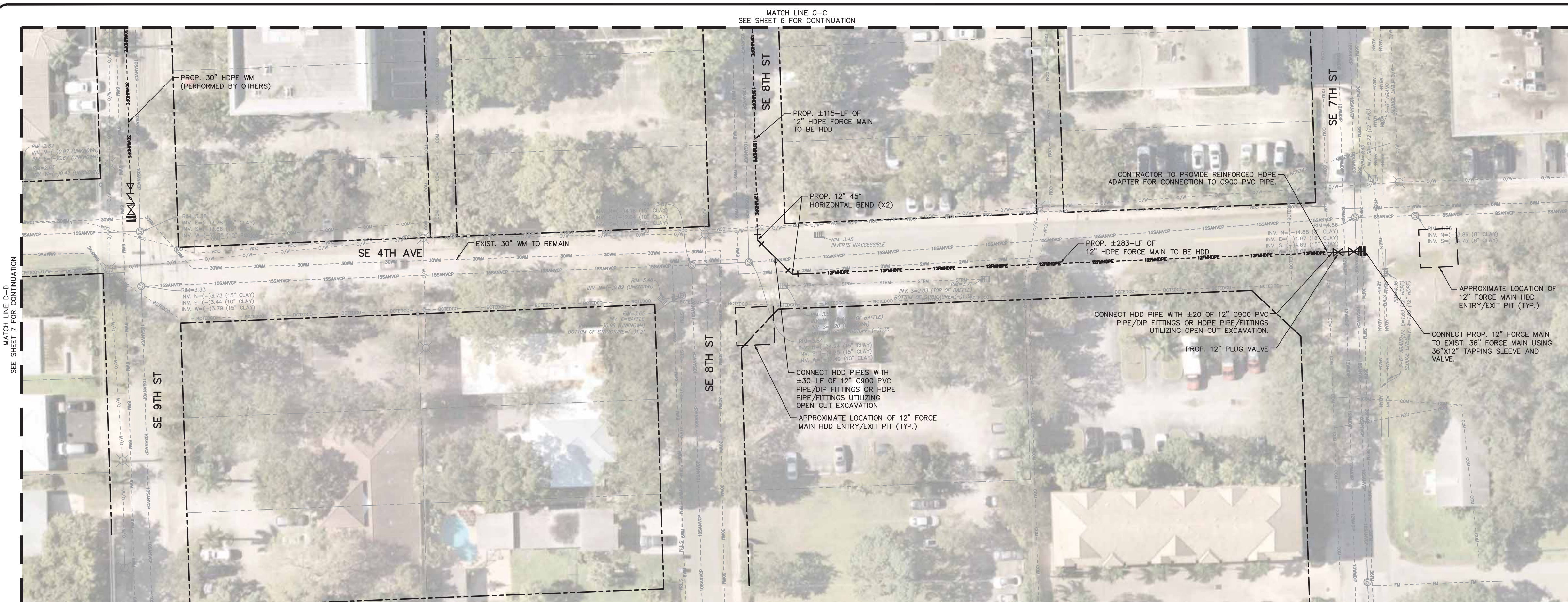
CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
 100 North Andrews Avenue, Fort Lauderdale, Florida 33301

ENGINEER: GARY R. RAY, P.E.
 REG. NO. 46682
 DATE: 9/29/2021

DESIGNED BY: SCALE: AS NOTED
 CHECKED BY: GR

FIELD BOOK: 33301
 TEL: (954) 855-5100
 FAX:

Plotted By: Morissa Sheet: Sct-PUMP STATION A-16 DESIGN CRITERIA PACKAGE Layout: 8 CONCEPTUAL UTILITY PLAN September 28, 2021 04:13:47pm K:\VTL\civil\043 jobs\04-3184401 cno 12484-416 ps 0-16 rev location\CAD\plansheets\12412-MULTI-PLAN-add alternate.dwg
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LEGEND

- SEAN --- EXIST. 8" SANITARY SEWER
- 8SANVCP --- EXIST. 8" VCP SANITARY SEWER
- 10SANVCP --- EXIST. 10" VCP SANITARY SEWER
- 15SANVCP --- EXIST. 15" VCP SANITARY SEWER
- 18SANVCP --- EXIST. 18" VCP SANITARY SEWER
- 10SANVCP --- EXIST. 10" VCP SANITARY SEWER
- A10SAN --- ABANDONED 10" SANITARY SEWER
- FM --- EXIST. FORCE MAIN
- 6FM --- EXIST. 6" FORCE MAIN
- WM --- EXIST. WATER MAIN
- 2WM --- EXIST. 2" WATER MAIN
- 4WM --- EXIST. 4" WATER MAIN
- 6WM --- EXIST. 6" WATER MAIN
- 8WMPVC --- EXIST. 8" PVC WATER MAIN
- 12WMPVC --- EXIST. 12" DIP WATER MAIN
- 30WM --- EXIST. 30" WATER MAIN
- 12WMPVC --- EXIST. 12" PVC WATER MAIN
- A6WM --- ABANDONED 6" WATER MAIN
- A2WM --- ABANDONED 2" WATER MAIN
- ABAN --- ABANDONED WATER MAIN
- BCTED --- EXIST. BCTED
- O/W --- EXIST. OVERHEAD WIRE
- COM --- EXIST. COMMUNICATION LINE
- UNKN --- EXIST. UNKNOWN UTILITY
- ABAN --- EXIST. ABANDONED UTILITY
- STW --- EXIST. STORMWATER PIPE
- STW --- EXIST. STORMWATER STRUCTURE
- 12WHDPE --- PROP. 12" HDPE FORCE MAIN
- SM --- EXIST. SANITARY SEWER MANHOLE
- PM --- PROP. SANITARY SEWER MANHOLE
- UC --- PROP. UTILITY CAP
- B --- PROP. BENDS
- T --- PROP. TAPPING SLEEVE AND VALVE
- W --- PROP. WASTEWATER ARRY WITH VAULT
- X --- EXIST. PIPE TO BE ABANDONED, CUT & CAPPED, NO GROUT

ENGINEER: GARY R. RAY, P.E.
 REG. NO: 46682
 DATE: 9/29/2021
 TEL: (954) 858-5100
 FAX:

DRAWN BY: AL
 DATE: MAR 2021
 DESIGNED BY: GR
 AS NOTED
 CHECKED BY: GR
 FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
 100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS		DESCRIPTION
NO.	DATE	BY (CHK'D)

PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
CONCEPTUAL UTILITY PLAN

SHEET NO. **8** OF **31**
 CAD FILE: 12412-MULTI-PLAN-ADD
 ALTERNATE
 DRAWING FILE NO.
 4-142-31



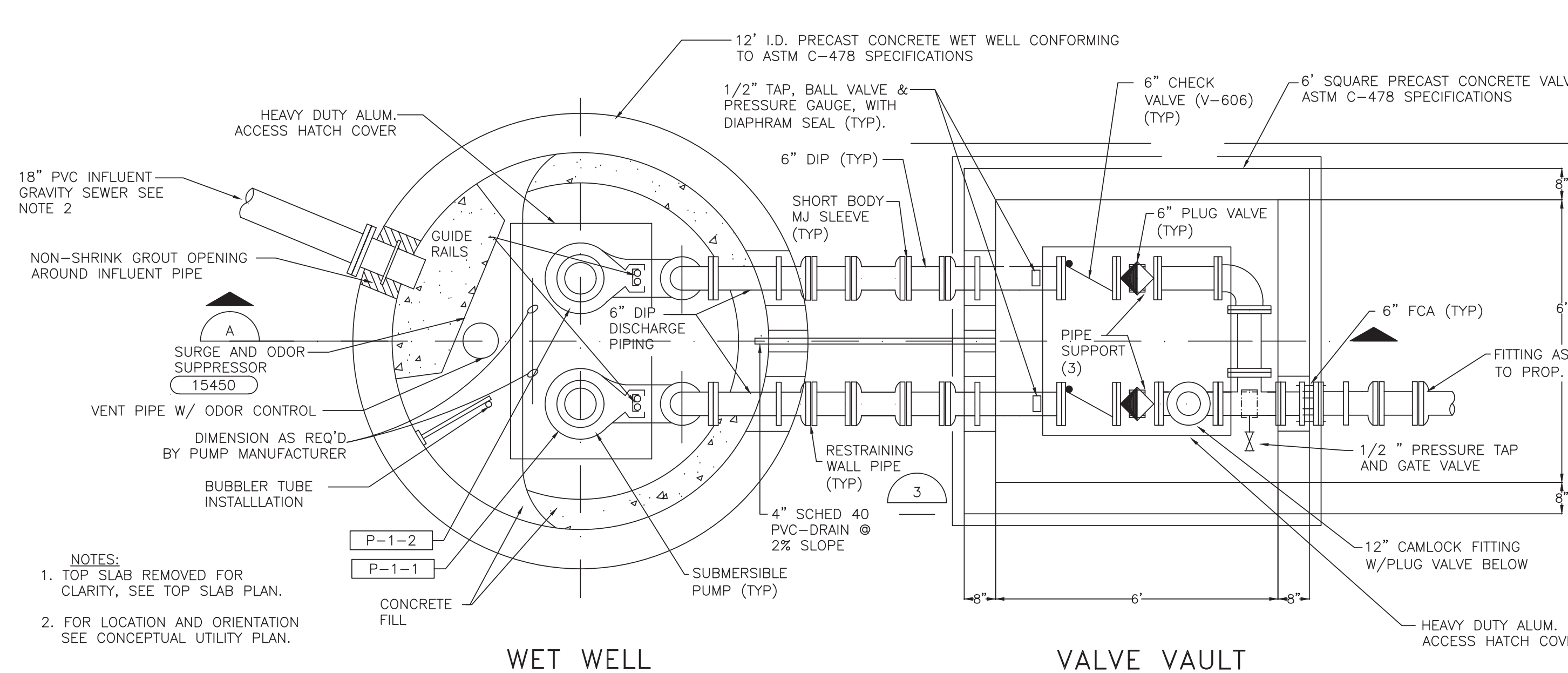
NOTE:
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 7. DESIGN BUILD FIRM IS RESPONSIBLE FOR TREE REMOVAL PERMITS.
 8. DESIGN BUILD FIRM IS RESPONSIBLE TO PROVIDE SURVEY/SKETCH AND LEGAL DRAWINGS AS NEEDED TO ASSIST THE CITY WITH OBTAINING ALL TEMPORARY AND/OR PERMANENT EASEMENTS FOR THE INSTALLATION OF ALL PUMP STATION AND UTILITY WORK NOT IN THE PUBLIC RIGHT-OF-WAY.

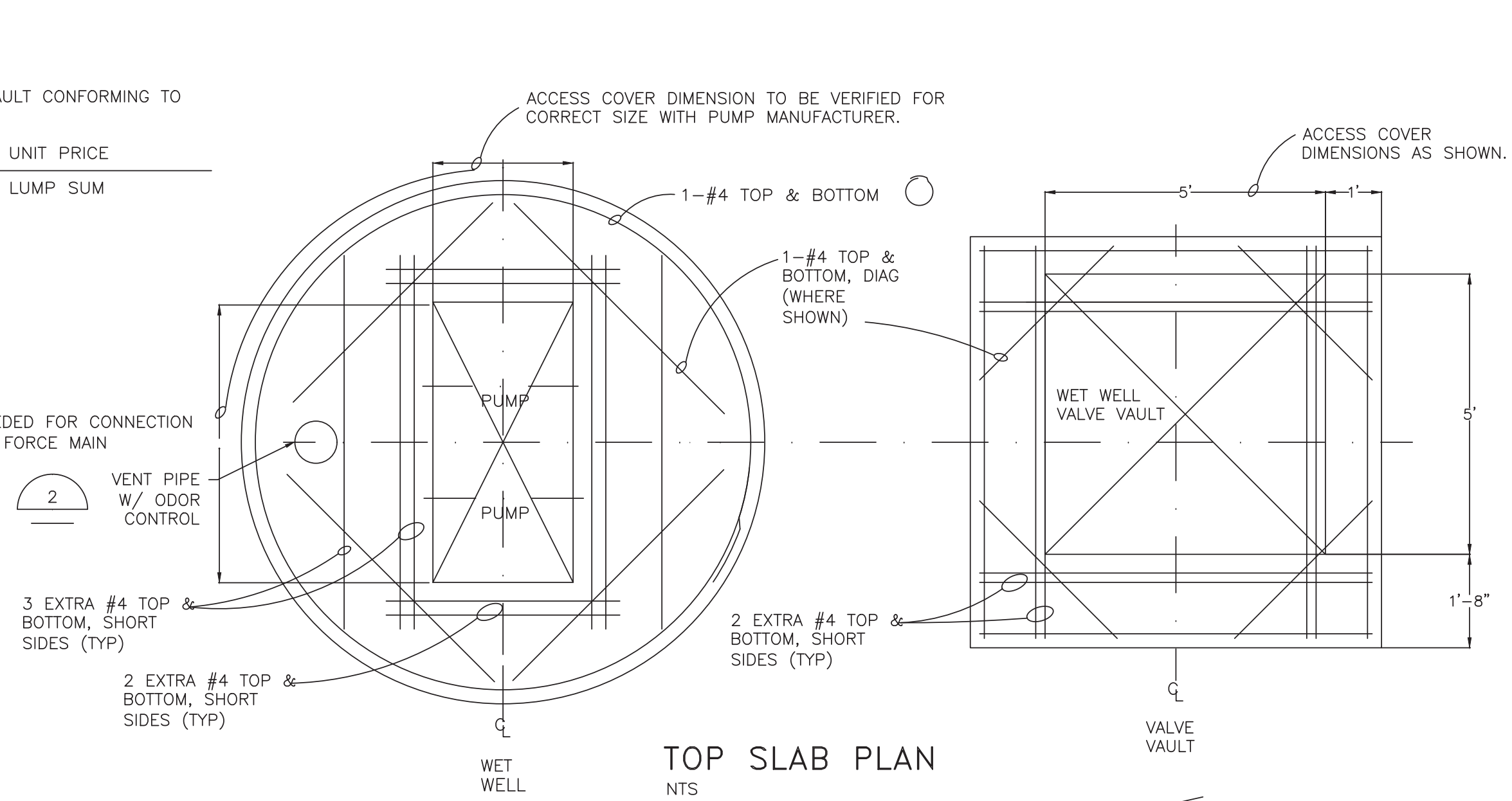
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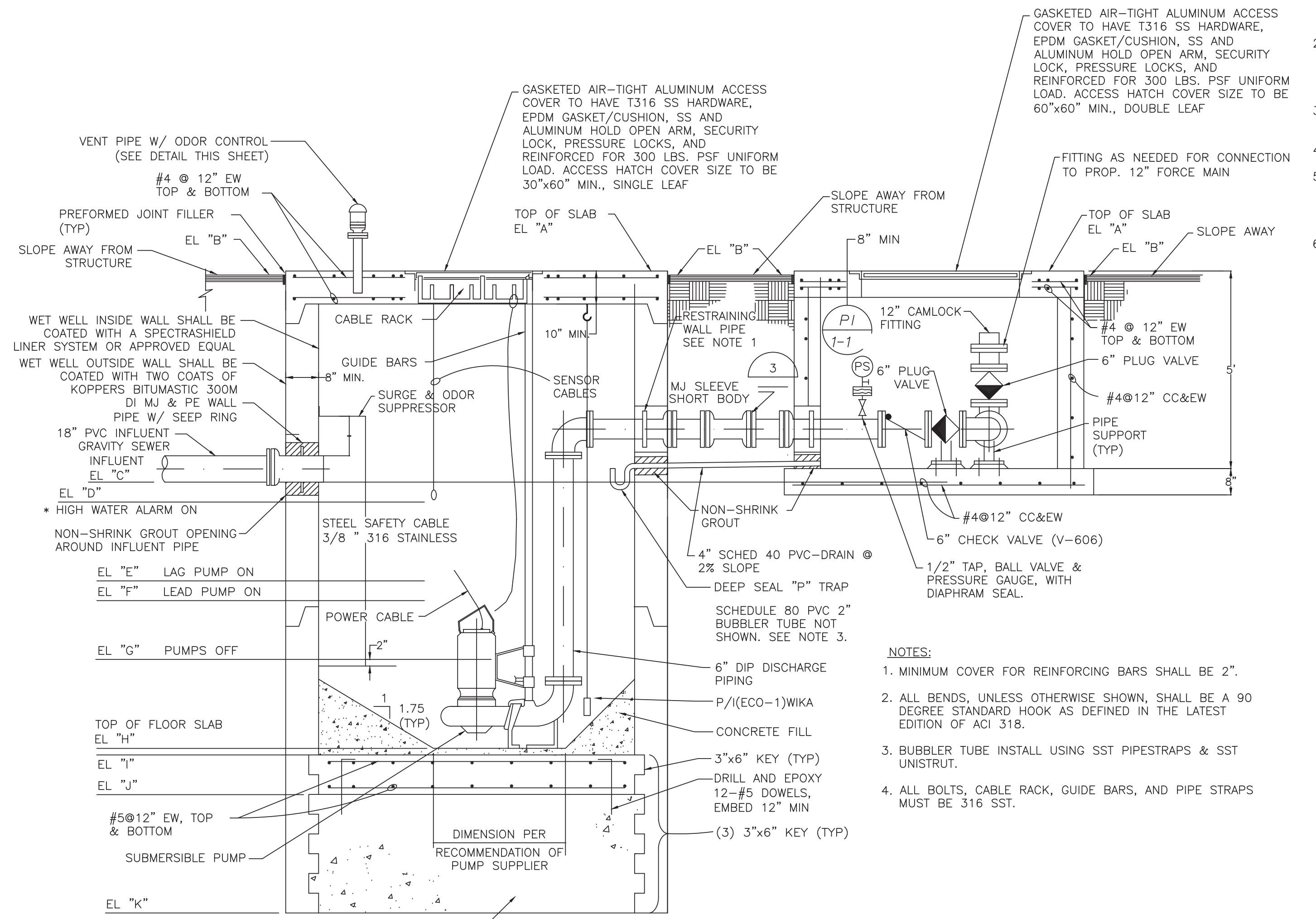
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PLAN
NTS

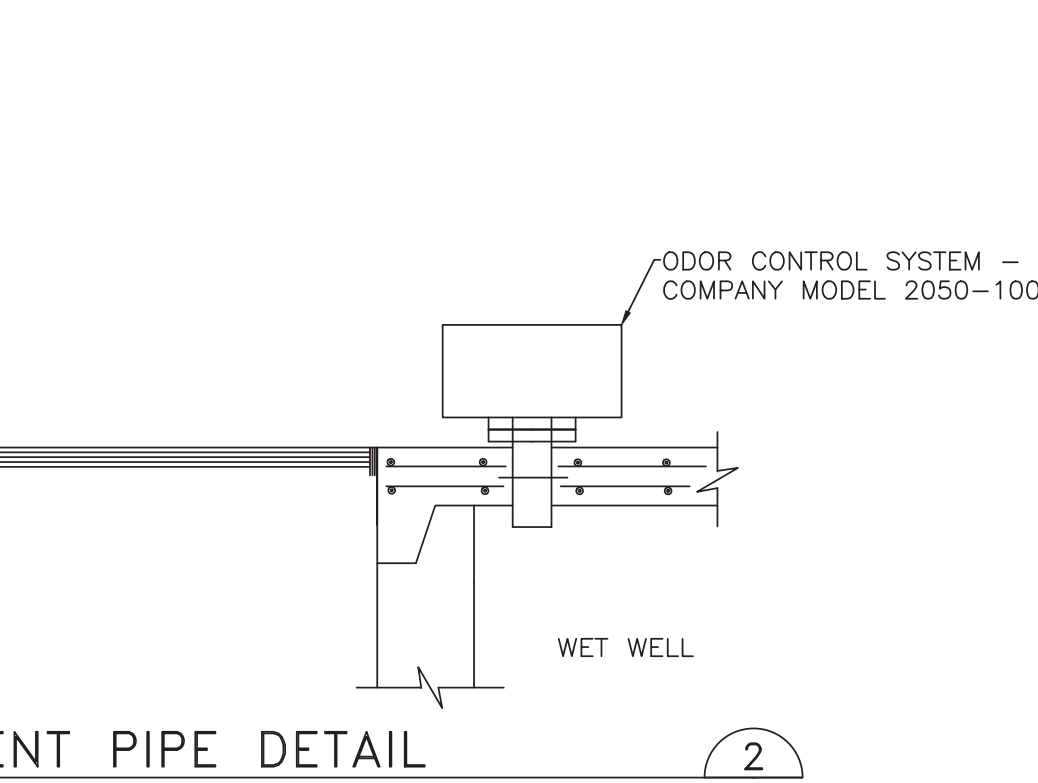


TOP SLAB PLAN
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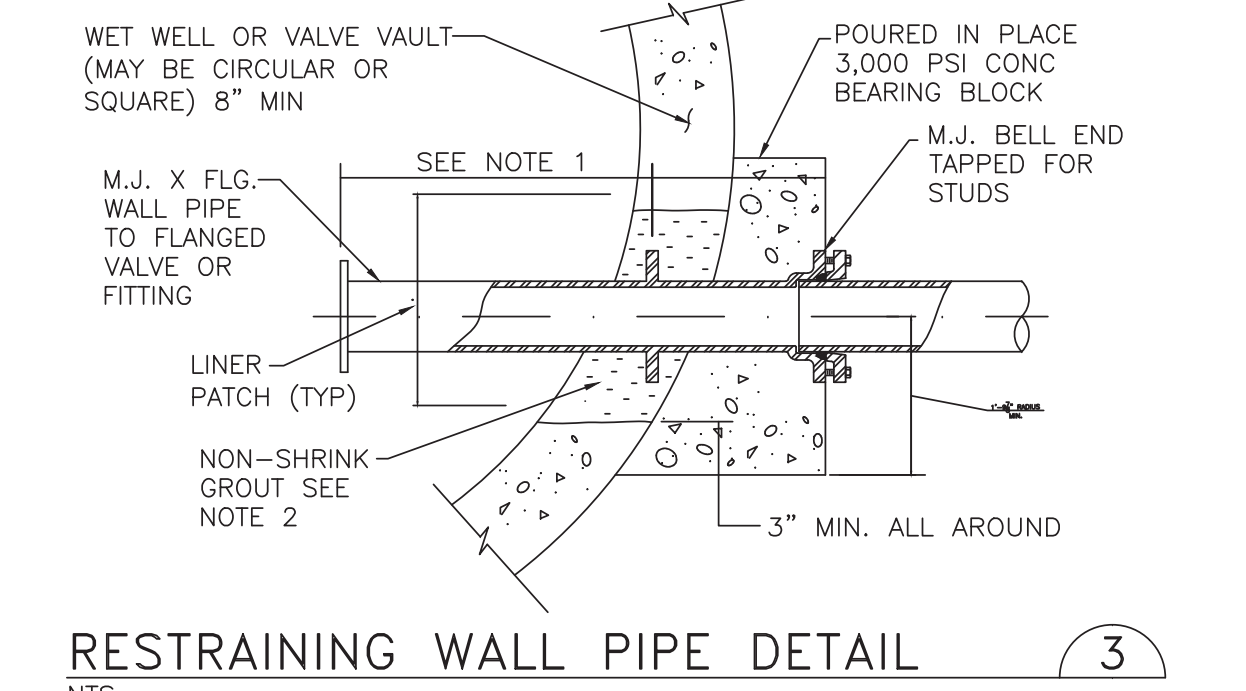


SECTION
NTS

- NOTES:**
- VARIES - DESIGN BUILD FIRM TO ORDER WALL PIPE WITH DIMENSIONS NECESSARY TO CENTER COLLAR IN WALL & PLACE FLANGE AT DESIRED LOCATION.
 - APPLY APPROVED WATERPROOF BONDING AGENT TO EXISTING CONCRETE SURFACE BEFORE PLACING NON-SHRINK GROUT, DRY PACK FROM EARTH SIDE, APPLY APPROVED WATERPROOF COATING AS SPECIFIED TO ELIMINATE SEEPAGE INTO VAULT OR WET WELL FROM PIPE/CONDUIT PENETRATIONS.
 - ALL BOLTS, CABLE RACK, GUIDE BARS, AND PIPE STRAPS MUST BE 316 SST.
 - ALL PIPES SHALL BE RESTRAINED.
 - ALL PUMP STATION COMPONENTS, PIPE SIZES, AND STRUCTURAL CALLOUTS SHOWN ARE FOR REFERENCE ONLY. DESIGN BUILD FIRM IS RESPONSIBLE FOR COMPLETE PUMP STATION DESIGN AND PERMITTING AS THE ENGINEER OF RECORD.
 - DESIGN BUILD FIRM TO PROVIDE WATER SERVICE/RPZ PER CITY DETAILS.



VENT PIPE DETAIL
NTS



RESTRAINING WALL PIPE DETAIL
NTS

SCHEDULE OF ELEVATIONS (FEET MSL)

LETTER	LEVEL DESCRIPTION	A-16
A	TOP OF PUMP STATION & VAULT SLABS	4.20
B	FINISH GRADE ADJACENT SLAB	3.70
C	INFLUENT GRAVITY SEWER INVERT	(-)8.61
D	HIGH WATER ALARM	(-)9.60
E	LAG PUMP ON	(-)11.60
F	LEAD PUMP ON	(-)12.60
G	PUMPS OFF	(-)14.60
H	TOP OF FLOOR SLAB	(-)16.60
I	TOP OF KEY	(-)16.90
J	BOTTOM OF KEY	(-)17.90
K	BOTTOM OF TREMIE PLUG	(-)24.50
	INSIDE DIAMETER PUMP STATION	12'
	FORCE MAIN PIPING (D.I.P.)	12"
	PUMP OPERATION REQUIREMENTS	750 gpm @ 107' 45 HP

- NOTE:**
- ELEVATIONS INDICATED HEREON ARE IN FEET AND DECIMALS, RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988), AND ARE FOR REFERENCE ONLY. PUMP STATION/WETWELL DESIGN IS THE RESPONSIBILITY OF THE DESIGN BUILD FIRM.
 - THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED. DESIGN BUILD FIRM'S BID SHALL INCLUDE CONSIDERATION FOR ADDRESSING THIS ISSUE AND OBTAINING ALL NECESSARY PERMITS.
 - FLOOD ZONE: AH
 - BASE FLOOD ELEVATION (BFE): 6.0' NAVD 1988



* (ALARM HAS LIGHT, AUDIBLE ALARM, AND DIALER RTU TO CITY; ALARM WILL BE DEACTIVATED BY A MANUAL SWITCH)

ENGINEER: GARY R. RAY, P.E.
 REG. NO: 46682
 DATE: 9/29/2021
 TEL: (954) 856-5100
 FAX:

DRAWN BY: AL
 DATE: MAR 2021
 DESIGNED BY: SCALE: AS NOTED
 CHECKED BY: GR
 FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
 100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY (CHKD)	DESCRIPTION

PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
CONCEPTUAL PUMP STATION DETAILS

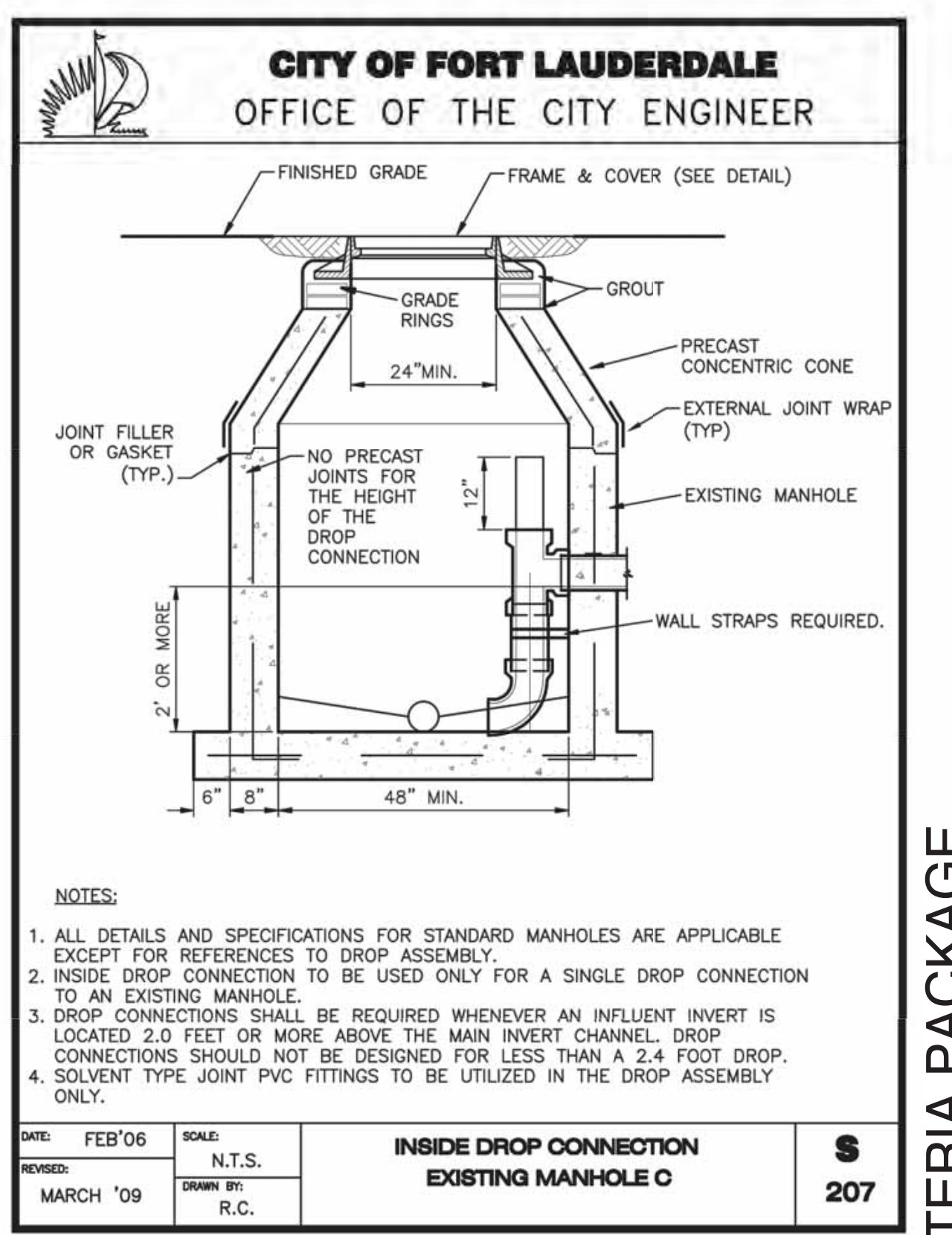
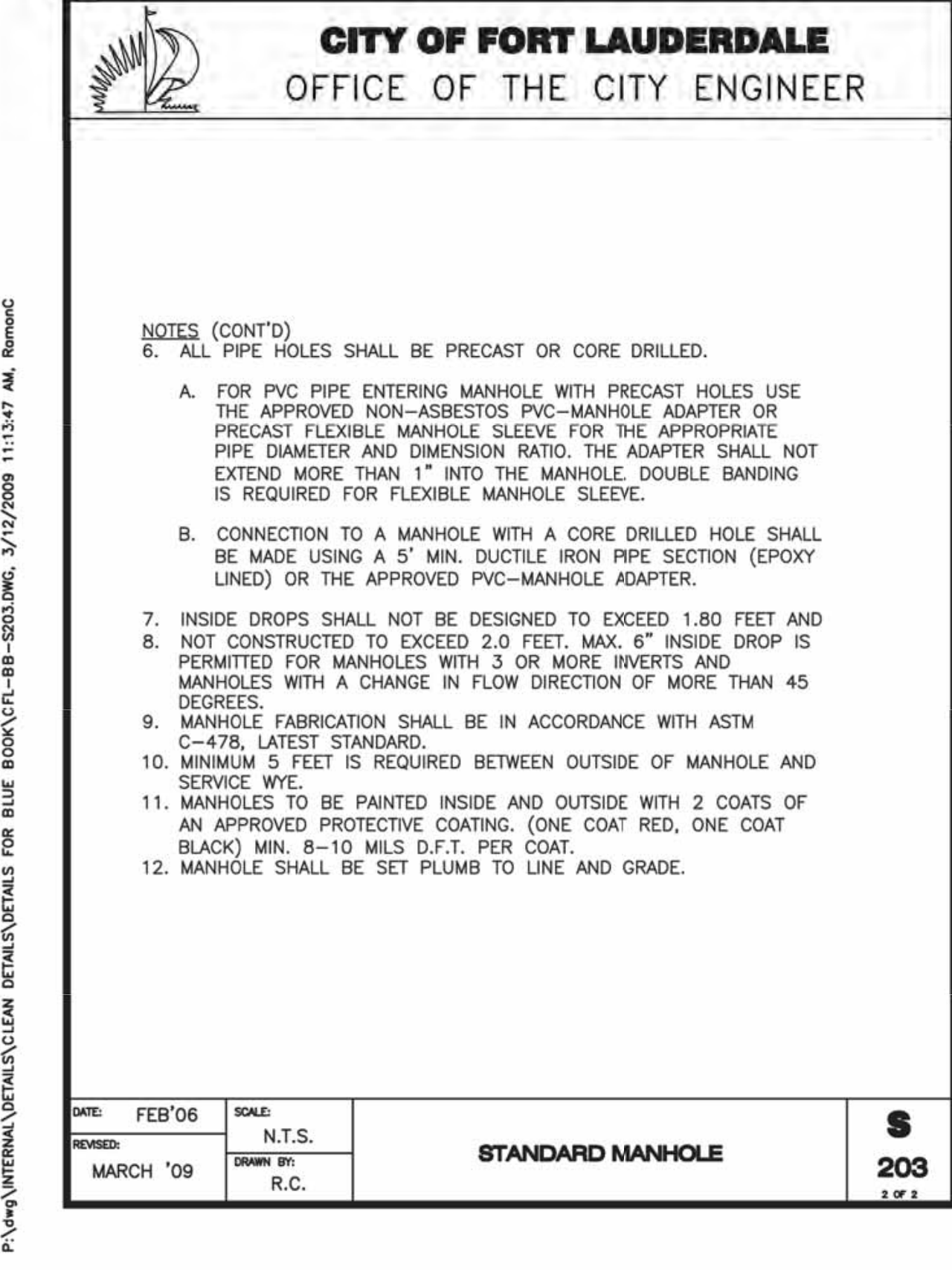
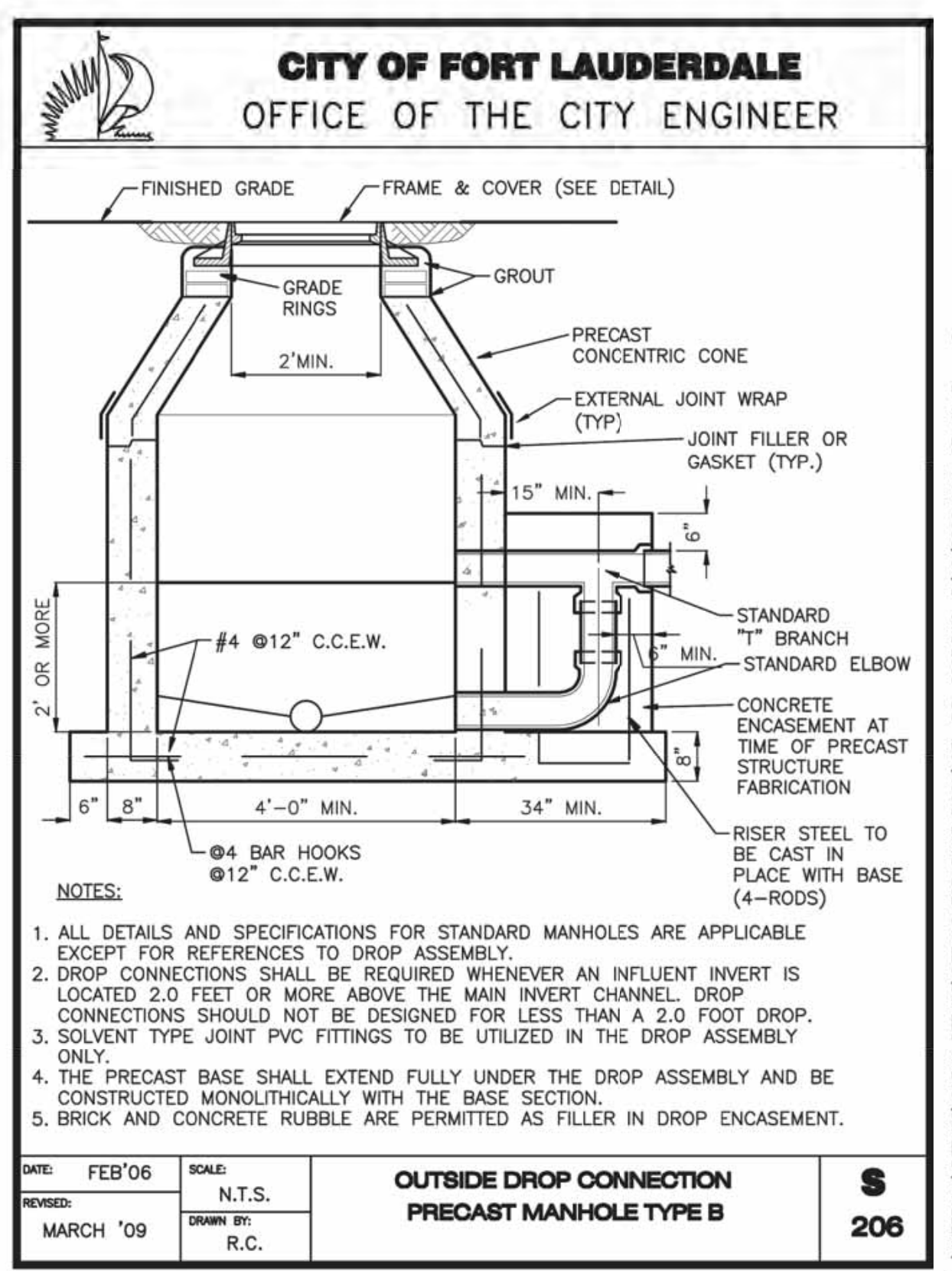
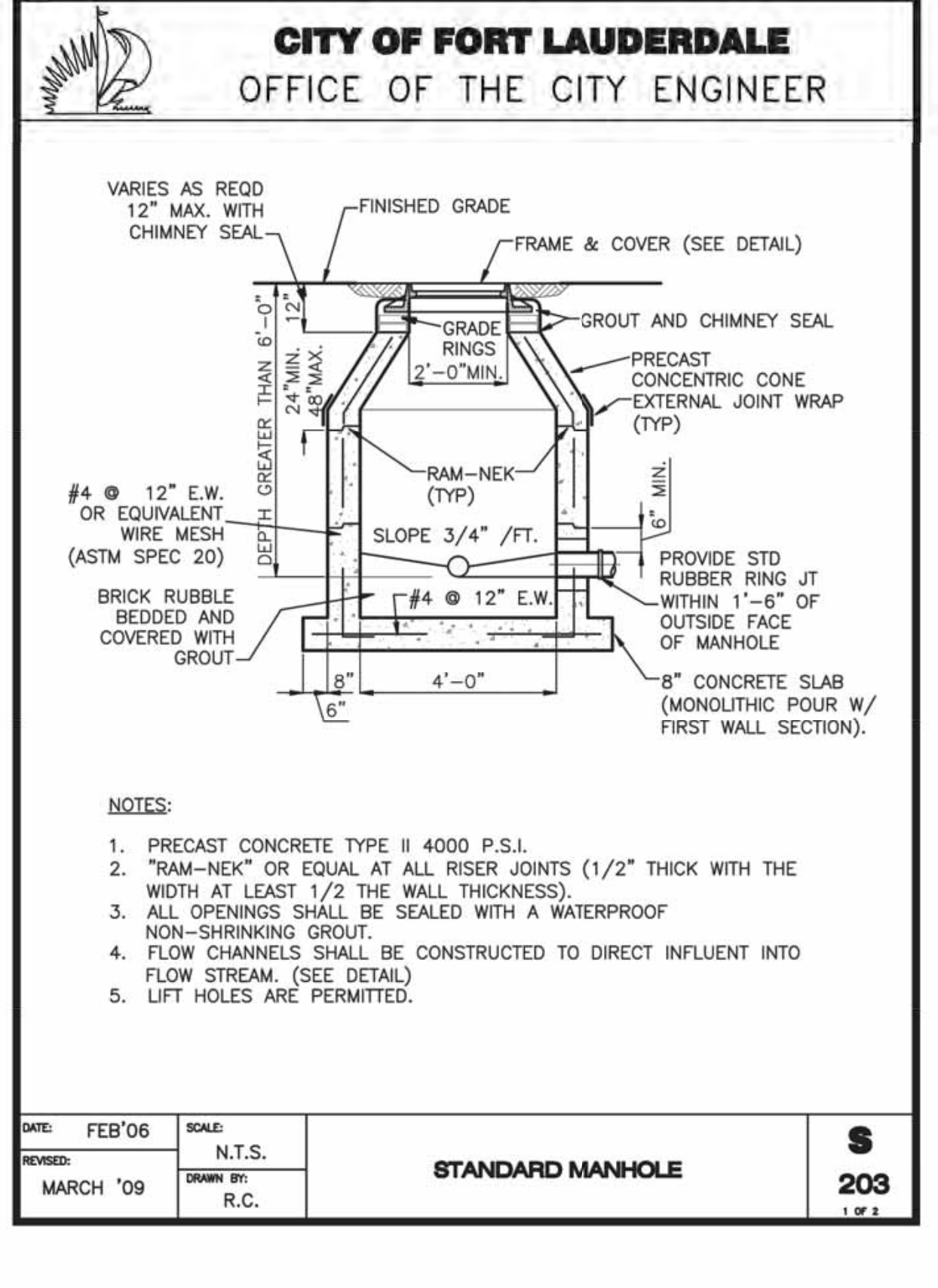
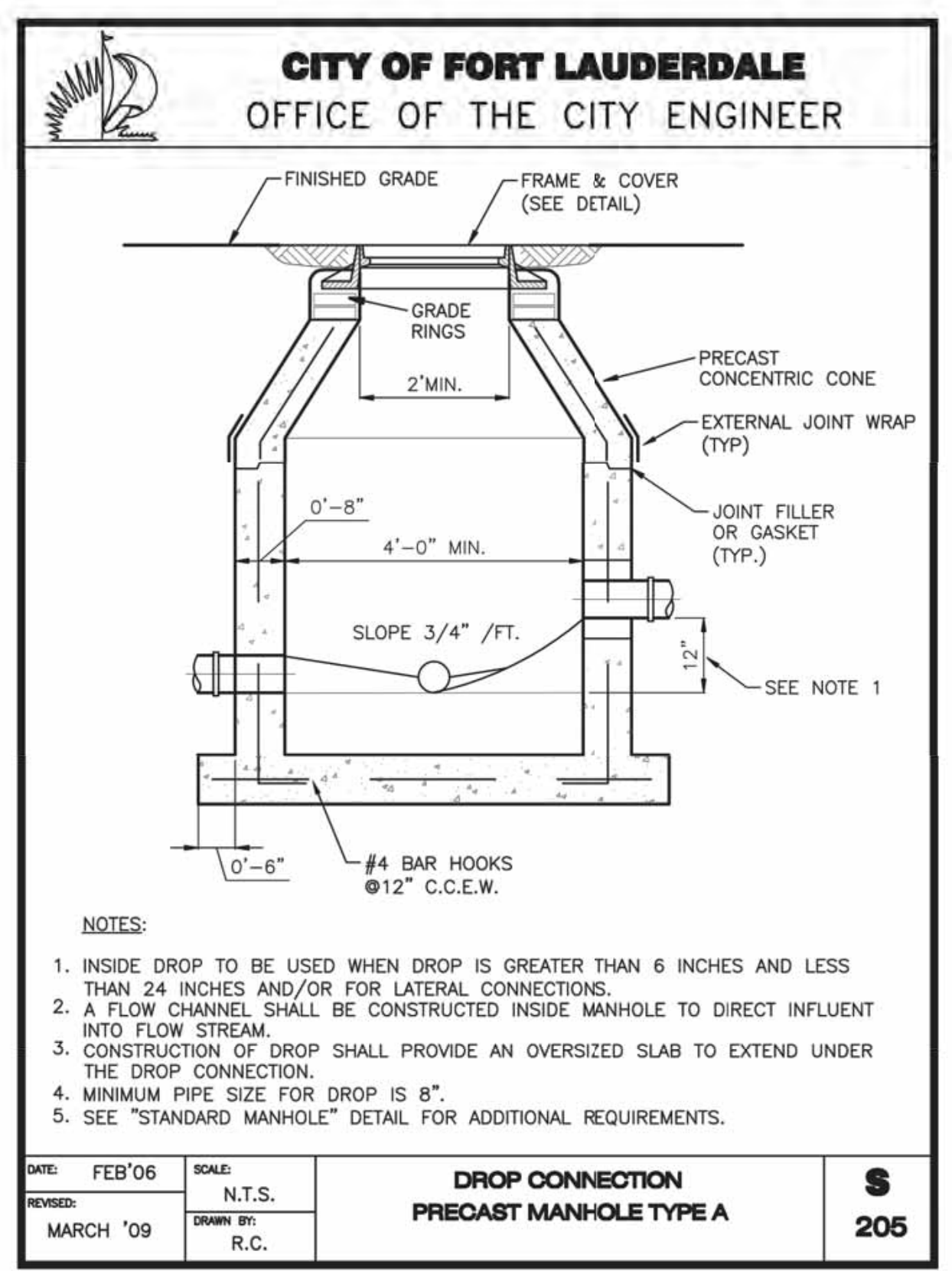
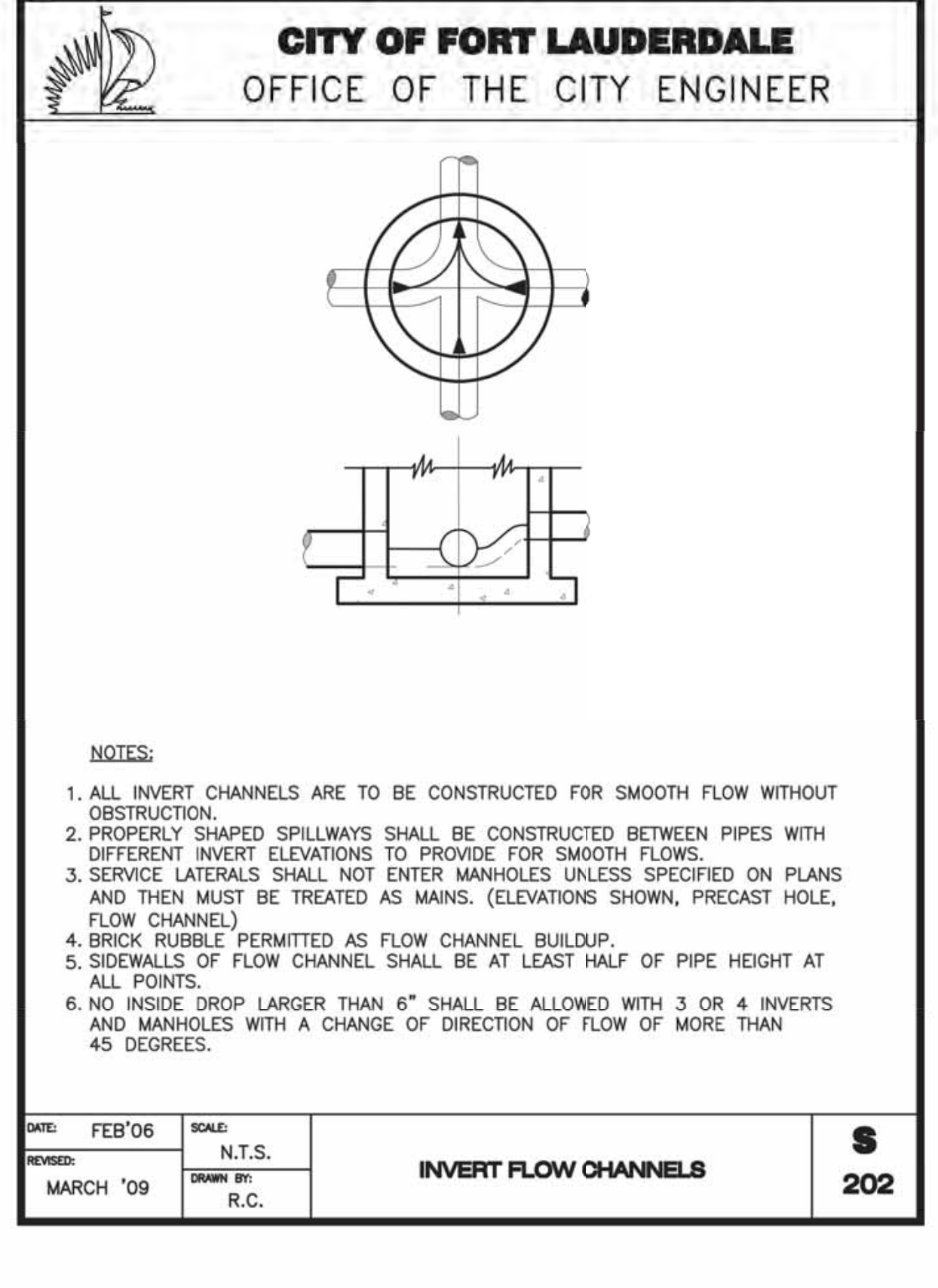
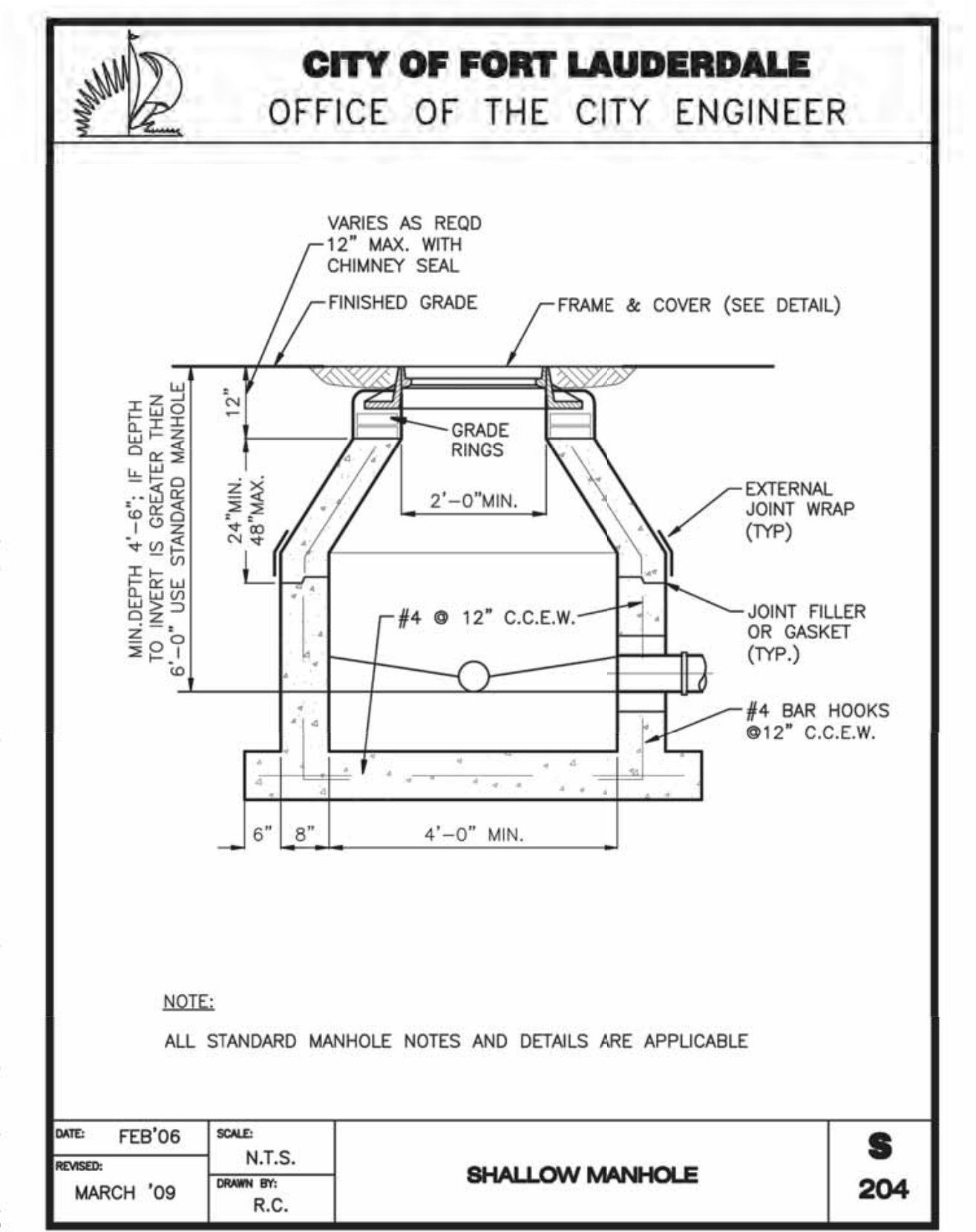
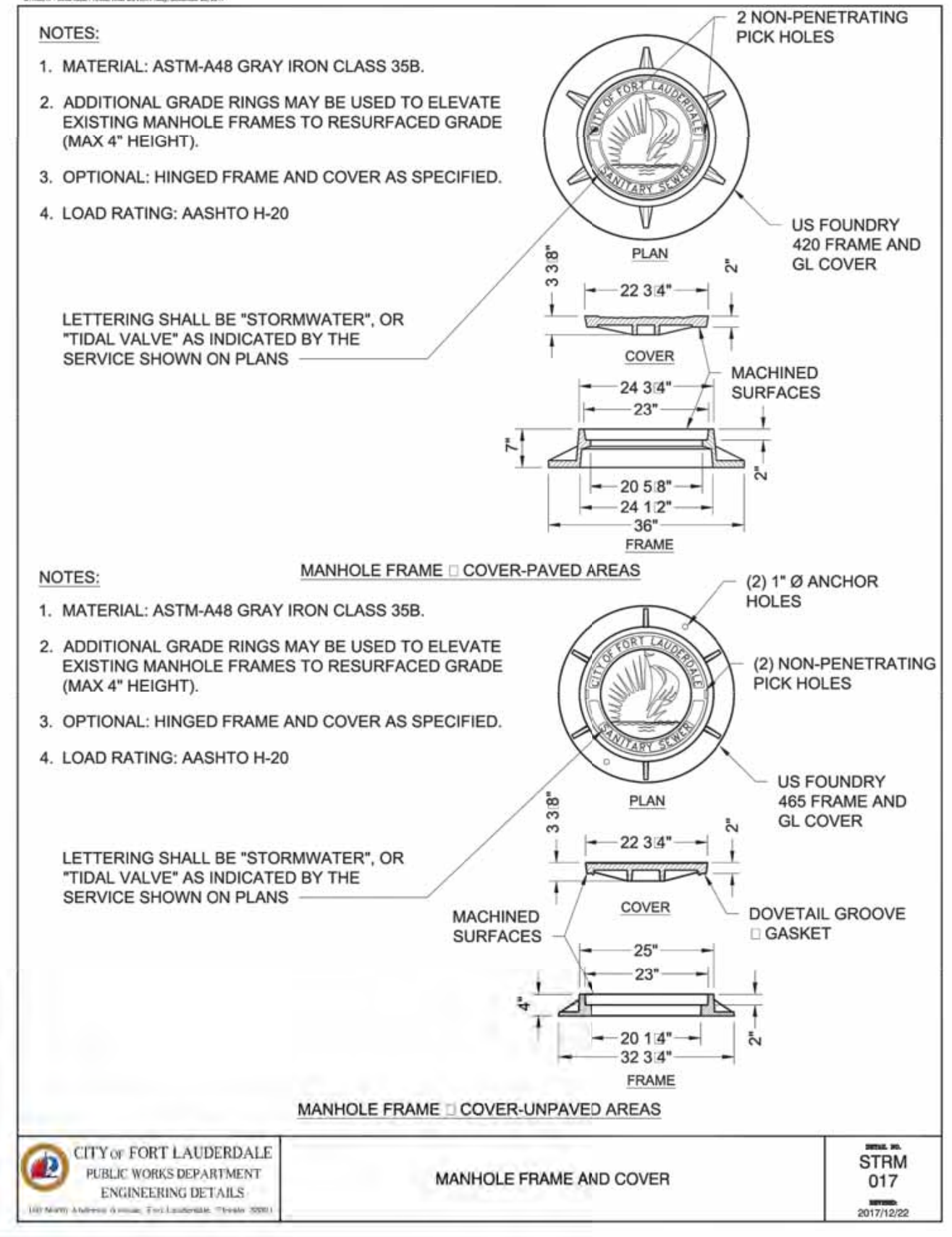
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SHEET NO. OF
9 31

CAD FILE: 12412-MULTI-DET
 DRAWING FILE NO. 4-142-31

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CITY OF FORT LAUDERDALE
OFFICE OF THE CITY ENGINEER

ENGINEER: GARY R. RAY, P.E.
REG. NO: 46682
DATE: 9/29/2021

DESIGNED BY: SCALE: AS NOTED
CHECKED BY: GR
FIELD BOOK: GR

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

NO.	DATE	BY (CHKD)	DESCRIPTION

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PROJECT # 12412
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WASTEWATER DESIGN CRITERIA PACKAGE
STANDARD DETAILS

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CAD FILE: 12412-MULTI-DET	
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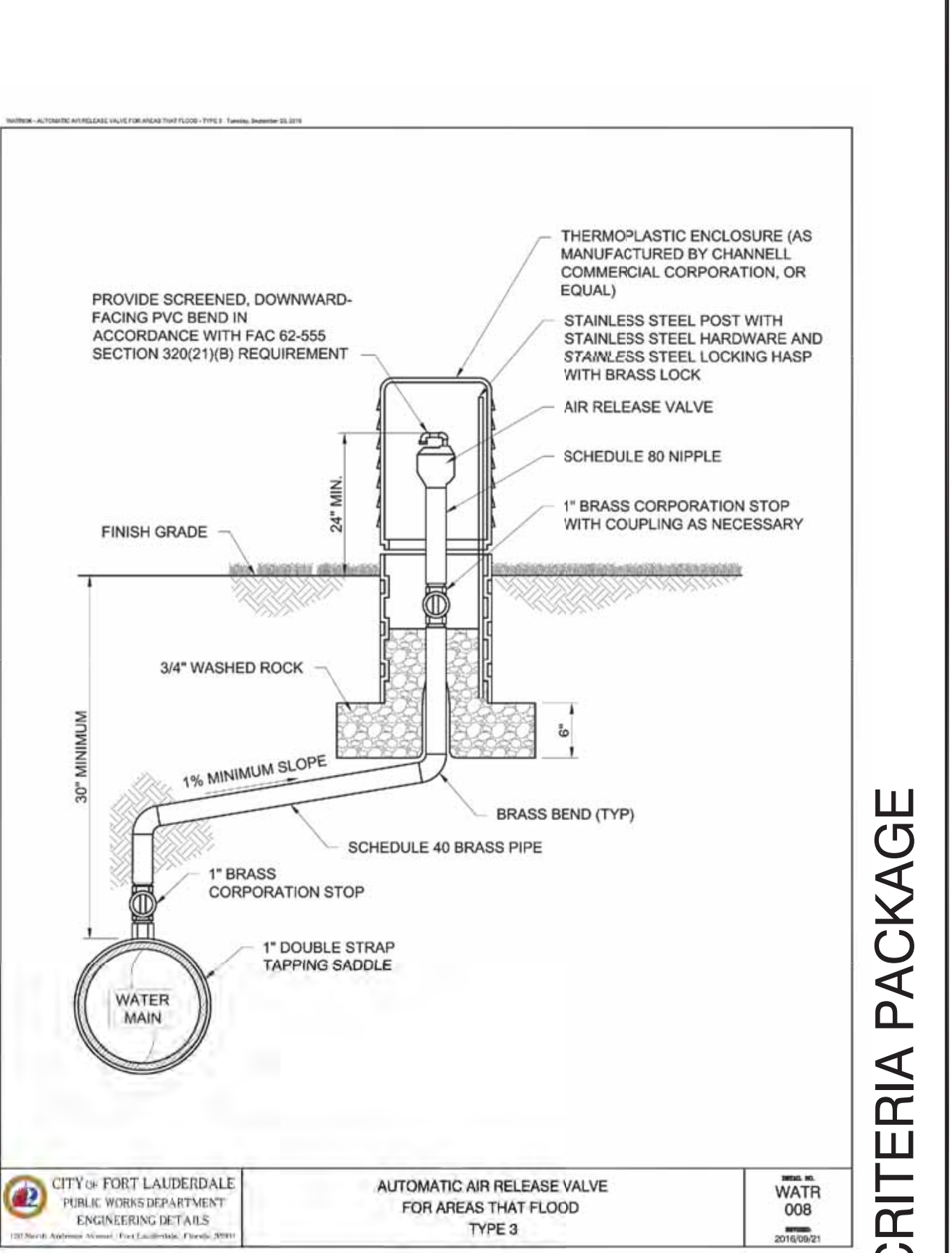
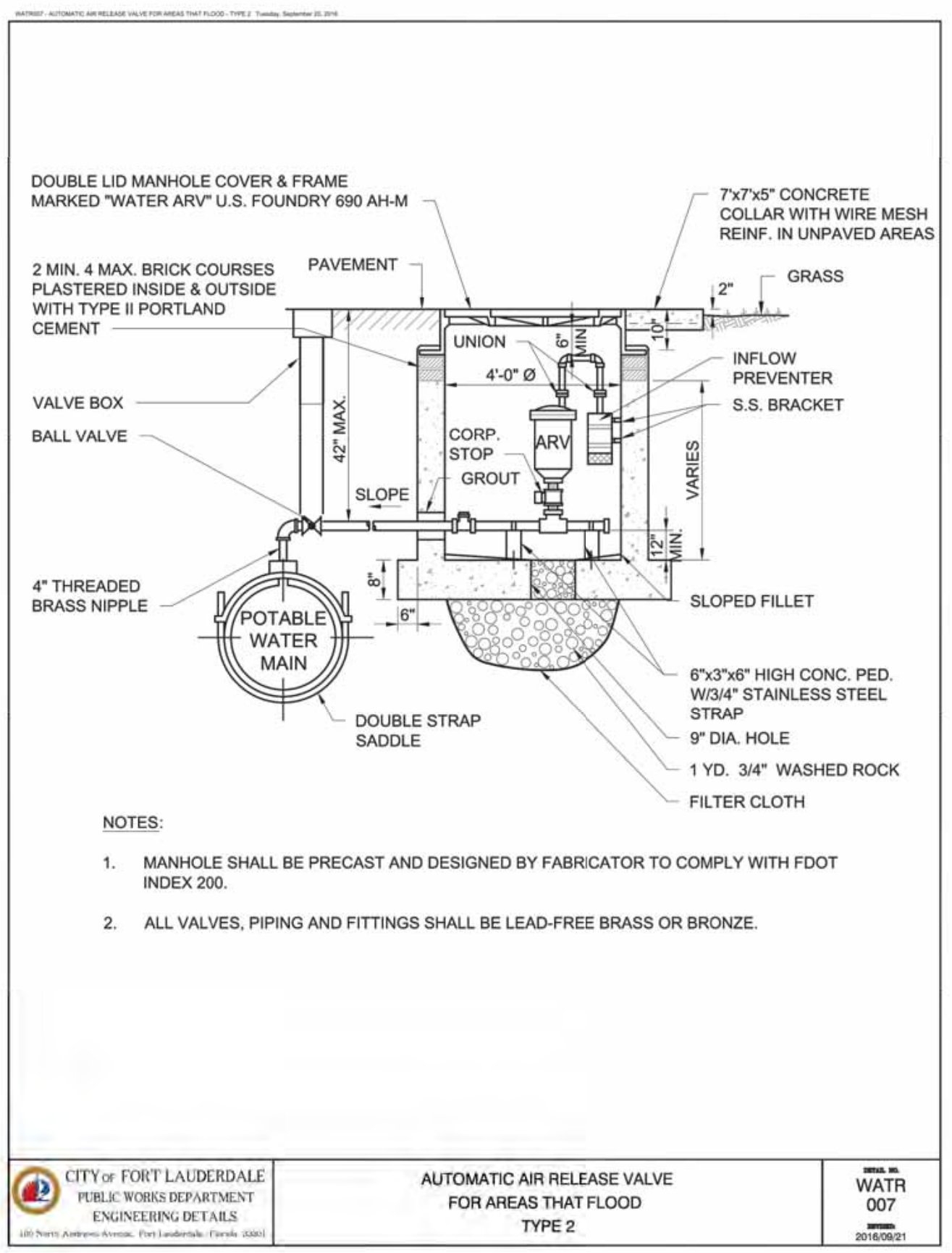
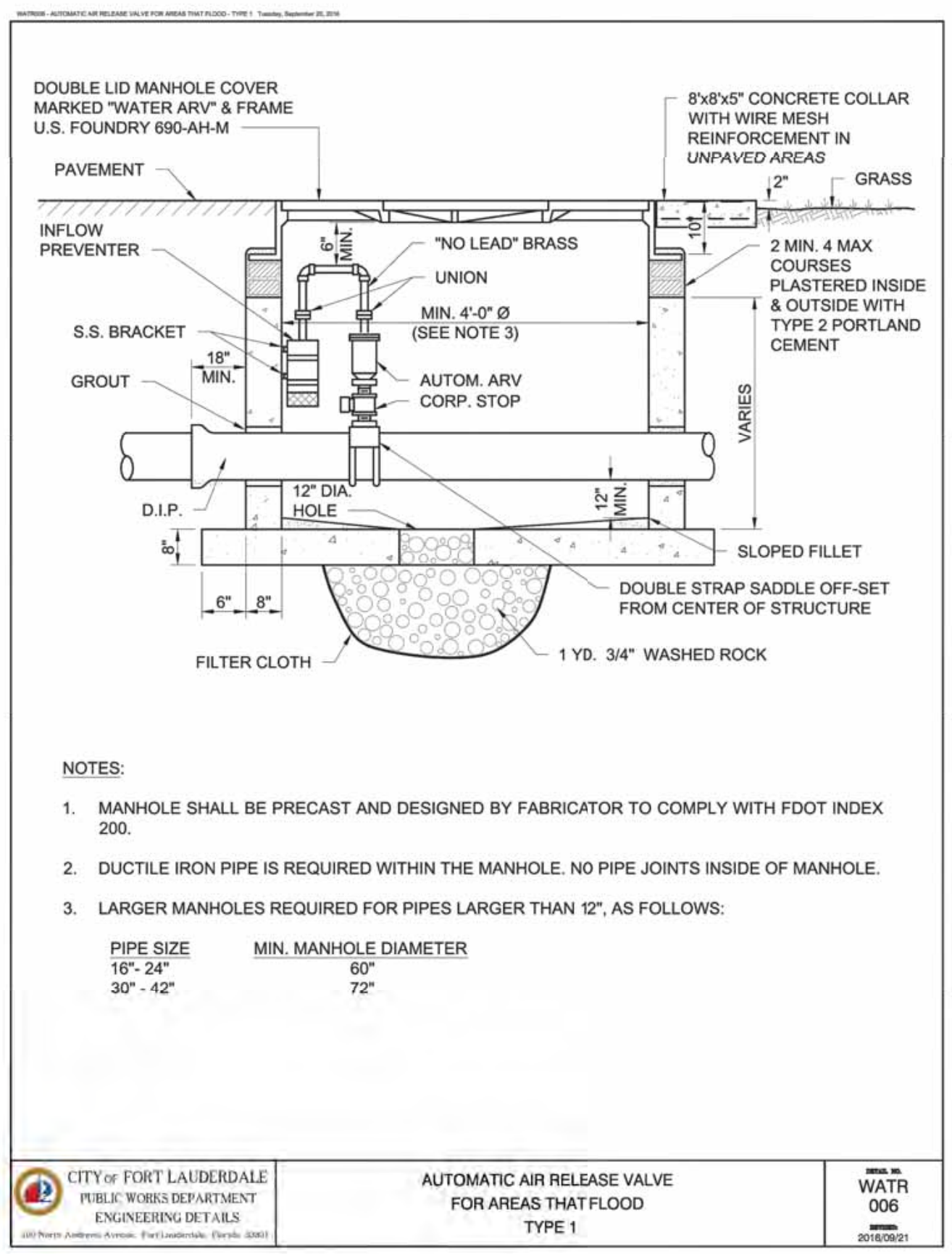
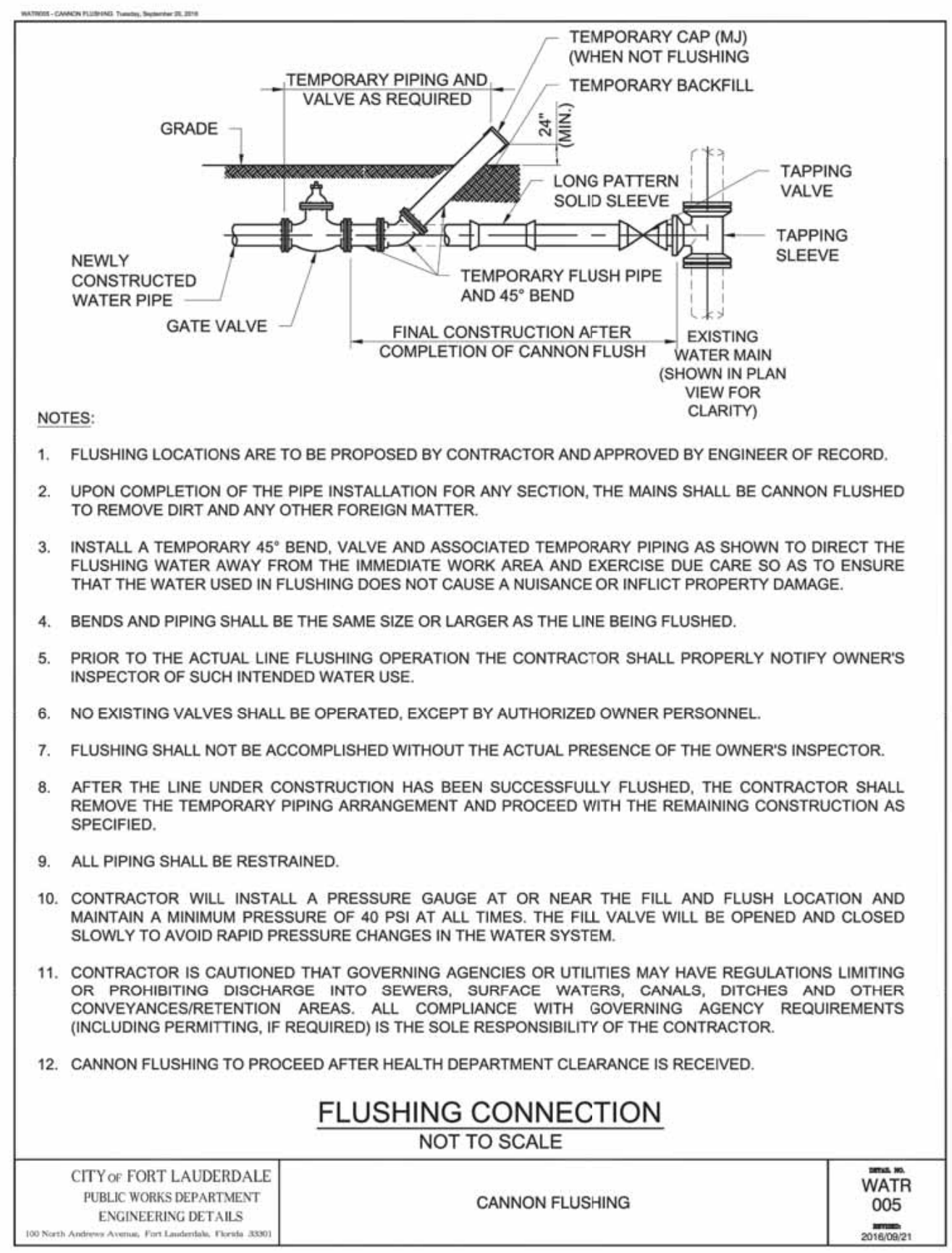
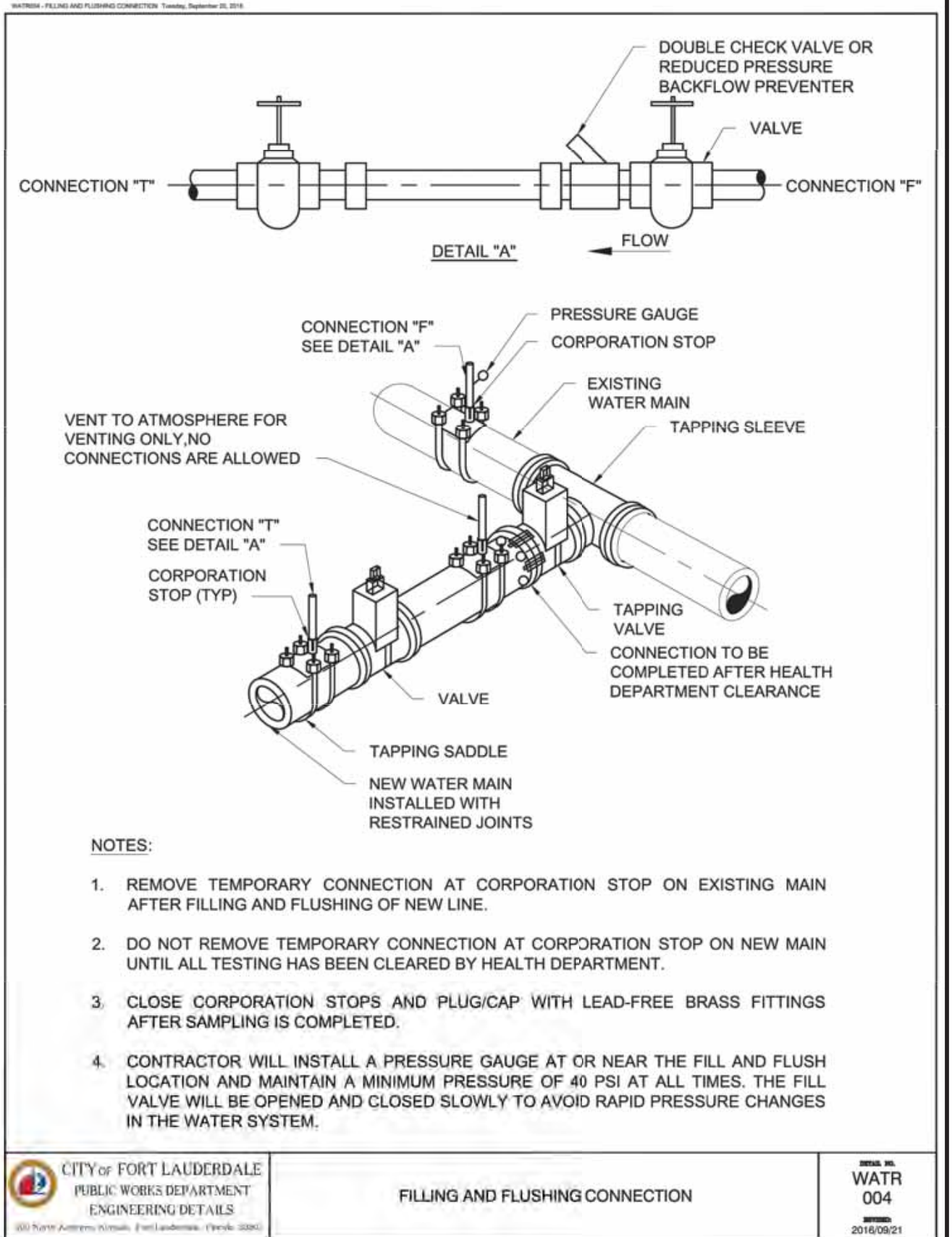
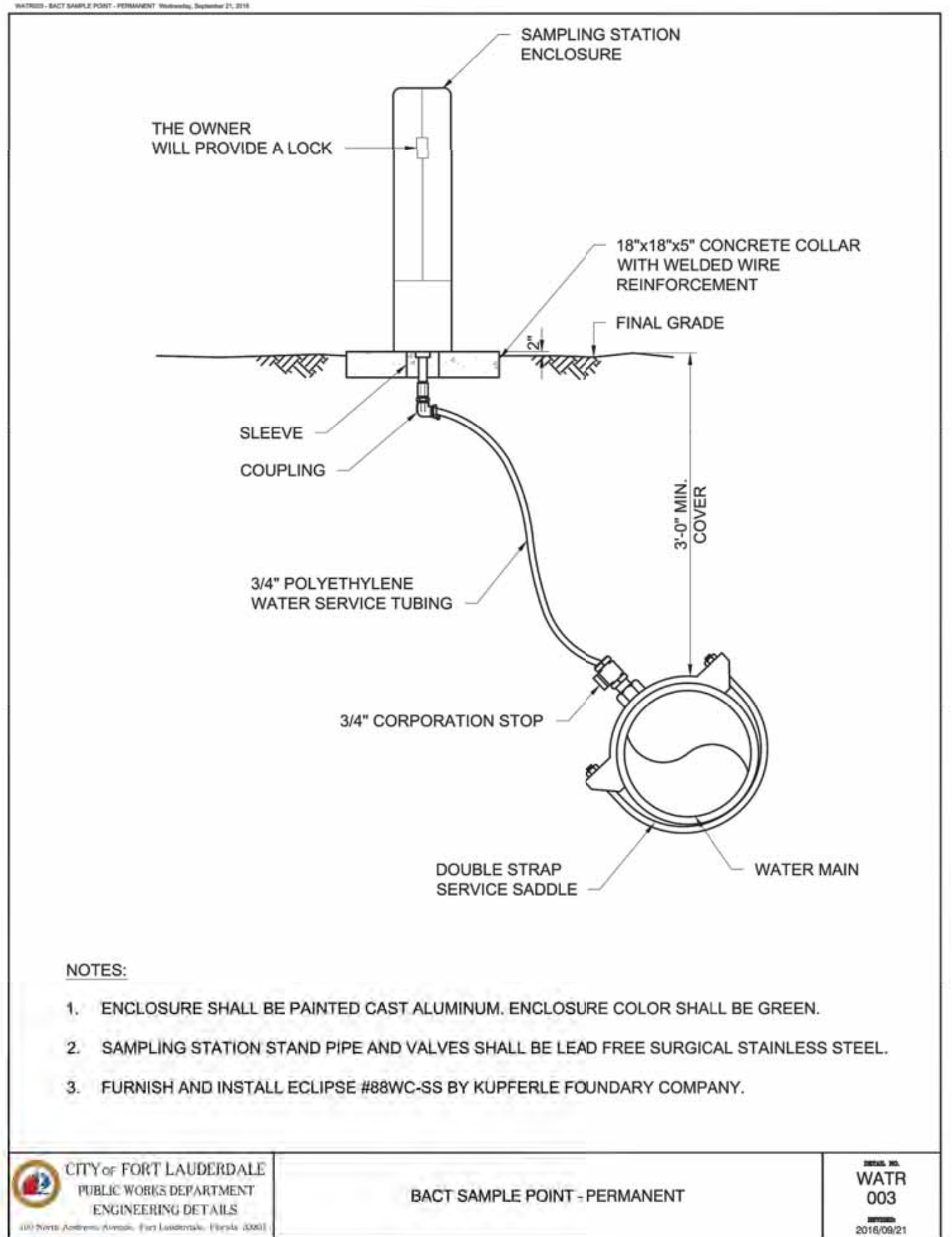
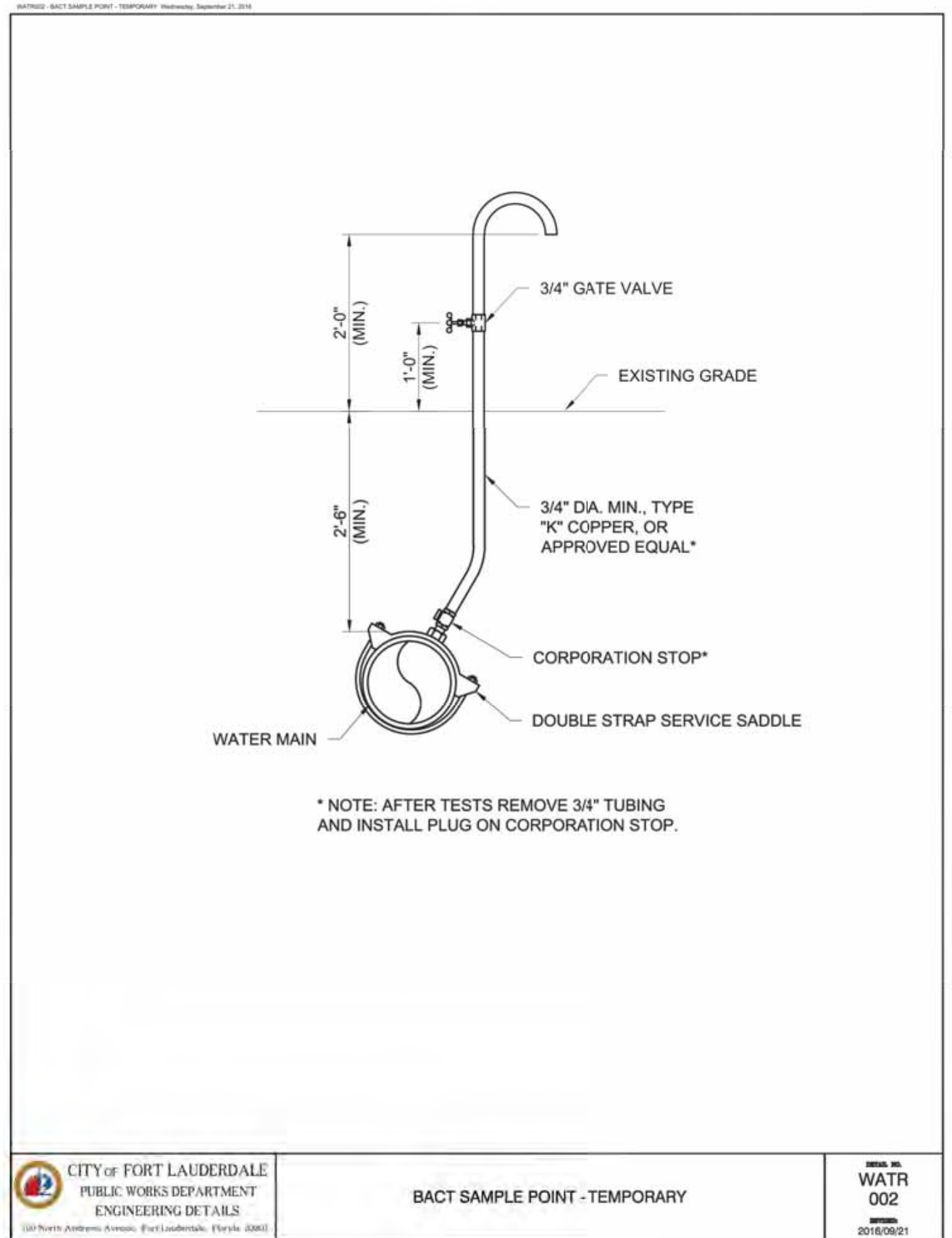
WATER MAIN SEPARATION IN ACCORDANCE WITH F.A.C. RULE 62-555.314

OTHER PIPE	HORIZONTAL SEPARATION	CROSSINGS (NOTE 1)	JOINT SPACING AT CROSSINGS (FULL JOINT CENTERED)
STORM SEWER, STORM WATER FORCE MAIN, RECLAIMED WATER (NOTE 2)			NOTE 4
VACUUM SANITARY SEWER			NOTE 4
GRAVITY SANITARY SEWER (NOTE 3), SANITARY SEWER FORCE MAIN, RECLAIMED WATER			NOTE 4
ON-SITE SEWAGE TREATMENT & DISPOSAL SYSTEM	10 FT. MINIMUM	—	—

NOTES:

- WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 12 INCHES.
- RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
- 3 FT. FOR GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
- ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPE SO THAT THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATE JOINT LOCATIONS ALLOWED UNDER FAC 62-555.314 WILL ONLY BE ALLOWED BY THE ENGINEER ON A CASE-BY-CASE BASIS.

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DETAILS
WATR 001
2016/09/21



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8201 PETERS ROAD, SUITE 2200, PLANTATION, FL 33324
PHONE: 954-535-5100 FAX: 954-739-2247
WWW.KIMLEY-HORN.COM REGISTRY No. 696

**CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE**

100 North Andrews Avenue, Fort Lauderdale, Florida 33301

ENGINEER: GARY R. RAY, P.E.
REG. NO. 46682
DATE: 9/29/2021

DRAWN BY: AL
DESIGNED BY: SCALE: AS NOTED
CHECKED BY: GR
FIELD BOOK: 33301

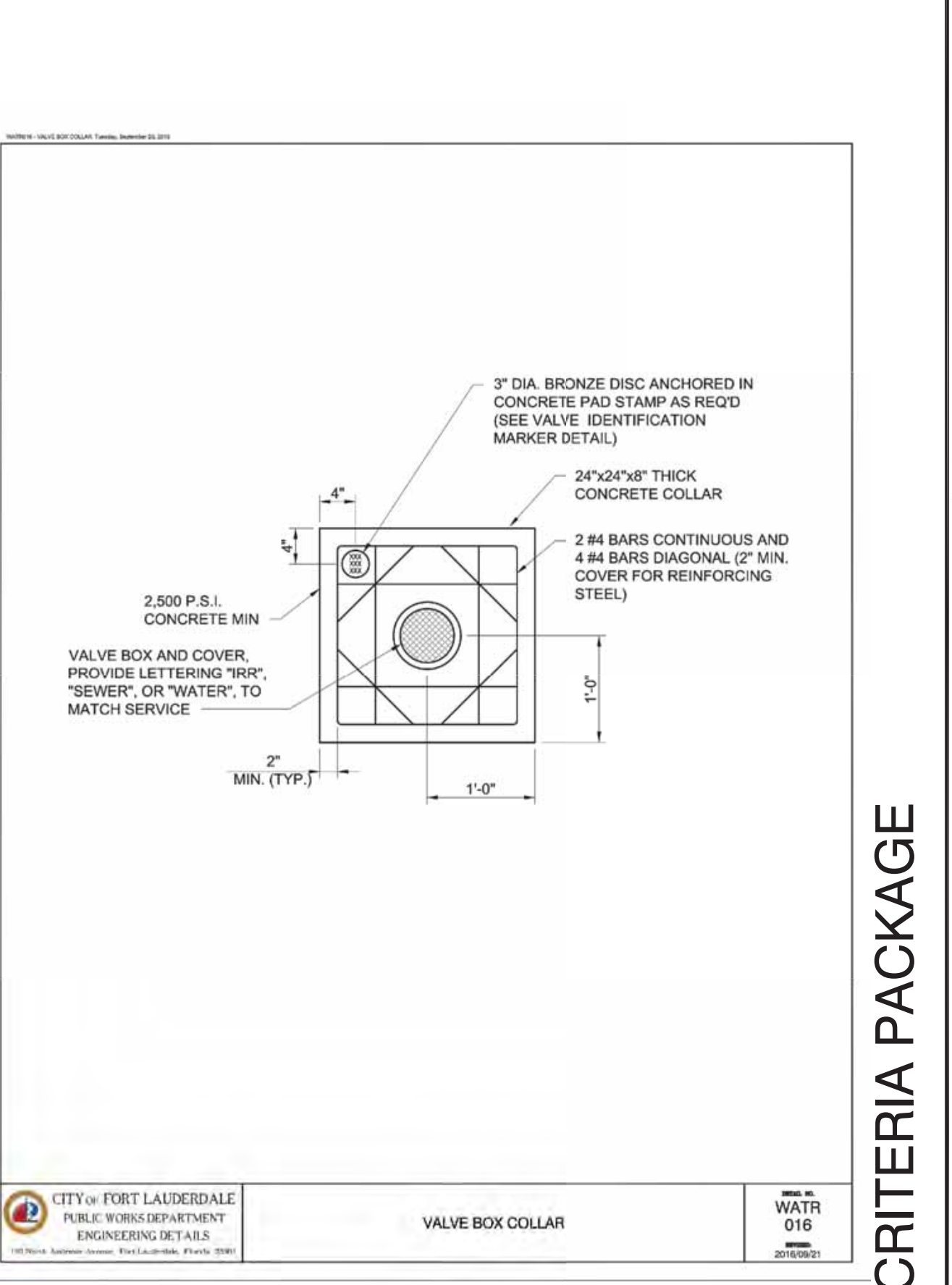
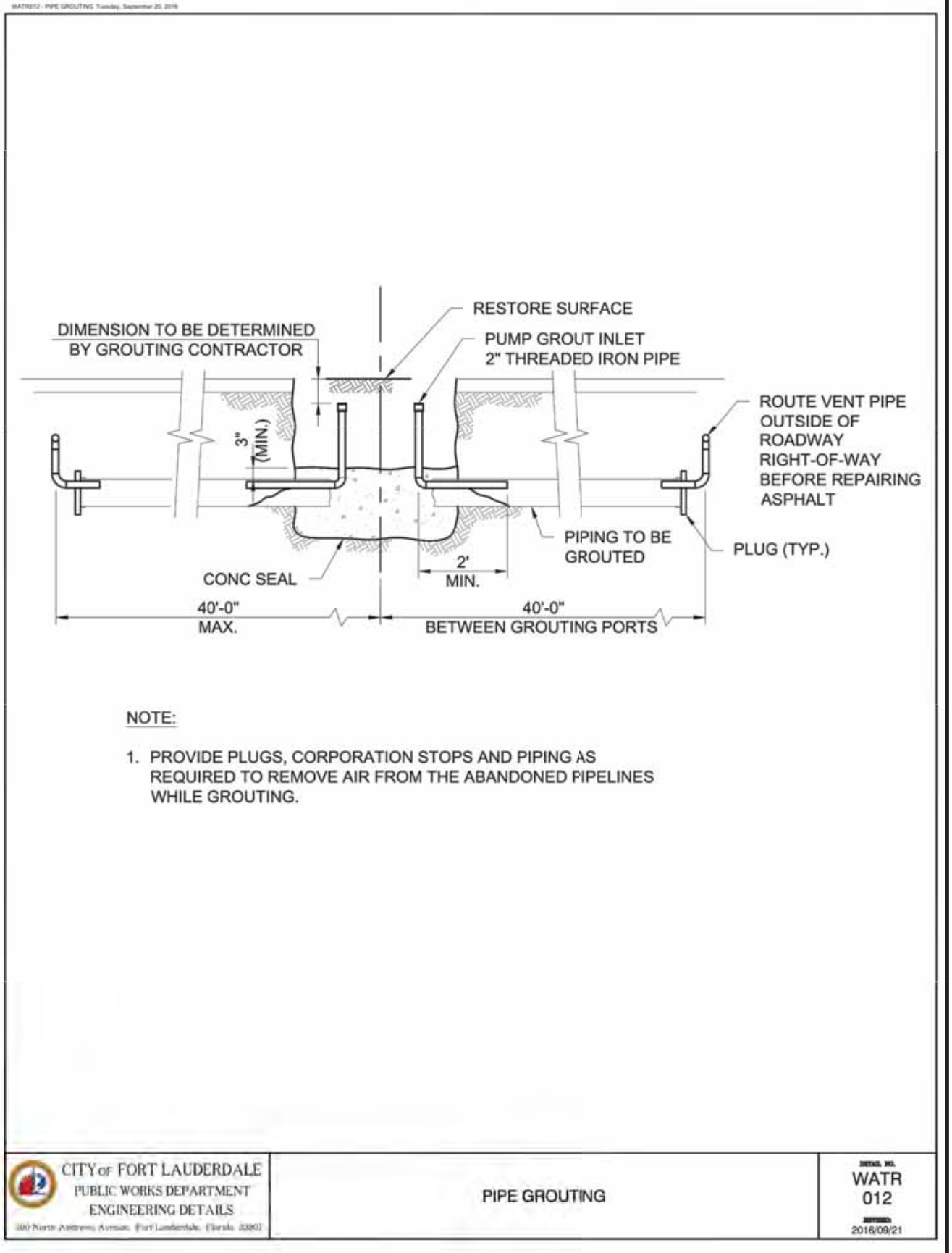
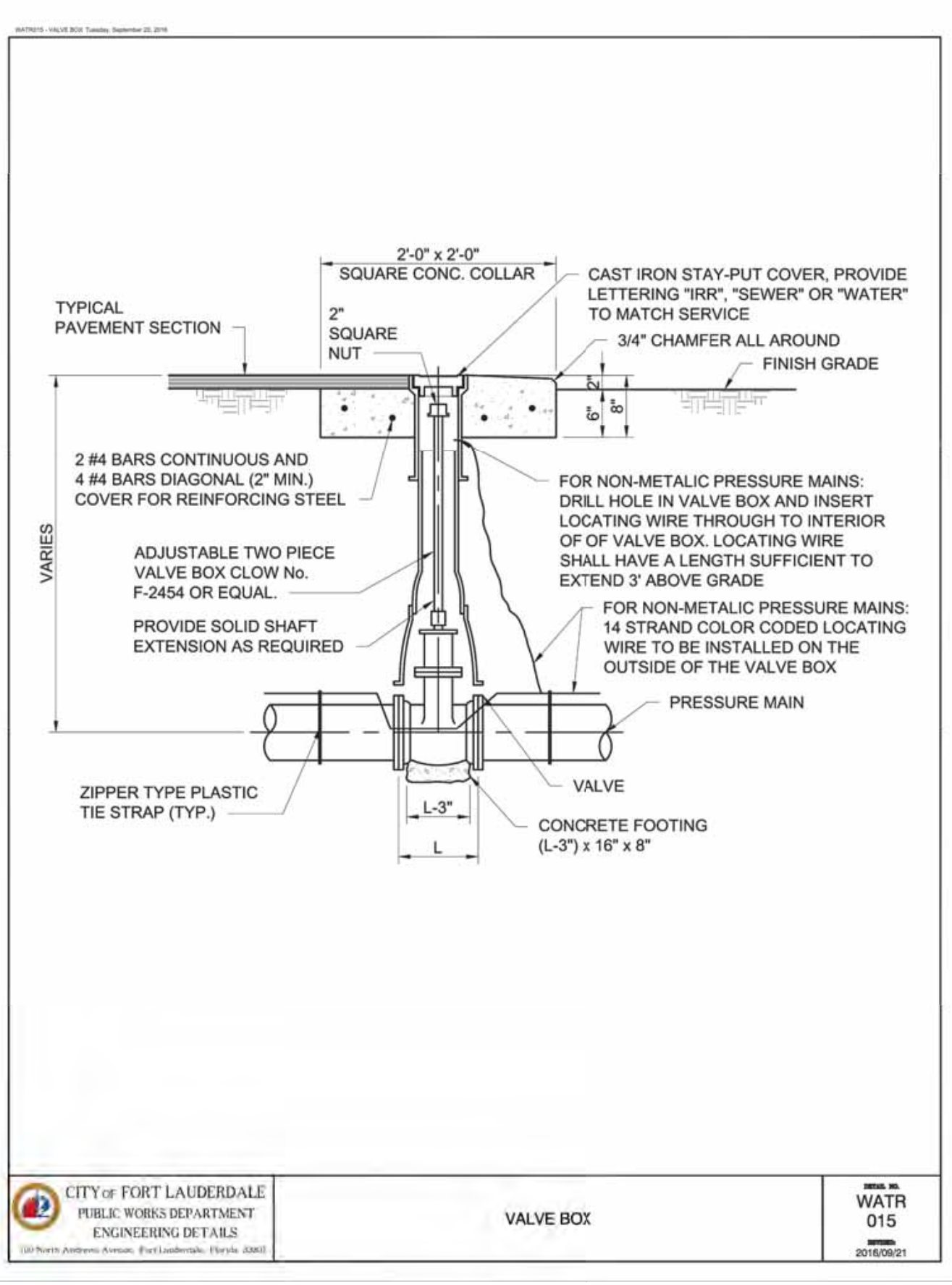
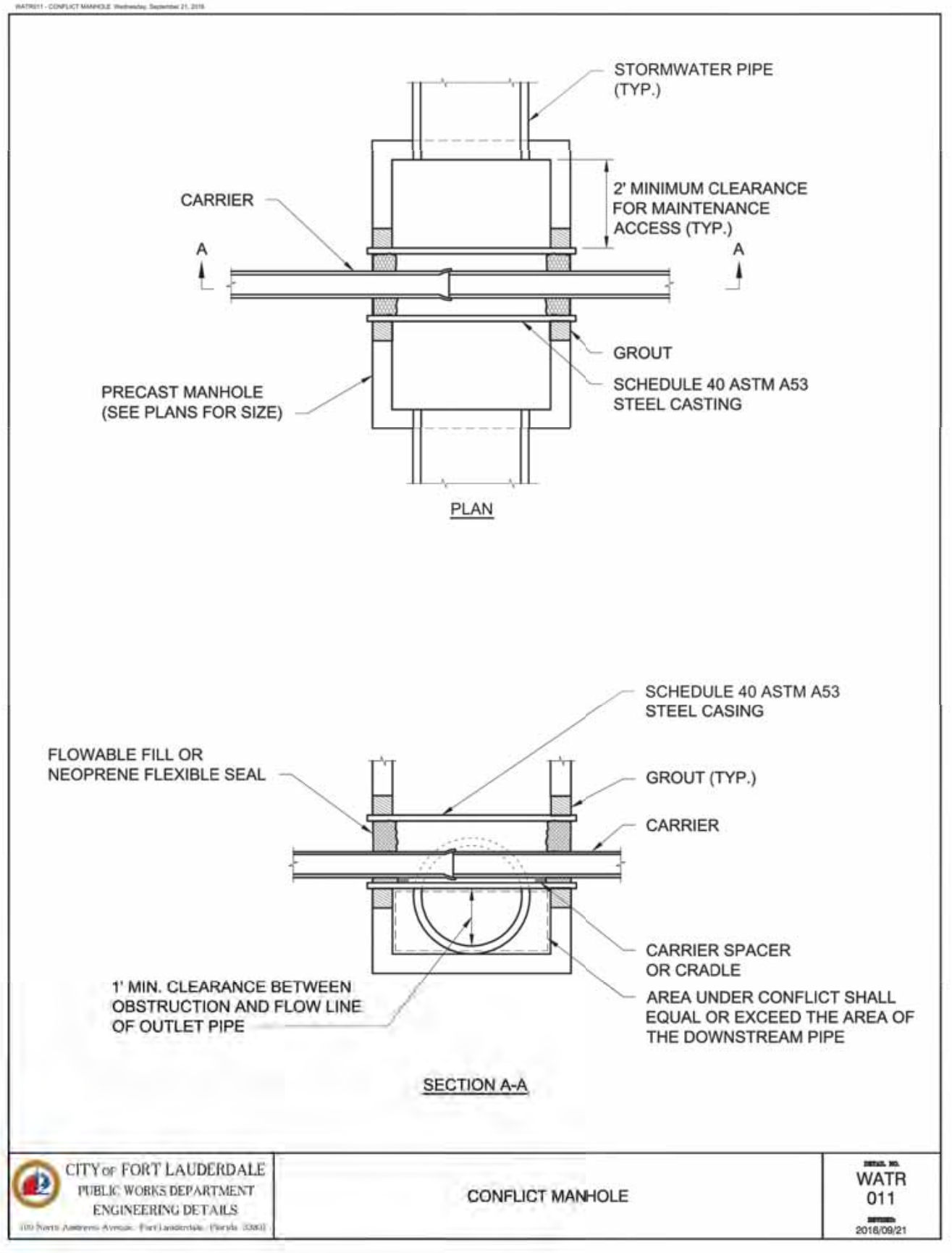
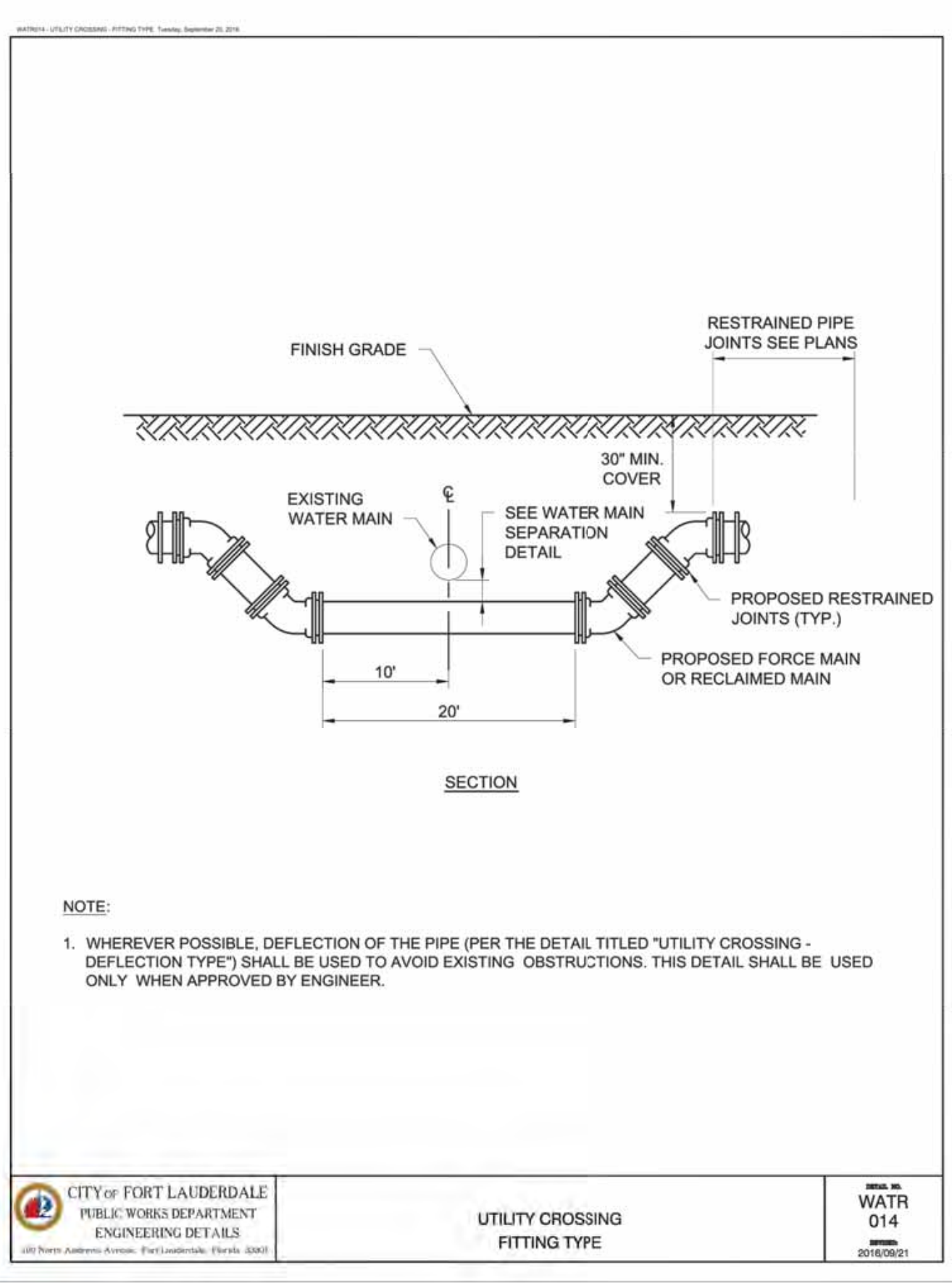
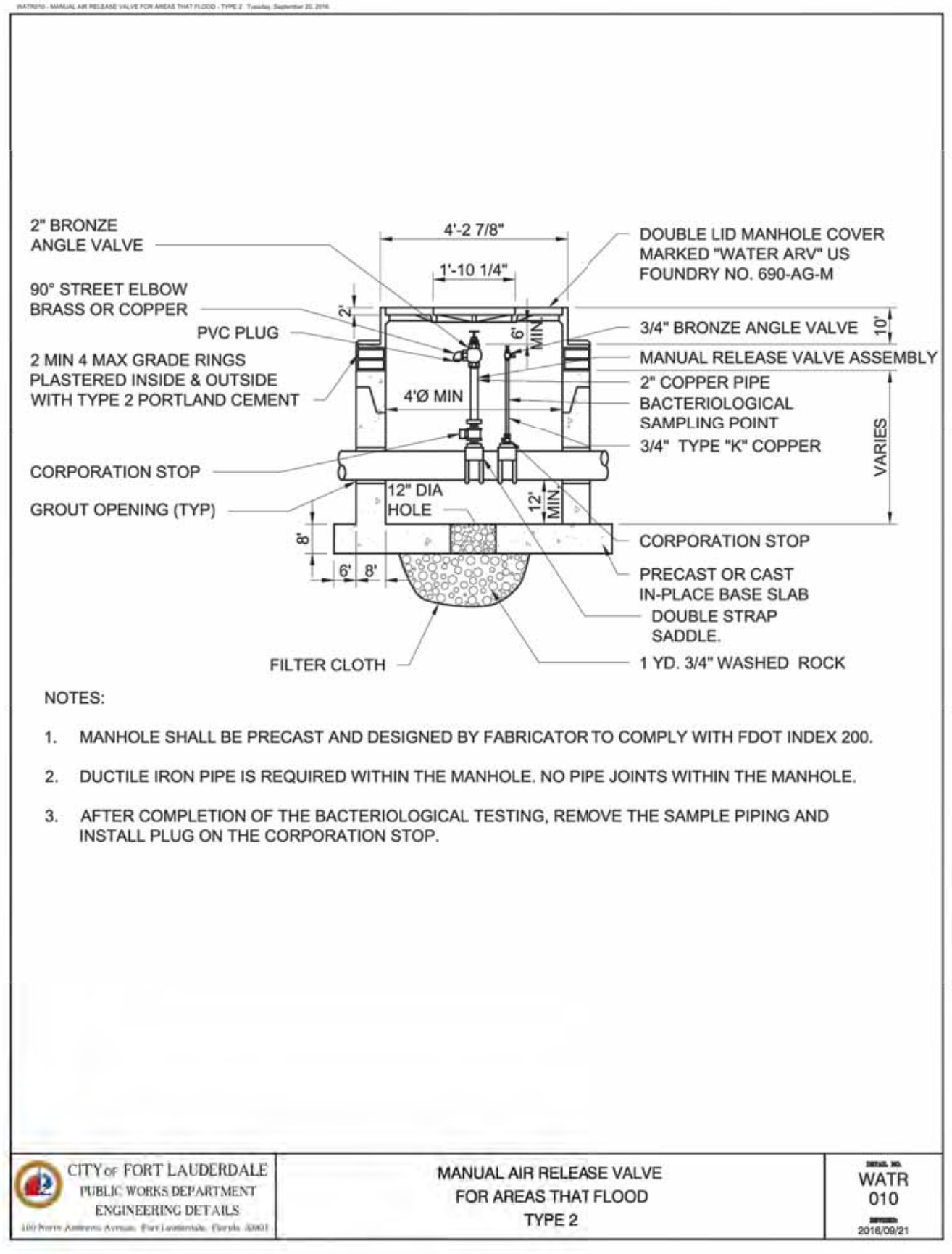
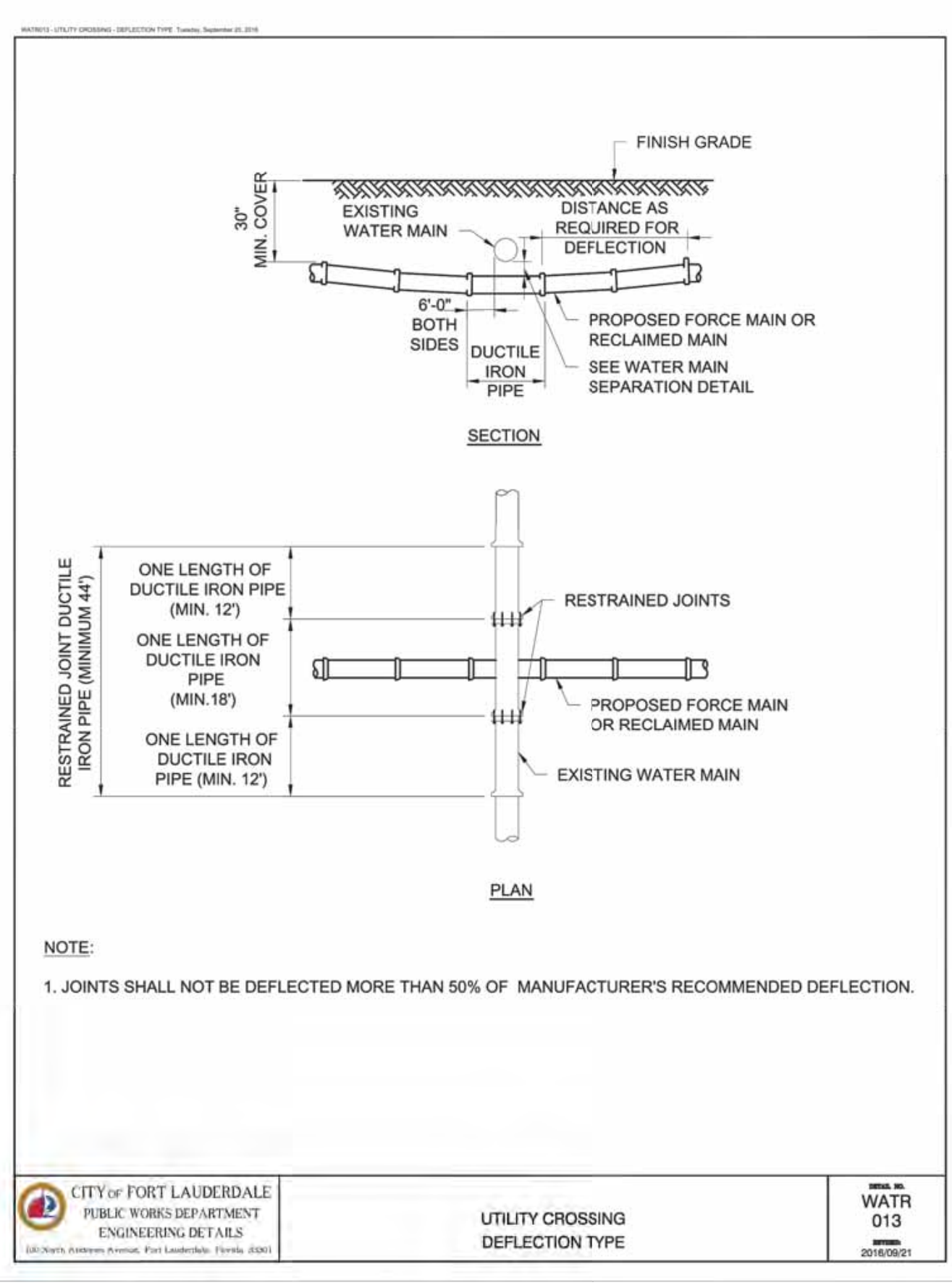
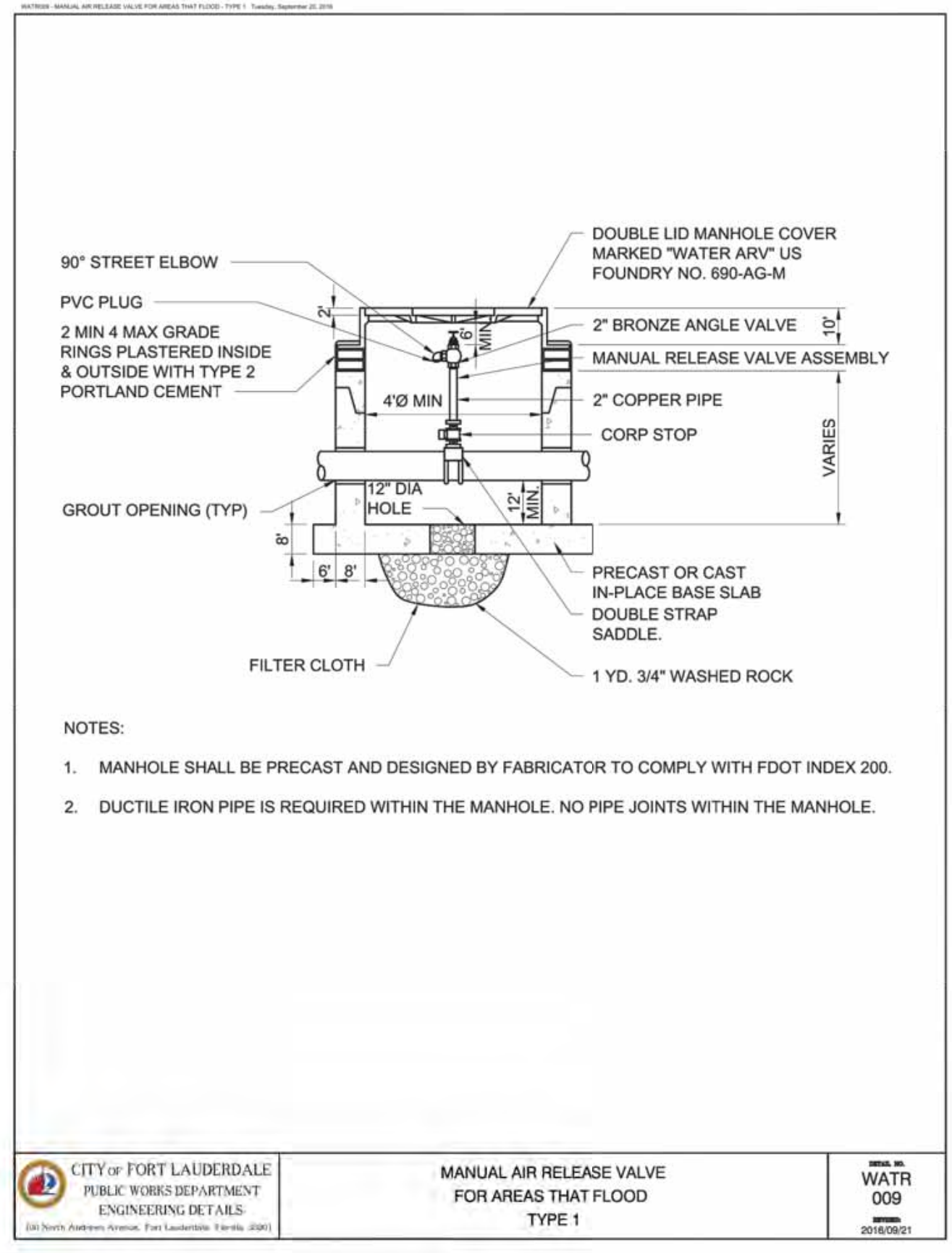
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**PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
STANDARD DETAILS**

SHEET NO.	OF
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CAD FILE: 12412-MULTI-DET	
DRAWING FILE NO. 4-142-31	

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 PUBLIC WORKS DEPARTMENT
 ENGINEERING & ARCHITECTURE
 100 North Andrews Avenue, Fort Lauderdale, Florida 33301

ENGINEER: GARY R. RAY, P.E.
 REG. NO. 46682
 DATE: 9/29/2021

DESIGNED BY: SCALE: AS NOTED
 CHECKED BY: GR
 FIELD BOOK: 33301

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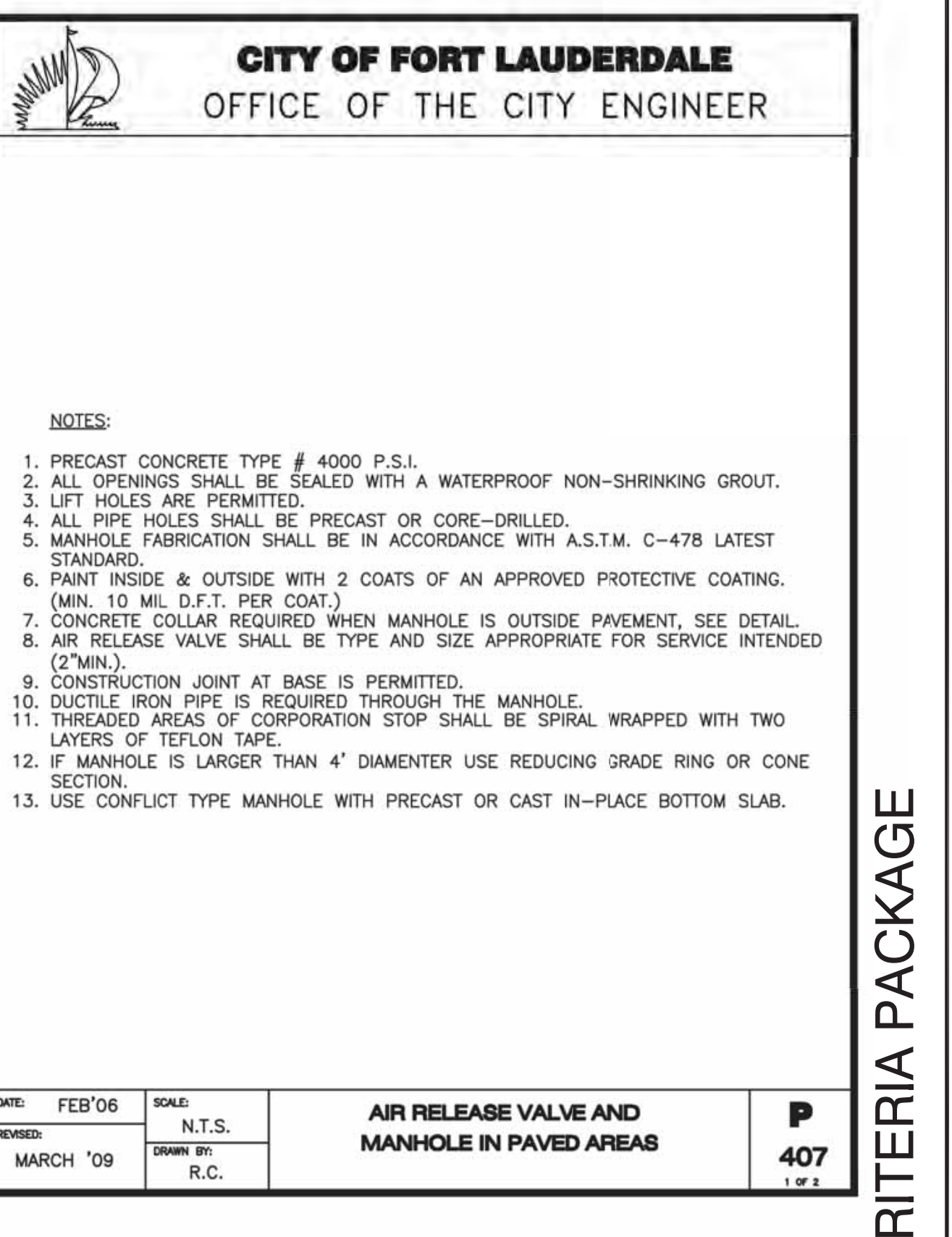
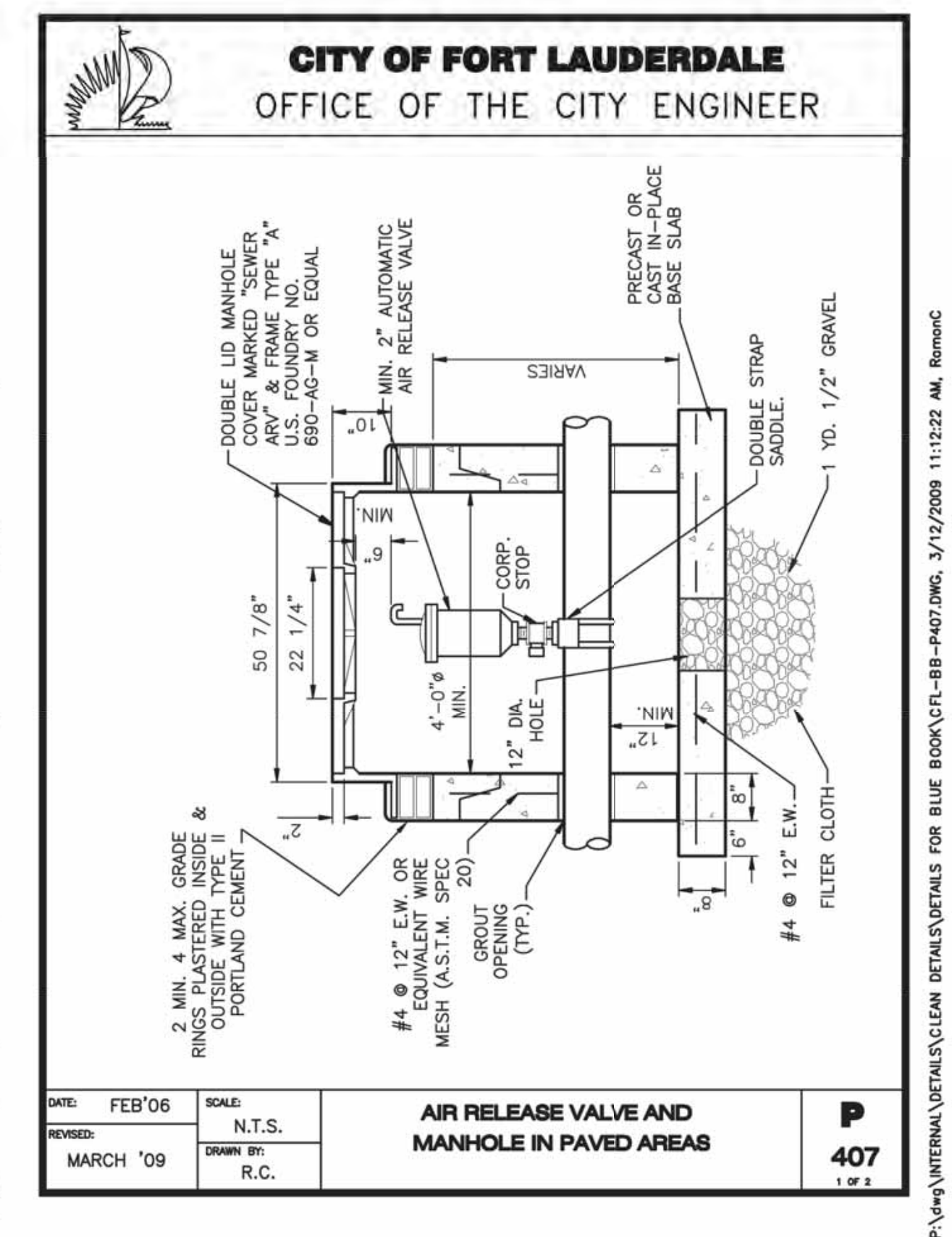
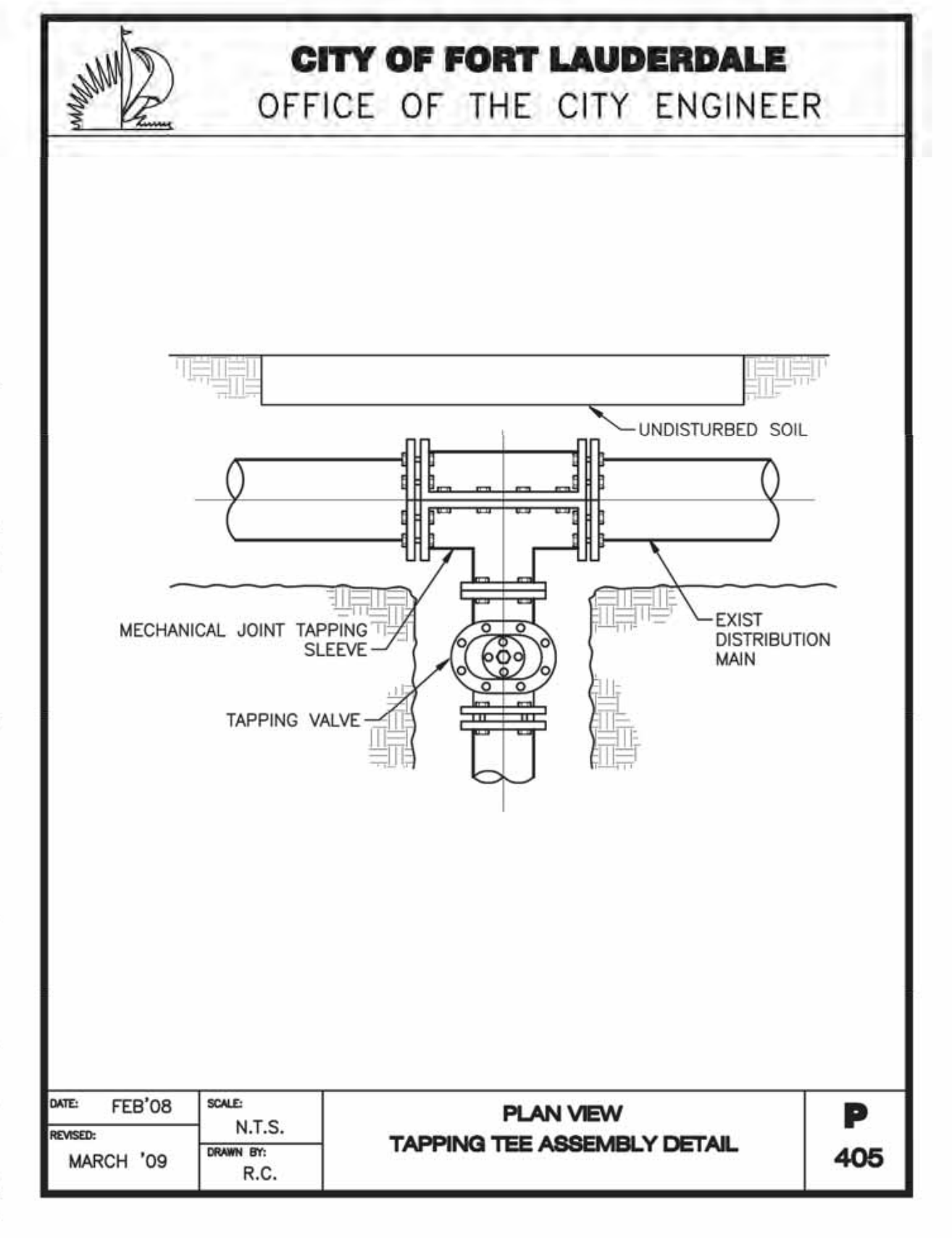
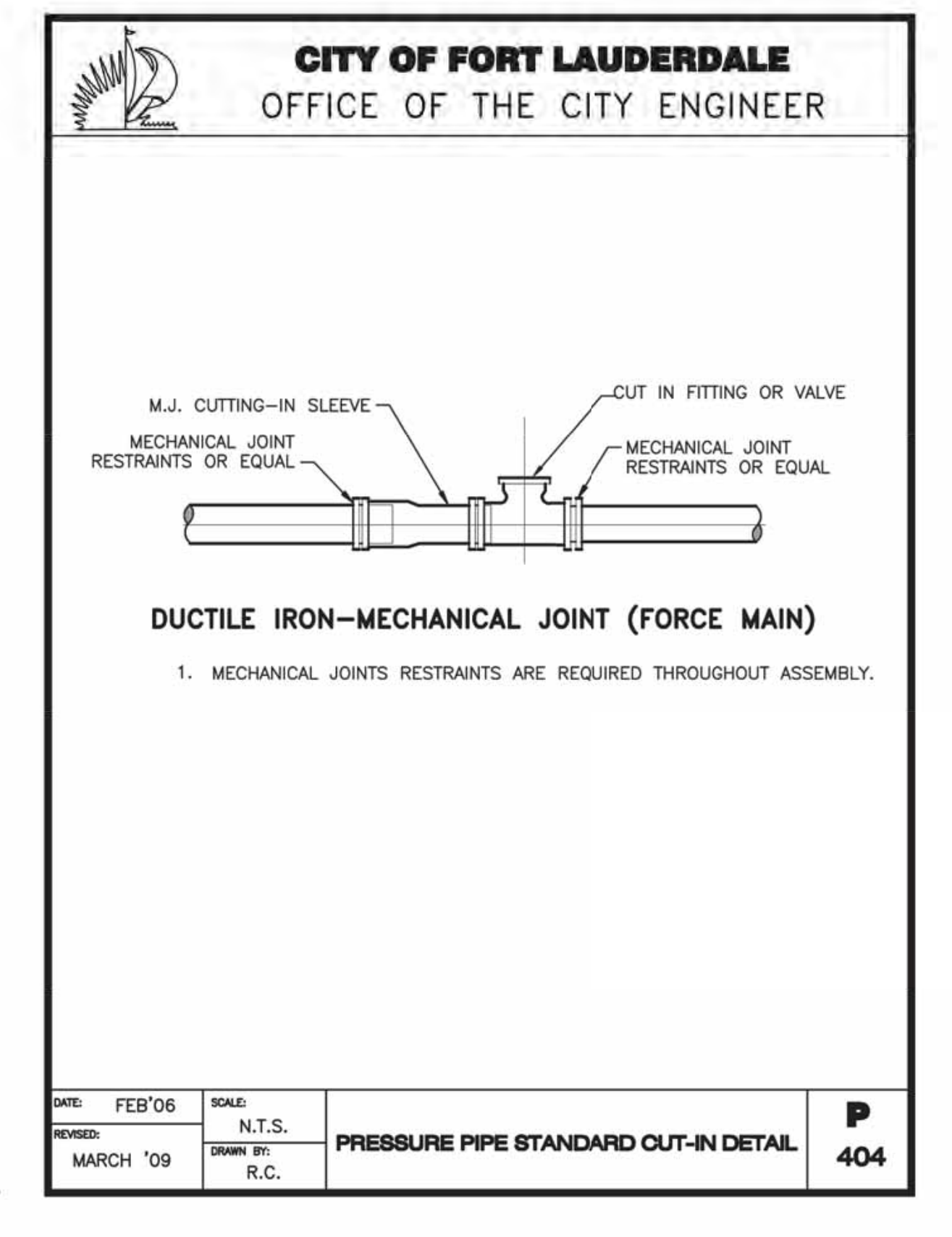
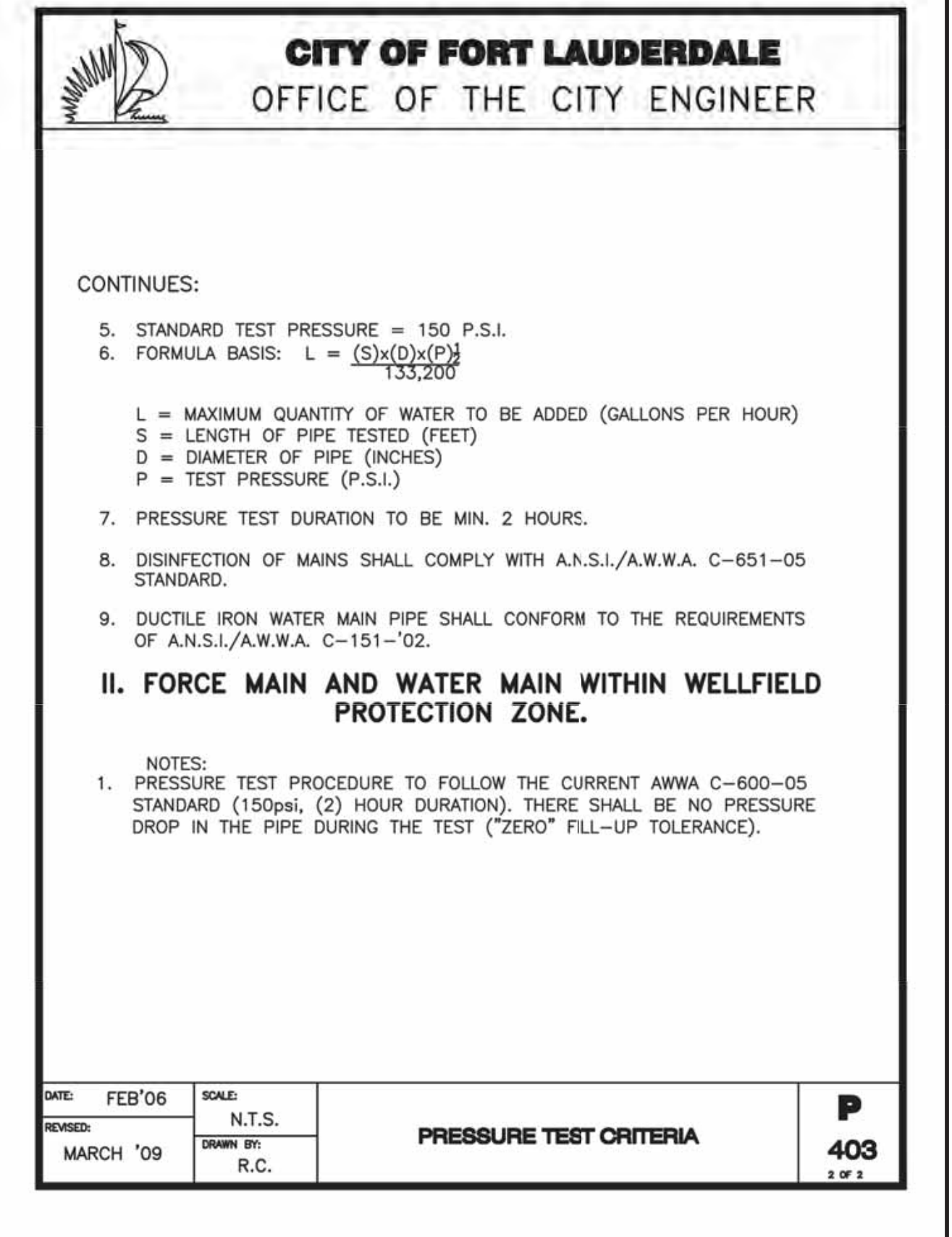
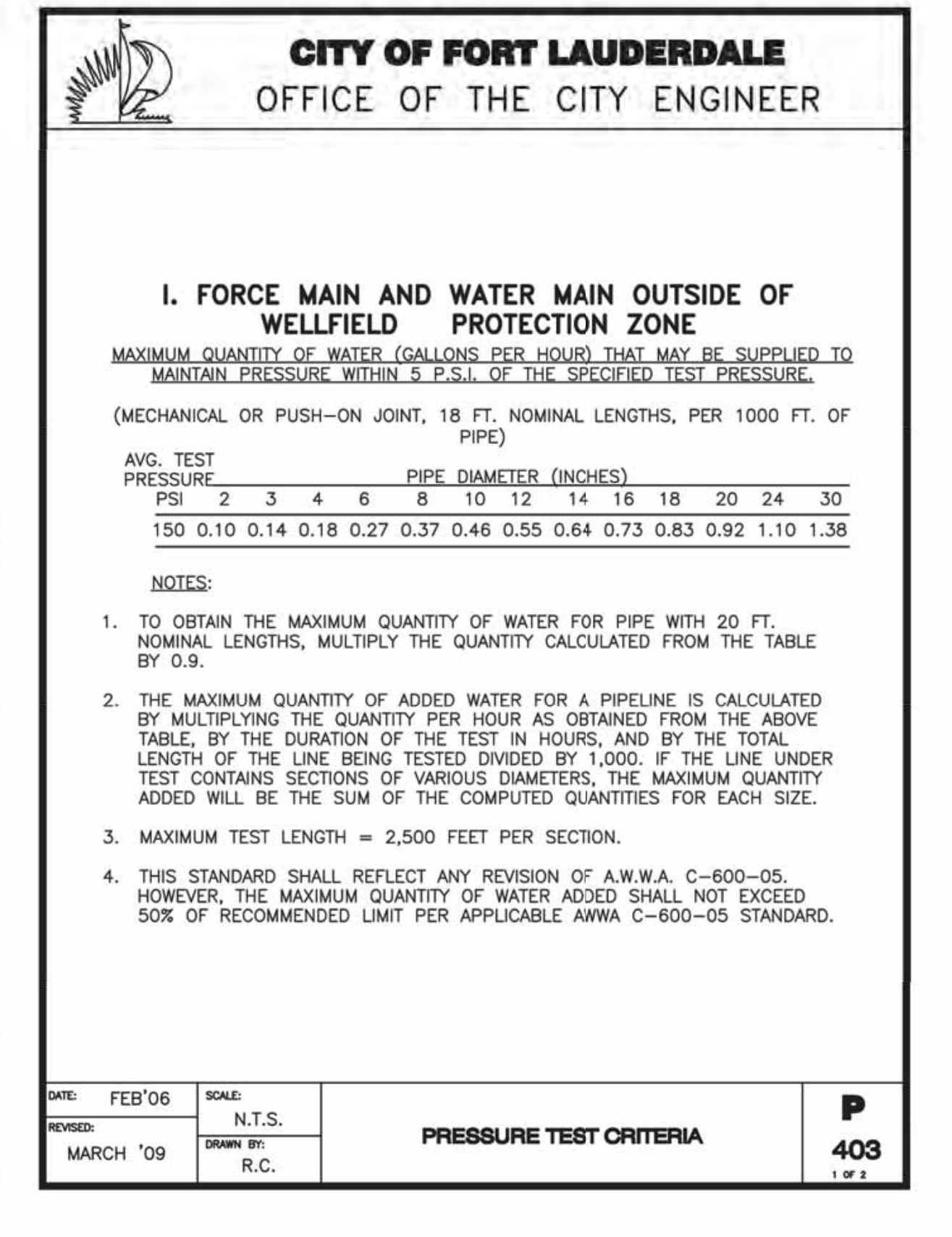
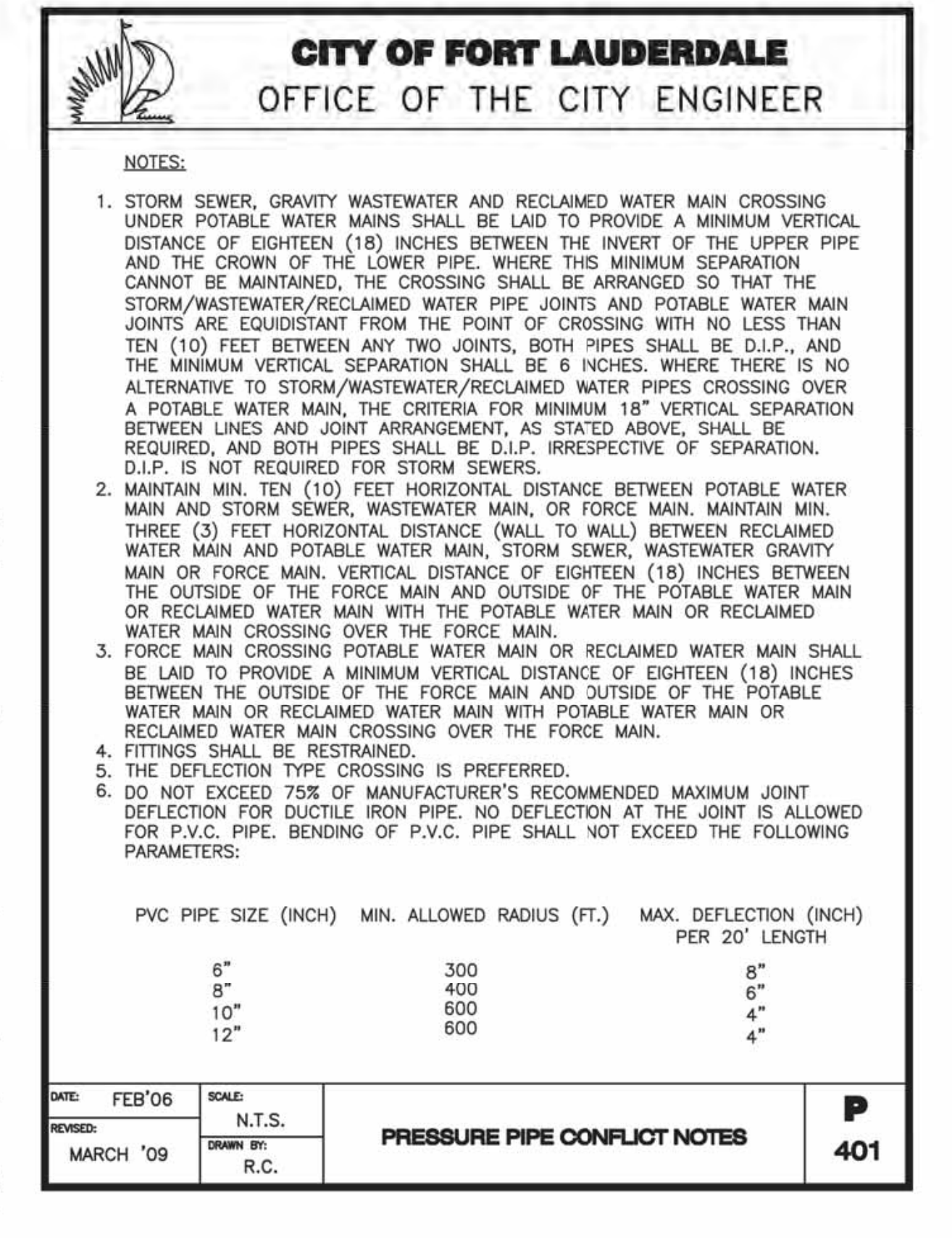
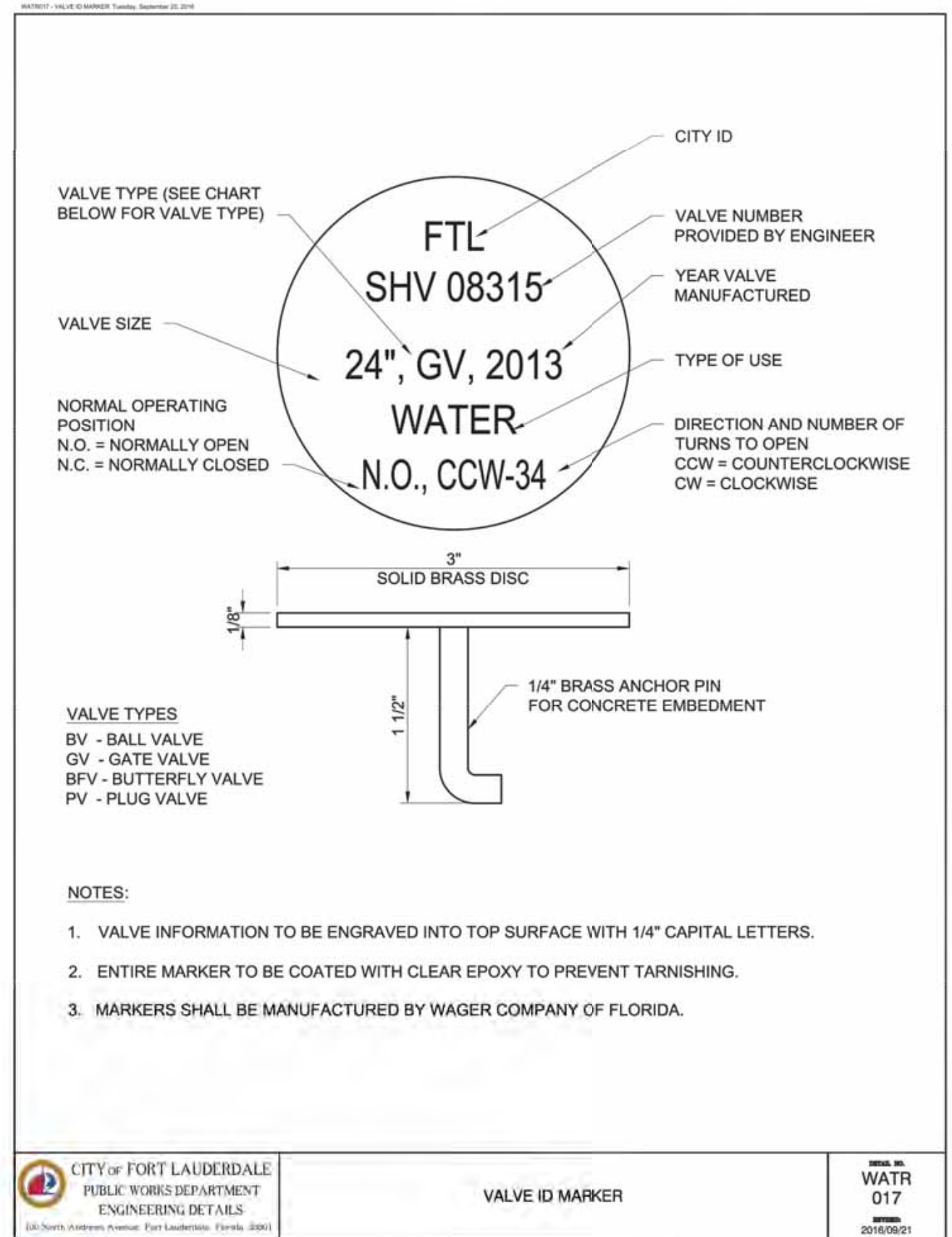
DESIGN CRITERIA PACKAGE

PROJECT # 12412
 PUMP STATION A-16 UPGRADE
 WASTEWATER DESIGN CRITERIA PACKAGE
 STANDARD DETAILS

SHEET NO. OF
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CAD FILE:
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 8201 PETERS ROAD, SUITE 2200, PLANTATION, FL 33324
 PHONE: 954-535-5100 FAX: 954-739-2247
 WWW.KIMLEY-HORN.COM REGISTRY No. 696

CITY OF FORT LAUDERDALE PUBLIC WORKS DEPARTMENT ENGINEERING & ARCHITECTURE
 100 North Andrews Avenue, Fort Lauderdale, Florida 33301

ENGINEER: GARY R. RAY, P.E. REG. No. 46682 DATE: 9/29/2021
 DRAWN BY: AL MAR 2021
 DESIGNED BY: GR AS NOTED
 CHECKED BY: GR
 FIELD BOOK: TEL: (954) 836-5100 FAX:

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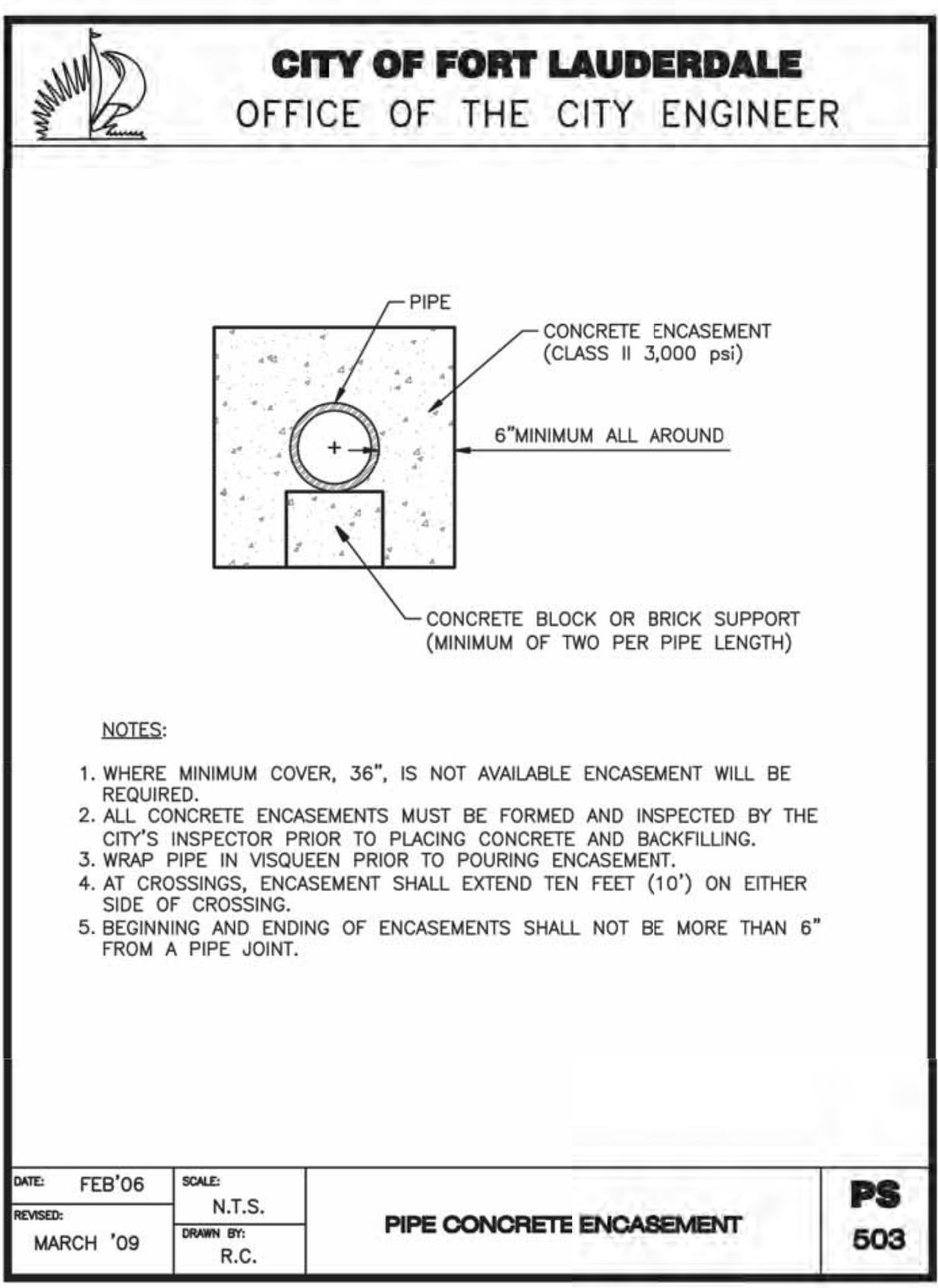
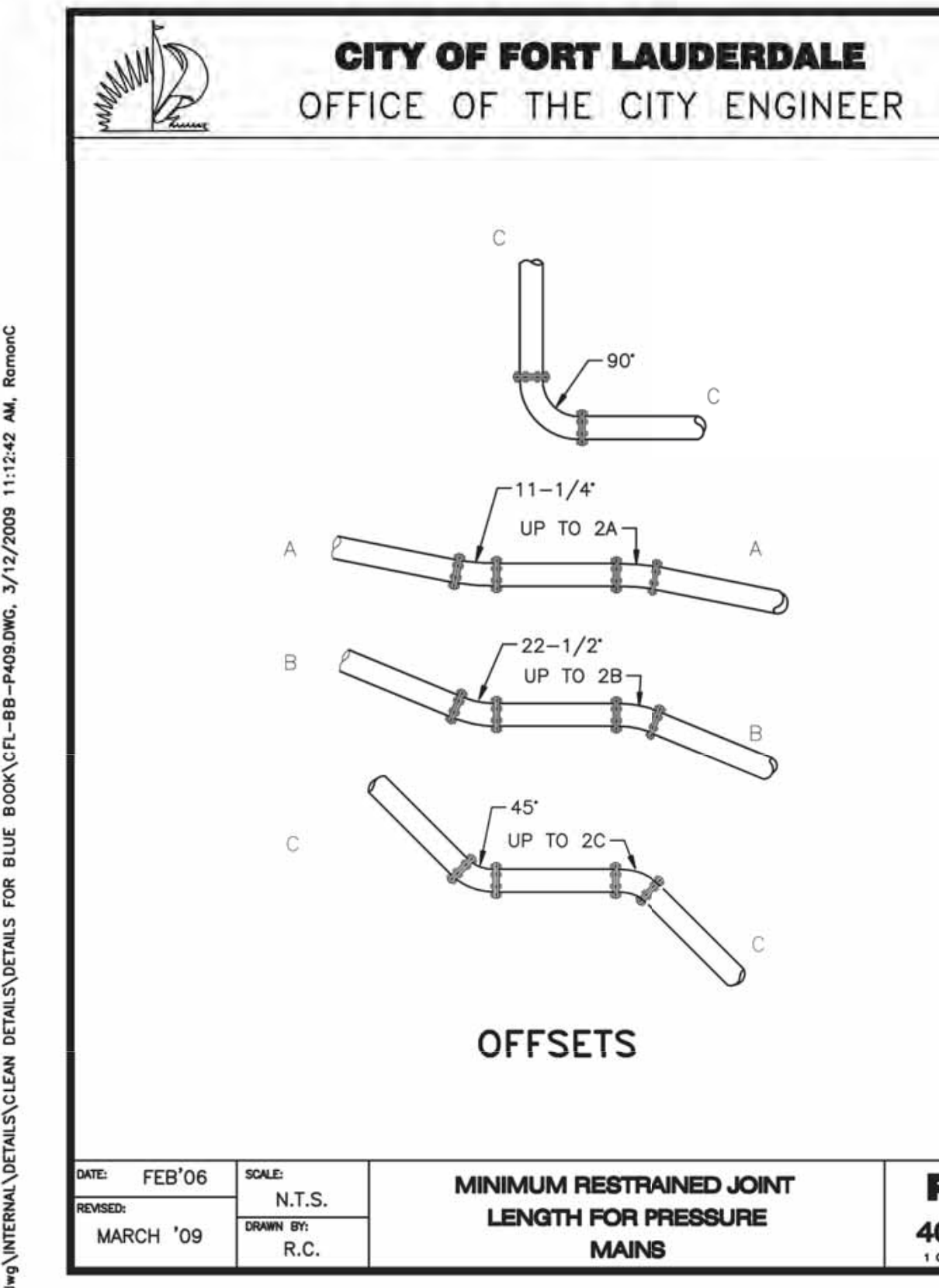
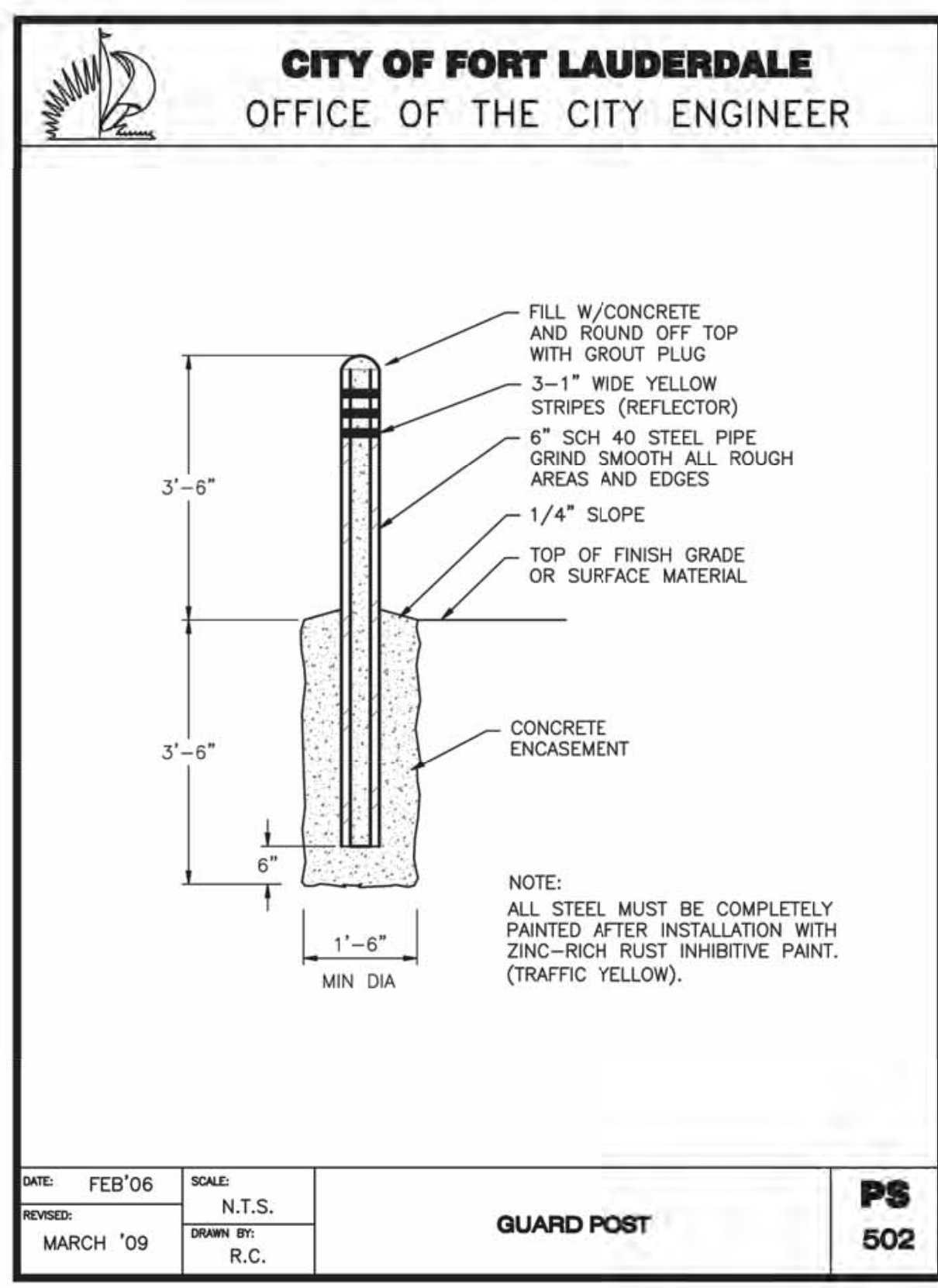
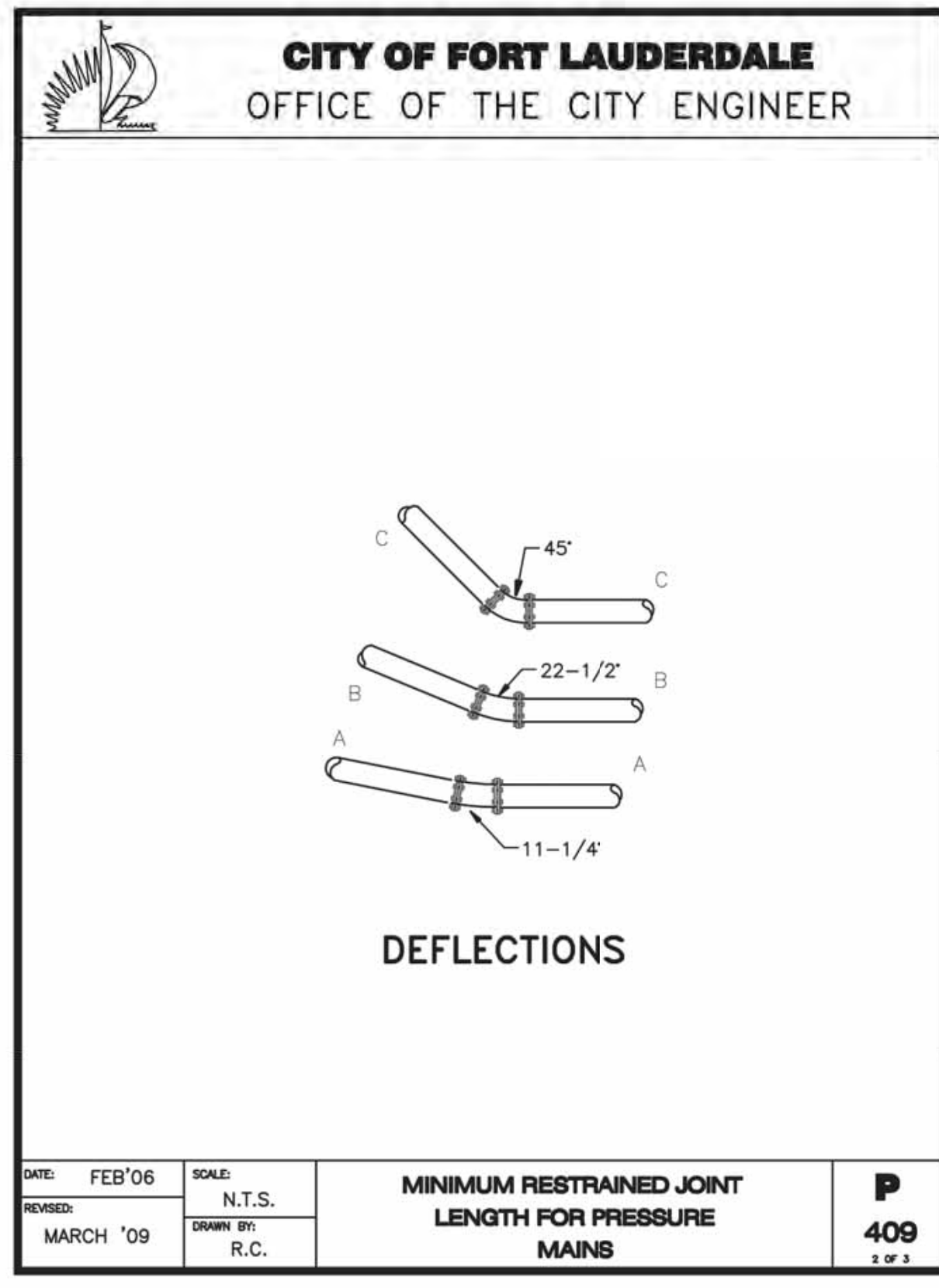
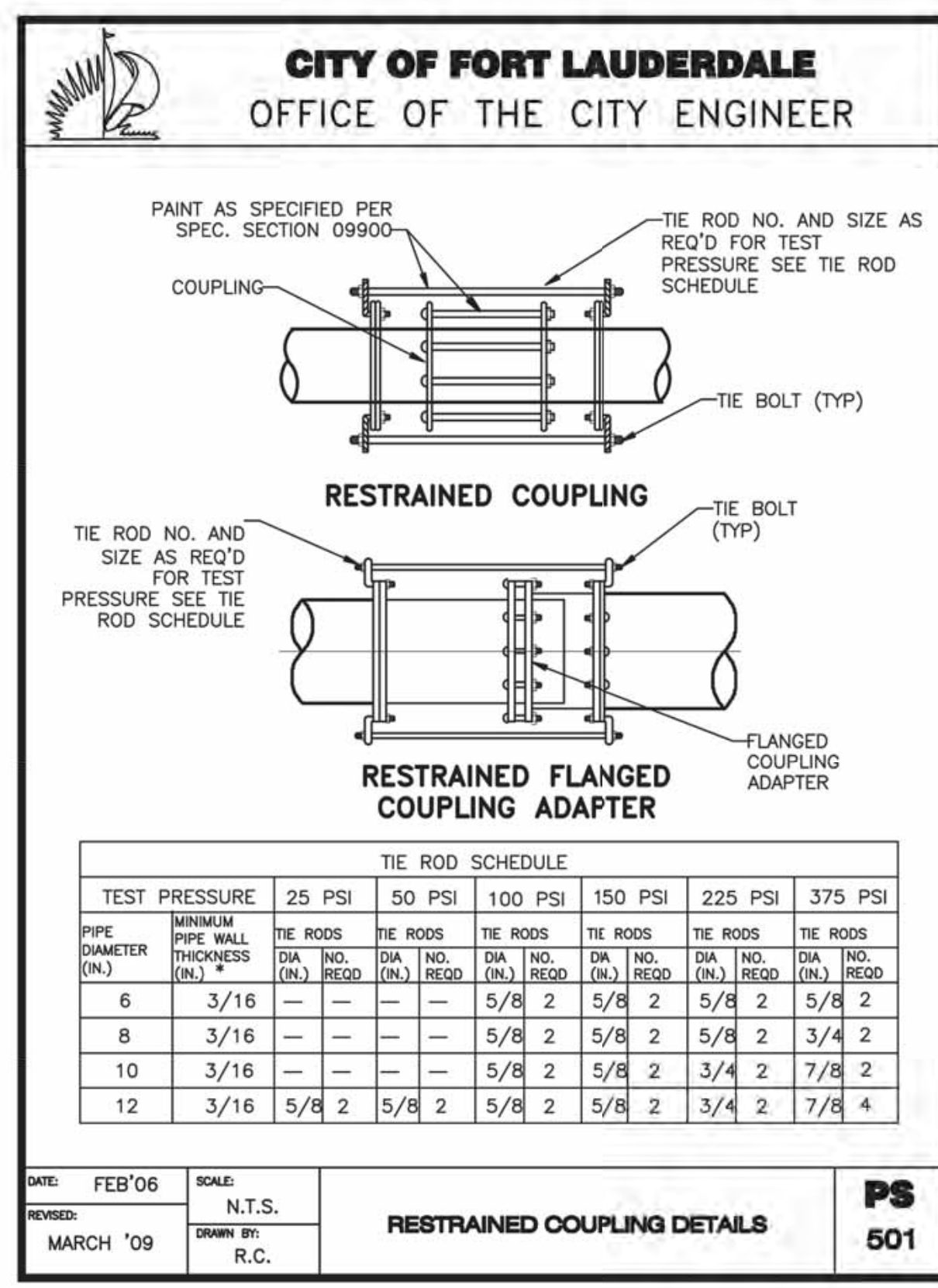
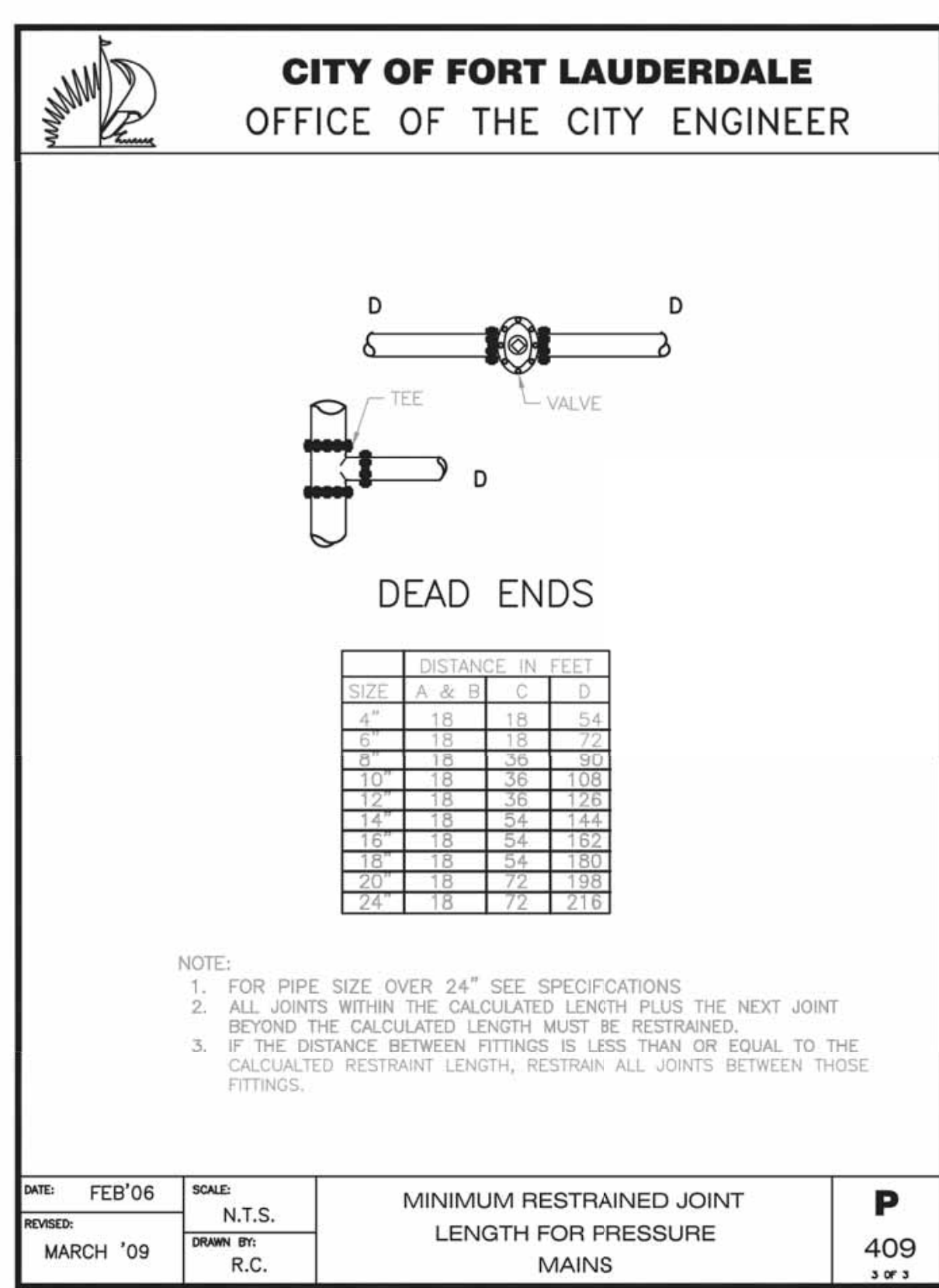
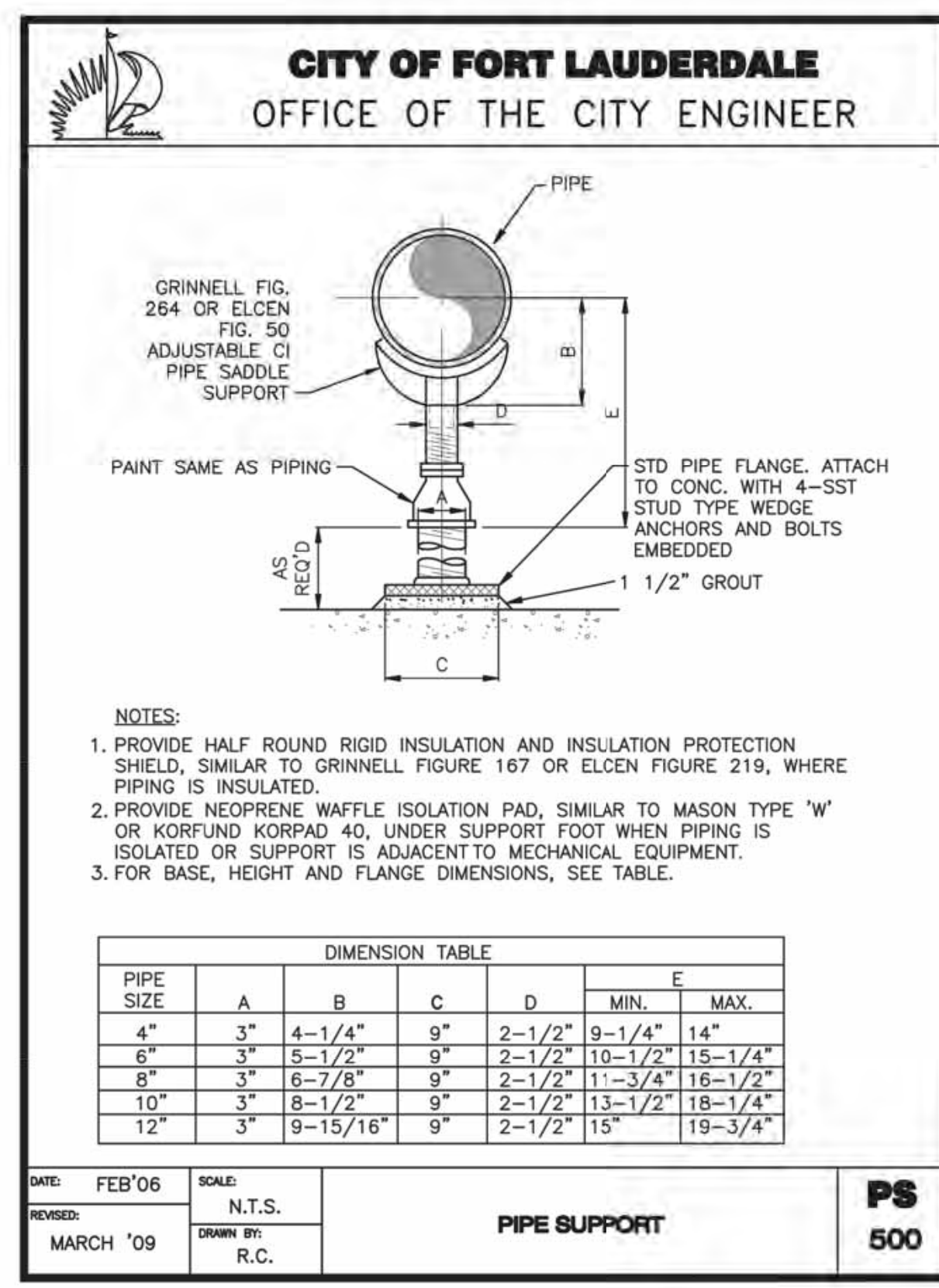
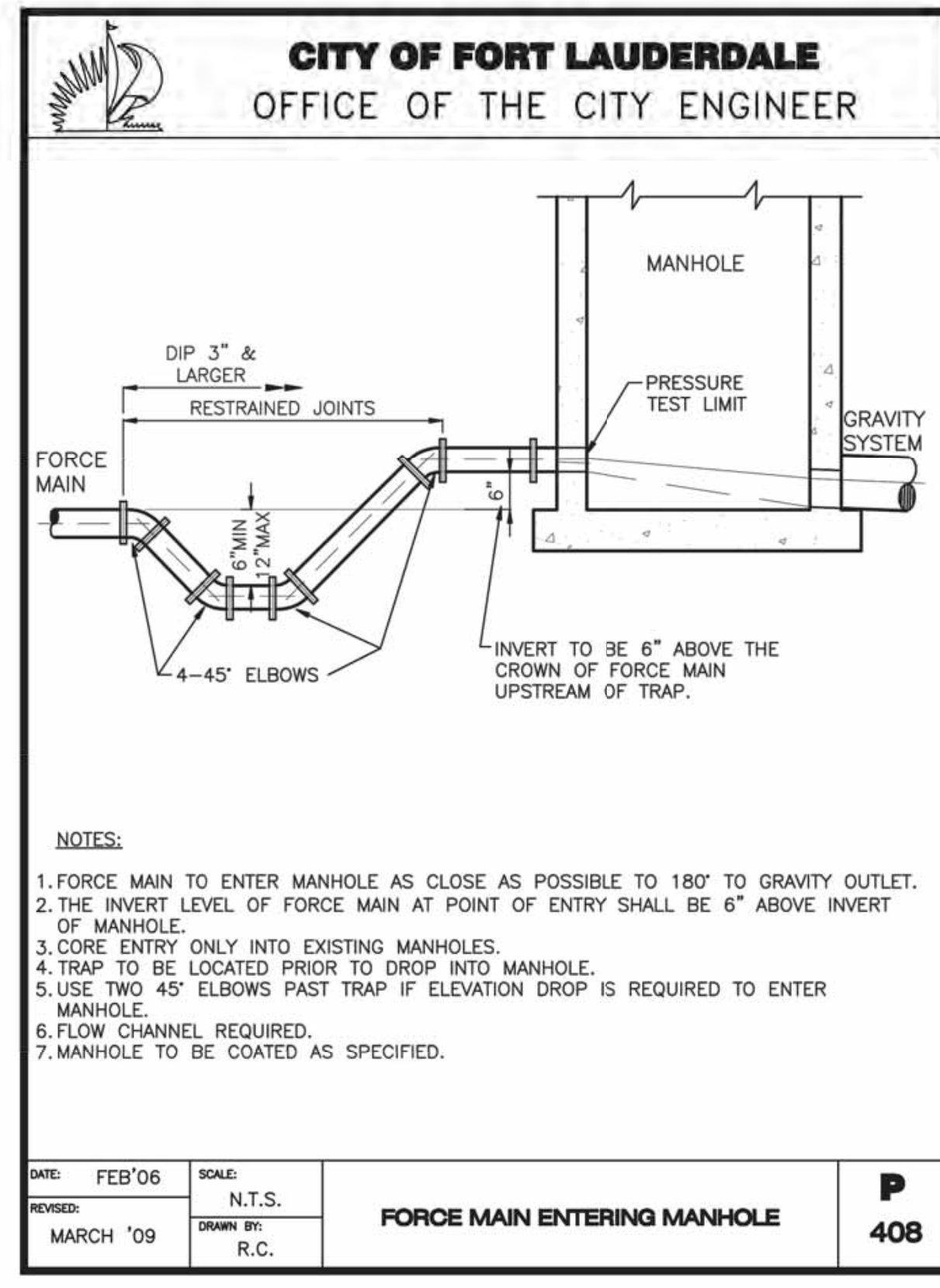
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PROJECT # 12412
 PUMP STATION A-16 UPGRADE
 WASTEWATER DESIGN CRITERIA PACKAGE
 STANDARD DETAILS

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ENGINEER: GARY R. RAY, P.E.
REG. NO: 46682
DATE: 9/29/2021

DESIGNED BY: SCALE: AS NOTED
CHECKED BY: GR AS NOTED
FIELD BOOK: GR

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

NO.	DATE	BY (CHKD)	DESCRIPTION

DESIGN CRITERIA PACKAGE

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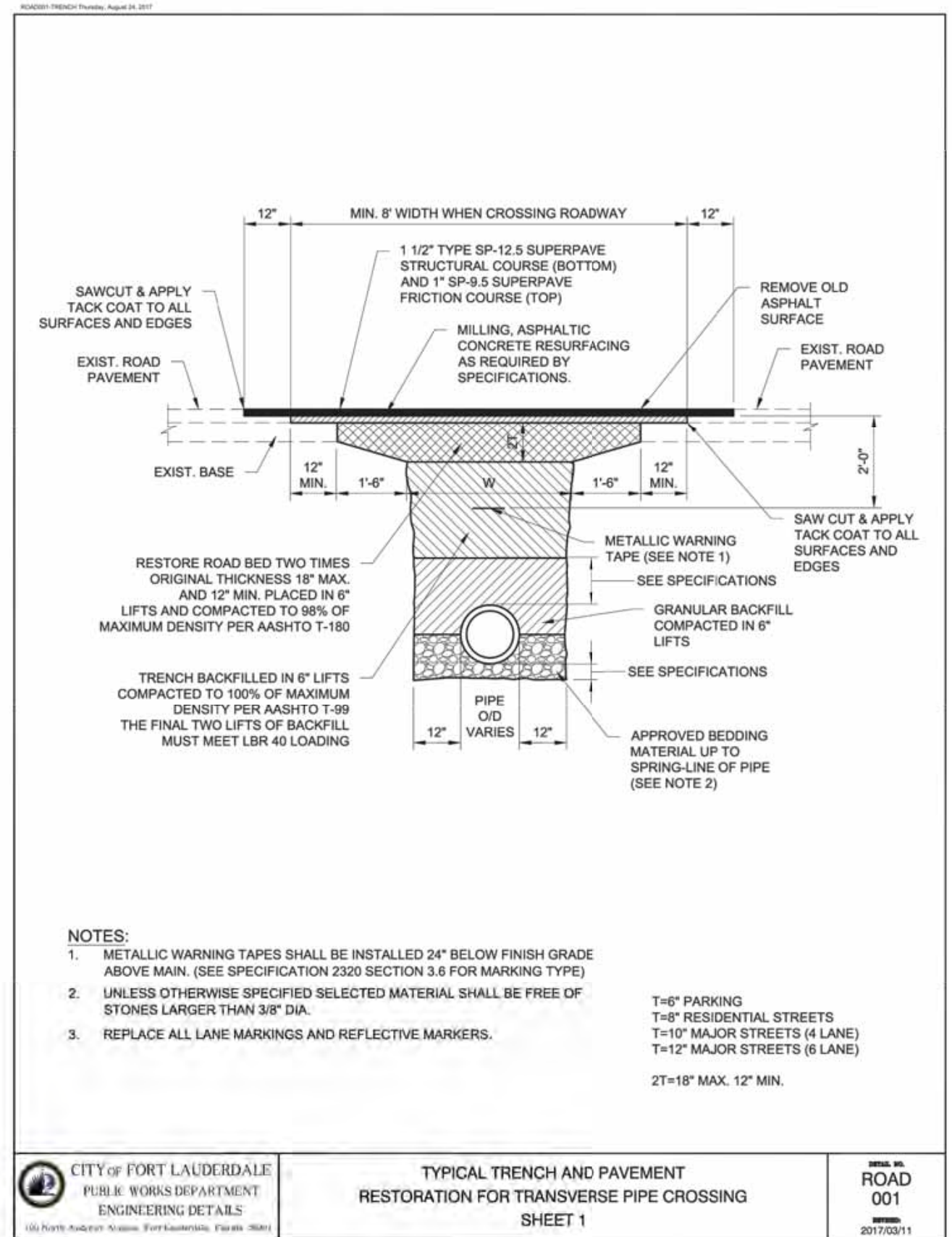


PREPARED BY:

Kimley»Horn

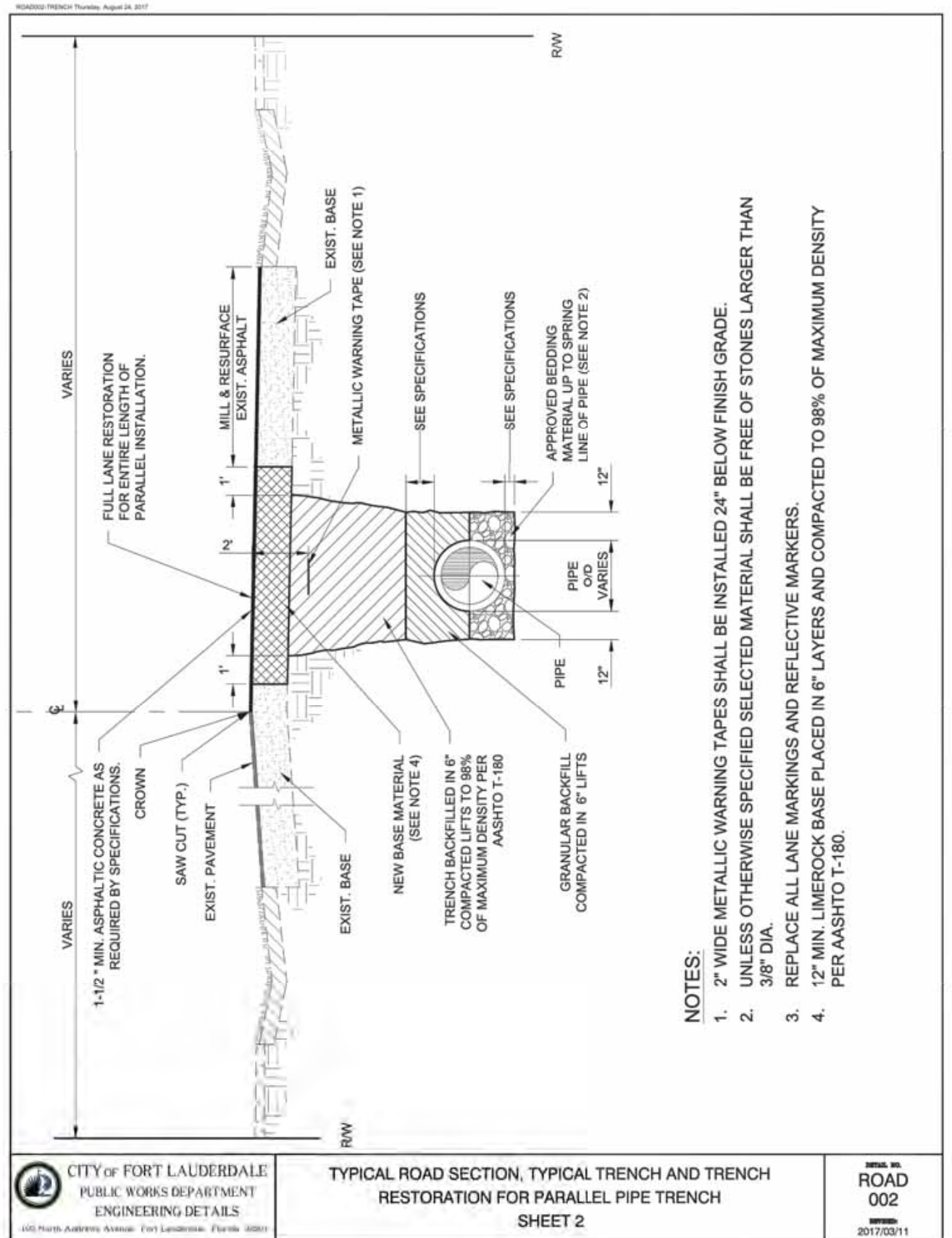
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WWW.KIMLEY-HORN.COM REGISTRY No. 696

Printed By: Moring, Morissa; Sheet: Set: PUMP STATION A-16 DESIGN CRITERIA PACKAGE; Layout: DETAIL-16 September 28, 2021 04:14:32pm; K:\YH\civil\043_jobs\043184401_cno 12412-multi-del.dwg; This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Release of and improper reliance on this document without written authorization and approval by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



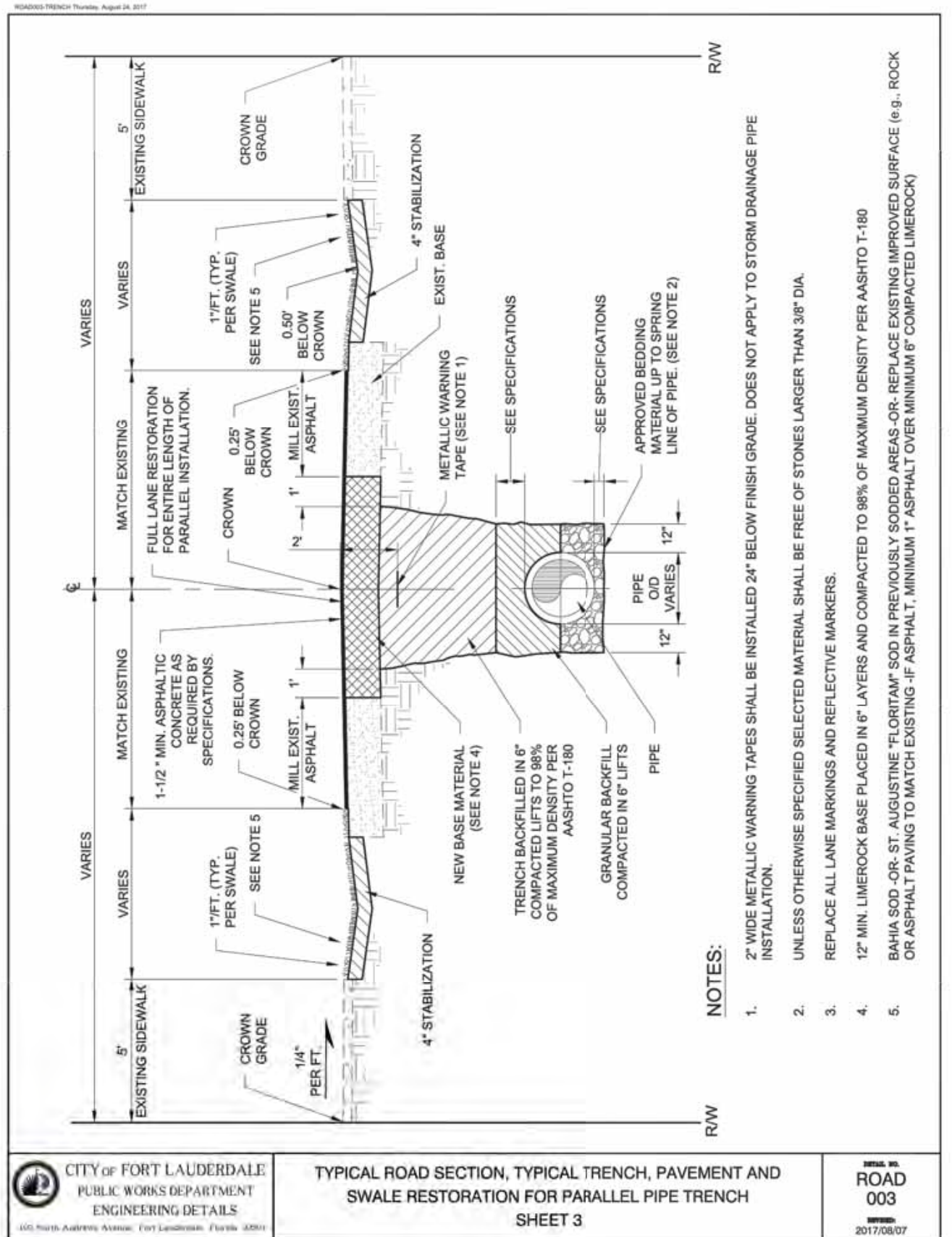
CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DETAILS
ROAD 001
201702011

TYPICAL TRENCH AND PAVEMENT RESTORATION FOR TRANSVERSE PIPE CROSSING SHEET 1



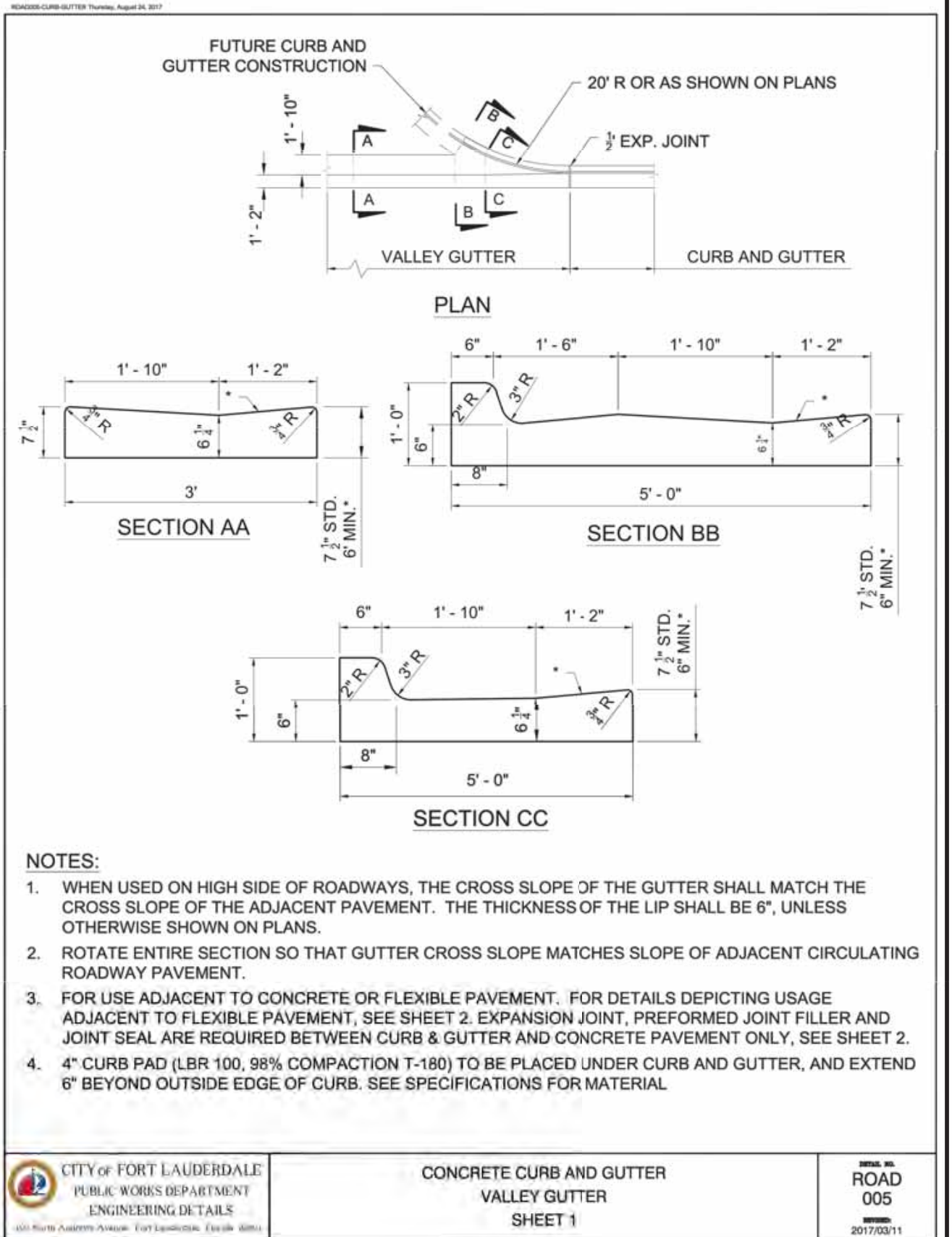
CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DETAILS
ROAD 002
201702011

TYPICAL ROAD SECTION, TYPICAL TRENCH AND TRENCH RESTORATION FOR PARALLEL PIPE TRENCH SHEET 2



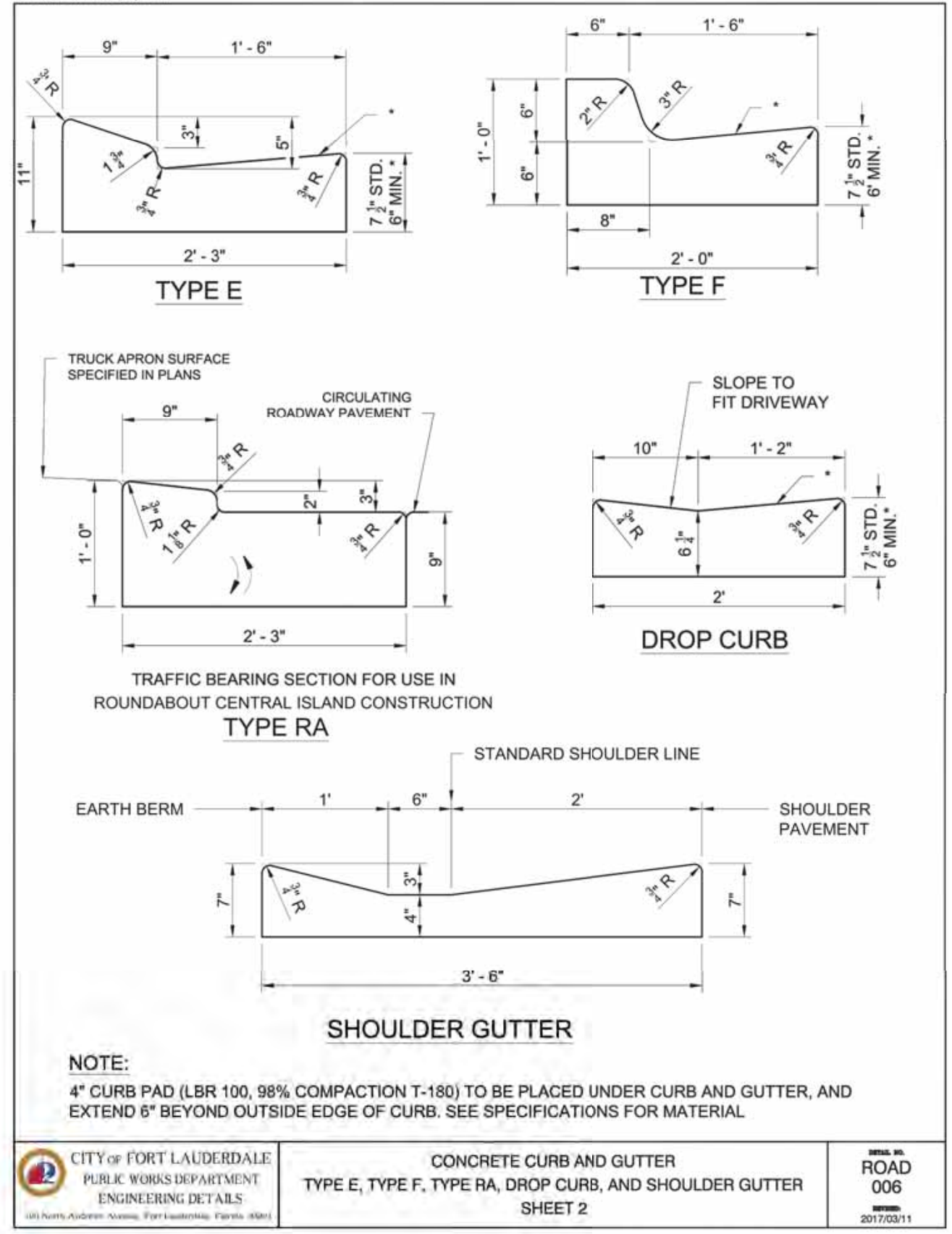
CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DETAILS
ROAD 003
201702011

TYPICAL ROAD SECTION, TYPICAL TRENCH, PAVEMENT AND SWALE RESTORATION FOR PARALLEL PIPE TRENCH SHEET 3



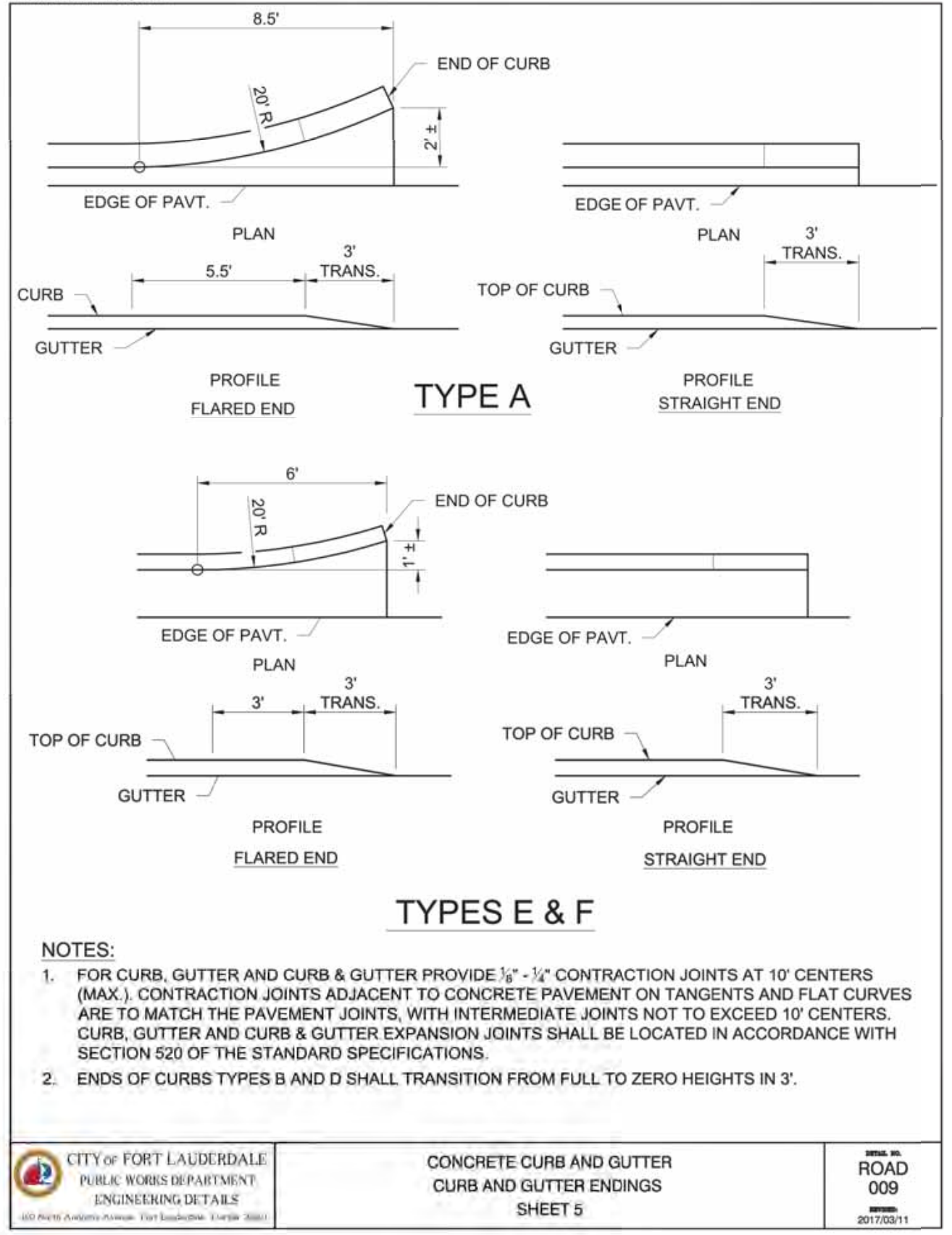
CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DETAILS
ROAD 005
201702011

CONCRETE CURB AND GUTTER VALLEY GUTTER SHEET 1



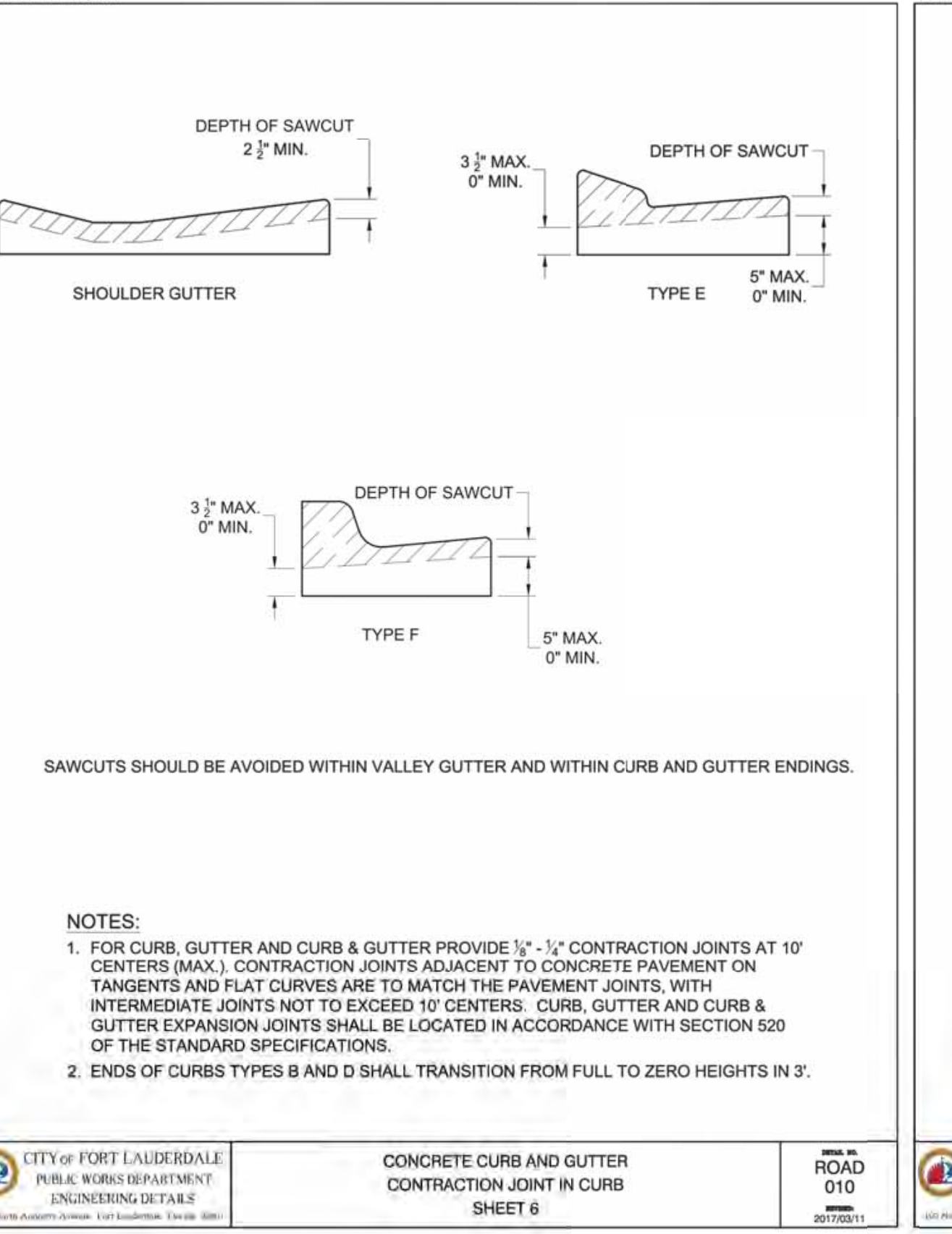
CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DETAILS
ROAD 006
201702011

CONCRETE CURB AND GUTTER TYPE E, TYPE F, TYPE RA, DROP CURBS, AND SHOULDER GUTTER SHEET 2



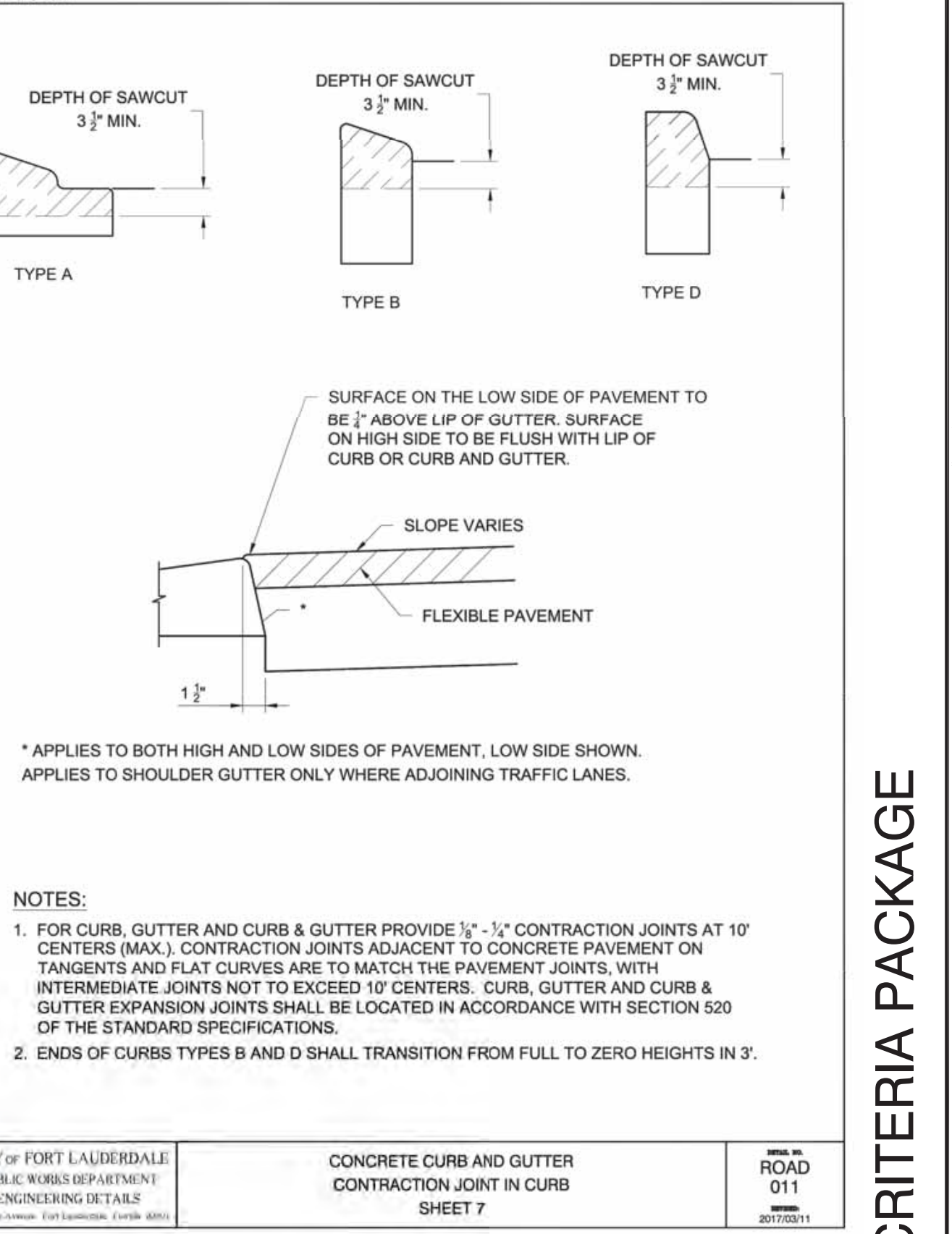
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PUBLIC WORKS DEPARTMENT
ENGINEERING DETAILS
ROAD 009
201702011

CONCRETE CURB AND GUTTER CURB AND GUTTER ENDINGS SHEET 5



CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DETAILS
ROAD 010
201702011

CONCRETE CURB AND GUTTER CONTRACTION JOINT IN CURB SHEET 6



CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DETAILS
ROAD 011
201702011

CONCRETE CURB AND GUTTER CONTRACTION JOINT IN CURB SHEET 7



PREPARED BY:
Kimley»Horn

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8201 PETERS ROAD, SUITE 2200, PLANTATION, FL 33324
PHONE: 954-535-5100 FAX: 954-739-2247
WWW.KIMLEY-HORN.COM REGISTRY No. 696

ENGINEER: GARY R. RAY, P.E.
REG. NO. 46682
DATE: 9/29/2021

DESIGNED BY: SCALE: AS NOTED
CHECKED BY: GR

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

FIELD BOOK: 064-855-5100

NO.	DATE	BY	CHKD	DESCRIPTION

DESIGN CRITERIA PACKAGE

PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
STANDARD DETAILS

SHEET NO.	OF
16	31
CAD FILE: 12412-MULTI-DET	
DRAWING FILE NO. 4-142-31	

Plotted By: Moring, Morissa. Sheet: Sct:PUMP STATION A-16 DESIGN CRITERIA PACKAGE. Layout: DETAIL-17. September 28, 2021. 04:14:38pm. K:\VTL\civil\043_jobs\043184401_cno 12412-a-16 ps a-16 rev location\CAD\plan\sheet\12412-MULTI-DET.dwg. This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Release of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

GENERAL NOTES

- SIDEWALK CURB RAMPS SHALL BE CONSTRUCTED AT LOCATIONS THAT WILL PROVIDE CONTINUOUS UNOBSTRUCTED PEDESTRIAN CIRCULATION PATH TO PEDESTRIAN AREAS, ELEMENTS AND FACILITIES WITHIN THE RIGHT OF WAY AND TO ACCESSIBLE PEDESTRIAN ROUTES ON ADJACENT SITES. CURBED FACILITIES WITH SIDEWALKS AND THOSE WITHOUT SIDEWALKS ARE TO HAVE CURB RAMPS CONSTRUCTED FOR ALL INTERSECTIONS AND TURNOUTS WITH CURBED RETURNS. TO ACCOMMODATE CURB RAMPS, PARTIAL CURB RETURNS ARE TO EXTEND TO THE LIMITS PRESCRIBED IN INDEX NO. 515. RAMPS CONSTRUCTED AT LOCATIONS WITHOUT SIDEWALKS ARE TO HAVE A LANDING CONSTRUCTED AT THE TOP OF EACH RAMP. SEE LANDINGS FOR CURB RAMPS WITHOUT SIDEWALKS.
- WHEN ALTERING EXISTING PEDESTRIAN FACILITIES WHERE EXISTING RESTRICTED CONDITIONS PRECLUDE THE ACCOMMODATION OF A RAMP SLOPE OF 1:12, A RAMP SLOPE BETWEEN 1:12 AND 1:10 IS PERMITTED FOR A RISE OF 6" MAXIMUM. WHERE COMPLIANCE WITH THE REQUIREMENTS FOR CROSS SLOPE CANNOT BE FULLY MET, THE MINIMUM FEASIBLE CROSS SLOPE SHALL BE PROVIDED. RAMP SLOPES ARE NOT REQUIRED TO EXCEED 19' IN LENGTH.
- IF SIDEWALK CURB RAMPS ARE LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP, THEN PROVIDED TRANSITION SLOPES TO THE RAMP, OTHERWISE A SIDEWALK CURB MAY BE REQUIRED.
- ALL SIDEWALKS, RAMPS, AND LANDINGS WITH A CROSS SLOPE OF 0.02 SHOWN IN THIS INDEX ARE 0.02 MAXIMUM. ALL RAMP SLOPES SHOWN IN THIS INDEX AS 1:12 ARE 1:12 MAXIMUM. LANDINGS SHALL HAVE SLOPES LESS THAN OR EQUAL TO 0.02 IN ANY DIRECTION.
- GRADE BREAKS AT THE TOP AND BOTTOM OF RAMPS SHALL BE PARALLEL TO EACH OTHER AND PERPENDICULAR TO THE DIRECTION OF THE RAMP SLOPE.
- WHERE A SIDEWALK CURB RAMP IS CONSTRUCTED WITHIN EXISTING CURB, CURB AND GUTTER AND/OR SIDEWALK, THE EXISTING CURB OR CURB AND GUTTER SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE CURB TRANSITION OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB AND GUTTER IS LESS THAN 6' LONG. EXISTING SIDEWALKS SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE TRANSITION SLOPE OR TO THE EXTENT THAT NO REMAINING SECTION OF SIDEWALK IS LESS THAN 6' LONG. FOR CONCRETE SIDEWALK DETAILS REFER TO INDEX 310.
- SIDEWALK CURB RAMP ALPHA-IDENTIFICATIONS ARE FOR REFERENCE PURPOSES (PLANS, PERMITS, ETC.). ALPHA-IDENTIFICATIONS CR1 AND CR2 WERE INTENTIONALLY OMITTED.
- DETECTABLE WARNINGS SHALL EXTEND THE FULL WIDTH OF THE RAMP AND TO A DEPTH OF 2'. DETECTABLE WARNINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SPECIFICATION SECTION 527. FOR THE LAYOUT OF DETECTABLE WARNINGS, REFER TO THE TYPICAL PLACEMENT OF DETECTABLE WARNINGS DETAILS. DETECTABLE WARNINGS SHALL NOT BE PROVIDED ON TRANSITION SLOPES.
- WHEN DETECTABLE WARNINGS ARE PLACED ON A SLOPE GREATER THAN 5%, DOMES SHALL BE ALIGNED WITH THE CENTERLINE OF THE RAMP; OTHERWISE DOMES ARE NOT REQUIRED TO BE ALIGNED.
- DETECTABLE WARNINGS SHALL BE REQUIRED ON SIDEWALKS AND SHARED USE PATHS AT:
 - INTERSECTING ROADS
 - MEDIAN CROSSINGS GREATER THAN OR EQUAL TO 6' IN WIDTH
 - RAILROAD CROSSINGS
 - SIGNALIZED DRIVEWAYS
- DETECTABLE WARNINGS - ACCEPTANCE CRITERIA:
 - COLOR AND TEXTURE SHALL BE COMPLETE AND UNIFORM
 - 90% OF INDIVIDUAL TRUNCATED DOMES SHALL BE IN
 - ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT STANDARDS FOR TRANSPORTATION FACILITIES, SECTION 705
 - THERE SHALL BE NO MORE THAN 4 NON-COMPLIANT DOMES IN ANY ONE SQUARE FOOT
 - NON-COMPLIANT DOMES SHALL NOT BE ADJACENT TO OTHER NON-COMPLIANT DOMES
 - SURFACES SHALL NOT DEVIATE MORE THAN 0.10" FROM A TRUE PLANE
- DETECTABLE WARNINGS SHALL BE INSTALLED NO GREATER THAN 6' FROM THE BACK OF CURB OR EDGE OF PAVEMENT.
- DETECTABLE WARNINGS SHALL NOT BE INSTALLED OVER GRADE BREAKS.

LEGEND

DETECTABLE WARNINGS

DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DETAILS

ROAD 013
20170311

CONCRETE SIDEWALK ON CURBED ROADWAYS

PLAN
SIDEWALK WITH UTILITY STRIP

SECTION AA

NOTES FOR CONCRETE SIDEWALK ON CURBED ROADWAYS

- CONSTRUCT SIDEWALKS IN ACCORDANCE WITH SPECIFICATION SECTION 522.
- INCLUDE DETECTABLE WARNINGS ON SIDEWALK CURB RAMPS AND CONSTRUCT IN ACCORDANCE WITH INDEX NO. 304.
- DETECTABLE WARNINGS ARE NOT REQUIRED WHERE SIDEWALKS INTERSECT URBAN FLARED TURNOUTS.
- BOND BREAKER MATERIAL CAN BE ANY IMPERMEABLE COATED OR SHEET MEMBRANE OR PREFORMED MATERIAL HAVING A THICKNESS OF NOT LESS THAN 6 MILS NOR MORE THAN 1/2".
- FOR TURNOUTS SEE INDEX NO. 515.
- CONSTRUCT SIDEWALKS WITH 1" THICK EDGE BEAM THROUGH THE LIMITS OF ANY SURFACE MOUNTED PEDESTRIAN/BICYCLE PICKET RAILING OR PIPE GUIDERAIL SHOWN IN THE PLANS.

CONCRETE SIDEWALK ON CURBED ROADWAYS

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DETAILS

ROAD 035
20170311

CONCRETE SIDEWALK ON CURBED ROADWAYS

PLAN
SIDEWALK WITHOUT UTILITY STRIP

SECTION BB

NOTES FOR CONCRETE SIDEWALK ON CURBED ROADWAYS

- CONSTRUCT SIDEWALKS IN ACCORDANCE WITH SPECIFICATION SECTION 522.
- INCLUDE DETECTABLE WARNINGS ON SIDEWALK CURB RAMPS AND CONSTRUCT IN ACCORDANCE WITH INDEX NO. 304.
- DETECTABLE WARNINGS ARE NOT REQUIRED WHERE SIDEWALKS INTERSECT URBAN FLARED TURNOUTS.
- BOND BREAKER MATERIAL CAN BE ANY IMPERMEABLE COATED OR SHEET MEMBRANE OR PREFORMED MATERIAL HAVING A THICKNESS OF NOT LESS THAN 6 MILS NOR MORE THAN 1/2".
- FOR TURNOUTS SEE INDEX NO. 515.
- CONSTRUCT SIDEWALKS WITH 1" THICK EDGE BEAM THROUGH THE LIMITS OF ANY SURFACE MOUNTED PEDESTRIAN/BICYCLE PICKET RAILING OR PIPE GUIDERAIL SHOWN IN THE PLANS.

CONCRETE SIDEWALK ON CURBED ROADWAYS

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DETAILS

ROAD 036
20170311

CITY OF FORT LAUDERDALE
OFFICE OF THE CITY ENGINEER

ASPHALT TAPER DETAIL

DATE: FEB '06
REVISIONS: MARCH '09

SCALE: N.T.S.
DRAWN BY: R.C.

C
101

1" NOMINAL OVERLAY FOOT TYPE S-III ASPHALT
TAPERED MILLING 1/2" DEPTH OR LEVELING COURSE
EXISTING CROWN OR CENTERLINE
EXISTING ASPHALT
TACK COAT
TACK COAT FACE OF BUTT JOINT
NOTE:
1. REPLACE ALL LANE MARKINGS AND REFLECTIVE MARKERS.

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CITY OF FORT LAUDERDALE
OFFICE OF THE CITY ENGINEER

HOSE BIB

DATE: FEB '08
REVISIONS: MARCH '09

SCALE: N.T.S.
DRAWN BY: R.C.

M
961

1" NIPPLE X 2" LG. WITH 1" HOSE THD
1" VACUUM BREAKER
6"x6" PRECAST CONCRETE POST
SIGN, SEE NOTE THIS SHEET NO. 4 BAR
SLOPE UP 1"
FINISH GRADE
1" GATE VALVE
1" PVC COVER
18" DIAMETER CONCRETE FILL

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CITY OF FORT LAUDERDALE
OFFICE OF THE CITY ENGINEER

RESTORATION OF PAVEMENT

DATE: APRIL '04
REVISIONS: MARCH '09

SCALE: N.T.S.
DRAWN BY:

P
4.11

GENERAL NOTES

- BASE MATERIAL SHALL BE PLACED IN LAYERS NOT THICKER THAN 6" COMPACTED THICKNESS AND EACH LAYER THOROUGHLY ROLLED OR TAMPED TO 98% OF MAXIMUM DENSITY, PER AASHTO T-180.
- ASPHALT PAVEMENT JOINTS (ASPHALTIC CONCRETE) SHALL BE MECHANICALLY SAWED.
- NEW SURFACE MATERIAL WILL BE D.O.T. TYPE III ASPHALTIC CONCRETE.
- BASE MATERIAL SHALL HAVE A MINIMUM LBR OF 100 & MINIMUM CARBONATE CONTENT OF 70% FOR MAJOR STREETS AND 60% FOR RESIDENTIAL STREETS.
- IF THE DITCH IS FILLED TEMPORARILY, IT SHALL BE COVERED WITH A 2" ASPHALTIC CONCRETE PATCH ON MAJOR STREET AND 1-1/2" ASPHALTIC CONCRETE PATCH ON RESIDENTIAL STREET AND PARKING LOT TO KEEP THE FILL MATERIAL FROM RAVELING UNTIL PLACED WITH A PERMANENT PATCH.
- GAS MAINS 4" OR SMALLER IN SIZE SHALL BE CONSTRUCTED AS SHOWN IN THIS DETAIL WITH THE PROVISION OF 3" MINIMUM WIDTH CONTINUOUS METALLIC TAPE OR #12 WIRE WRAPPED AROUND THE CONDUITS.
- THE PROVISIONS IN THIS DETAIL SUPERSEDES ALL OTHER RELATED PROVISIONS MENTIONED IN CITY OF FORT LAUDERDALE CONSTRUCTION STANDARDS AND SPECIFICATIONS.
- THIS DETAIL APPLIES FOR ROAD CROSSINGS ONLY. FOR PARALLEL INSTALLATIONS WITHIN THE ROADWAY, EITHER HALF A LANE OR A FULL RESTORATION SHALL BE CONSTRUCTED IN CONFORMANCE WITH APPLICABLE DETAILS.

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CITY OF FORT LAUDERDALE
OFFICE OF THE CITY ENGINEER

RESTORATION OF PAVEMENT

DATE: APRIL '04
REVISIONS: MARCH '09

SCALE: N.T.S.
DRAWN BY:

P
4.12

MINIMUM WIDTH 8' FT. DITCH WIDTH (W)+5'
LIMEROCK BASE
DITCH WIDTH VARIES
VARIES SLOPE
VARIES SLOPE
VARIES SLOPE
EDGE OF LIMEROCK REPLACEMENT
TOP OF DITCH
BOTTOM OF DITCH
PIPE
EDGE OF LIMEROCK REPLACEMENT
MINIMUM WIDTH 8 FT. DITCH WIDTH (W)+5' FT.
LIME ROCK BASE
BOX CUT IN ASPHALT PERMITTED ONLY AT STRUCTURE LOCATIONS

P:\eng\INTERNAL\DETAILS\CLEAN DETAILS\DETAILS FOR BLUE BOOK\CT-BB-P4.12.dwg, 3/12/2009 11:09:42 AM, Rmoroc



PREPARED BY:
Kimley»Horn

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8201 PETERS ROAD, SUITE 2200, PLANTATION, FL 33324
PHONE: 954-535-5100 FAX: 954-739-2247
WWW.KIMLEY-HORN.COM REGISTRY No. 696

DESIGN CRITERIA PACKAGE

PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
STANDARD DETAILS

REVISIONS

NO.	DATE	BY (CHKD)	DESCRIPTION

SHEET NO. **17** OF **31**

CAD FILE: 12412-MULTI-DET
DRAWING FILE NO. 4-142-31

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE

100 North Andrews Avenue, Fort Lauderdale, Florida 33301

ENGINEER: GARY R. RAY, P.E.
REG. NO. 46682
DATE: 9/29/2021

DRAWN BY: AL
DESIGNED BY: SCALE: GR
CHECKED BY: AS NOTED GR
FIELD BOOK: GR

TEL: (954) 535-5100
FAX:

Plotted By: Morissa, Morissa Sheet: Set: PUMP STATION A-16 DESIGN CRITERIA PACKAGE Layout: SWPP-18 September 28, 2021 04:14:44pm K:\VTL\civ\1043_jba\3\184\401_cna 12464-416 ps a-16 rev location\CAD\plan\sheet\12412-MUL-DET.dwg
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EROSION AND SEDIMENT CONTROL:

- CONTRACTOR TO EMPLOY BEST MANAGEMENT PRACTICES THROUGHOUT CONSTRUCTION IN ORDER TO ENSURE POLLUTION PREVENTION. CONTRACTOR TO COMPLY WITH ALL LOCAL STATE AND OTHER GOVERNMENTAL ENVIRONMENTAL REGULATIONS THROUGHOUT CONSTRUCTION.
- DURING CONSTRUCTION ALL CATCH BASIN INLETS SHALL BE PROTECTED TO PREVENT SEDIMENT AND DEBRIS FROM ENTERING THE CATCH BASIN.
- SILT FENCES SHALL BE INSTALLED AS NECESSARY TO CONTROL OR PREVENT DISCHARGE OF SEDIMENT ONTO ADJACENT UNDISTURBED AREAS, OR OFF-SITE AREAS.
- ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED WITHIN A REASONABLE PERIOD OF TIME TO ASSURE MINIMUM EROSION OF SOILS.
- NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
- ALL EXPOSED AREAS SHALL BE SOCCED AS SPECIFIED WITHIN 30 DAYS OF FINAL GRADING.
- MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN AND AT LEAST ONCE A WEEK.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
- CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
- ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DESIRED NECESSARY BY CITY, COUNTY, AND STATE OF FLORIDA ON SITE INSPECTION, AT NO ADDITIONAL COST TO THE OWNER.
- LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES.
- IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
- BURNING OF DEBRIS WILL NOT BE ALLOWED.
- CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
- CONTRACTOR IS TO PROVIDE EROSION CONTROL SEDIMENTATION BARRIER (MAY BALES OR SILTATION CURTAIN) TO PREVENT DRIFTATION OF ADJACENT PROPERTY, STREETS, STORM SEWERS AND WATERWAYS. IN ADDITION CONTRACTOR SHALL PLACE STRAW MULCH OR OTHER SUITABLE MATERIAL ON GROUND IN AREAS WHERE CONSTRUCTION RELATED TRAFFIC IS TO ENTER AND EXIT SITE IF IN THE OPINION OF THE ENGINEER AND/OR LOCAL AUTHORITIES IF EXCESSIVE QUANTITIES OF EARTH ARE TRANSPORTED OFF-SITE EITHER BY NATURAL DRAINAGE OR BY VEHICULAR TRAFFIC. THE CONTRACTOR IS TO REMOVE AND CLEAN SUDS CARTS TO THE SATISFACTION OF THE ENGINEER AND/OR AUTHORITIES. EROSION CONTROL BARRIER SHALL BE ESTABLISHED AS THE FIRST ITEM OF WORK.

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DETAIL

EROSION AND SEDIMENT CONTROL NOTES
 SHEET 1

ESC
 001

- THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S STORMWATER PERMITTING PROGRAM APPLIES TO ALL CONSTRUCTION ACTIVITY THAT: 1) CONTRIBUTES STORMWATER DISCHARGES TO SURFACE WATER OF THE STATE OR INTO A MUNICIPAL SEWERAGE SYSTEM (MS4); 2) DISTURBS ONE OR MORE ACRES OF LAND; OR 3) LESS THAN ONE ACRE IS INCLUDED IF THE ACTIVITY IS PART OF A LARGER COMMON PLAN OF DEVELOPMENT THAT WILL MEET OR EXCEED THE ONCE ACRE THRESHOLD. DISTURB INCLUDES CLEANING, GRADING AND EXCAVATING.
- FOR CONSTRUCTION ACTIVITY THAT IS SUBJECT TO THE NPDES FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S STORMWATER PERMITTING PROGRAM, THE CONTRACTOR SHALL:
 - OBTAIN A GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION DOCUMENT 62-621-300(A).
 - COMPLY WITH ALL REQUIREMENTS OF THE GENERIC PERMIT.
 - DEVELOP AND IMPLEMENT A STORMWATER PREVENTION PLAN (SWPPP).
 - COMPLETE A NOTICE OF INTENT (NOI) FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION FORM 62-621-300(B) IN ITS ENTIRETY USING THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S WEBSITE.
 - SUBMIT COPIES OF THE SWPPP AND THE NOI TO THE ENGINEER AS INFORMATIONAL RECORDS. THESE SUBMITTALS WILL NOT BE REVIEWED BY THE ENGINEER.
- CONTRACTOR TO CLEAN AND REPAIR ALL EXISTING STORMWATER INFRASTRUCTURE THAT IS IMPACTED BY CONSTRUCTION ACTIVITIES BEFORE LEAVING THE JOB SITE.
- CONTRACTOR TO REMOVE ALL FILTER FABRIC AND POLLUTION PREVENTION ITEMS BEFORE THE FINAL WALK-THROUGH.

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DETAIL

EROSION AND SEDIMENT CONTROL NOTES
 SHEET 2

ESC
 001

NOTES:

- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
- WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY.
- WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DETAIL

GRAVEL CONSTRUCTION ENTRANCE

ESC
 002

CONTRACTORS RESPONSIBILITY:

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PERFORMANCE OF THE DROPPED INLET PROTECTION SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PERFORMANCE OF THE DROPPED INLET PROTECTION SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PERFORMANCE OF THE DROPPED INLET PROTECTION SYSTEM.
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CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DETAIL

DROP INLET PROTECTION - SEDIMENT BARRIER

ESC
 004

NOTES:

- THE INLET INSERT SHALL BE A SEDIMENT CONTROL DEVICE DESIGNED FOR DROP INLETS OR COMBINATION DRAINS WHERE A DROP INLET IS COUPLED WITH A CURB INLET.
- THE INLET INSERT SHALL BE MADE OF A PERMEABLE GEOTEXTILE THAT ALLOWS WATER TO PASS BUT PREVENTS SILT AND SEDIMENT FROM LOGGING THE DRAIN SYSTEM.
- THE CONTRACTOR SHALL CLEAN AND INSPECT REGULARLY AND AFTER EVERY MAJOR RAIN EVENT.
- INLET INSERTS SHALL BE "BILBACK" BY ACP ENVIRONMENTAL OR EQUAL. SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE SPECIFICATIONS.

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DETAIL

DROP INLET PROTECTION - INLET INSERT

ESC
 005

NOTES:

- INSTALL CURB FILTERS AT ALL INLETS WITHOUT GRATES TO KEEP SILT, SEDIMENT AND CONSTRUCTION DEBRIS OUT OF THE STORM SYSTEM.
- THE CURB FILTER SHALL BE DANDY CURBS AS MANUFACTURED BY DANDY PRODUCTS INC. OR EQUAL. SUBMIT SHOP A SHOP DRAWING FOR THE CURB FILTERS.
- THE CURB FILTER SHALL FORM OF A CYLINDRICAL TUBE PLACED IN FRONT OF AND EXTENDING BEYOND THE INLET OPENING ON BOTH SIDES.
- THE CURB FILTER SHALL HAVE A POUCH ON THE STREET SIDE OF THE UNIT FOR STONE AGGREGATE TO HOLD THE FILTER IN PLACE.
- THE CURB FILTER SHALL BE CONSTRUCTED OF A HIGH VISIBILITY ORANGE MONOFILAMENT FABRIC.
- FILL POUCH WITH FOOT #57 STONE AGGREGATE TO A LEVEL (AT LEAST HALF-FULL) THAT WILL KEEP UNIT IN PLACE DURING A RAIN EVENT AND CREATE A SEAL BETWEEN THE CURB FILTER AND THE SURFACE OF THE STREET.
- CENTER THE UNIT AGAINST CURB OR MEDIAN INLET OPENING SO THAT THE CURB SIDE OF THE UNIT CREATES A SEAL WITH THE CURB OR MEDIAN BARRIER AND INLET STRUCTURE. THERE WILL BE APPROXIMATELY TWELVE (12) INCHES OF THE INLET PROTECTION UNIT OVERHANGING ON EACH SIDE OF THE OPENING.
- THE CONTRACTOR SHALL REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM SURFACE AND VICINITY OF UNIT AFTER EACH RAIN EVENT.

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DETAIL

CURB INLET PROTECTION - CURB FILTER

ESC
 006

NOTES:

- A SPILLWAY SHALL BE DESIGNATED FOR EACH DIRECTION OF APPROACHING FLOW AS SHOWN. THE SPILLWAY SHALL BE LOCATED TO ALLOW THE MAXIMUM AMOUNT OF STORMWATER TO POOL WITHOUT FLOODING AREAS UP GRADE OF THE INLET.
- FOR INLETS THAT ARE NOT ADJACENT TO CURBS, PLACE GRAVEL BAGS ONE BAG HIGH AROUND THE ENTIRETY OF THE INLET TO ACCOMMODATE FLOW FROM ALL DIRECTIONS.
- BAG MATERIAL BAGS SHALL BE WOVEN POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE FABRIC. MINIMUM UNIT WEIGHT FOUR OUNCES PER SQUARE YARD, MILLER BURST STRENGTH EXCEEDING 300 PSI IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM D2768, AND ULTRAVIOLET STABILITY EXCEEDING 70% IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM D4348.
- BAG SIZE: EACH GRAVEL-FILLED BAG SHALL BE 18-INCHES X 12-INCHES X 3-INCHES AND HAVE A MASS OF APPROXIMATELY 33 LBS. ALTERNATIVE BAG SIZES SHALL BE CONSIDERED BASED ON LOCALLY AVAILABLE MATERIALS.
- FILL MATERIAL: GRAVEL SHALL BE PER GRAVEL 3/8 INCHES IN DIAMETER AND SHALL BE CLEAN AND FREE OF CLAY BALLS, ORGANIC MATTER, OR OTHER DELETERIOUS MATERIALS.

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DETAIL

CURB INLET PROTECTION - GRAVEL BAG

ESC
 007

NOTES:

- LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET SUPPORT.
- HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
- USE CLEAN STONE OR GRAVEL 1/2" - 3/4" INCH IN DIAMETER PLACED 2 INCHES BELOW THE TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
- FOR INLETS IN ROADWAYS WITH HEAVY TRAFFIC CONDITIONS PREFABRICATED FILTER INSERTS MAY BE USED.

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DETAIL

CURB INLET PROTECTION - BLOCK AND STONE

ESC
 007

CHART 1: SILT FENCE SPACING

POST OPTIONS:
 SOFTWOOD 2 1/2" DIA. SOFTWOOD 2" x 4"
 HARDWOOD 1 1/2" x 1 1/2"
 STEEL 1.33 LBS./FT.

OPTIONAL POST POSITIONS:
 PRINCIPLE POST POSITION (CANTED 20° TOWARD FLOW)

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DETAIL

SILT FENCE - SHEET 1

ESC
 009

NOTES:

- WHERE USED IN DITCHES, THE SPACING FOR TYPE II SILT FENCE SHALL BE IN ACCORDANCE WITH CHART 1.
- DO NOT CONSTRUCT SILT FENCES ACROSS PERMANENT FLOWING WATERCOURSES. SILT FENCES ARE TO BE AT UPLAND LOCATIONS AND TURBIDITY BARRIERS USED AT PERMANENT BODIES OF WATER.
- WHERE USED AS SLOPE PROTECTION, SILT FENCE IS TO BE CONSTRUCTED ON 0% LONGITUDINAL GRADE TO AVOID CHANNELIZING RUNOFF ALONG THE LENGTH OF THE FENCE.

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DETAIL

SILT FENCE - SHEET 2

ESC
 010

NOTES:

- WHERE USED AS SLOPE PROTECTION, SILT FENCE IS TO BE CONSTRUCTED ON 0% LONGITUDINAL GRADE TO AVOID CHANNELIZING RUNOFF ALONG THE LENGTH OF THE FENCE.
- DO NOT CONSTRUCT SILT FENCES ACROSS PERMANENT FLOWING WATERCOURSES. SILT FENCES ARE TO BE AT UPLAND LOCATIONS AND TURBIDITY BARRIERS USED AT PERMANENT BODIES OF WATER.
- WHERE USED AS SLOPE PROTECTION, SILT FENCE IS TO BE CONSTRUCTED ON 0% LONGITUDINAL GRADE TO AVOID CHANNELIZING RUNOFF ALONG THE LENGTH OF THE FENCE.

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TURBIDITY BARRIER - FLOATING

ESC
 011

NOTES:

- CLEAN OUT THE SEDIMENT TANK WHEN ONE THIRD (1/3) FILLED WITH SILT.
- ALL SEDIMENT COLLECTED IN THE TANK SHALL BE DISPOSED OF IN A SEDIMENT TRAPPING DEVICE. AN APPROVED LOCATION IN WHICH FURTHER SEDIMENT TRANSPORT WILL NOT OCCUR OR AS APPROVED BY THE INSPECTOR.
- PORTABLE SEDIMENT TANK SHALL BE AN ABOVE GROUND HORIZONTAL SINGLE-WALL 16-42 MANUFACTURED BY HIGHLAND TANK OR WEIR BOX MANUFACTURED BY RAIN FOR RENT OR EQUIVALENT.

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DETAIL

PORTABLE SEDIMENT TANK

ESC
 012

DESIGN CRITERIA PACKAGE

PROJECT # 12412
 PUMP STATION A-16 UPGRADE
 WASTEWATER DESIGN CRITERIA PACKAGE
 STORMWATER POLLUTION PREVENTION PLAN

SHEET NO.	OF
18	31
CAD FILE:	12412-MUL-DET
DRAWING FILE NO.	4-142-31

PREPARED BY:

Kimley»Horn

© 2021 KIMLEY-HORN AND ASSOCIATES, INC.
 8201 PETERS ROAD, SUITE 2200, PLANTATION, FL 33324
 PHONE: 954-535-5100 FAX: 954-739-2247
 WWW.KIMLEY-HORN.COM REGISTRY No. 696

CITY OF FORT LAUDERDALE
 PUBLIC WORKS DEPARTMENT
 ENGINEERING & ARCHITECTURE
 100 North Andrews Avenue, Fort Lauderdale, Florida 33301

ENGINEER: GARY R. RAY, P.E.
 REG. NO. 46682
 DATE: 9/29/2021

DESIGNED BY: SCALE: AS NOTED
 CHECKED BY: GR
 FIELD BOOK: GR

DATE: MAR 2021

REVISIONS:

NO.	DATE	BY (CHKD)	DESCRIPTION

TEL: (954) 535-5100
 FAX:

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PLAN SYMBOLS	PLAN SYMBOLS (CONTINUED)	CONTROL DIAGRAM SYMBOLS	ABBREVIATIONS	NOTES
HOME RUN TO PANELBOARD. NO. OF ARROWS INDICATE NO. OF CIRCUITS, HASH MARKS INDICATE NO. OF #12 AWG. CONDUCTORS. NO HASH MARKS INDICATE 2 #12 CONDUCTORS. CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND. CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL. FLEXIBLE CONDUIT WITH EQUIPMENT CONNECTION. CONDUIT ROUTING ENVELOPE (CONCRETE ENCASED DUCTBANK). WALL MOUNTED LED LIGHTING FIXTURE. LED LIGHTING FIXTURE, CEILING MOUNTED. EXTERIOR LED LUMINAIRE AND MOUNTING STANDARD. EXISTING EXTERIOR LIGHTING. EMERGENCY BATTERY PACK LIGHTING FIXTURE. JUNCTION BOX N.E.C. SURFACE MOUNTED UNLESS INDICATED OTHERWISE. JUNCTION BOX PER N.E.C., NEMA 4X 316 SSS, FLUSH MOUNTED UNLESS INDICATED OTHERWISE. MOTOR JUNCTION BOX, NEMA 4X 316 SS JUNCTION BOX, 12" X 12" X 6" MINIMUM SIZE ENLARGE IF REQUIRED PER N.E.C. FLUSH OR SURFACE MOUNTED LIGHTING PANELBOARD. FLUSH OR SURFACE MOUNTED POWER PANELBOARD. DRY TYPE TRANSFORMER. NO. INDICATES KVA RATING. LIQUID FILLED TRANSFORMER, KVA RATING AS SHOWN FLUSH MOUNTED RECEPTACLE WITH USB OUTLET 20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR. 20A, 125V, 3W GFI DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR OR 6" ABOVE FINISHED COUNTER AS REQUIRED (AFC) 20A, 125V, 3W DUPLEX RECEPTACLE, SURFACE MOUNTED. SURFACE MOUNTED GROUND FAULT WEATHERPROOF RECEPTACLE 20A, 125V, 3W - MOUNTED 48" ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED. 20A, 125V, 3W DOUBLE DUPLEX RECEPTACLE IN FLUSH OUTLET BOX. FLUSH MOUNTED GROUND FAULT WEATHERPROOF DUPLEX RECEPTACLE 20A, 125V, 3W - MOUNTED 48" ABOVE FINISHED FLOOR. FLUSH MOUNTED GFI WP DUPLEX RECEPTACLE WITH COVER RATED NEMA 4 WHILE IN USE. DISCONNECT RACK MOUNTED. OFF REMOTE/DISCONNECT RACK MOUNTED WITH JUNCTION BOX MOUNTED BELOW OFF REMOTE. NEMA 3R SS UNLESS OTHERWISE NOTED. SINGLE POLE SWITCH IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED (TYPICAL). SINGLE POLE SWITCH, SURFACE MOUNTED. THREE-WAY SWITCH IN FLUSH OUTLET BOX. FOUR-WAY SWITCH IN FLUSH OUTLET BOX. NON-FUSIBLE DISCONNECT SWITCH, 30A,3P NEMA 4X 316 SS UNLESS OTHERWISE INDICATED. NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS. ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER. FUSED DISCONNECT SWITCH(30/20, 30=SWITCH RATING, 20=FUSE RATING) 3 POLE-UNLESS NOTED OTHERWISE. MOTORIZED VALVE COMBINATION MOTOR STARTER, DISCONNECT SWITCH VARIABLE FREQUENCY DRIVE THERMOSTAT ELECTRIC HEATER	CONTROL PULLBOX. SEE "PULL BOX DETAIL" POWER MANHOLE. SEE "MANHOLE DETAIL" FLOW SWITCH FLOW ELEMENT LEVEL ELEMENT LIMIT SWITCH SEAL FAIL LIQUID LEVEL SWITCH VIBRATION SWITCH ANALYSIS INDICATING TRANSMITTER FLOW INDICATING TRANSMITTER LEVEL INDICATING TRANSMITTER TEMPERATURE SWITCH SPACE HEATER ANALYTICAL ELEMENT PRESSURE INDICATING TRANSMITTER SINGLE LINE DIAGRAM SYMBOLS COMBINATION MOTOR STARTER GROUND FAULT INTERRUPTER FUSE CAPACITOR MOLDED CASE CIRCUIT BREAKER TYPICAL SELECTOR SWITCH AND CONTROL. SEE ELEMENTARY DIAGRAMS FOR EXACT TYPE. ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER. SERVICE OR EQUIPMENT GROUND. NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED. NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS. CROUSE HINDS EYSR FITTING w/CHICO SPEED SEAL COMPOUND LIGHTING PANELBOARD POWER PANELBOARD. CURRENT TRANSFORMERS POTENTIAL TRANSFORMERS. NEMA 4X 316 STAINLESS STEEL TERMINATION CABINET. TEMPERATURE SWITCH SEAL FAIL SWITCH PRESSURE INDICATING TRANSMITTER HIGH LEVEL FLOAT FLOW INDICATING TRANSMITTER FLOW ELEMENT	NORMALLY OPEN CONTACT NORMALLY CLOSED CONTACT LIMIT SWITCH, NORMALLY OPEN LIMIT SWITCH, NORMALLY CLOSED PRESSURE SWITCH, NORMALLY OPEN PRESSURE SWITCH, NORMALLY CLOSED FLOAT SWITCH, NORMALLY OPEN FLOAT SWITCH, NORMALLY CLOSED FLOW SWITCH, NORMALLY OPEN FLOW SWITCH, NORMALLY CLOSED TEMPERATURE SWITCH, NORMALLY OPEN TEMPERATURE SWITCH, NORMALLY CLOSED NORMALLY OPEN, TIMED TO CLOSE CONTACT NORMALLY CLOSED, TIMED TO OPEN CONTACT NORMALLY CLOSED, TIMED TO CLOSE CONTACT NORMALLY OPEN, TIMED TO OPEN CONTACT LIMIT SWITCH FLOW SWITCH PRESSURE SWITCH SOLENOID VALVE LIQUID LEVEL SWITCH VIBRATION SWITCH SMOKE DETECTOR ALARM RELAY ALARM TIMER CONTROL RELAY MOTOR STARTER TIMING RELAY TORQUE SWITCH ALARM INDICATING LIGHT RUN INDICATING LIGHT MOMENTARY CONTACT PUSHBUTTON MOMENTARY BREAK PUSHBUTTON OR RESET KEYED SWITCH MAINTAINED CONTACT ON-OFF SWITCH START/STOP(S/S) CONTROL SWITCH MAINTAINED CONTACT THREE POSITION MAINTAINED CONTACT SELECTOR SWITCH FUSE MOLDED CASE CIRCUIT BREAKER CONTROL POWER TRANSFORMER REMOTE TERMINAL BLOCK POINT	<p>A AMPERES AC ABOVE FINISHED FLOOR AFF ABOVE FINISHED FLOOR AIC AMPS INTERRUPTING CURRENT BREAKER BLDG BUILDING BLDG CONTROL PANEL CP CONTROL POWER TRANSFORMER CU CONDENSING UNIT CT CURRENT TRANSFORMER DB DIGESTER BLOWER DE DUKE ENERGY EEB EAST ELECTRICAL BUILDING EFF EFFLUENT ELEC ELECTRICAL EM EMERGENCY ENCL ENCLOSURE ETM ELAPSED TIME METER EUH ELECTRIC UNIT HEATER EXHA EXHAUST FPL FLUORESCENT POWER & LIGHT FTC FLOAT CABLE TERMINATION CABINET FVNR FULL VOLTAGE NON-REVERSING GENERATOR GFR GROUND FAULT RECEPTACLE GFI GROUND FAULT INTERRUPTER GRD GROUND GRS GALVANIZED RIGID STEEL HOA HAND-OFF-AUTOMATIC HOR HAND-OFF-REMOTE HP HORSEPOWER JB JUNCTION BOX KVA KILO VOLT-AMPERES KW KILOWATT LCP LOCAL CONTROL PANEL LP LOOP NUMBER LOP LOCAL OPERATOR PANEL LTG LIGHTING MAX MAXIMUM MCB MAIN CIRCUIT BREAKER MIN MINIMUM MLO MAIN LUGS ONLY MSC MANUFACTURER SUPPLIED CABLE MOUNTED MTD MOUNTED N NEUTRAL NEC NATIONAL ELECTRICAL CODE NOT TO SCALE OH OVERHEAD P POLE PM PHASE MONITOR PS PUMP STATION PSCP PUMP STATION CONTROL PANEL SH SHIELDED SPD SURGE PROTECTION DEVICE SS STAINLESS STEEL SSS SOLID STATE STARTER STR STARTER SW SWITCH TC TERMINATION CABINET TYP TYPICAL UG UNDERGROUND UPS UNINTERRUPTIBLE POWER SUPPLY V VOLT VFD VARIABLE FREQUENCY DEVICE WEB WEST ELECTRICAL BUILDING W WATT W/ WITH WP WEATHERPROOF XFMR TRANSFORMER ø PHASE</p>	<ol style="list-style-type: none"> ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ALL NEW ELECTRICAL WORK INDICATED. ELECTRICAL CONTRACTOR SHALL VISIT JOB SITE AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING ELECTRICAL INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. EXISTING CONDITIONS OF ELECTRICAL EQUIPMENT, LIGHT FIXTURES, ETC., THAT ARE PART OF THE FINAL SYSTEM SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO SUBMITTING HIS BID. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE, 2020 FLORIDA BUILDING CODE, 2014 NATIONAL FIRE PROTECTION ASSOCIATION AND SHALL COMPLY WITH ALL LOCAL RULES AND ORDINANCES. MINIMUM WIRE SIZE SHALL BE #12 A.W.G. EXCLUDING CONTROL WIRING, UNLESS OTHERWISE NOTED. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER. ELECTRICAL SYSTEM SHALL BE COMPLETE AND EFFECTIVELY GROUNDED AS REQUIRED BY THE LATEST EDITION OF THE N.E.C. OR LOCAL CODES. ALL CONDUITS SHALL HAVE A BOND WIRE SIZED PER TABLE 250-122 OF THE NATIONAL ELECTRIC CODE. ALL MATERIALS SHALL BE NEW AND BEAR UNDERWRITERS' LABELS WHERE APPLICABLE. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTED BY ENGINEER/OWNER. CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN TWO YEARS FROM DATE OF ACCEPTANCE. CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED. THE ELECTRICAL INSTALLATION SHALL MEET ALL STANDARD REQUIREMENTS OF THE FPL. SEE 16050 FOR ADDITIONAL INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED OF HIS WORK. ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS W/ TYPE WRITTEN DIRECTORIES (NEW & EXISTING). ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO THE MECHANICAL DRAWINGS & THE APPROVED MANUFACTURER'S SHOP DRAWINGS FOR THE EXACT LOCATION OF ALL EQUIPMENT. NON-SHADED TEXT DENOTES NEW EQUIPMENT, STRUCTURES AND WORK. SHADED AND SLANTED TEXT DENOTES EXISTING EQUIPMENT OR STRUCTURES. ALL CONTROL PANELS SHALL BE UL LISTED AND SHALL COMPLY WITH ARTICLE 409 OF THE NEC. ALL EMPTY CONDUITS SHALL BE INSTALLED WITH PULL STRING.

ERIC HAMMOND, P.E.
FL LICENSE # PE39048

DRAWN BY: H.A. 04/08/2021
DESIGNED BY: H.A. AS NOTED
CHECKED BY: E.H.
FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

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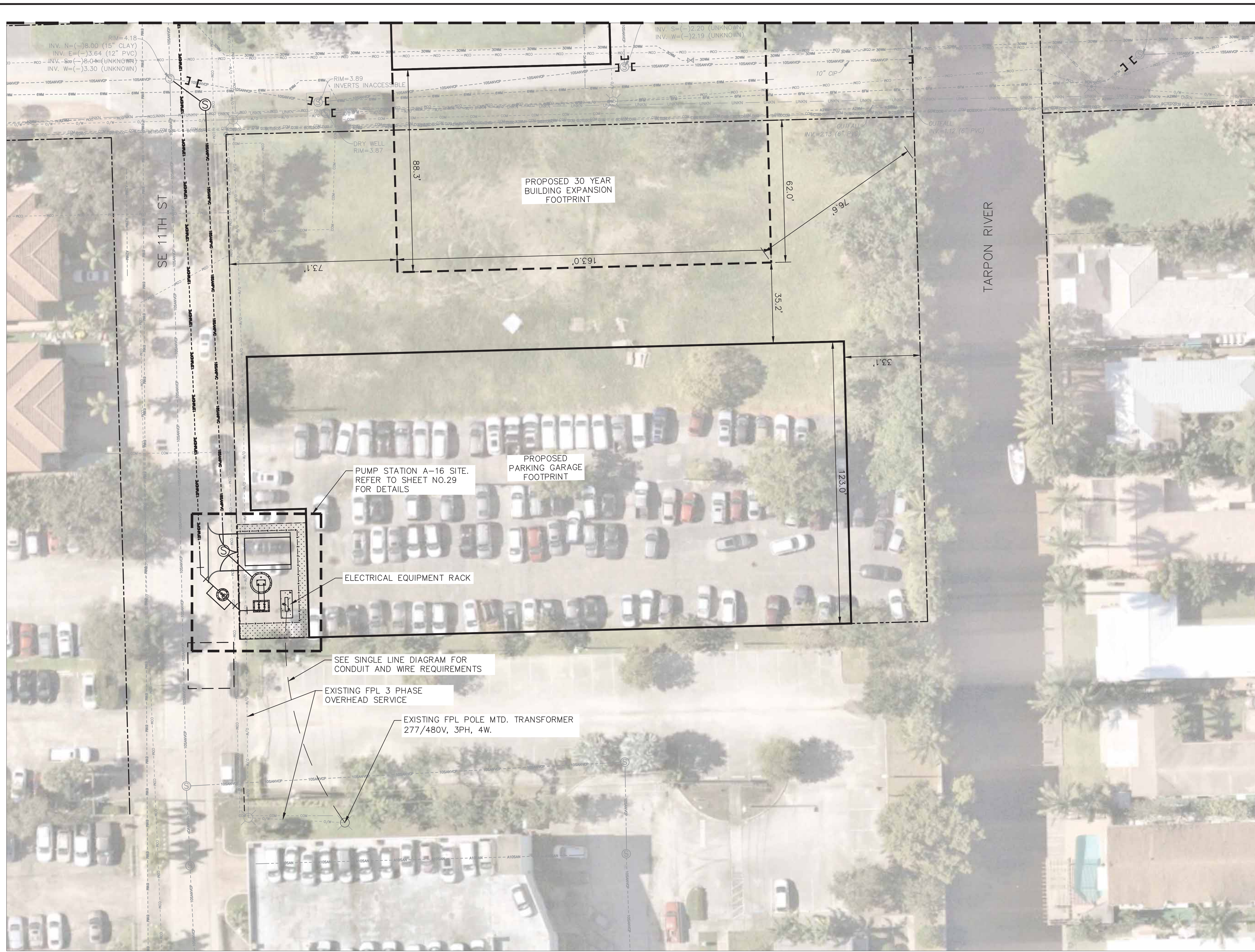
DESIGN CRITERIA PACKAGE
PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS

SHEET NO. OF
19 31
CAD FILE: 12412-19-LGND
DRAWING FILE NO. 4-142-31

HAMMOND & ASSOCIATES, INC.
CONSULTING ENGINEERS
499 NW 70TH AVE, SUITE 201
PLANTATION, FLORIDA 33317
TEL: (954) 327-7111 FAX (954) 327-7154
ERIC J. HAMMOND P.E.
MECHANICAL / ELECTRICAL ENGINEER
P.E. #39048
EB 5315



Plotted By: Olga Litvinskaya Sheet Set: #12412-20-SITE.dwg Layout: E20 September 28, 2021 04:48:45pm M:\ACAD_DWG\S\Pump Station A-16 Working Drawings\12412-20-SITE.dwg
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ELECTRICAL SITE PLAN
 SCALE: 1"=20'-0"
 20 10 0 20'



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 CONSULTING ENGINEERS
 499 NW 70TH AVE, SUITE 201
 PLANTATION, FLORIDA 33317
 TEL: (954) 327-7111 FAX (954) 327-7154
 ERIC J. HAMMOND P.E.
 MECHANICAL / ELECTRICAL ENGINEER
 P.E. #39048
 EB 5315

DESIGN CRITERIA PACKAGE

PROJECT # 12412
 PUMP STATION A-16 UPGRADE
 WASTEWATER DESIGN CRITERIA PACKAGE
 ELECTRICAL SITE PLAN

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20	31
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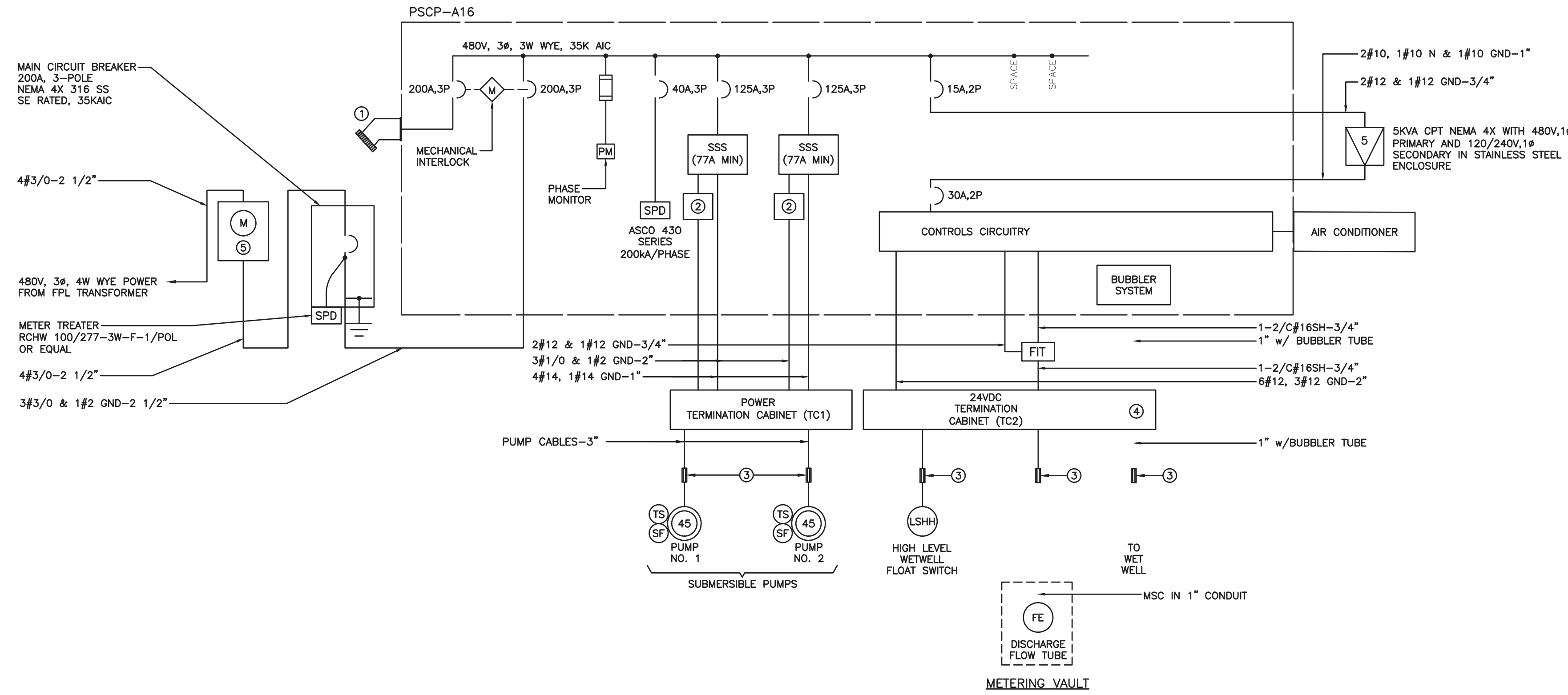
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 PUBLIC WORKS DEPARTMENT
 ENGINEERING & ARCHITECTURE
 100 North Andrews Avenue, Fort Lauderdale, Florida 33301

ERIC HAMMOND, P.E.
 FL LICENSE # PE39048
 DRAWN BY: H.A. DATE: 04/08/2021
 DESIGNED BY: H.A. SCALE: AS NOTED
 CHECKED BY: E.H.
 FIELD BOOK:



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SINGLE LINE DIAGRAM

KEY NOTES:

- ① GENERATOR RECEPTACLE EATON ARL2042.
- ② PUMP SUPERVISION RELAY.
- ③ CROUSE HINDS EYSR FITTING FILLED WITH CHICO CEMENT (TYP.)
- ④ FURNISH WITH 20 PERCENT SPARE TERMINALS.
- ⑤ FPL METER CAN. FURNISHED AND INSTALLED BY CONTRACTOR.
- ⑥ CONFIGURE FLOW METER FOR OPERATION EXTERNALLY POWERED 4-20MA CIRCUIT.

LOAD TABULATION
SERVICE VOLTAGE: 480V, 3Ø WYE

DESCRIPTION	LOAD	AMPACITY
① SUBMERSIBLE PUMPS	2 @ 45 HP EACH	= 130.0 AMPS
MISCELLANEOUS	5 KVA	= 10.6 AMPS
	CONNECTED LOAD	= 140.5 AMPS
② MINIMUM SERVICE ENTRANCE = 140.5 AMPS + (0.25)(65.0) = 156.75 AMPS		

NOTES:

- ① AMPACITIES PER PUMP NEC TABLE 250, USING NEXT LARGEST STANDARD SIZE.
- ② SERVICE ENTRANCE MINIMUM SIZE AS PER ARTICLE 230 OF THE NATIONAL ELECTRICAL CODE.



HAMMOND & ASSOCIATES, INC.
CONSULTING ENGINEERS
499 NW 70TH AVE, SUITE 201
PLANTATION, FLORIDA 33317
TEL: (954) 327-7111 FAX (954) 327-7154
ERIC J. HAMMOND P.E.
MECHANICAL / ELECTRICAL ENGINEER
P.E. #39048
EB 5315

DESIGN CRITERIA PACKAGE

PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
SINGLE LINE DIAGRAM

SHEET NO.	OF
21	31
GAD FILE: 12412-21-RISR	
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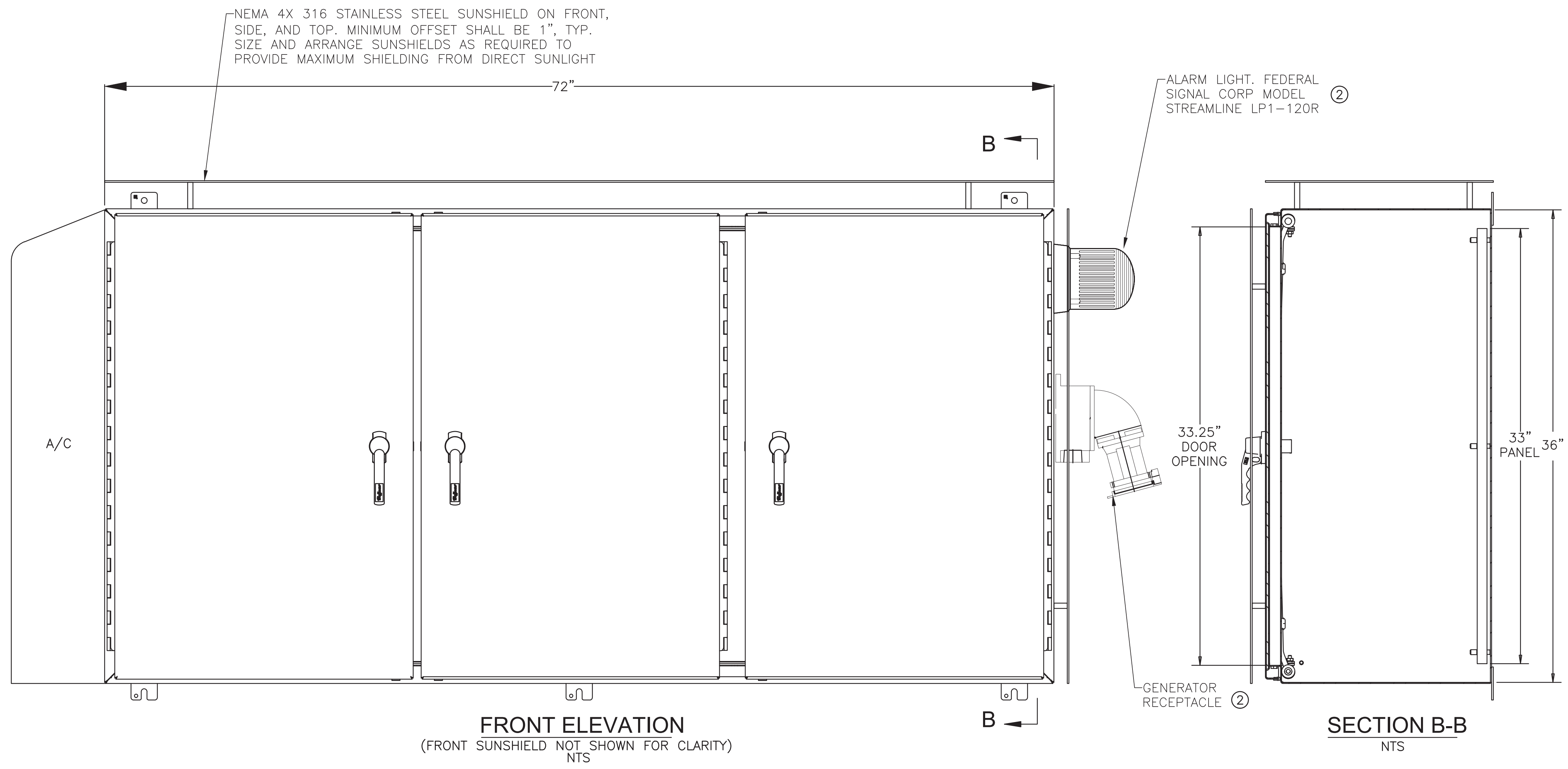
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FL LICENSE # PE39048

DRAWN BY:	H.A.	DATE:	04/08/2021
DESIGNED BY:	H.A.	AS NOTED	
CHECKED BY:	E.H.		
FIELD BOOK:			

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ENGINEERING & ARCHITECTURE
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- NOTES:**
- ① CABINET DIMENSIONS SHALL NOT EXCEED DIMENSIONS SHOWN.
 - ② CUT OUT AREAS OF SUNSHIED AS REQUIRED FOR INSTALLATION.

ERIC HAMMOND, P.E.
FL. LICENSE # PE39048

DRAWN BY:	H.A.	DATE:	04/08/2021
DESIGNED BY:	H.A.	SCALE:	AS NOTED
CHECKED BY:	E.H.	FIELD BOOK:	

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
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NO.	DATE	BY (CHK'D)

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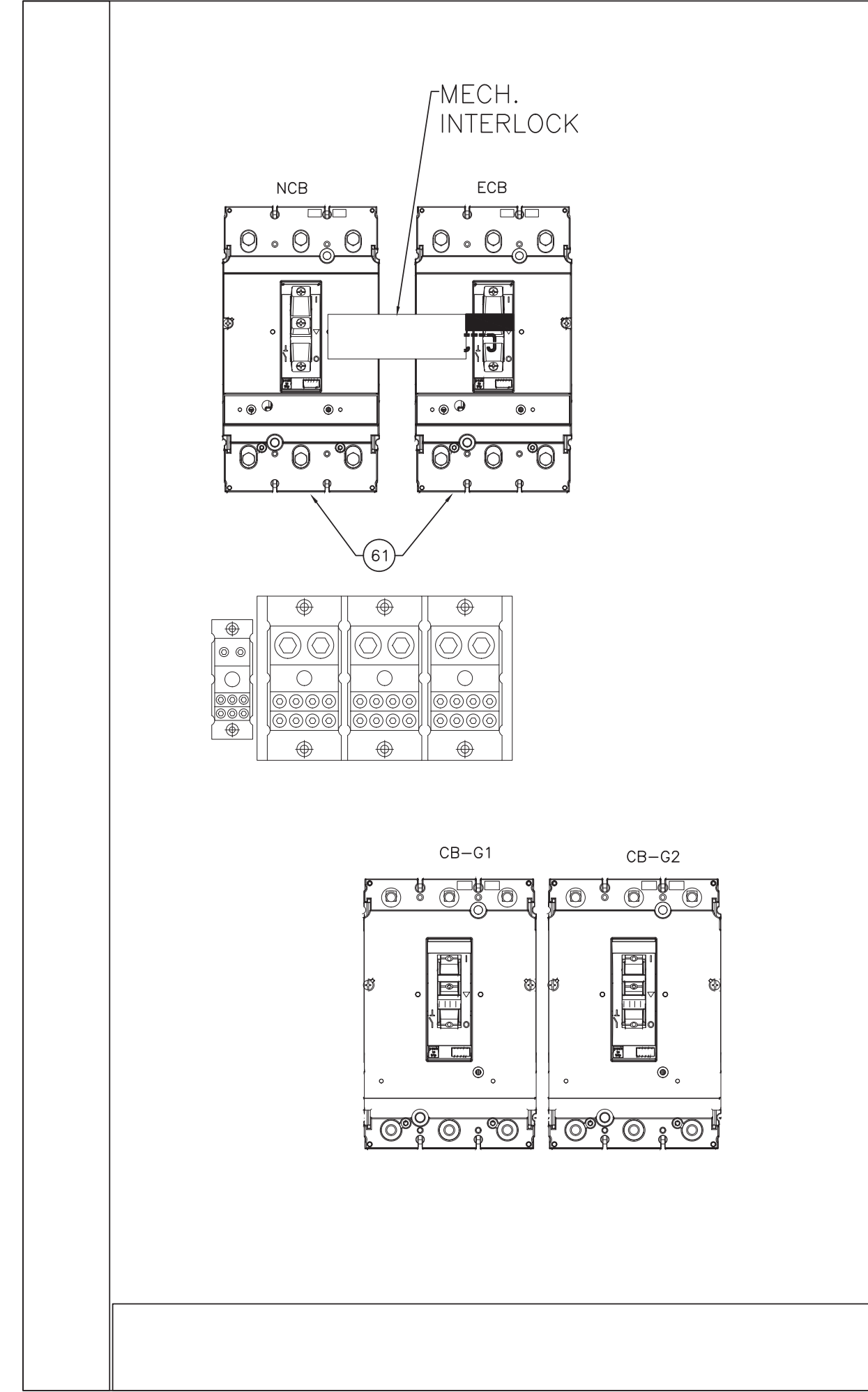
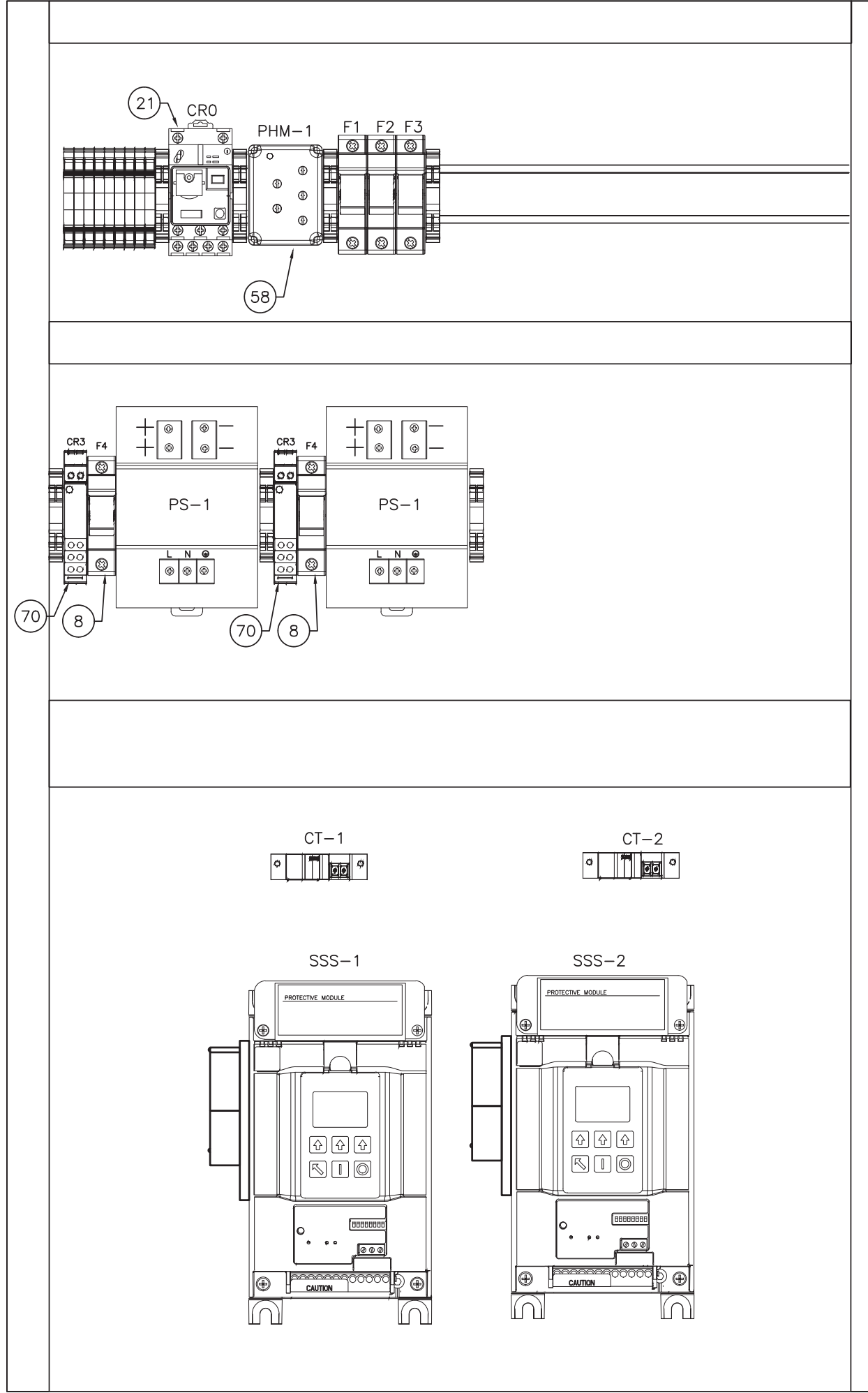
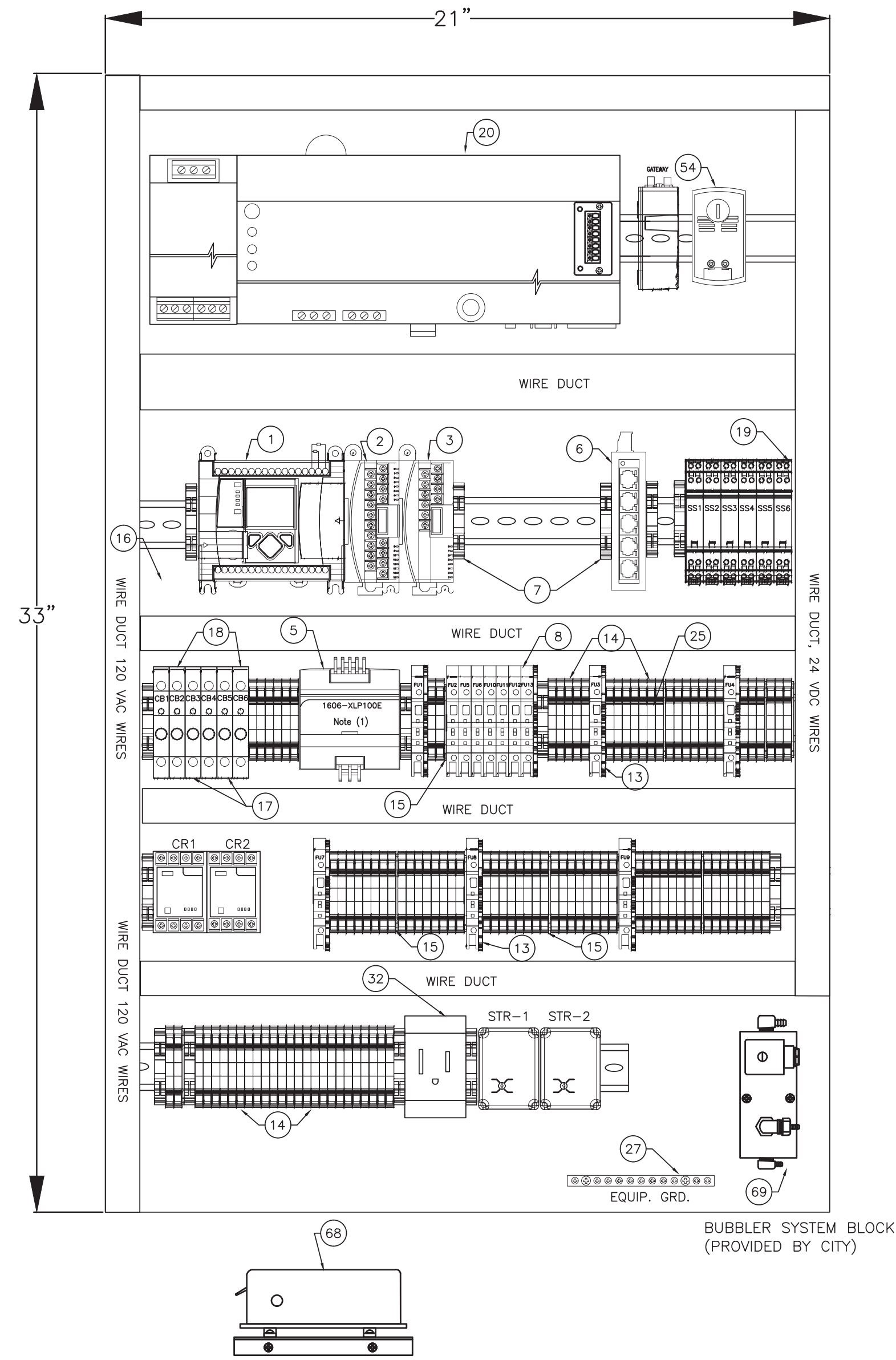
PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
CONTROL PANEL EXTERIOR LAYOUT

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23	31
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HAMMOND & ASSOCIATES, INC.
CONSULTING ENGINEERS
499 NW 70TH AVE, SUITE 201
PLANTATION, FLORIDA 33317
TEL: (954) 327-7111 FAX (954) 327-7154
ERIC J. HAMMOND P.E.
MECHANICAL / ELECTRICAL ENGINEER
P.E. #39048
EB 5315

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GENERAL ELECTRICAL NOTES:
 1. FOR EACH SECTION, USE LEFT WIRE DUCTS FOR 120 VAC WIRES AND RIGHT WIRE DUCTS FOR 24 VDC WIRES.



HAMMOND & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 499 NW 70TH AVE, SUITE 201
 PLANTATION, FLORIDA 33317
 TEL: (954) 327-7111 FAX (954) 327-7154
 ERIC J. HAMMOND P.E.
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 P.E. #39048
 EB 5315

DESIGN CRITERIA PACKAGE

PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
CONTROL PANEL COMPONENT LAYOUT

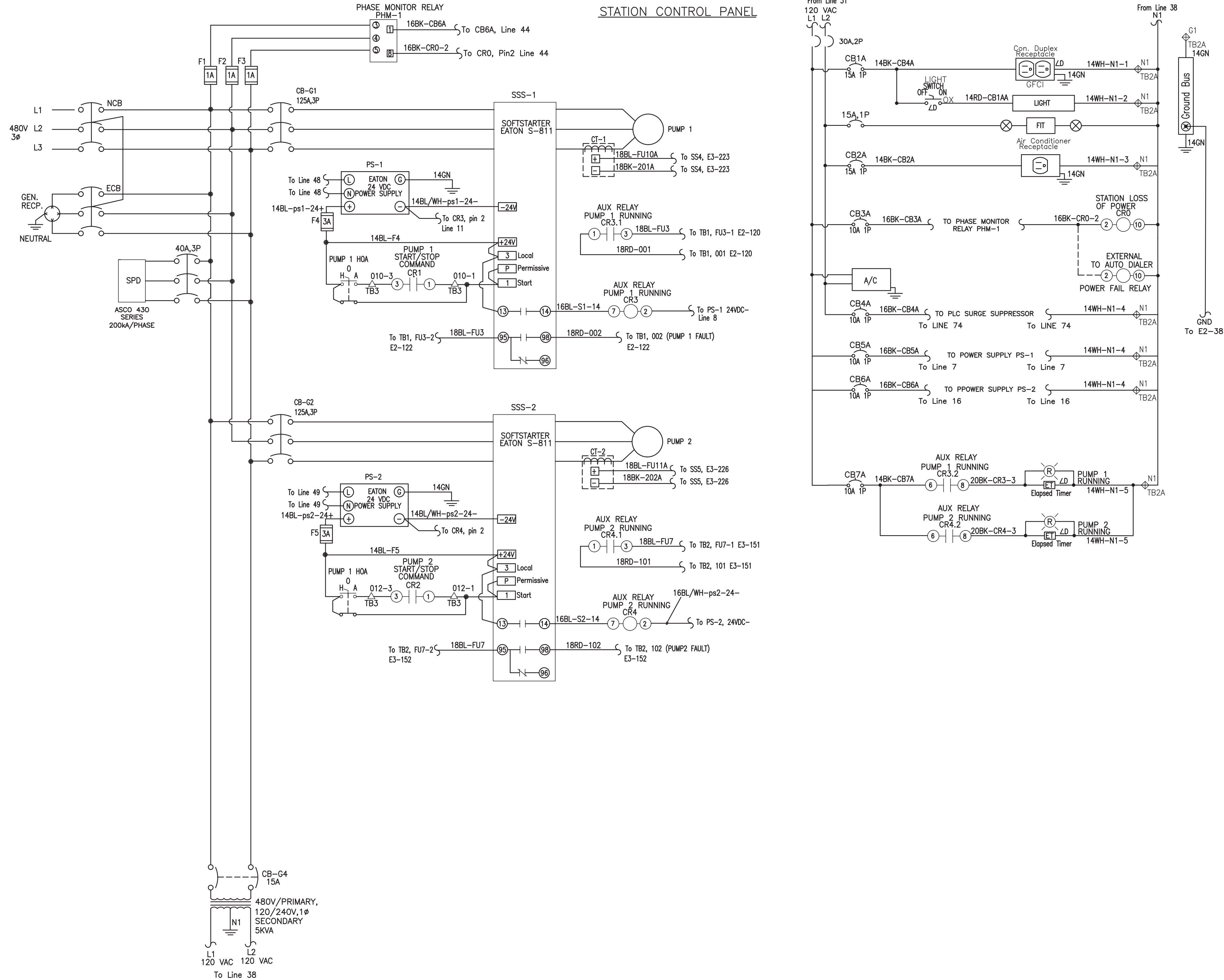
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24	31
GAD FILE: 12412-24-PANL	
DRAWING FILE NO. 4-142-31	

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NO.	DESCRIPTION

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 100 North Andrews Avenue, Fort Lauderdale, Florida 33301

ERIC HAMMOND, P.E.
 FL. LICENSE # PE39048
 DRAWN BY: H.A. DATE: 04/08/2021
 DESIGNED BY: H.A. AS NOTED
 CHECKED BY: E.H.
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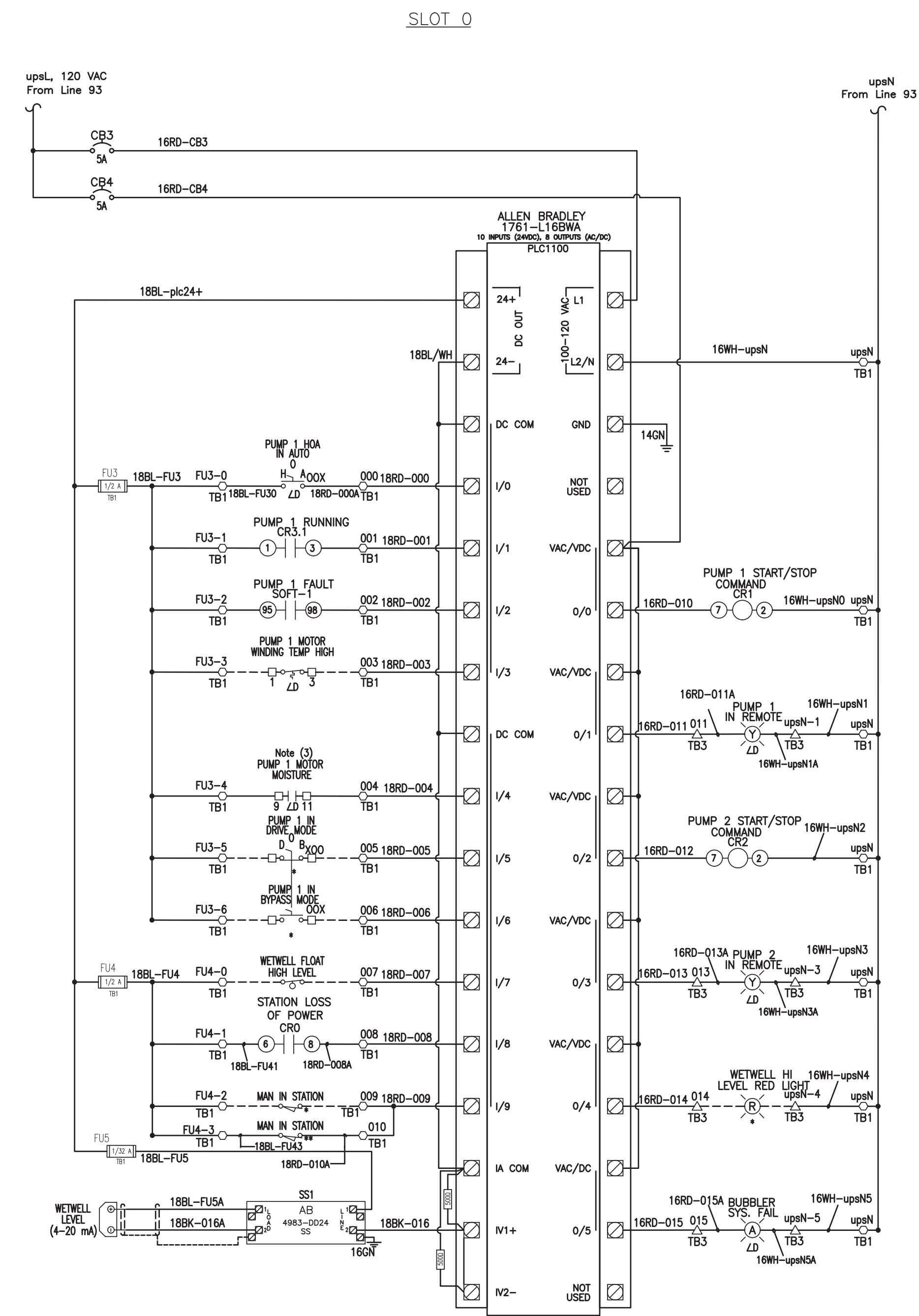
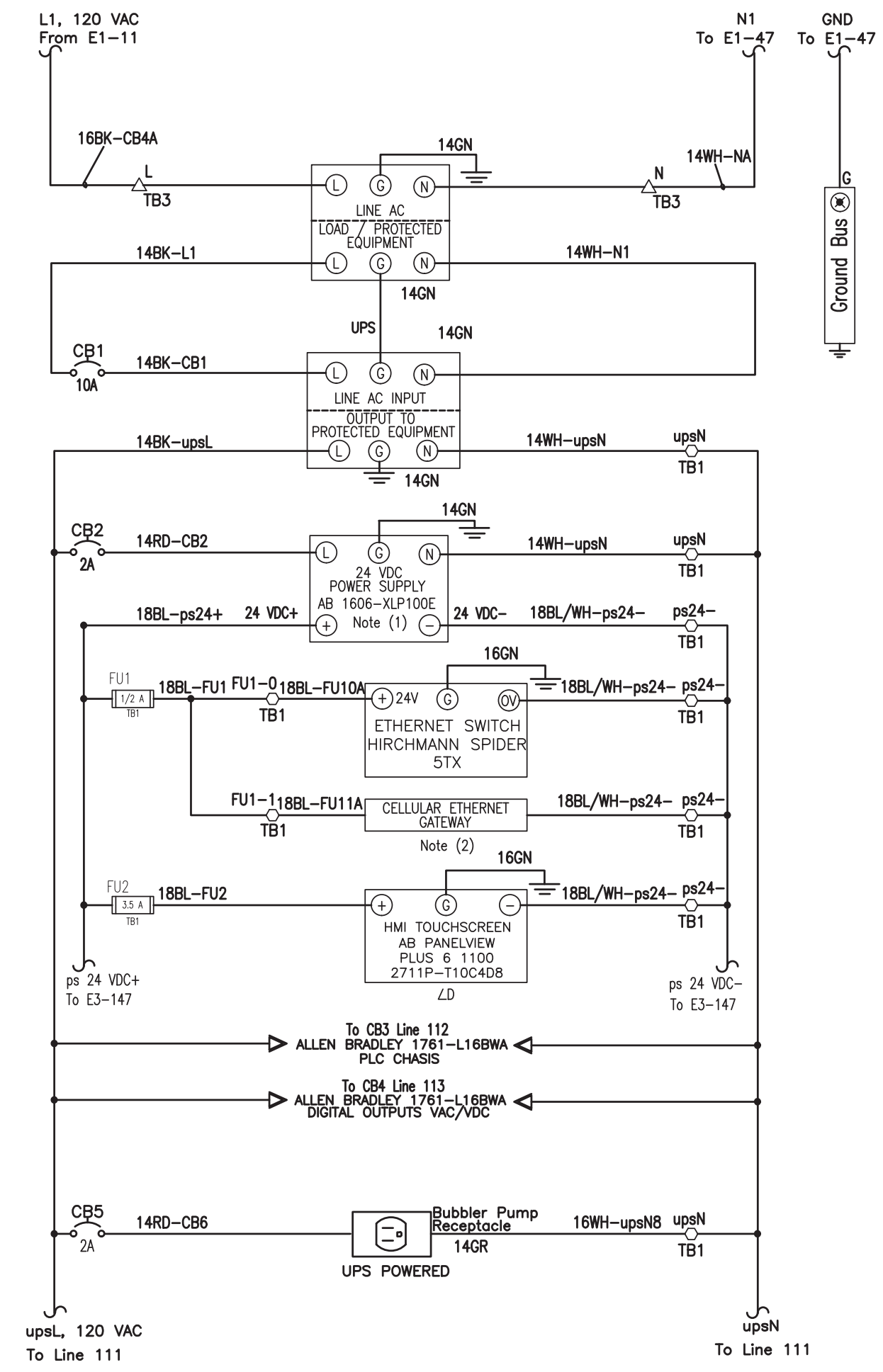
DESIGN CRITERIA PACKAGE
PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
CONTROL PANEL ELEMENTARY DIAGRAM -
SHEET 1



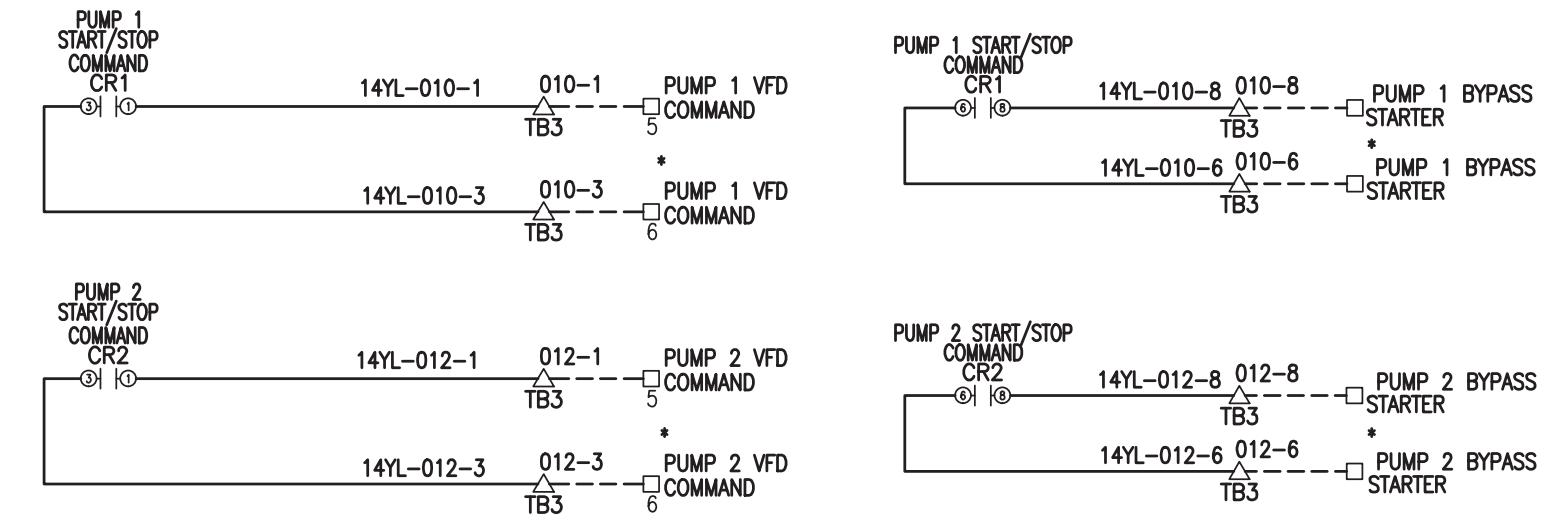
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CONSULTING ENGINEERS
499 NW 70TH AVE, SUITE 201
PLANTATION, FLORIDA 33317
TEL: (954) 327-7111 FAX (954) 327-7154
ERIC J. HAMMOND P.E.
MECHANICAL / ELECTRICAL ENGINEER
P.E. #39048
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25	31
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- GENERAL ELECTRICAL NOTES:**
- FINAL COMPONENT SIZE AND SELECTION TO BE DETERMINED BY SYSTEM SUPPLIER IN COORDINATION WITH CITY. IF PANEL VIEW PLUS 400 OR 600 IS REQUIRED, CHANGE POWER SUPPLY TO AB MODEL 160R-XLP100E.
 - SIERRA MODEL Raven XE V2221E-V CELLULAR RADIO TO BE PROVIDED AND CONFIGURED BY CITY.
 - PUMP SEAL FAIL RELAY, IF NEEDED AS PER SPEC OF PUMP MANUFACTURER.
 - LD DENOTES DEVICE MOUNTED ON PANEL DOOR.
 - WIRING GUIDE:
 - 18BL-FU1 WIRE NUMBER (CHARACTERS TO RIGHT OF DASH ONLY)
 - WIRE COLOR
 - WIRE GAUGE IN AWG
 - DENOTES COMPONENT MOUNTED OUTSIDE CONTROL PANEL
 - DENOTES FIELD WIRING OUTSIDE CONTROL PANEL
 - TB1 Terminal Block
 - TB2 Terminal Block
 - △ TB3 Terminal Block
 - ◇ TB2A Terminal Block
 - ◇ TB3A Terminal Block
 - DOOR INTRUSION SWITCH. PROVIDE ONE FOR EACH DOOR AND WIRE IN SERIES.



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 CONSULTING ENGINEERS
 499 NW 70TH AVE, SUITE 201
 PLANTATION, FLORIDA 33317
 TEL: (954) 327-7111 FAX (954) 327-7154
 ERIC J. HAMMOND P.E.
 MECHANICAL / ELECTRICAL ENGINEER
 P.E. #39048
 EB 5315

DESIGN CRITERIA PACKAGE

PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
CONTROL PANEL ELEMENTARY DIAGRAM - SHEET 2

SHEET NO.	OF
26	31
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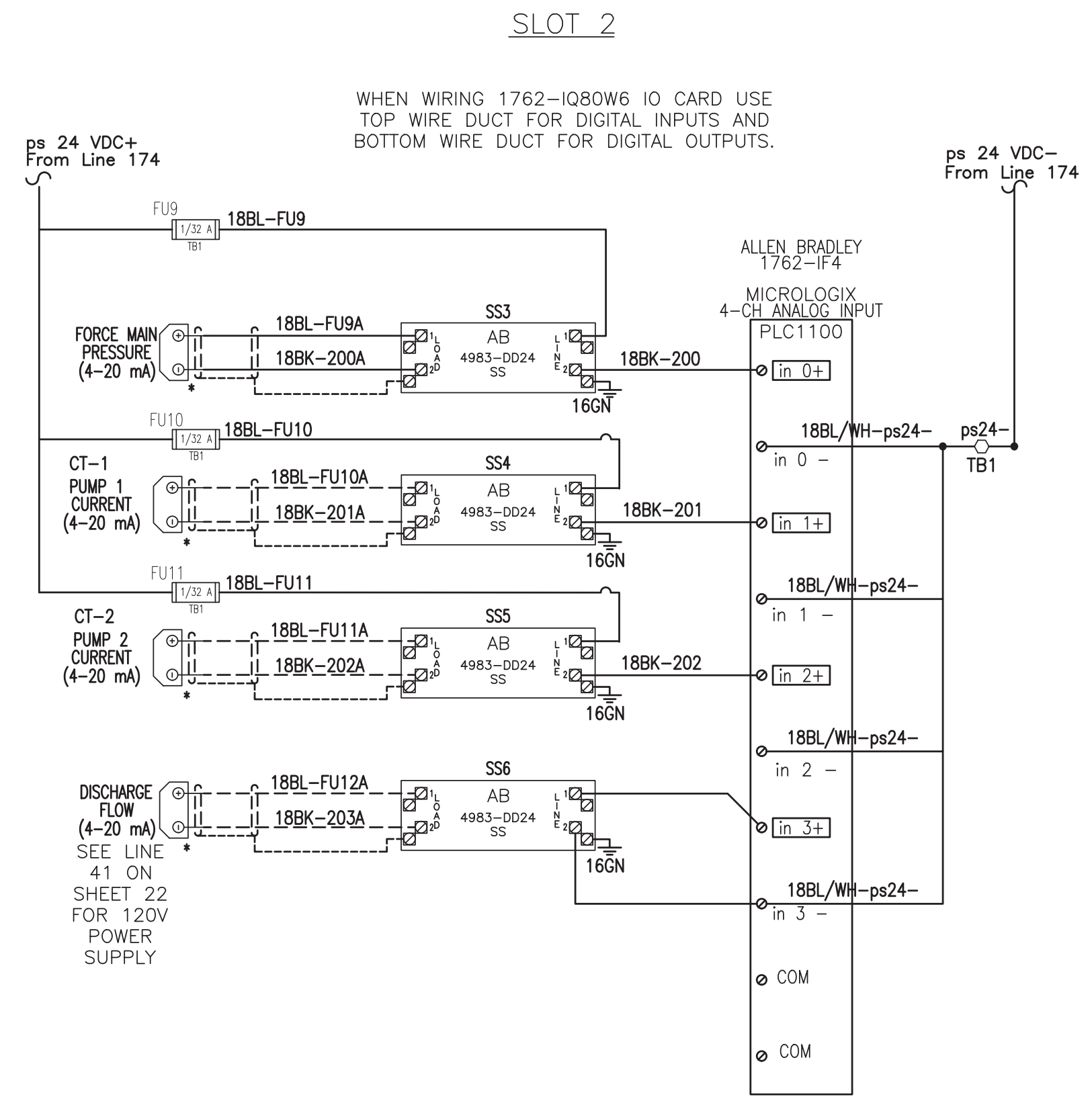
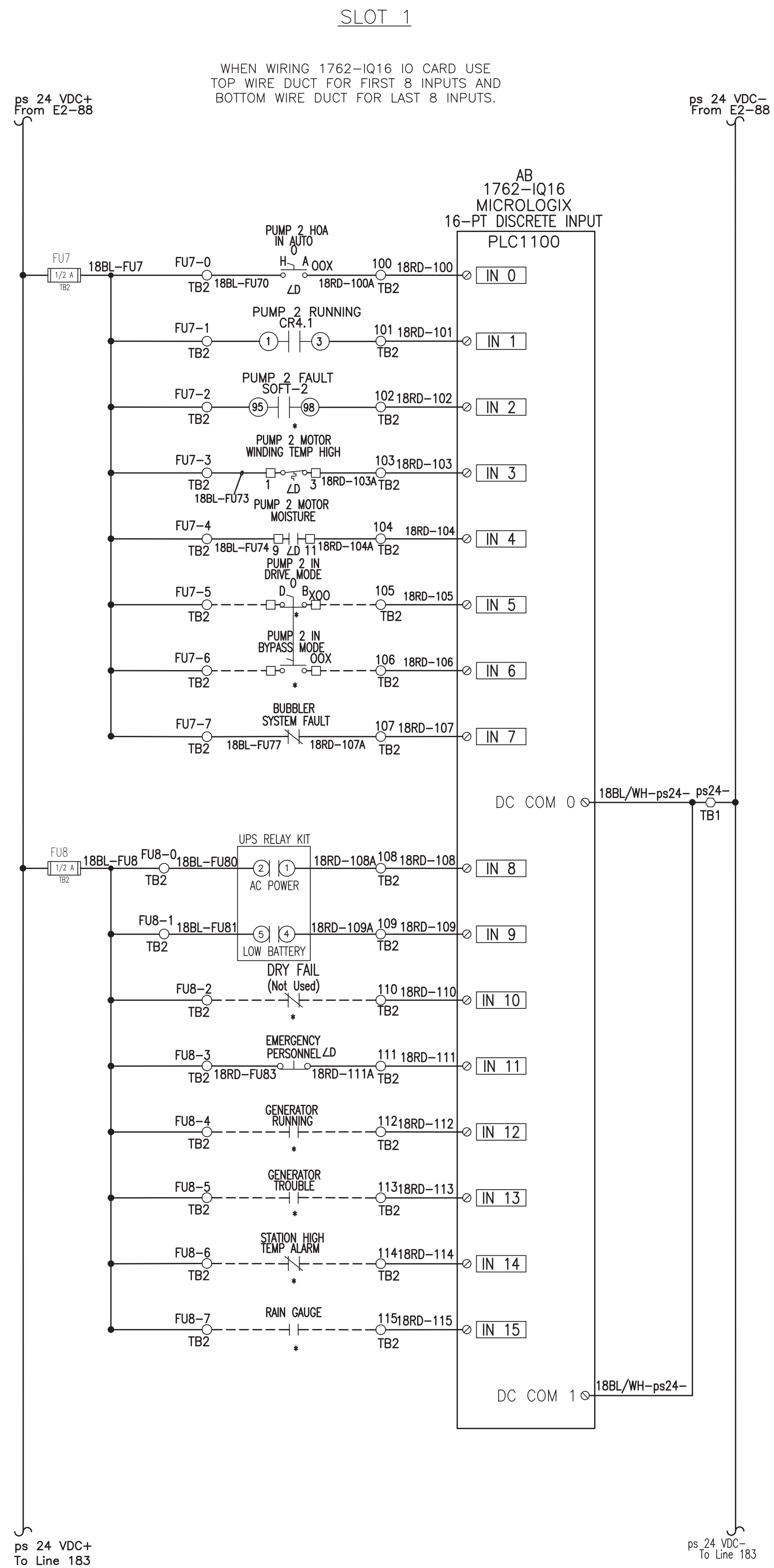
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GENERAL ELECTRICAL NOTES:

1. FINAL COMPONENT SIZE AND SELECTION TO BE DETERMINED BY SYSTEM SUPPLIER IN COORDINATION WITH CITY. IF PANEL VIEW PLUS 400 OR 600 IS REQUIRED, CHANGE POWER SUPPLY TO AB MODEL 1606-XLP100E.
 2. SIERRA MODEL Raven XE V2221E-V CELLULAR RADIO TO BE PROVIDED AND CONFIGURED BY CITY.
 3. PUMP SEAL FAIL RELAY. IF NEEDED AS PER SPEC OF PUMP MANUFACTURER.
 4. LD DENOTES DEVICE MOUNTED ON PANEL DOOR.
 5. WIRING GUIDE:
 - 18BL-FU1
 - WIRE NUMBER (CHARACTERS TO RIGHT OF DASH ONLY)
 - WIRE COLOR
 - WIRE GAUGE IN AWG
 6. * DENOTES COMPONENT MOUNTED OUTSIDE CONTROL PANEL
 7. ---- DENOTES FIELD WIRING OUTSIDE CONTROL PANEL
- TB1 Terminal Block
 - TB2 Terminal Block
 - △ TB3 Terminal Block
 - ⊕ TB2A Terminal Block
 - ◇ TB3A Terminal Block

DESIGN CRITERIA PACKAGE

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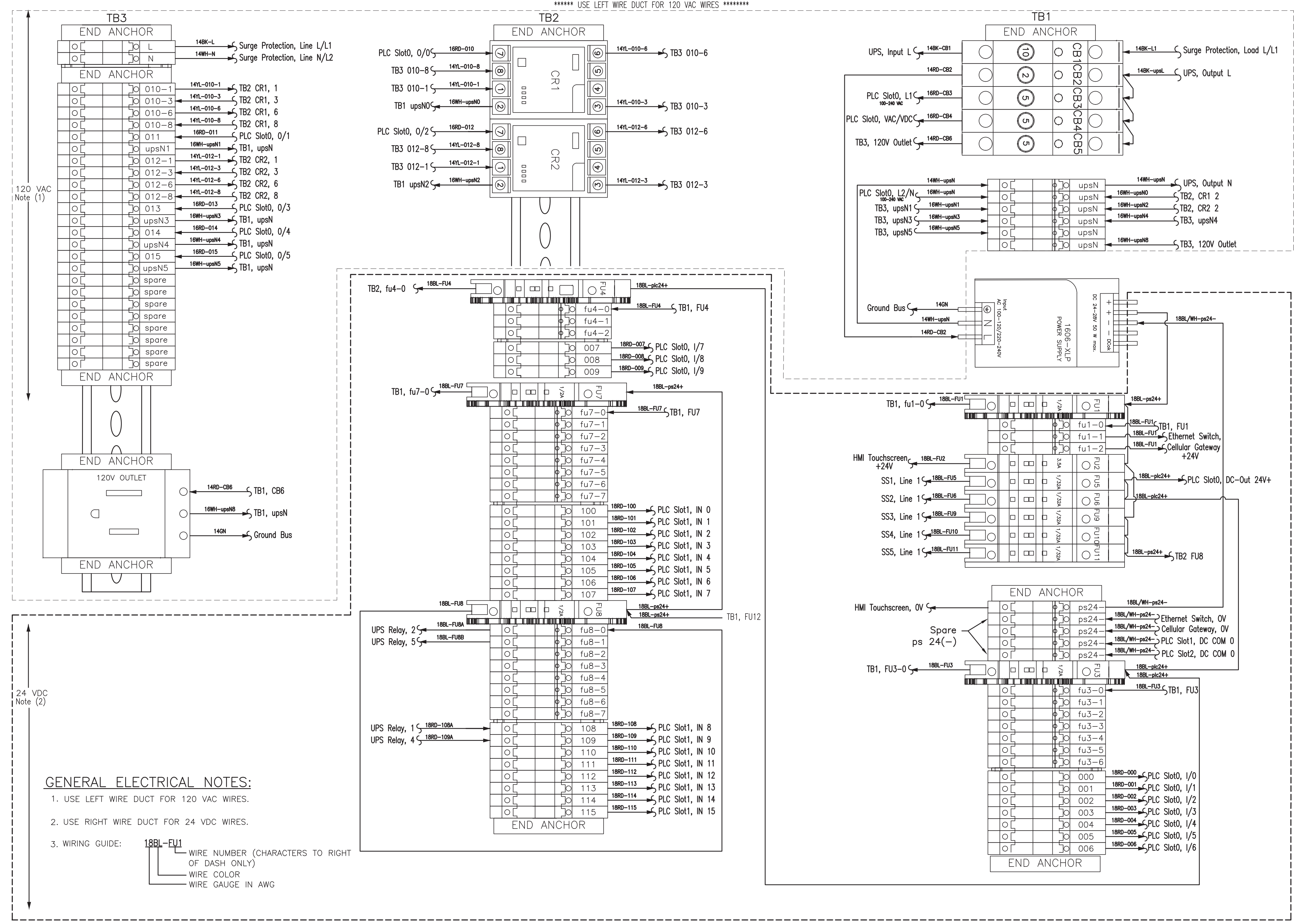
**PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
CONTROL PANEL ELEMENTARY DIAGRAM -
SHEET 3**

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CONSULTING ENGINEERS
499 NW 70TH AVE, SUITE 201
PLANTATION, FLORIDA 33317
TEL: (954) 327-7111 FAX (954) 327-7154
ERIC J. HAMMOND P.E.
MECHANICAL / ELECTRICAL ENGINEER
P.E. #39048
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27	31

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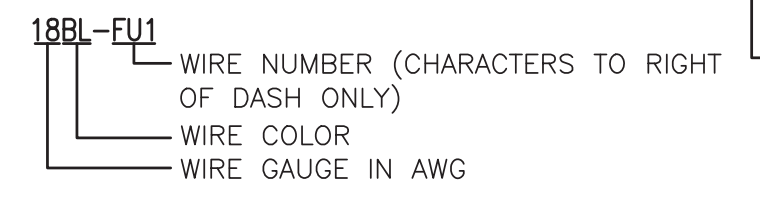


120 VAC
Note (1)

24 VDC
Note (2)

GENERAL ELECTRICAL NOTES:

1. USE LEFT WIRE DUCT FOR 120 VAC WIRES.
2. USE RIGHT WIRE DUCT FOR 24 VDC WIRES.
3. WIRING GUIDE:



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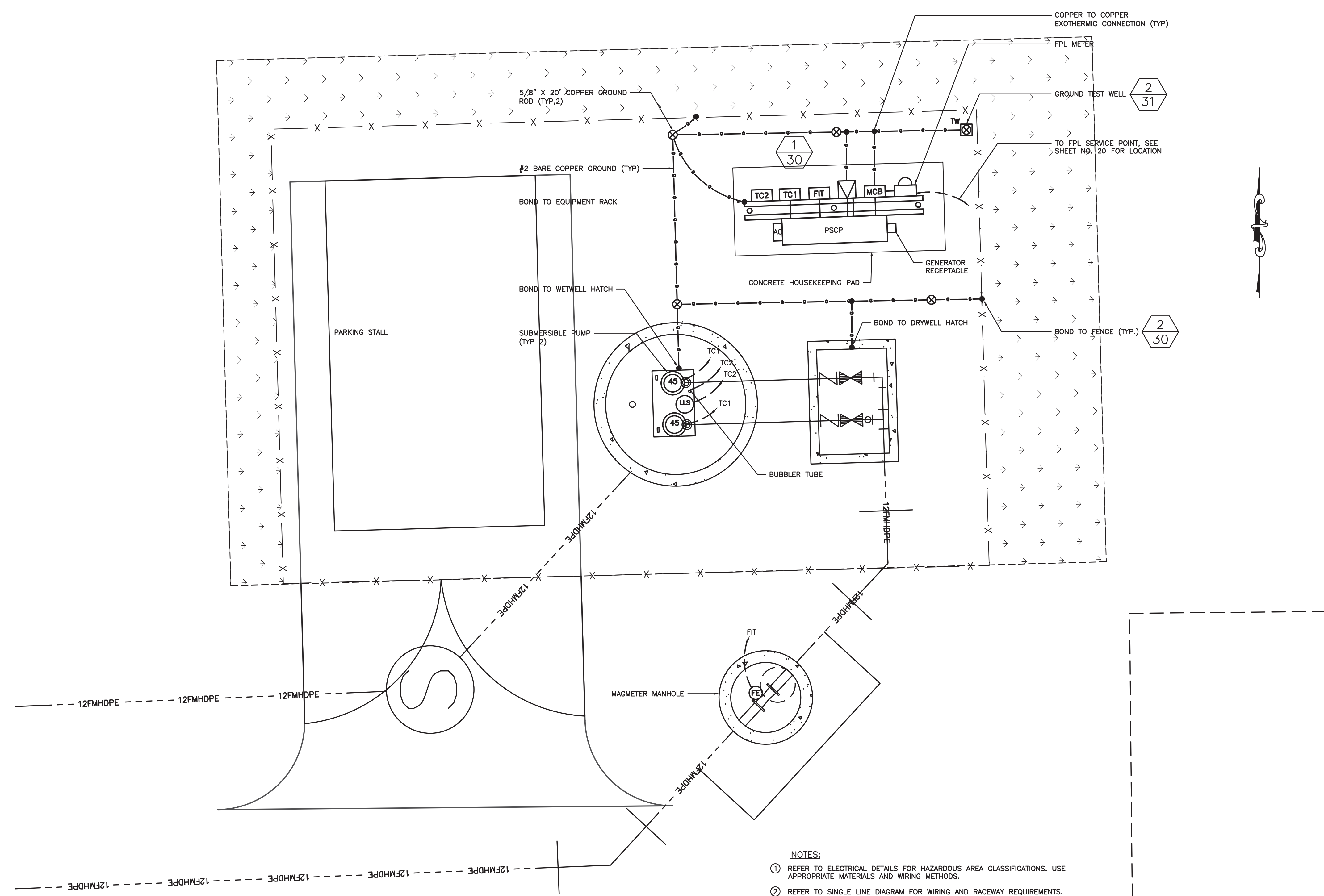
PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
CONTROL PANEL INTERCONNECTION
WIRING DIAGRAM

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28	31
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PLANTATION, FLORIDA 33317
TEL: (954) 327-7111 FAX (954) 327-7154
ERIC J. HAMMOND P.E.
MECHANICAL / ELECTRICAL ENGINEER
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ELECTRICAL PLAN VIEW
SCALE: 3/8"=1'-0"
12" 0 1 2 4'

- NOTES:**
- ① REFER TO ELECTRICAL DETAILS FOR HAZARDOUS AREA CLASSIFICATIONS. USE APPROPRIATE MATERIALS AND WIRING METHODS.
 - ② REFER TO SINGLE LINE DIAGRAM FOR WIRING AND RACEWAY REQUIREMENTS.
 - ③ ALL CONDUITS ENTERING THE WET WELL, INCLUDING PIPING FOR BUBBLER TUBE, SHALL TERMINATE WITHIN SIX INCHES OF THE WET WELL ACCESS HATCH OPENING.
 - ④ AVOID MOISTURE TRAPS IN RACEWAY INSTALLATION.
 - ⑤ WHEREVER POSSIBLE, PROVIDE 24" SPACING BETWEEN RACEWAYS HOUSING POWER CONDUCTORS AND RACEWAYS HOUSING 24VDC DISCRETE AND ANALOG CIRCUITS.



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CONSULTING ENGINEERS
499 NW 70TH AVE, SUITE 201
PLANTATION, FLORIDA 33317
TEL: (954) 327-7111 FAX (954) 327-7154
ERIC J. HAMMOND P.E.
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P.E. #39048
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PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
ENLARGED ELECTRICAL PLAN

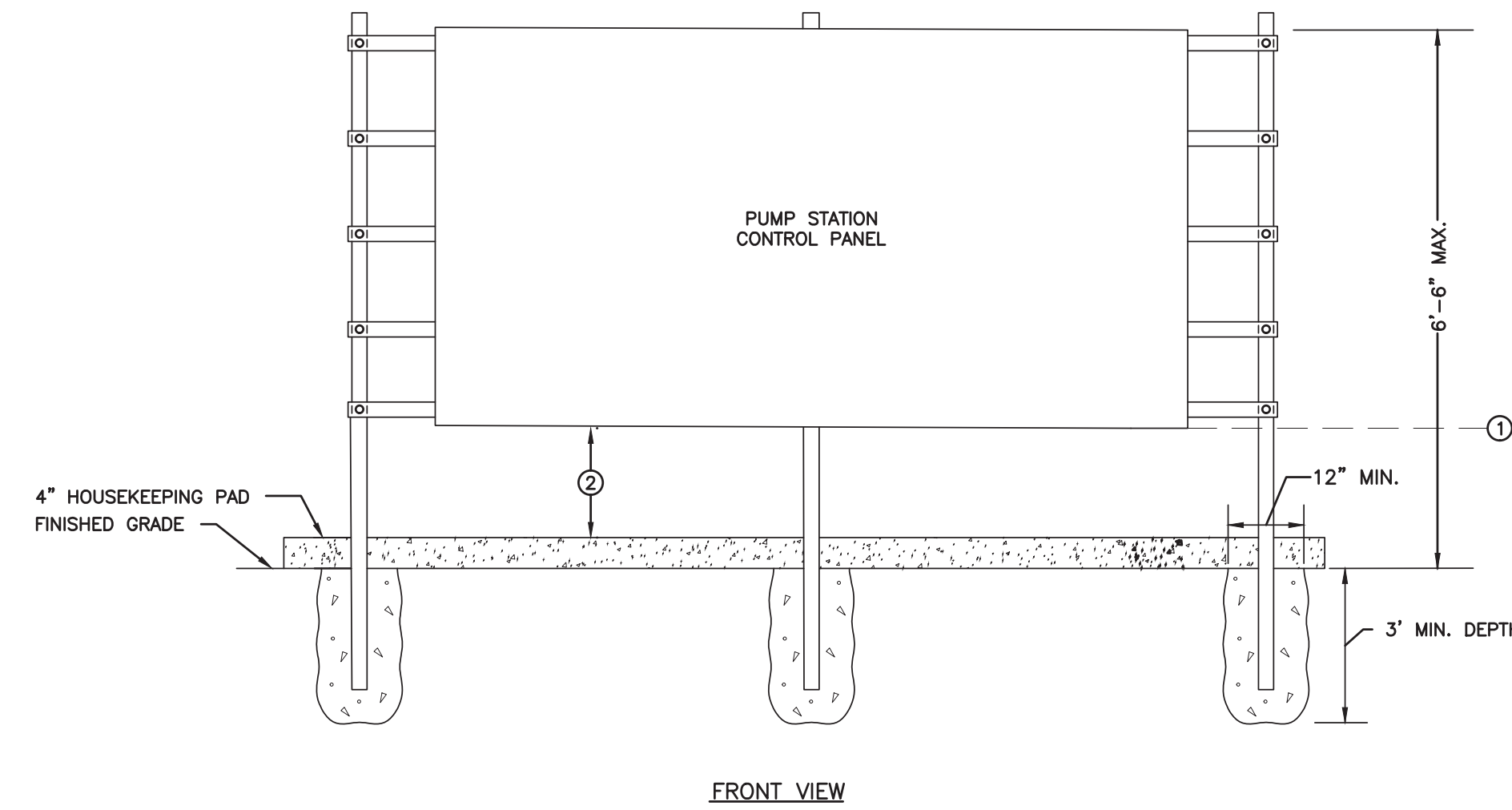
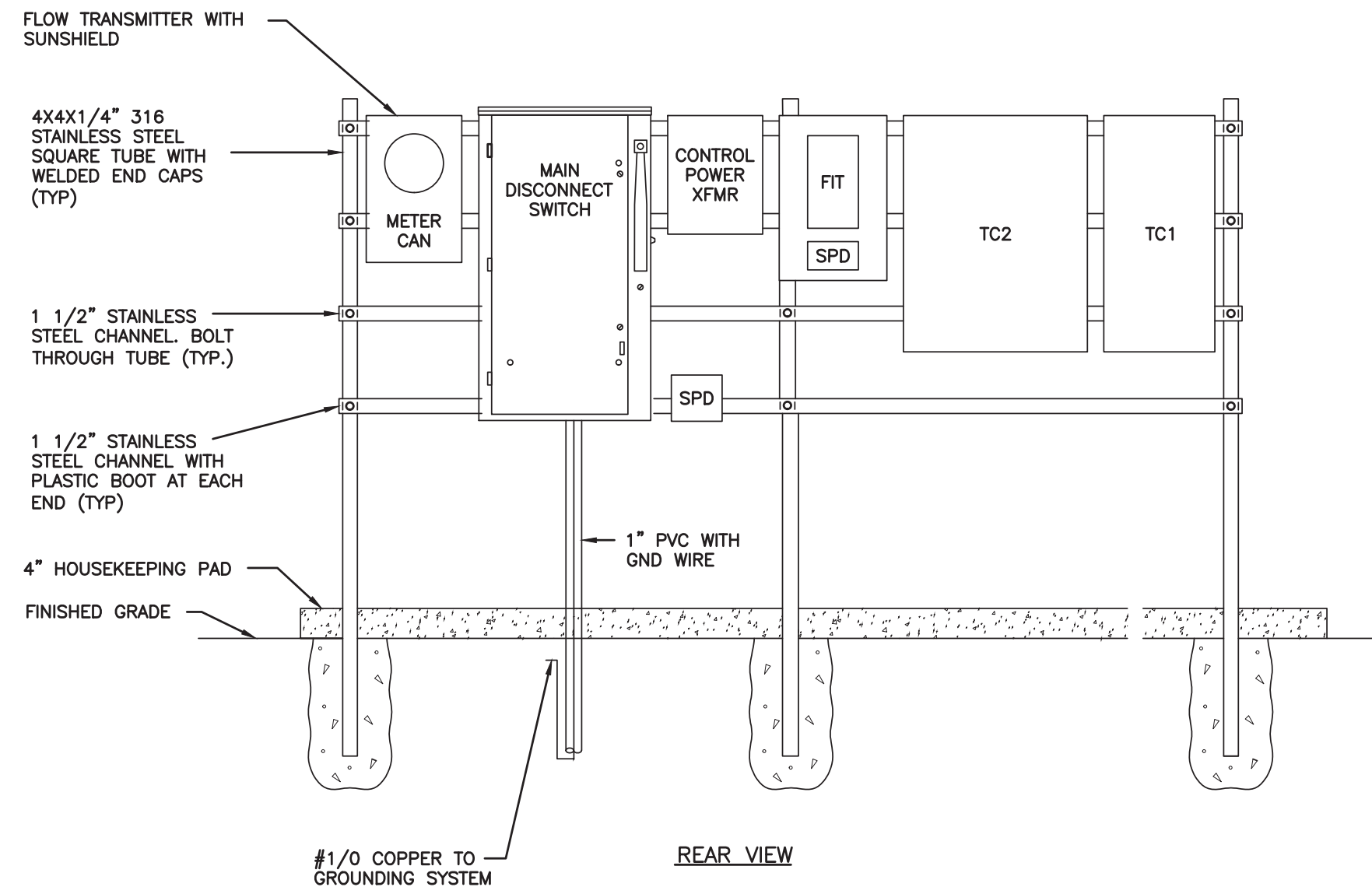
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29	31
CAD FILE: 12412-29-PLAN	
DRAWING FILE NO. 4-142-31	

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NO.	DESCRIPTION

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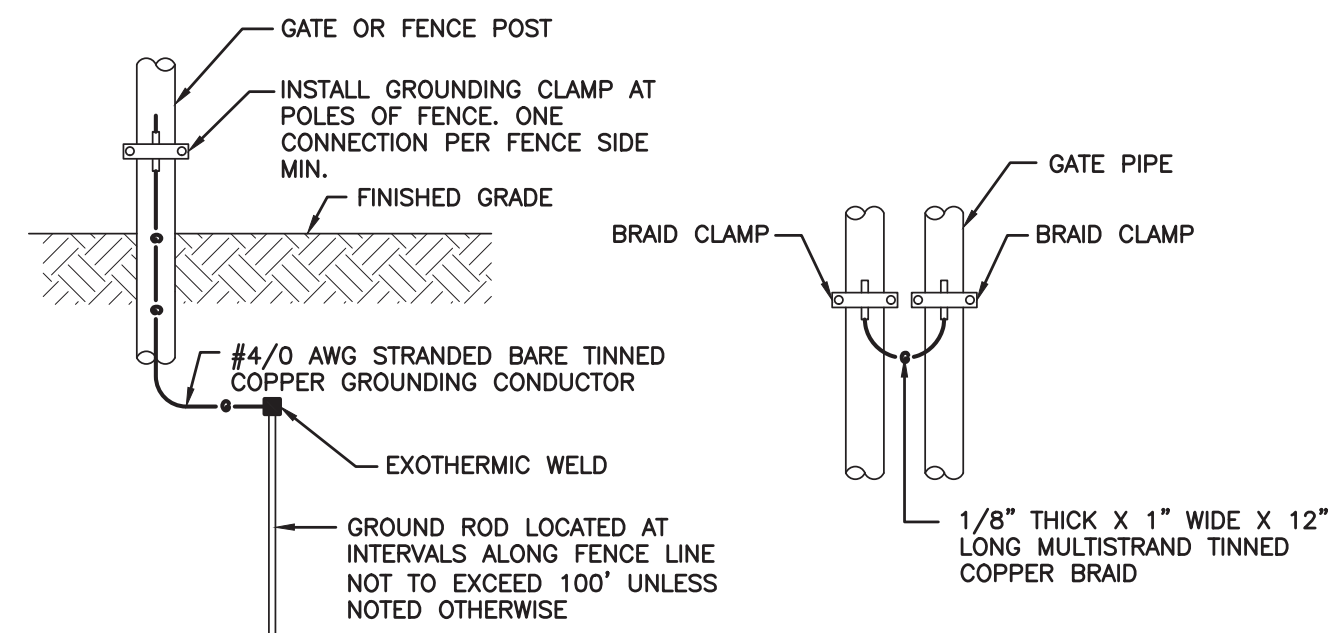
GENERAL NOTES:

- A. DEPTH AS REQUIRED TO MEET FLORIDA BUILDING CODE WIND LOAD REQUIREMENTS. CONTRACTOR SHALL SUBMIT SIGNED AND SEALED WIND LOAD CALCULATIONS FROM A STRUCTURAL ENGINEER LICENSED IN THE STATE OF FLORIDA.
- B. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED.
- C. REAR SUNSHIELDS ARE REQUIRED FOR ALL ELECTRICAL EQUIPMENT RACKS. SEE TYPICAL EQUIPMENT RACK REAR SUNSHIELD DETAIL BELOW.
- D. REFER TO SINGLE LINE DIAGRAM FOR WIRING AND RACEWAY REQUIREMENTS.
- E. CONTRACTOR MAY REARRANGE THE ORDER OF EQUIPMENT ON THE RACK, TO SUIT THE INSTALLATION.

KEY NOTES:

- ① BASE FLOOD ELEVATION IS 6'-0" NAVD 88, FLOOD ZONE X. INSTALL BOTTOM OF ALL ELECTRICAL EQUIPMENT AT BASE FLOOD ELEVATION.
- ② DIMENSION "X", CONFIRM GRADE ELEVATION AND DIMENSION "X" WITH ENGINEER PRIOR TO PANEL INSTALLATION.

1
30 ELECTRICAL EQUIPMENT RACK FRONT/REAR VIEW ELEVATION
NOT TO SCALE



2
30 TYPICAL GATE/FENCE POST GROUNDING DETAIL
NOT TO SCALE

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PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
ELECTRICAL DETAILS - 1

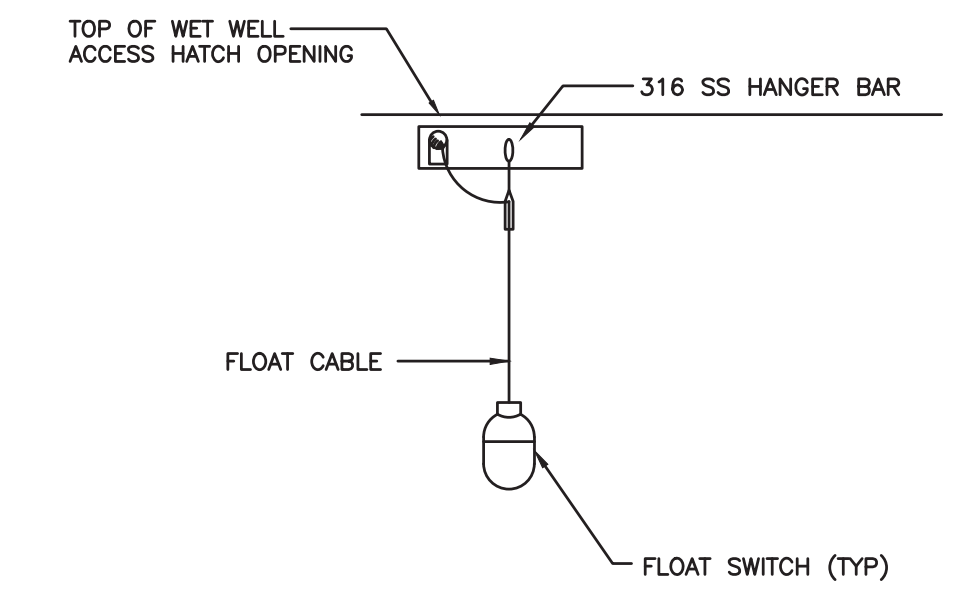
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30	31
CAD FILE: 12412-30-DETL	
DRAWING FILE NO. 4-142-31	



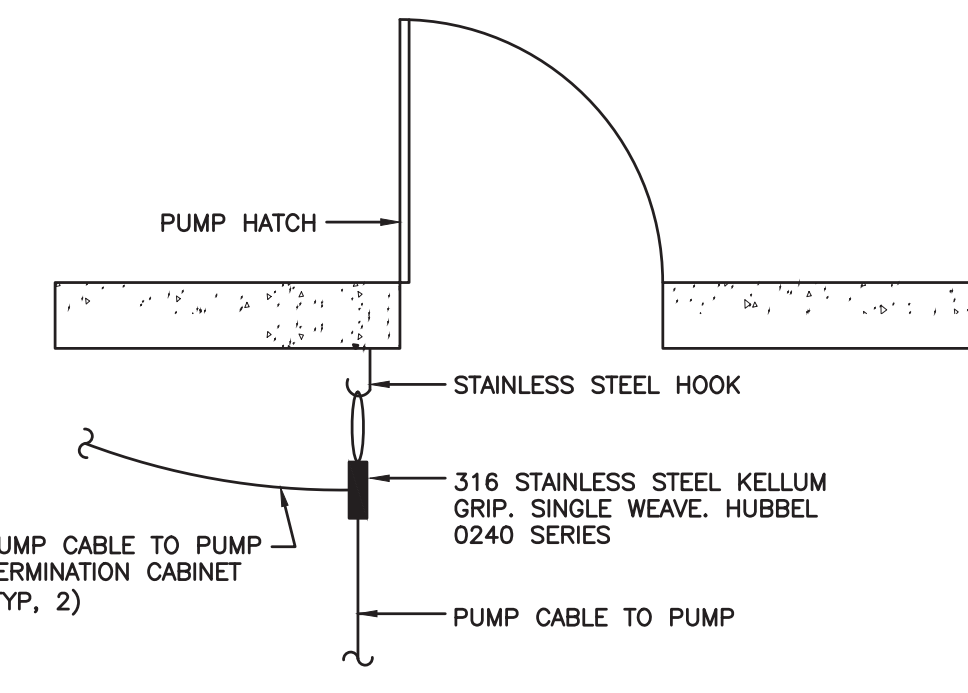
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CONSULTING ENGINEERS
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PLANTATION, FLORIDA 33317
TEL: (954) 327-7111 FAX (954) 327-7154
ERIC J. HAMMOND P.E.
MECHANICAL / ELECTRICAL ENGINEER
P.E. #39048
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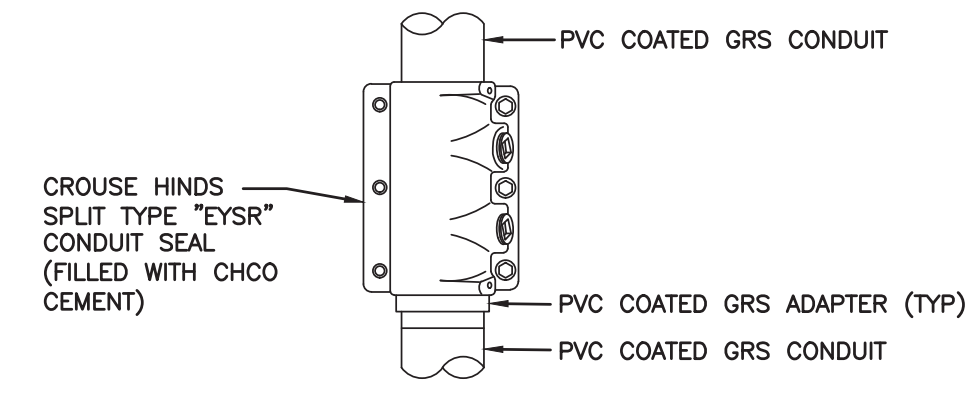
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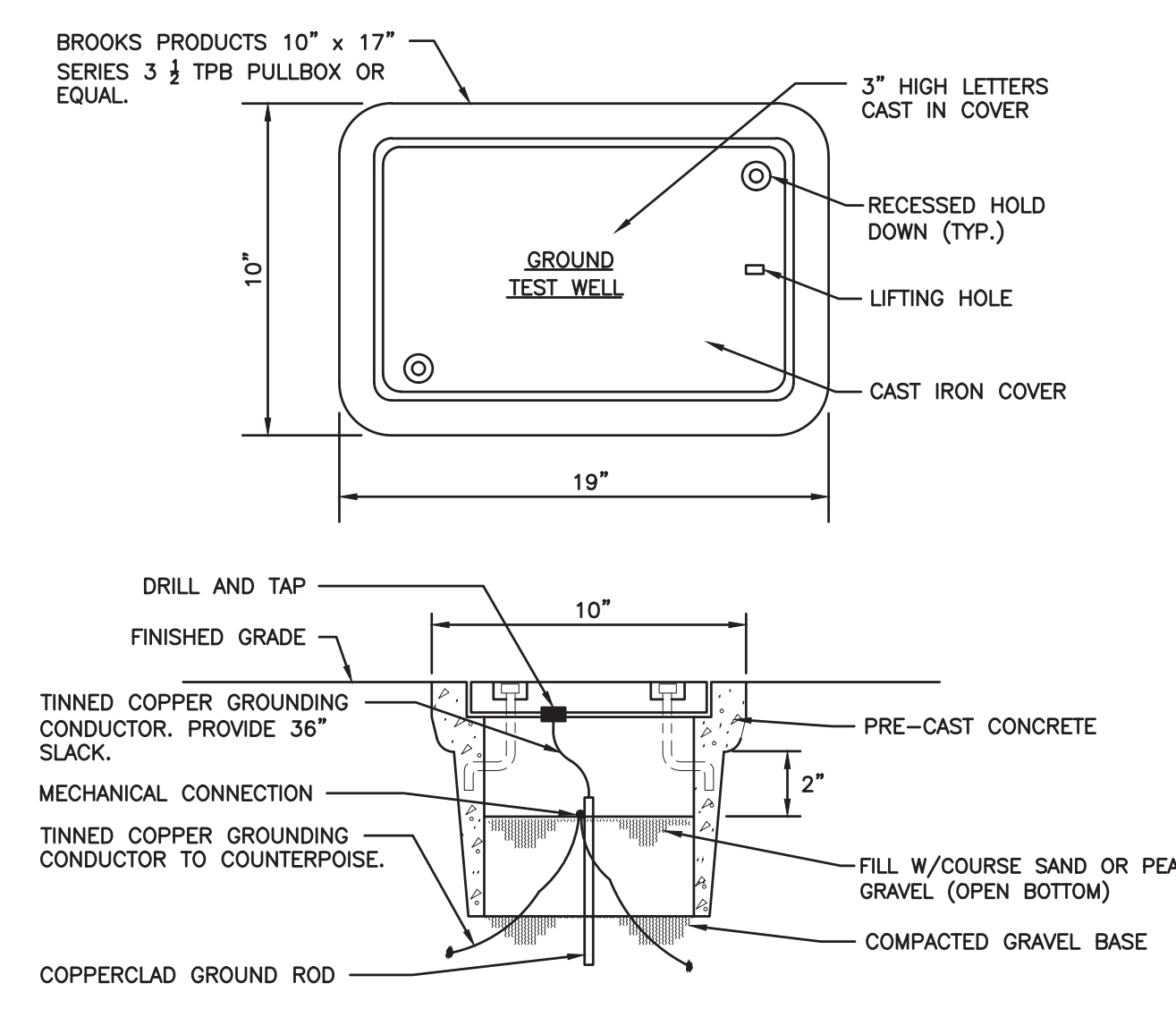
1
31 TYPICAL LEVEL SWITCH MOUNTING DETAIL
N.T.S.



3
31 TYPICAL PUMP CABLE MOUNTING DETAIL
N.T.S.

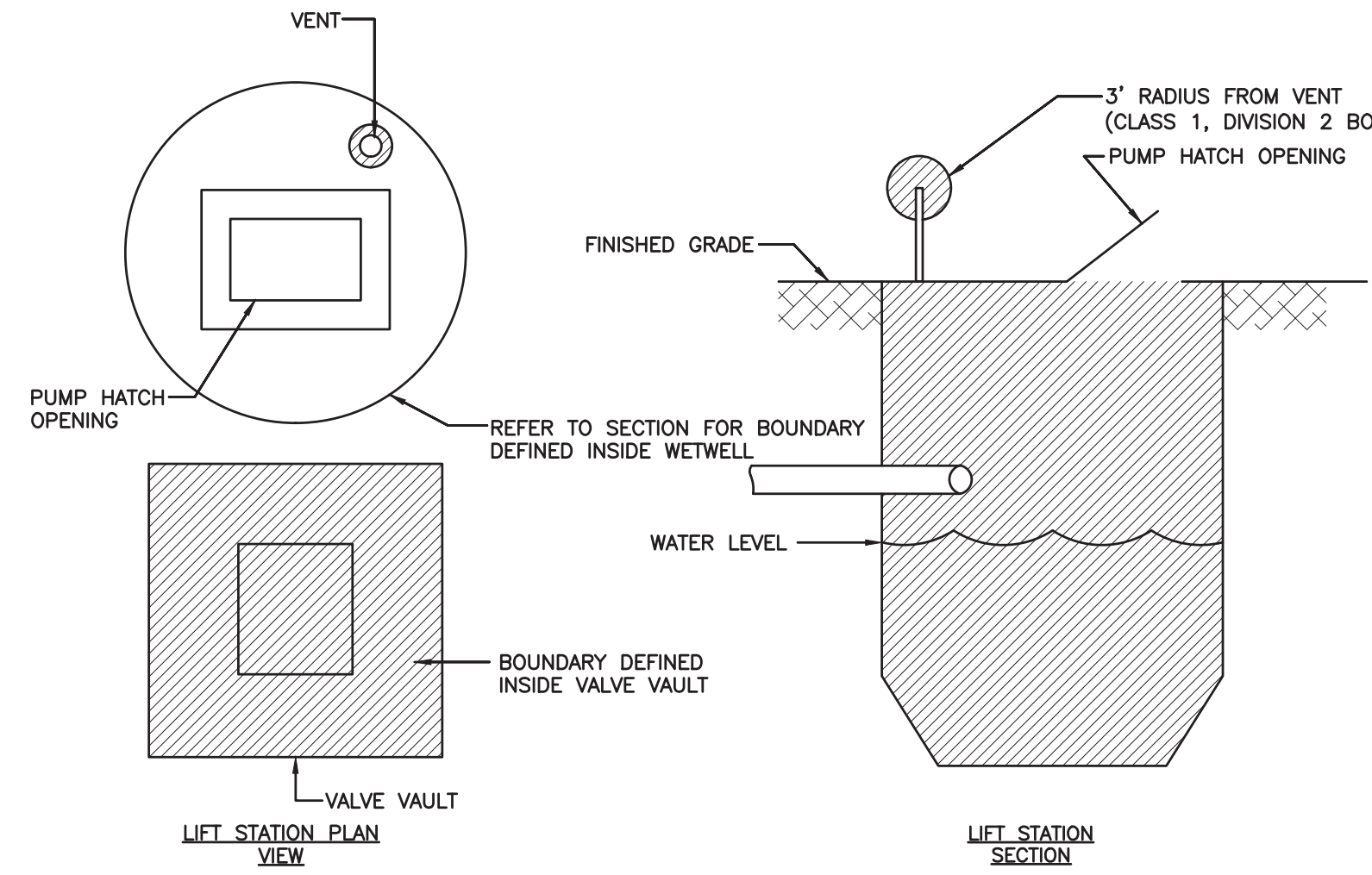


5
31 CONDUIT SEAL DETAIL
SCALE: N.T.S.

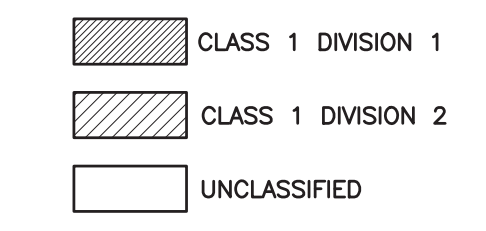


2
31 TYPICAL GROUND TEST WELL
SCALE: N.T.S.

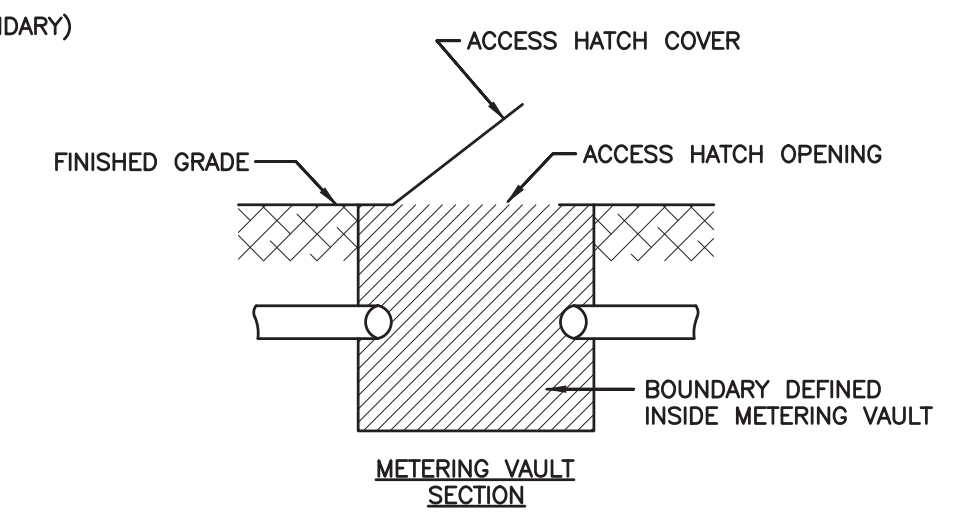
NOTES:
① TEST WELL AND COVER SHALL BE H-20 RATED.



- NOTES:
- ① WET WELL HAZARDOUS AREA CLASSIFICATION ASSIGNED PER 2018 NFPA 820, TABLE 4.2.2, ROW 11-a.
 - ② DRY WELL HAZARDOUS AREA CLASSIFICATION ASSIGNED PER 2018 NFPA 820, TABLE 4.2.2, ROW 12-a.
 - ③ VALVE VAULT HAZARDOUS AREA CLASSIFICATION ASSIGNED PER 2018 NFPA 820, TABLE 4.2.2, ROW 31-a.
 - ④ METERING VAULT HAZARDOUS AREA CLASSIFICATION ASSIGNED PER 2018 NFPA 820, TABLE 4.2.2, ROW 36-a.



4
31 HAZARDOUS AREA CLASSIFICATION
SCALE: N.T.S.



ERIC HAMMOND, P.E.
FL LICENSE # PE39048

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PROJECT # 12412
PUMP STATION A-16 UPGRADE
WASTEWATER DESIGN CRITERIA PACKAGE
ELECTRICAL DETAILS - 2

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DESIGN CRITERIA PACKAGE



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CONSULTING ENGINEERS
499 NW 70TH AVE, SUITE 201
PLANTATION, FLORIDA 33317
TEL: (954) 327-7111 FAX (954) 327-7154
ERIC J. HAMMOND P.E.
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P.E. #39048
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