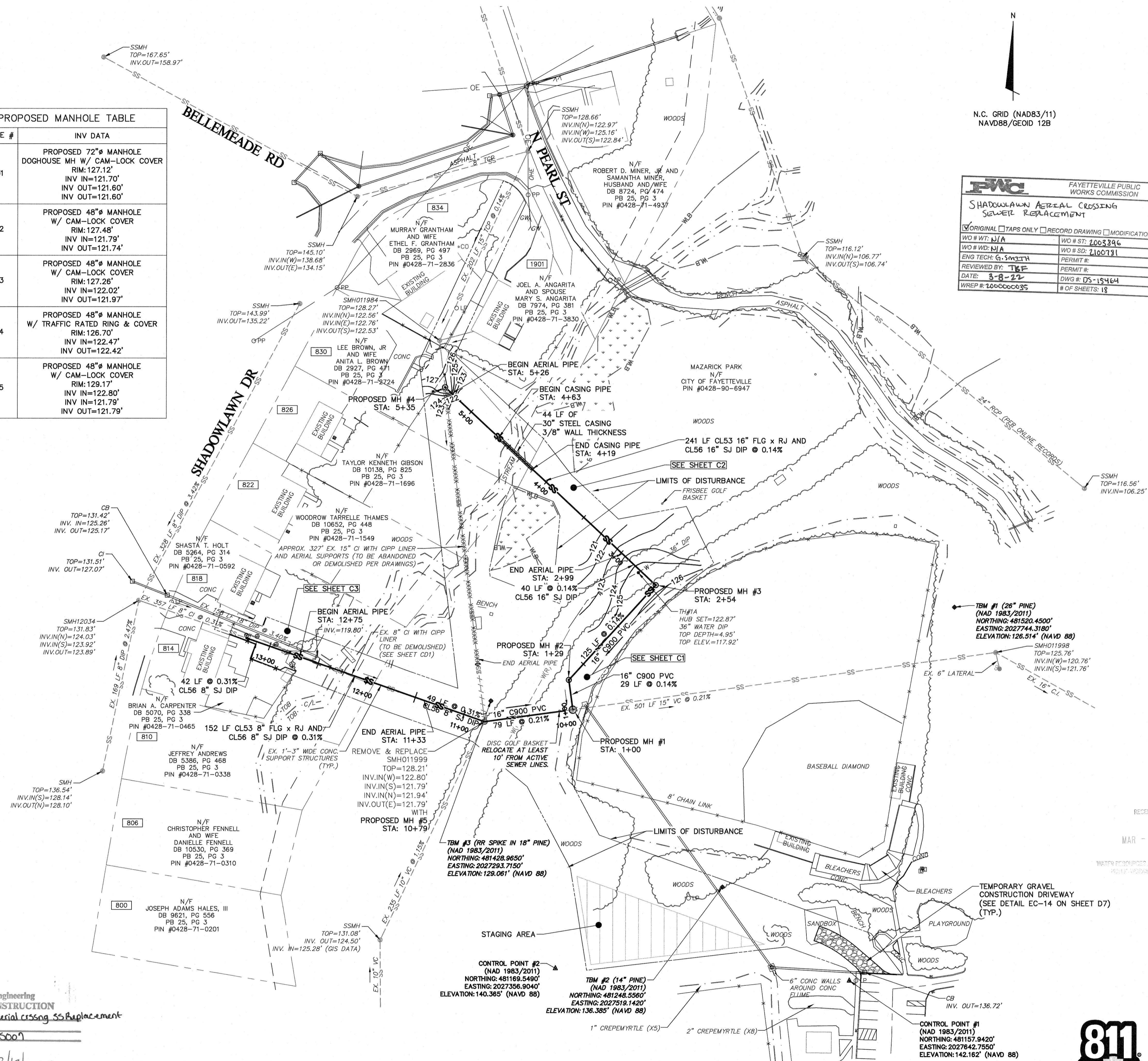


VICINITY MAP
N.T.S.

PROPOSED MANHOLE TABLE	
MANHOLE #	INV DATA
MH #1	PROPOSED 72" Ø MANHOLE DOGHOUSE MH W/ CAM-LOCK COVER RIM: 127.12' INV IN=121.70' INV OUT=121.60' INV OUT=121.60'
MH #2	PROPOSED 48" Ø MANHOLE W/ CAM-LOCK COVER RIM: 127.48' INV IN=121.79' INV OUT=121.74'
MH #3	PROPOSED 48" Ø MANHOLE W/ CAM-LOCK COVER RIM: 127.26' INV IN=122.02' INV OUT=121.97'
MH #4	PROPOSED 48" Ø MANHOLE W/ TRAFFIC RATED RING & COVER RIM: 126.70' INV IN=122.47' INV OUT=122.42'
MH #5	PROPOSED 48" Ø MANHOLE W/ CAM-LOCK COVER RIM: 129.17' INV IN=122.80' INV IN=121.79' INV OUT=121.79'

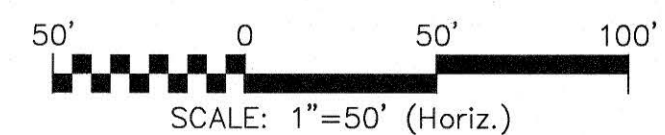
NOTES

- SEWER SERVICES FOR 814, 818, 822, 826, AND 830 SHADOWLAWN DRIVE CONFIRMED TO CONNECT TO SEWER IN STREET VIA FAYETTEVILLE PWC CCTV RECORDS.



PWC
Water Resources Engineering
APPROVED FOR CONSTRUCTION
Project Name: Shadowlawn Aerial Crossing SS Replacement
Water Permit #: N/A
Sewer Permit #: PWC 2022-5007
Misty Manning 3/17/2022
Misty Manning, PE Date
Engineering Manager

PLAN VIEW
HORIZ: 1"=50'



811
Know what's below.
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FWC FAYETTEVILLE PUBLIC WORKS COMMISSION
SHADOWLAWN AERIAL CROSSING SEWER REPLACEMENT
ORIGINAL TAPS ONLY RECORD DRAWING MODIFICATION
WO # WT: N/A WO # SD: 1003396
WO # WCH: N/A WO # SD: 2100731
ENG TECH: G. Smith PERMIT #:
REVIEWED BY: TBF PERMIT #:
DATE: 3-8-22 DWG #: DS-15464
WREP #: 200000035 # OF SHEETS: 18

SHADOWLAWN AERIAL CROSSING
SEWER REPLACEMENT
UTILITY PLAN
100% DESIGN

FAYETTEVILLE PUBLIC WORKS COMMISSION
FWC WATER RESOURCES ENGINEERING
808 Old Wilmington Road, Fayetteville, NC 28301

DATE	REVISIONS	BY	INT
08/22/21	ISSUED FOR CONSTRUCTION	NT	NT
08/03/21	ISSUED FOR CONSTRUCTION	NT	NT
08/10/21	ISSUED FOR CONSTRUCTION	NT	NT
08/24/21	ISSUED FOR CONSTRUCTION	NT	NT
02/24/22	ISSUED FOR CONSTRUCTION	NT	NT

DATE: 2020 JUN
SURVEYED BY: MCK&C
DRAWN BY: MHP
CHECKED BY: NT
SCALE: HOR: 1"=50'
VERT: 1"=10'

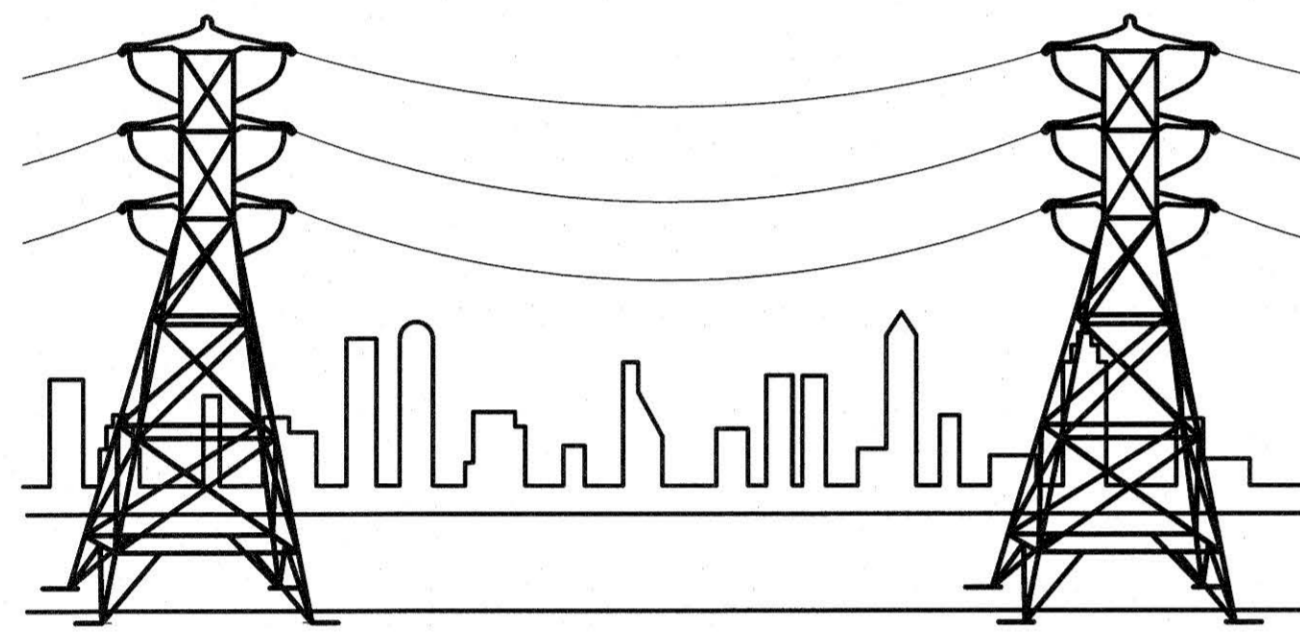
UP
3 OF 18



RECEIVED
MAR -1 2022

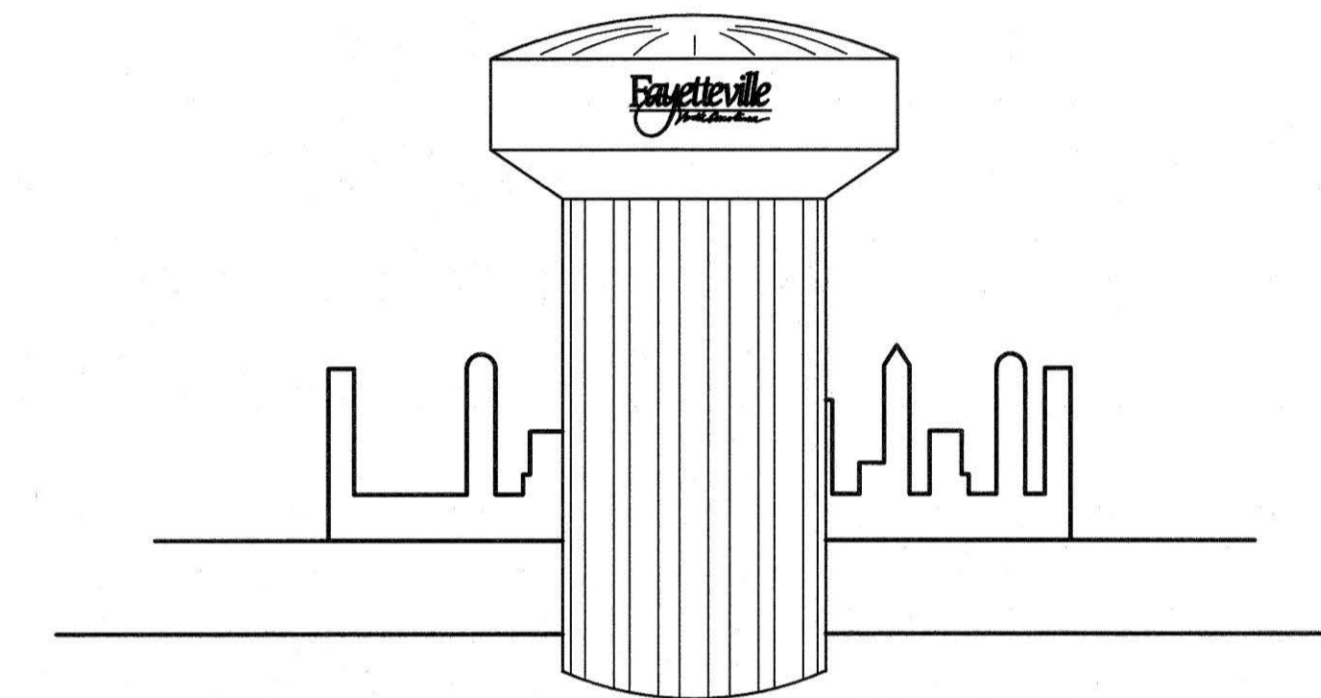
FAYETTEVILLE PUBLIC WORKS COMMISSION

FAYETTEVILLE, N.C.



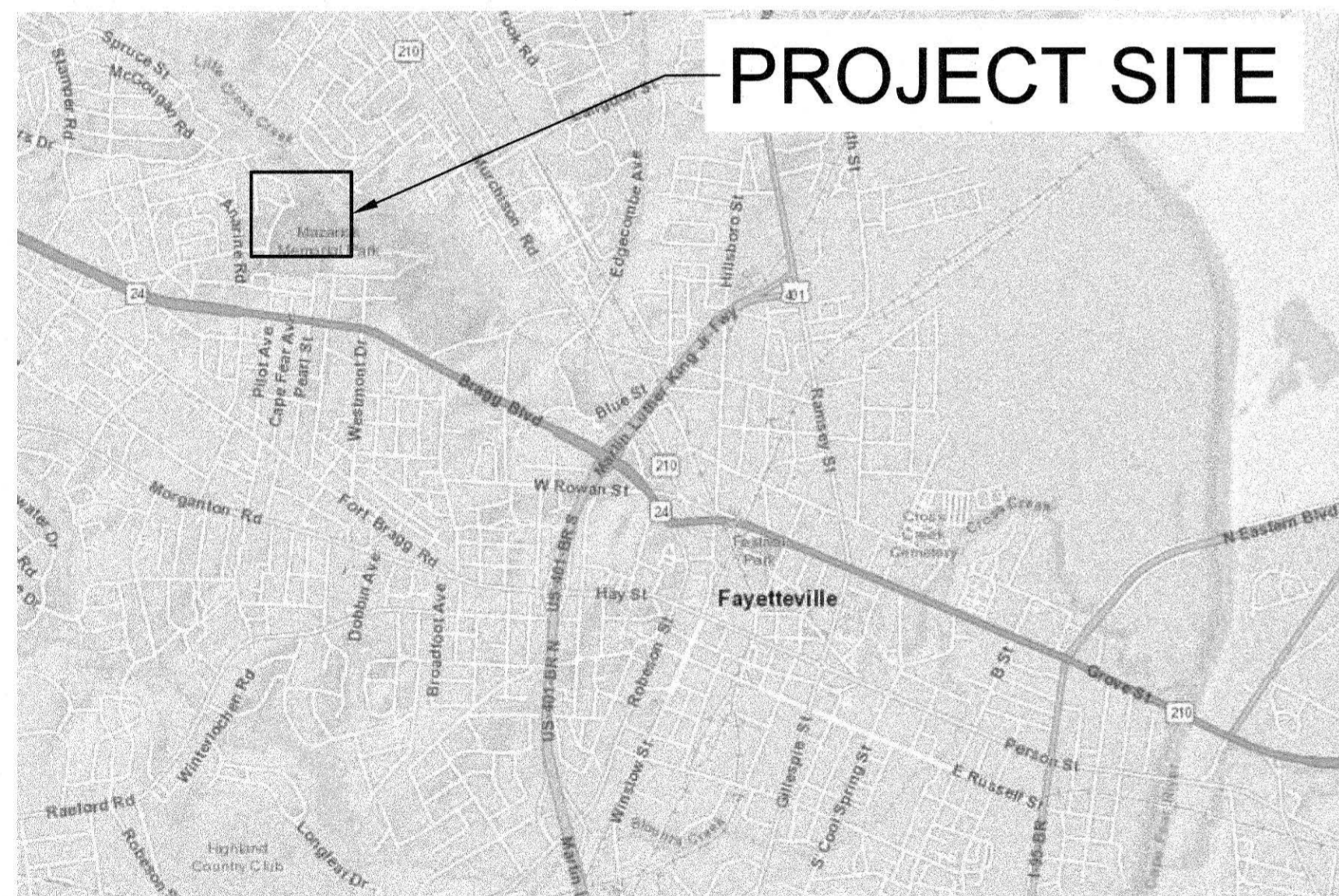
ELECTRICAL

JON RYNNE - ELEC. SYS. CHIEF OPER. OFFICER

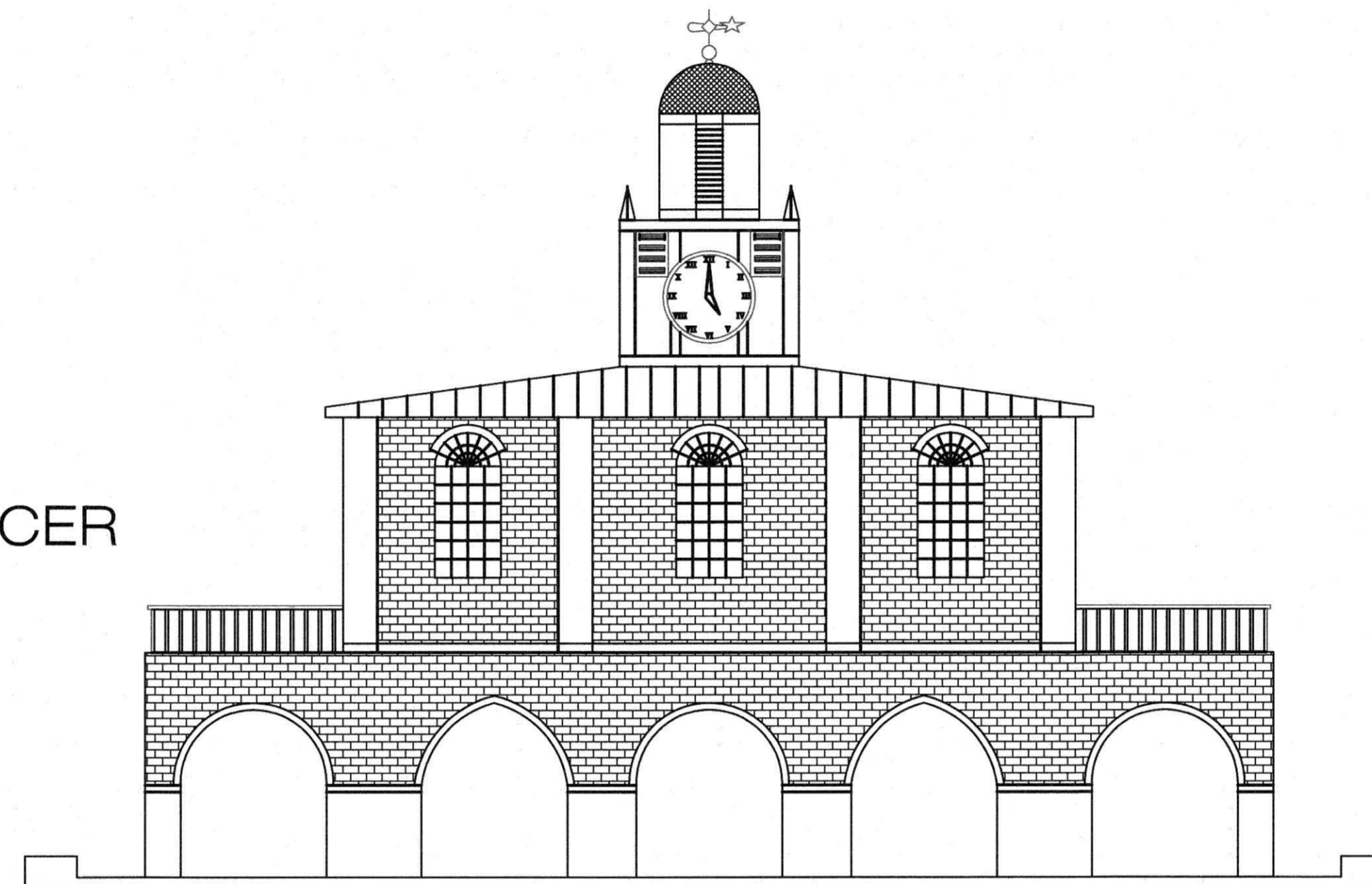


WATER RESOURCES

M.J. NOLAND - W/R CHIEF OPER. OFFICER
MISTY MANNING - W/R ENGR. MANAGER



PROJECT SITE



FAYPWC COMMISSIONERS

Chairperson - **EVELYN O. SHAW**
 Vice Chairperson - **RONNA ROWE GARRETT**
 Secretary - **DONALD L. PORTER**
 Treasurer - **WADE R. FOWLER JR.**
 CEO/General Manager - **ELAINA BALL**

SHEET INDEX

G1	FAYPWC COVER SHEET
G2	GENERAL NOTES
UP	UTILITY PLAN
C1	STA. 1+00 - STA. 4+23
C2	STA. 4+23 - STA. 5+69
C3	STA. 1+00 - STA. 4+56
CD1	CONSTRUCTION DEMOLITION
AS1	ACCESS SHEET
S1	STRUCTURAL GENERAL NOTES
S2	30" AERIAL PIPE SUPPORT PLAN
S3	8" AERIAL PIPE SUPPORT PLAN
D1	GENERAL DETAILS
D2	GENERAL DETAILS
D3	SEWER DETAILS
D4	SEWER DETAILS
D5	EROSION & SEDIMENT CONTROL DETAILS
D6	EROSION & SEDIMENT CONTROL DETAILS
D7	EROSION & SEDIMENT CONTROL DETAILS

VICINITY MAP
N.T.S.

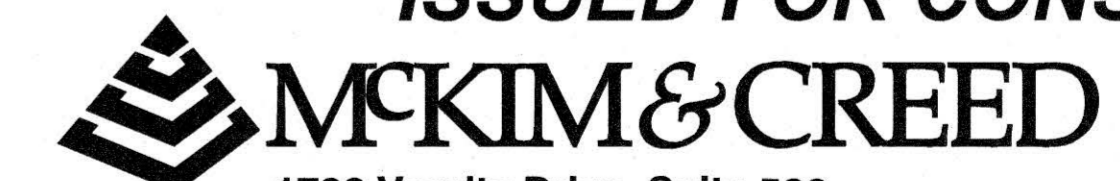


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SHADOWLAWN AERIAL CROSSING SEWER REPLACEMENT

100% SUBMITTAL - ISSUED FOR CONSTRUCTION



1730 Varsity Drive, Suite 500
 Raleigh, NC 27606
 Phone: (919) 233-8091, Fax: (919) 233-8031
 F-1222
 www.mckimcreed.com

M&C Project #02532-0024

FAYPWC DWG

PWC DWG# DS-15464

1 ABBREVIATIONS

Table with 2 columns: Abbreviation and Description. Includes items like AIR, ASBESTOS CEMENT, ALUMINUM, ASPHALT, etc.

2 EXISTING SYMBOL LEGEND

Table with 3 columns: Description, Symbol, and Abbreviation. Lists symbols for horizontal/vertical bends, valves, manholes, etc.

3 EXISTING LINE LEGEND

Table with 3 columns: Description, Linetype, and Abbreviation. Lists line styles for underground cables, electric lines, etc.

4 PROPOSED SYMBOL LEGEND

Table with 3 columns: Description, Symbol, and Abbreviation. Lists symbols for proposed horizontal/vertical bends, valves, etc.

5 PROPOSED LINE LEGEND

Table with 3 columns: Description, Linetype, and Abbreviation. Lists line styles for proposed easements, fences, etc.

6 PROFILE LINE LEGEND

Table with 3 columns: Description, Linetype, and Abbreviation. Lists line styles for profile lines like pavement, ground, etc.

7 AREA HATCH LEGEND

Table with 3 columns: Description, Symbol, and Abbreviation. Lists hatching patterns for wetlands, rip-rap, etc.

8 GENERAL NOTES

GENERAL / CONSTRUCTION NOTES

- 1. ALL UNDERGROUND UTILITIES ARE APPROXIMATE LOCATION UNLESS OTHERWISE NOTED. CONTRACTOR TO VERIFY SIZE, DEPTH, LOCATION AND MATERIAL OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL CONTACT 'N.C. ONE CALL CENTER' MIN. 72 HOURS PRIOR TO THE START OF CONSTRUCTION (811 OR 1-800-632-4949).

RE-ESTABLISHING IF NO REQUEST IS MADE BY THE PROPERTY OWNER, DISTURBED SHRUBS AND BUSHES SHALL BE REMOVED AND DISPOSED OF OFF-SITE UNLESS OTHERWISE INDICATED.

- NO SPEEDING WITH EQUIPMENT AND/OR VEHICLES (25 MPH MAXIMUM). DO NOT BLOCK DRIVEWAYS AT ANY TIME. DO NOT LITTER AT ANY TIME. DO NOT USE RESIDENT'S WATER WITHOUT THEIR PERMISSION (SIGNED AGREEMENT REQUIRED).

IF THE CONTRACTOR AND/OR SUBCONTRACTORS CANNOT ADEQUATELY PERFORM AND/OR COMPLY WITH THESE REQUIREMENTS, THE INDIVIDUAL, SUBCONTRACTOR, OR EMPLOYEES MAY BE DIRECTED TO LEAVE THE PROJECT PERMANENTLY. INCONSIDERATE, NON-COOPERATIVE ATTITUDES AND ACTIONS WILL NOT BE TOLERATED.

ORDER OF PRECEDENCE GENERAL NOTES/TECHNICAL SPECIFICATIONS/PHOTOS

- 1. THE NOTES CONTAINED HEREIN ARE INTENDED TO SUPPLEMENT THE TECHNICAL SPECIFICATIONS AND PROVIDE EASY REFERENCE FOR THE CONTRACTOR. IN NO CASE SHALL THESE NOTES VOID ANY PART, SECTION, OR REQUIREMENT OUTLINED IN THE TECHNICAL SPECIFICATIONS CONTAINED IN THE CONTRACT DOCUMENTS.

UTILITY GENERAL NOTES

- 1. PRIOR TO COMMENCEMENT OF ANY WORK WITHIN EASEMENTS OR RIGHTS-OF-WAYS THE CONTRACTOR IS REQUIRED TO NOTIFY CONCERNED UTILITY COMPANIES IN ACCORDANCE WITH GS 87-102. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.

WETLAND CONSTRUCTION REQUIREMENTS

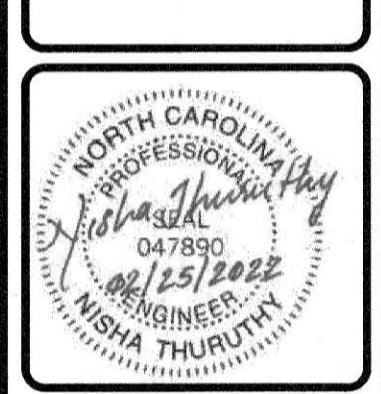
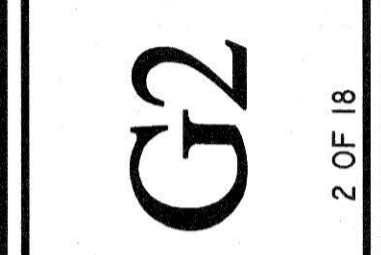
- 1. CONSTRUCTION LIMITS/CORRIDOR (INCLUDING ROADS AND STOCKPILE AREA) TO A MAXIMUM 40 FOOT WIDTH. POST CONSTRUCTION GROUND CONTOURS AND ELEVATIONS MUST BE RESTORED TO THE ORIGINAL ELEVATIONS.

CONTACT INFORMATION

- 1. FAYETTEVILLE-CUMBERLAND PARKS & RECREATION RECEIVED MICHAEL GIBSON DIRECTOR MGBISON@CI.FAY.C.US (910) 433-3336

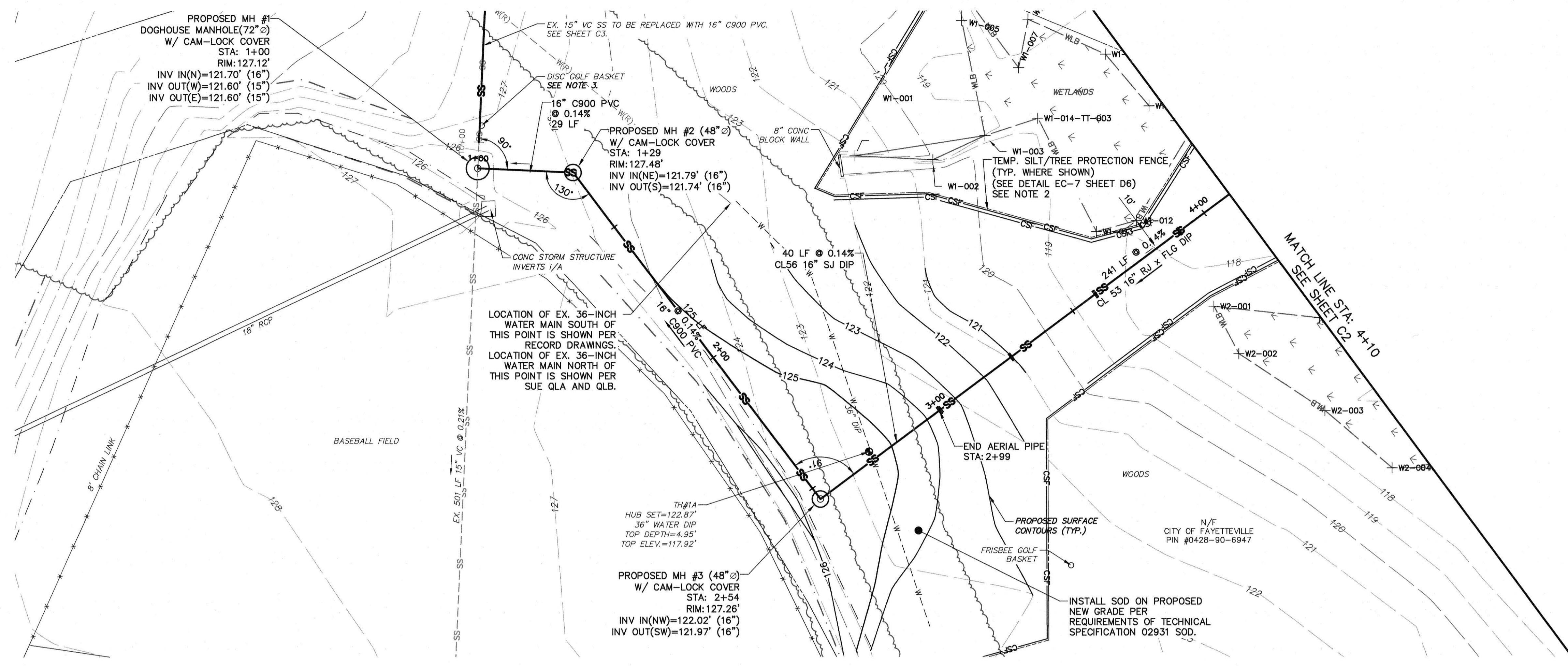
Table with columns: DATE, BY, FOR, DATE, BY, FOR. Includes revision information.

DATE: 2020-JUN SUBMITTED BY: MCK&C CHECKED BY: MFP DRAWN BY: MFP

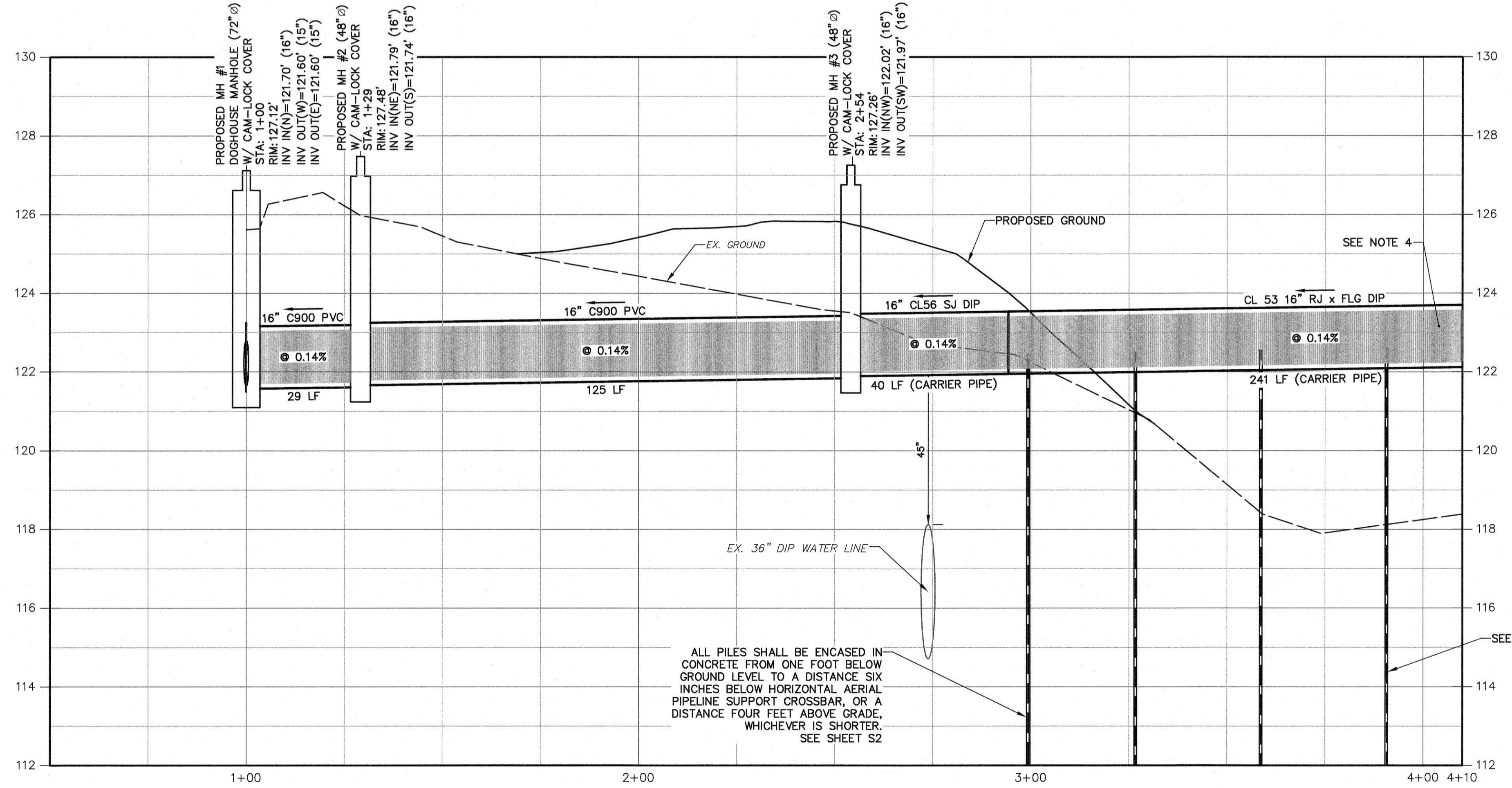
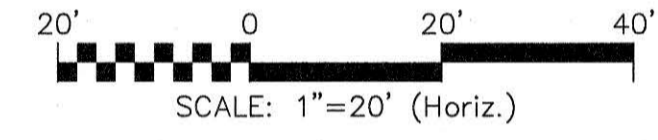


SHADOWLAWN AERIAL CROSSING SEWER REPLACEMENT GENERAL NOTES 100% DESIGN

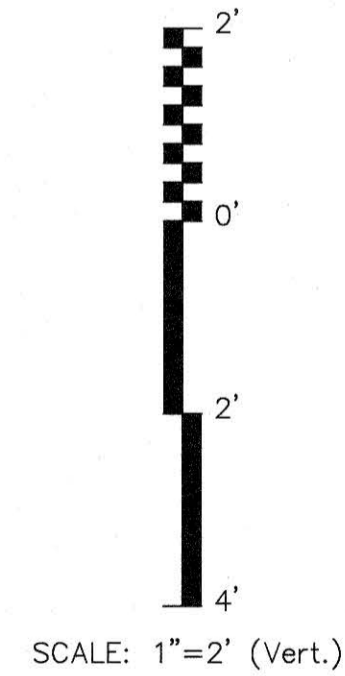
PWC WATER RESOURCES ENGINEERING logo and contact information for Fayetteville, NC.



PLAN VIEW
HORIZ: 1"=20'



PROFILE VIEW
HORIZ: 1"=20'
VERT: 1"=2'



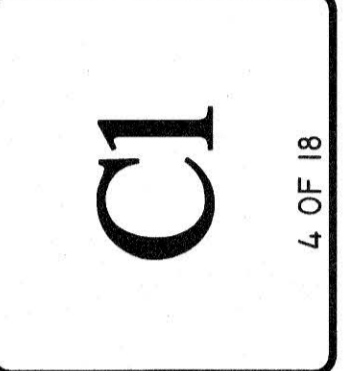
N.C. GRID (NAD83/11)
NAVD88/GEOID 12B

NOTES

- CONTRACTOR SHALL NOT REMOVE TREES IN MAZARICK PARK OR OUTSIDE PROPOSED PUE THAT ARE 2" OR GREATER IN DIAMETER WITHOUT PERMISSION OF PWC INSPECTOR.
- TWO ROWS OF TEMP. SILT/TREE PROTECTION FENCE TO BE INSTALLED BETWEEN THE PROJECT SITE AND THE WETLANDS FOR THE DURATION OF CONSTRUCTION AND VEGETATION REESTABLISHMENT.
- REMOVE EX. DISC GOLF BASKET PRIOR TO CONSTRUCTION AND REINSTALL AT NEW LOCATION AT LEAST 10' FROM ACTIVE SEWER LINES. COORDINATE WITH CITY PARK REPRESENTATIVES TO DETERMINE NEW LOCATION FOR DISC GOLF BASKET, ASSOCIATED TEE, AND OTHER IMPLEMENTS.
- AERIAL PORTION OF 16" LINE SHALL BE HYDROSTATICALLY TESTED. PWC RESERVES THE RIGHT TO ALLOW USE OF MODIFIED HYDROSTATIC TEST IN ACCORDANCE WITH SECTION 01000 SPECIAL CONDITIONS.

DATE	REVISIONS
08.22.21	ISSUED FOR CONSTRUCTION
08.22.21	NOT FOR CONSTRUCTION
08.22.21	ISSUED FOR PERMITTING
08.22.21	ISSUED FOR PERMITTING
08.22.21	ISSUED FOR CONSTRUCTION
08.22.21	ISSUED FOR CONSTRUCTION

DATE: 2020-JUN
SURVEY/GPS BY: MCK&C
DRAWN BY: MHP
CHECKED BY: NT
SCALE: HOR: 1"=20'
VERT: 1"=2'

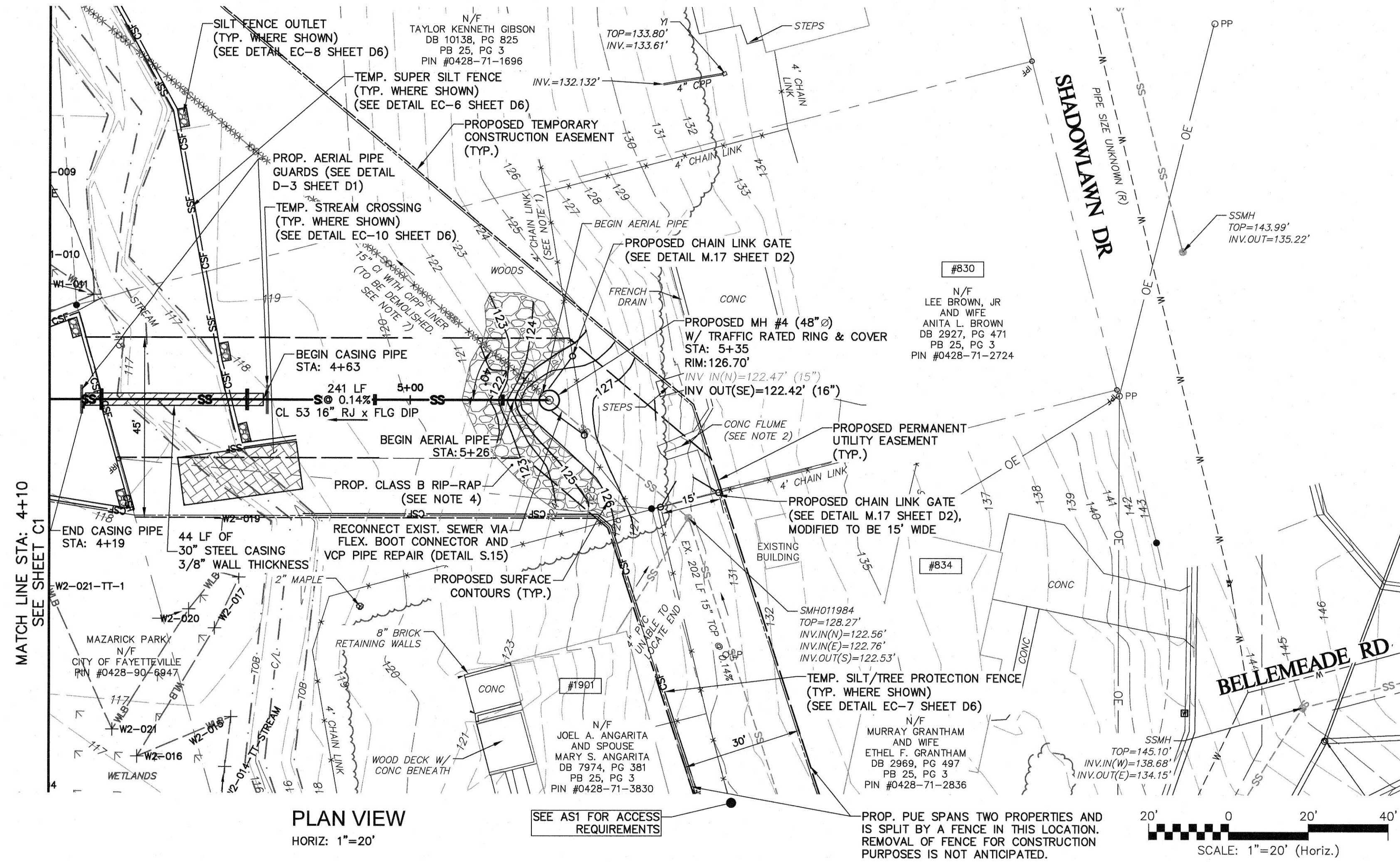


SHADOWLAWN AERIAL CROSSING
SEWER REPLACEMENT
STA. 1+00 - STA. 4+10
100% DESIGN

FAYETTEVILLE
PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
PWC
855 Old Wilmington Road, Fayetteville, NC 28301

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MAR -1 2022
WATER RESOURCES ENGINEERING DIV
PUBLIC WORKS COMMISSION





PLAN VIEW
HORIZ: 1"=20'

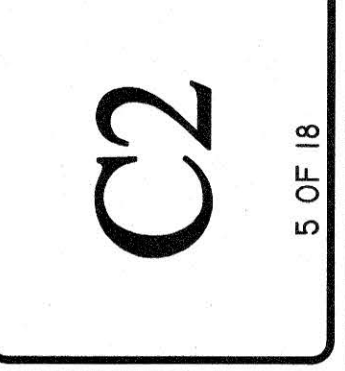
N.C. GRID (NAD83/11)
NAVD88/GEOID 12B

NOTES

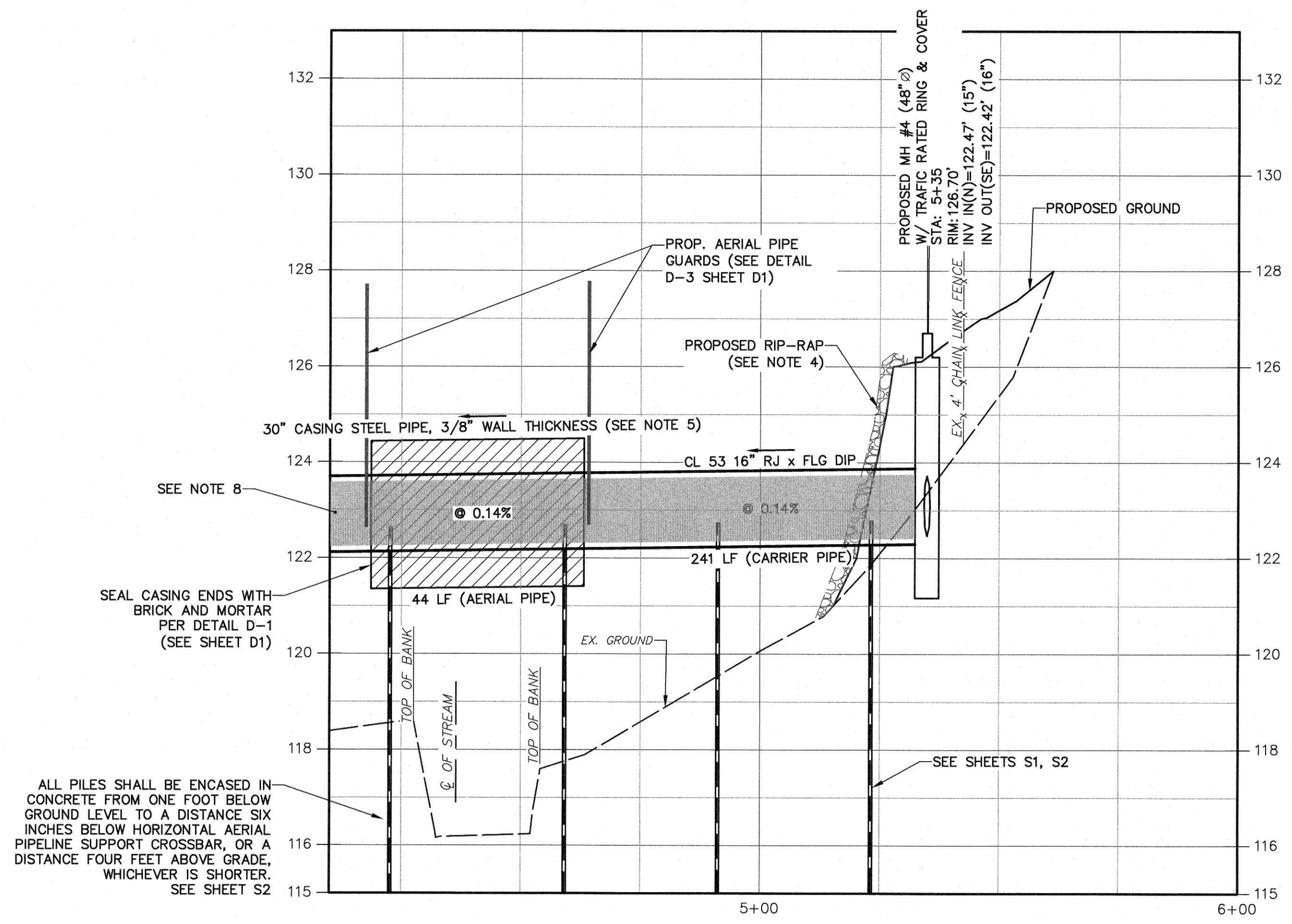
1. FOLLOWING CONSTRUCTION, CONTRACTOR SHALL REPLACE FENCE TO MATCH EXISTING MATERIALS. SEE SECTION 0100 SPECIAL CONDITIONS OF CONTRACT DOCUMENTS.
2. ANY DAMAGE TO EX. CONCRETE DRIVEWAYS OR DRAINAGE FEATURES SHALL RESULT IN REPLACEMENT OF DAMAGED FEATURE OR DAMAGED SECTION OF CONCRETE DRIVEWAY FROM SEAM TO SEAM.
3. CONTRACTOR SHALL NOT REMOVE TREES IN MAZARICK PARK OR OUTSIDE PROPOSED PUE THAT ARE 2" OR GREATER IN DIAMETER WITHOUT PERMISSION OF PWC PROJECT COORDINATOR.
4. SEE DETAIL EC-15 ON SHEET D6 AND SECTION 01000 SPECIAL CONDITIONS OF CONTRACT DOCUMENTS.
5. ALL JOINTS WITHIN STEEL CASING MUST BE FACTORY RESTRAINED.
6. TWO ROWS OF TEMP. SILT/TREE PROTECTION FENCE TO BE INSTALLED BETWEEN THE PROJECT SITE AND THE WETLANDS OR STREAM FOR THE DURATION OF CONSTRUCTION AND VEGETATION REESTABLISHMENT.
7. EX. 15" CI WITH CIPP LINER TO BE REMOVED AND DISPOSED OF OR GROUT PLUGGED AND ABANDONED. AERIAL SUPPORTS TO BE REMOVED AND DISPOSED OF. SEE SHEET CD1.
8. AERIAL PORTION OF 16" LINE SHALL BE HYDROSTATICALLY TESTED. PWC RESERVES THE RIGHT TO ALLOW USE OF MODIFIED HYDROSTATIC TEST IN ACCORDANCE WITH SECTION 01000 SPECIAL CONDITIONS.
9. ALL WORK WITHIN THE STREAM SHALL BE PERFORMED IN A DRY CONDITION UTILIZING A COFFER DAM AND PUMP AROUND.

DATE	REVISIONS	BY
08.22.21	ISSUED FOR CONSTRUCTION	NT
08.03.21	C - 100% SUBMITTAL	NT
08.10.21	D - 100% SUBMITTAL	NT
08.10.21	ISSUED FOR PERMITTING	NT
08.24.21	ISSUED FOR PERMITTING	NT
02.25.22	ISSUED FOR CONSTRUCTION	NT

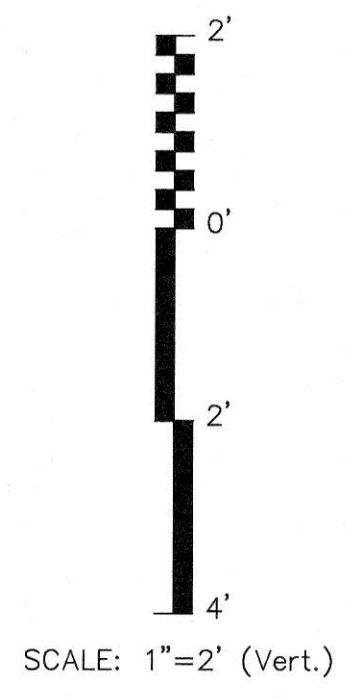
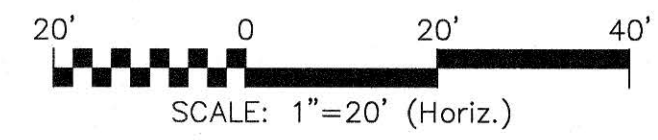
DATE	2020 JUN
SURVEYED BY	MCK&C
DRAWN BY	MHP
CHECKED BY	NT
SCALE	HOB: 1"=20' VERT: 1"=2'



**SHADOWLAWN AERIAL CROSSING
SEWER REPLACEMENT**
STA. 4+10 - STA. 5+53
100% DESIGN



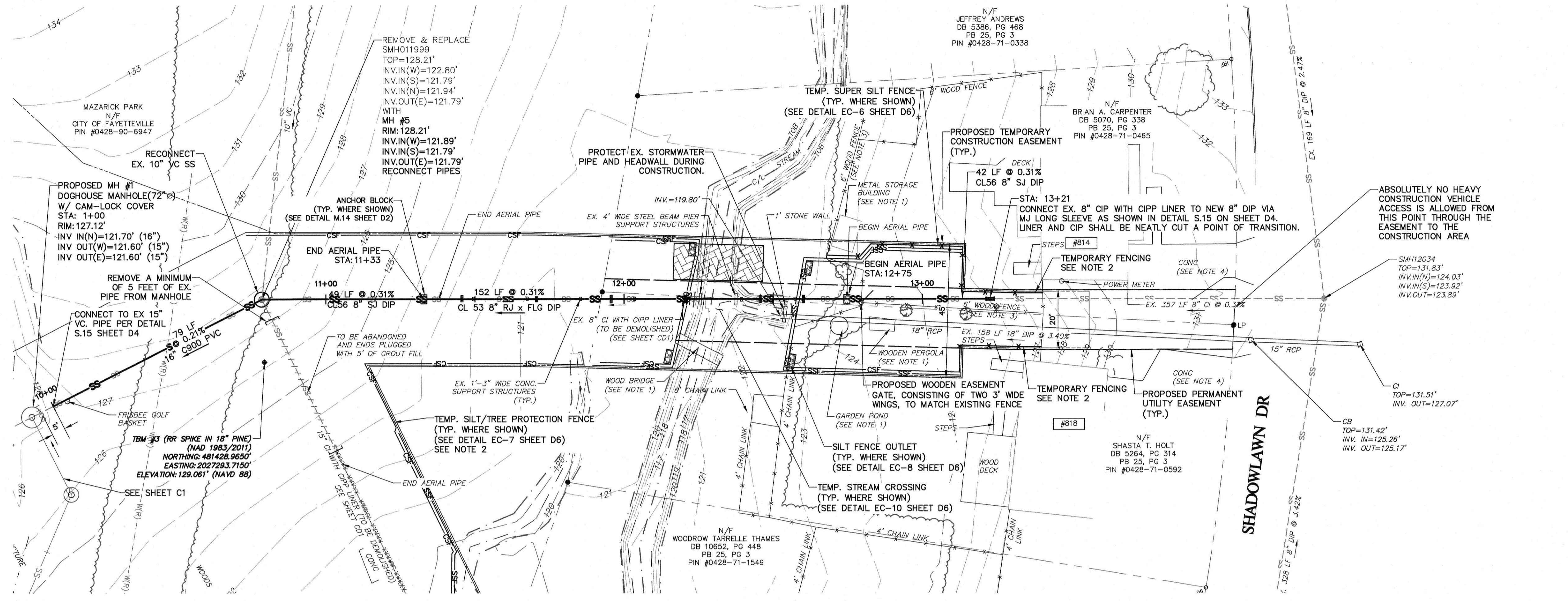
PROFILE VIEW
HORIZ: 1"=20'
VERT: 1"=2'



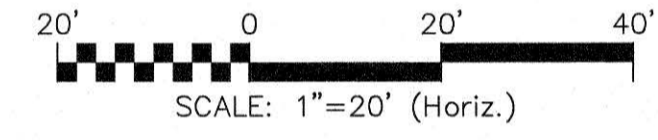
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WATER RESOURCES ENGINEERING
PUBLIC WORKS COMMISSION
FAYETTEVILLE
P.O. Box 1088 Fayetteville, NC 28402
955 Old Wilmington Road, Fayetteville, NC 28301

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PLAN VIEW
HORIZ: 1"=20'



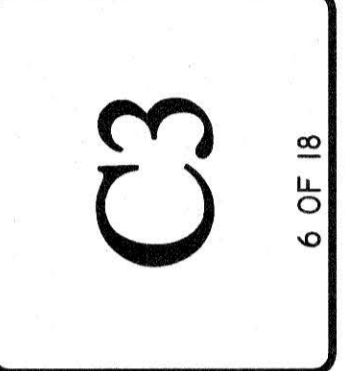
N.C. GRID (NAD83/11)
NAVD88/GEOID 12B

NOTES

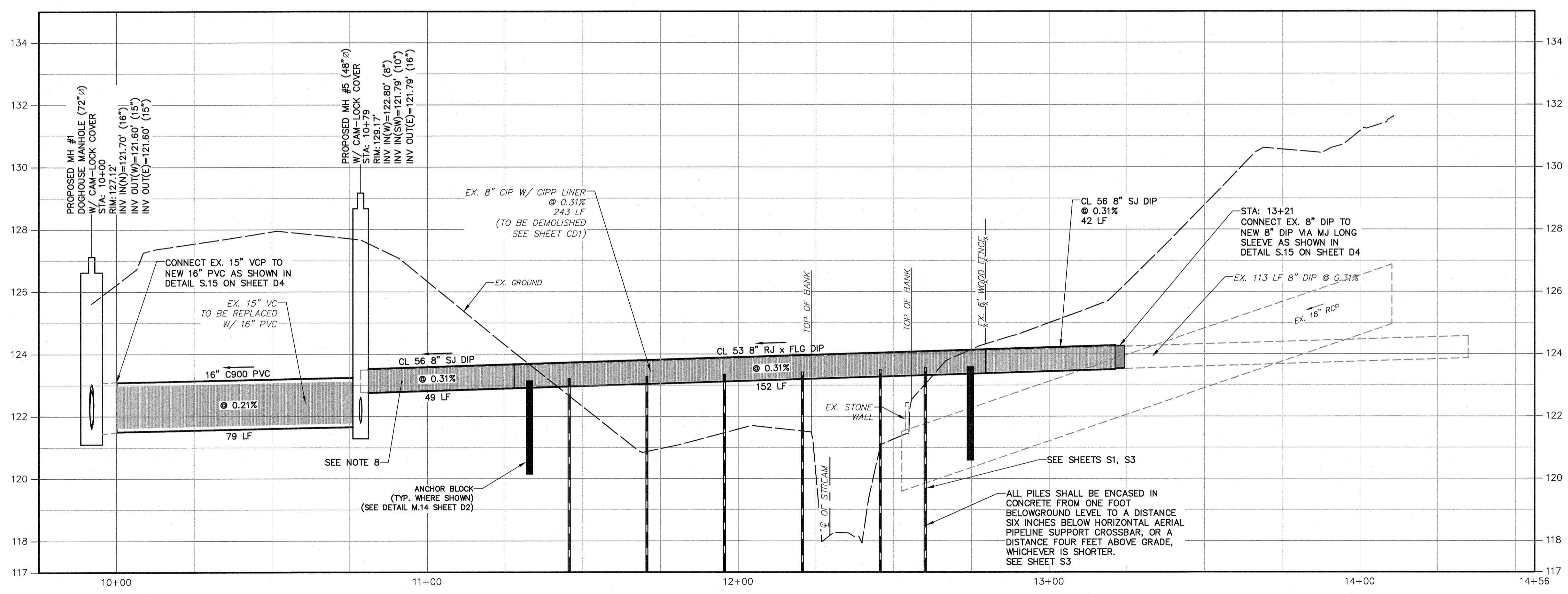
1. CONTRACTOR TO PROTECT IN PLACE, REMOVE AND REPLACE, OR REBUILD EX. STRUCTURES AND FEATURES ON PRIVATE PROPERTY PER DESCRIPTION IN SECTION 01000 SPECIAL CONDITIONS OF CONTRACT DOCUMENTS.
2. CONTRACTOR TO INSTALL TEMPORARY FENCING TO REMAIN IN PLACE FOR DURATION OF CONSTRUCTION. SEE SECTION 01000 SPECIAL CONDITIONS OF CONTRACT DOCUMENTS (NO SEPARATE PAYMENT).
3. FOLLOWING CONSTRUCTION, CONTRACTOR SHALL REPLACE FENCE TO MATCH EXISTING MATERIALS. SEE SECTION 01000 SPECIAL CONDITIONS OF CONTRACT DOCUMENTS.
4. CONTRACTOR SHALL NOT DISTURB EX. CONCRETE DRIVEWAYS OR DRAINAGE FEATURES. EX. DRIVEWAYS SHALL NOT BE USED FOR ACCESS, STAGING, OR DELIVERIES.
5. CONTRACTOR SHALL NOT REMOVE TREES IN MAZARICK PARK OR OUTSIDE PROPOSED PUE THAT ARE 2" OR GREATER IN DIAMETER WITHOUT PERMISSION OF PWC INSPECTOR.
6. ALL LAWN ON PRIVATE PROPERTY SHALL BE RESTORED WITH SOD.
7. TWO ROWS OF TEMP. SILT/TREE PROTECTION FENCE TO BE INSTALLED BETWEEN THE PROJECT SITE AND THE WETLANDS OR STREAM FOR THE DURATION OF CONSTRUCTION AND VEGETATION REESTABLISHMENT.
8. AERIAL PORTION OF 8" LINE SHALL BE HYDROSTATICALLY TESTED. PWC RESERVES THE RIGHT TO ALLOW USE OF MODIFIED HYDROSTATIC TEST IN ACCORDANCE WITH SECTION 01000 SPECIAL CONDITIONS.
9. ALL WORK WITHIN THE STREAM SHALL BE PERFORMED IN A DRY CONDITION UTILIZING A COFFER DAM AND PUMP AROUND.

DATE	REVISIONS	BY
06.22.21	ISSUED FOR CONSTRUCTION	NT
06.03.21	ISSUED FOR PERMITTING	NT
06.03.21	ISSUED FOR PERMITTING	NT
06.24.21	ISSUED FOR PERMITTING	NT
06.24.21	ISSUED FOR CONSTRUCTION	NT

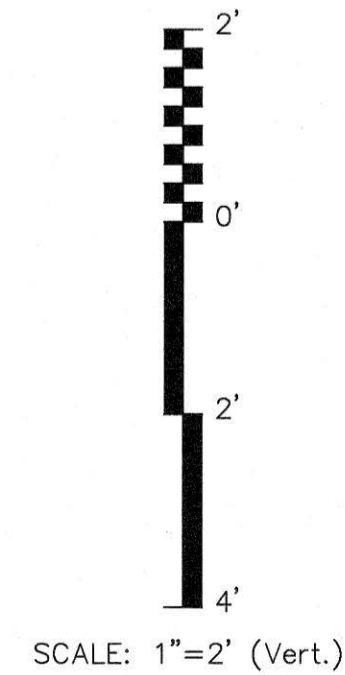
DATE: 2020-JUN
SURVEY/GPS BY: MCK&C
DRAWN BY: MHP
CHECKED BY: NT
SCALE: HOR: 1"=20'
VERT: 1"=2'



SHADOWLAWN AERIAL CROSSING
SEWER REPLACEMENT
STA. 1+00.00 - STA. 4+56.23
100% DESIGN



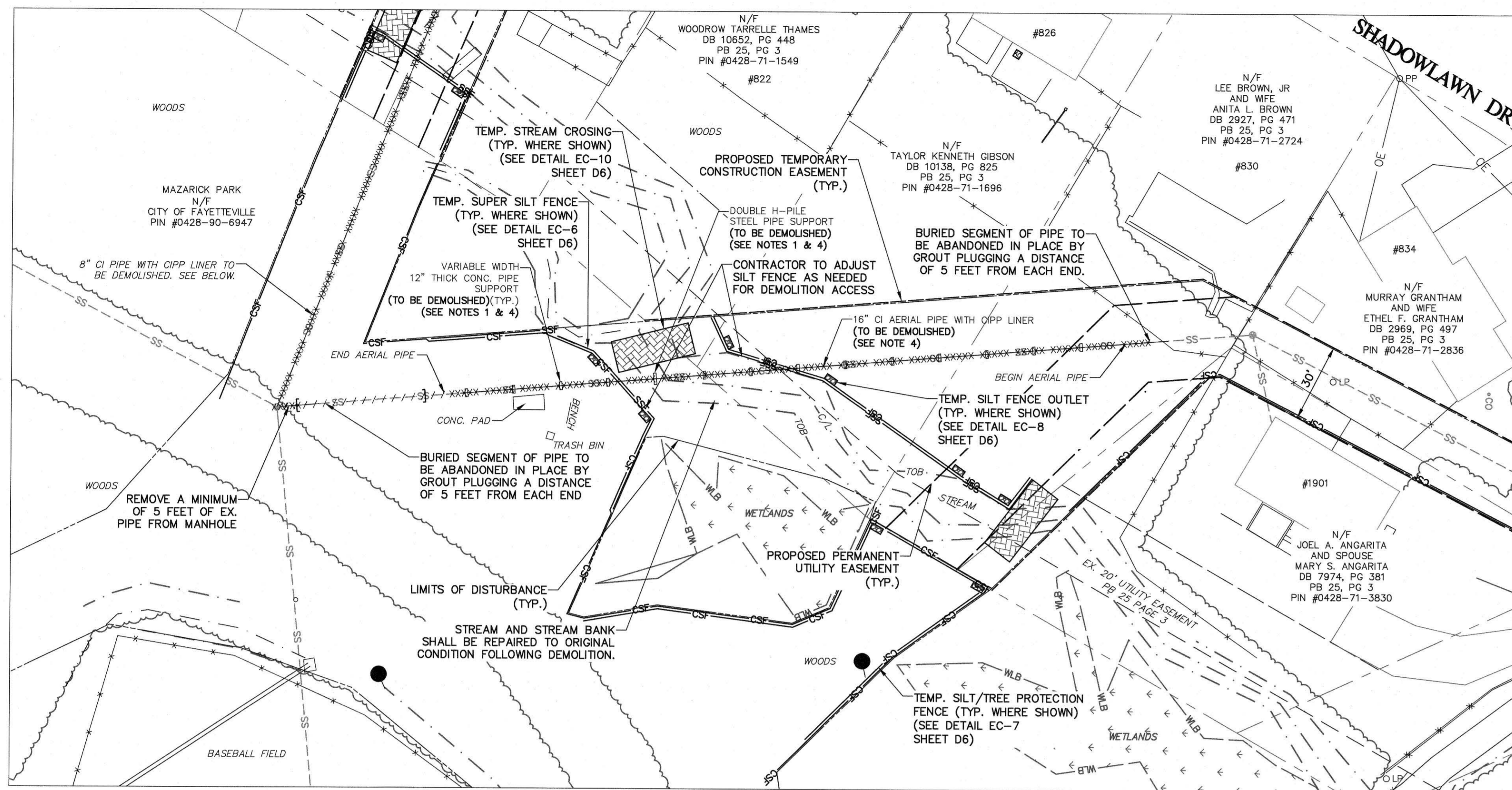
PROFILE VIEW
HORIZ: 1"=20'
VERT: 1"=2'



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MAR -1 2022
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PUBLIC WORKS COMMISSION

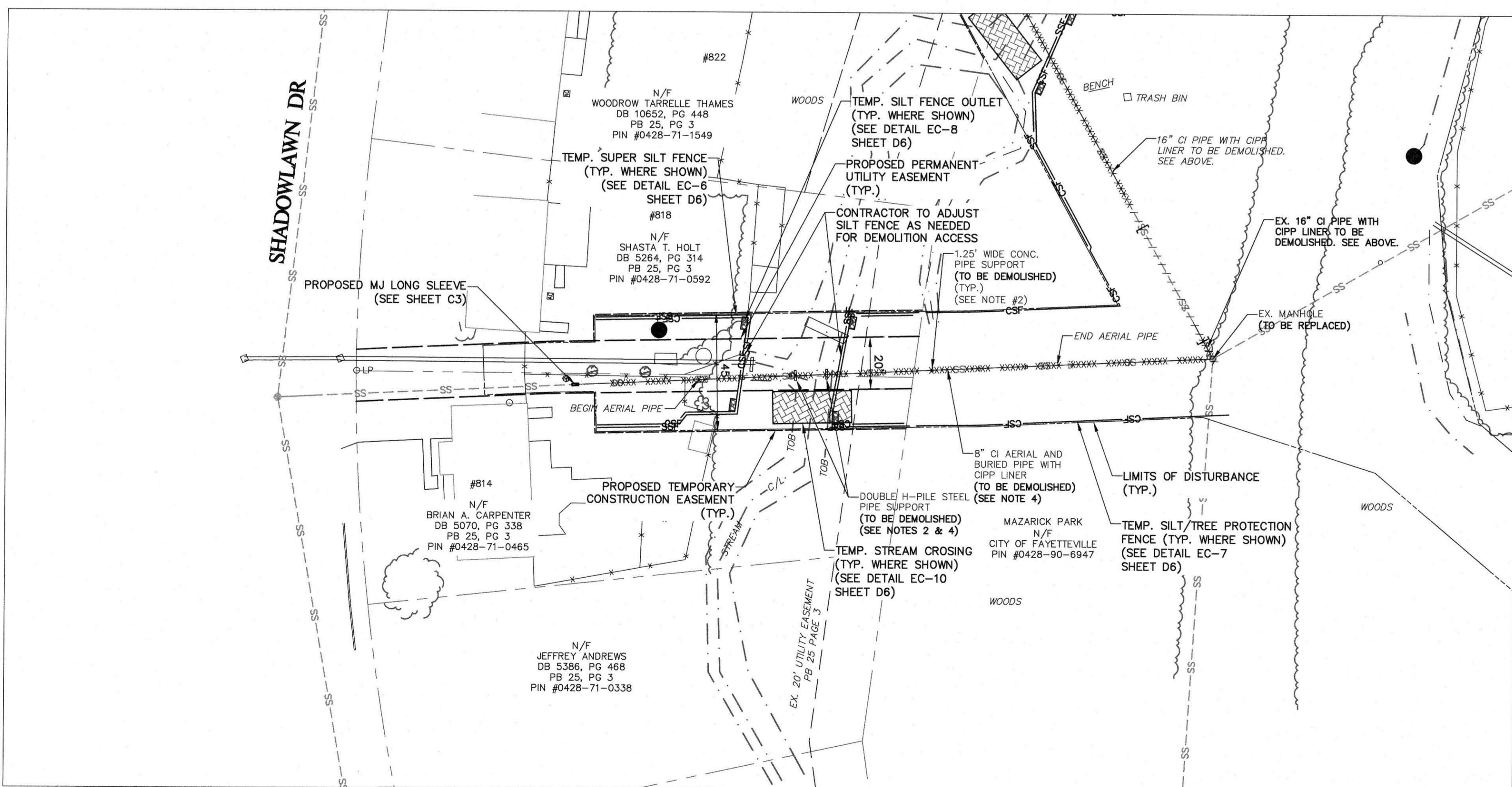
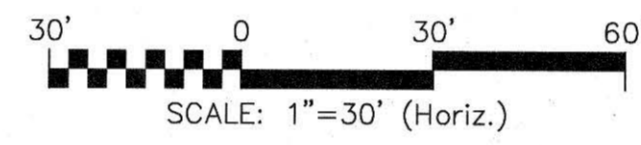
FWC
FAYETTEVILLE
PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1608 Fayetteville, NC 28403
955 Old Wilmington Road, Fayetteville, NC 28301

PWC DWG #DS-154.64



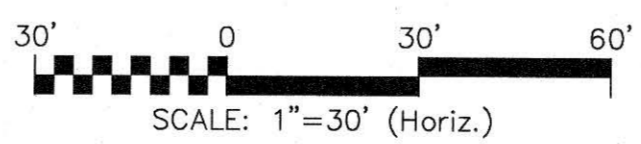
PLAN VIEW - EX. 16" AERIAL PIPE DEMOLITION

HORIZ: 1"=30'



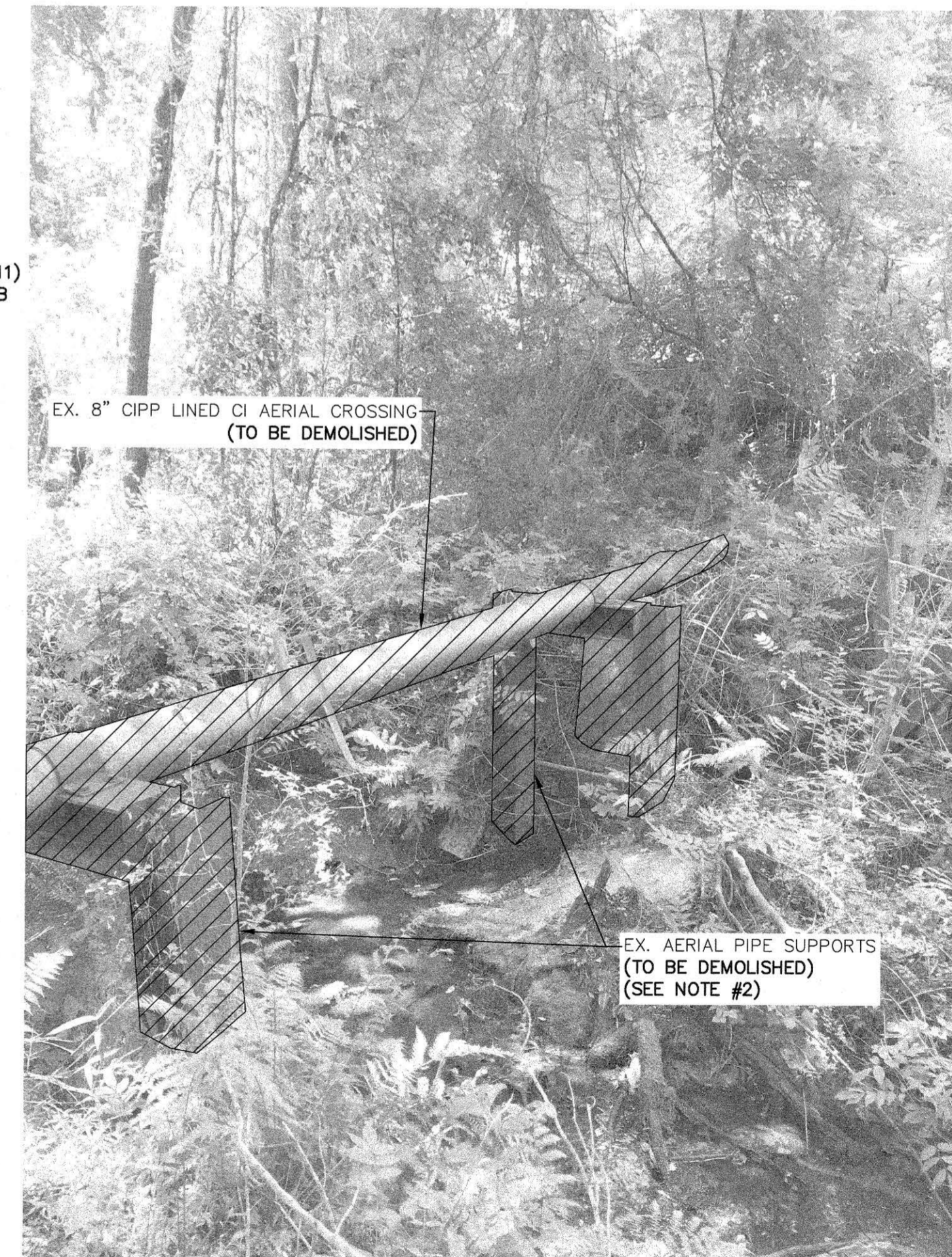
PLAN VIEW - EX. 8" AERIAL PIPE DEMOLITION

HORIZ: 1"=30'



NOTES

- FOR EX. 16" AERIAL PIPELINE, APPROX. LOCATION OF SUPPORTS ON EAST SIDE OF STREAM WERE MEASURED IN THE FIELD AND APPROX. LOCATION OF SUPPORTS OF WEST SIDE OF STREAM WERE BASED ON RECORD DRAWINGS. ONE SUPPORT IS A DOUBLE H-PILE STEEL SUPPORT AND THE REMAINING SUPPORTS ARE VARIABLE WIDTH 12" THICK CONCRETE SUPPORTS.
- FOR EX. 8" AERIAL PIPELINE, LOCATIONS OF SUPPORTS WERE SURVEYED. TWO SUPPORTS ARE 4-FT WIDE STEEL SUPPORTS AND THE REMAINING SUPPORTS ARE 1.25' WIDE CONCRETE SUPPORTS.
- SEE C SHEETS FOR ADDITIONAL EROSION AND SEDIMENT CONTROL PLANS.
- DEMOLITION REFERS TO THE COMPLETE REMOVAL AND DISPOSAL OF ABOVE-GROUND PORTIONS OF THE EXISTING PIPELINE AND LINER. BELOW-GROUND PORTIONS OF THE PIPELINE MAY BE ABANDONED AND GROUT PLUGGED A DISTANCE OF 5 FEET FROM EACH END UNLESS INDICATED TO BE DEMOLISHED (REMOVAL AND DISPOSAL). PILES AND SUPPORTS MUST BE REMOVED TO A MINIMUM OF 6-INCHES BELOW GROUND. ALL EXPOSED FEATURES SHALL BE REMOVED AND DISPOSED OF.



BY	DATE	REVISIONS
NT	08.22.21	A - FOR SUBMITTAL
NT	08.22.21	B - 100% SUBMITTAL
NT	08.03.21	C - NOT FOR CONSTRUCTION
NT	09.10.21	D - ISSUED FOR PERMITTING
NT	09.24.21	E - FOR SUBMITTAL
NT	02.23.22	F - 100% SUBMITTAL
NT		G - ISSUED FOR CONSTRUCTION

DATE: 2020 JUN
 SURVEYED BY: MCK&C
 DRAWN BY: HMP
 CHECKED BY: NT
 SCALE: HORIZ: 1"=30'
 VERT: 1"=4'

CDI
 7 OF 18



**SHADOWLAWN AERIAL CROSSING
 SEWER REPLACEMENT
 DEMOLITION SHEET
 100% DESIGN**

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MAR -1 2022

WATER RESOURCES ENGINEERING, INC.
 855 Old Wilmington Road, Fayetteville, NC 28401

FWAC
 FAYETTEVILLE
 PUBLIC WORKS COMMISSION
 WATER RESOURCES ENGINEERING
 P.O. Box 1089, Fayetteville, NC 28402
 855 Old Wilmington Road, Fayetteville, NC 28401



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N
 N.C. GRID (NAD83/11)
 NAVD88/GEOID 12B

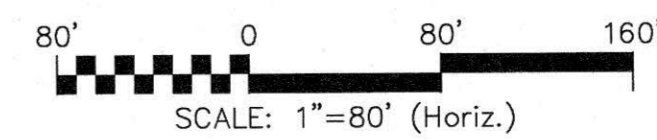
- GENERAL / CONSTRUCTION NOTES**
1. CONTRACTOR ACCESS THROUGH MAZARICK PARK IS DEFINED BY RIGHT OF ENTRY AGREEMENT WITH PWC. SEE APPENDIX A.
 2. ALL WORK IN STREAM SHALL BE PERFORMED DURING DRY WEATHER CONDITIONS.

LEGEND

- [Cross-hatched box] - PERMANENT UTILITY EASEMENT
- [Dashed line box] - TEMPORARY CONSTRUCTION EASEMENT
- [Hatched box] - STAGING AREA
- [Triangle with 'X'] - TRAFFIC SIGN LOCATION

[Diamond with 'C1'] - EQUIPMENT CROSSING AHEAD
 W20-11
 48" X 48"

PLAN VIEW
 HORIZ: 1"=80'



DATE	REVISIONS	BY
06.22.21	A - 50% SUBMITTAL	NT
08.03.21	B - 100% SUBMITTAL	NT
08.10.21	C - ISSUED FOR PERMITTING	NT
09.24.21	D - 100% SUBMITTAL	NT
02.23.22	E - 100% SUBMITTAL	NT
	F - ISSUED FOR CONSTRUCTION	NT

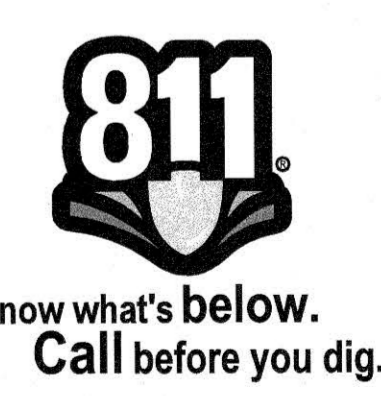
DATE: 2020 JUN
 SURVEYED BY: MCK8C
 DRAWN BY: PMP
 CHECKED BY: NT
 SCALE: 1"=1" NA

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 8 OF 18



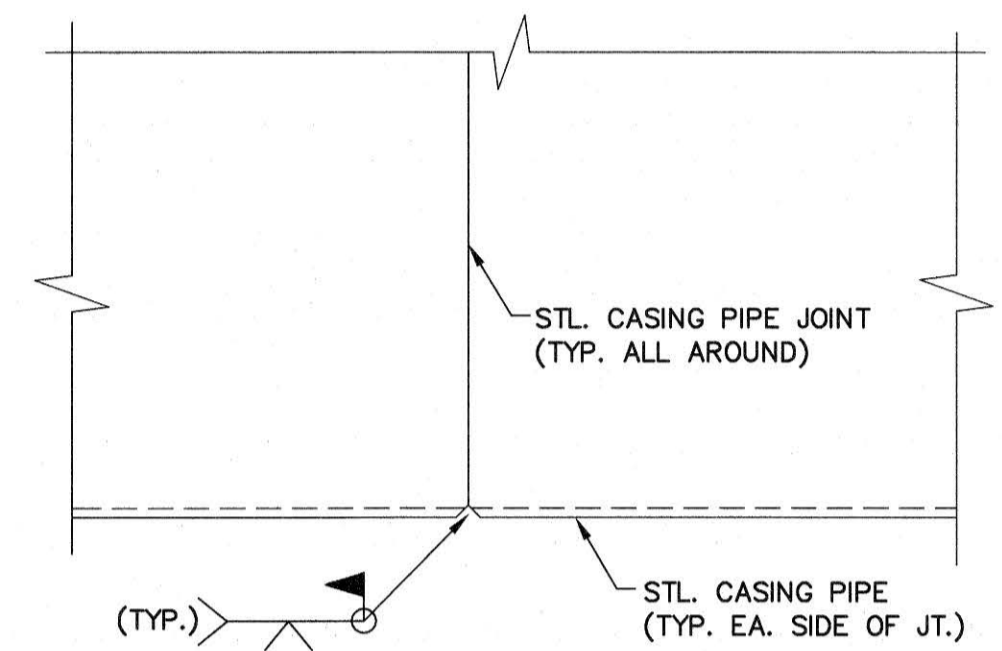
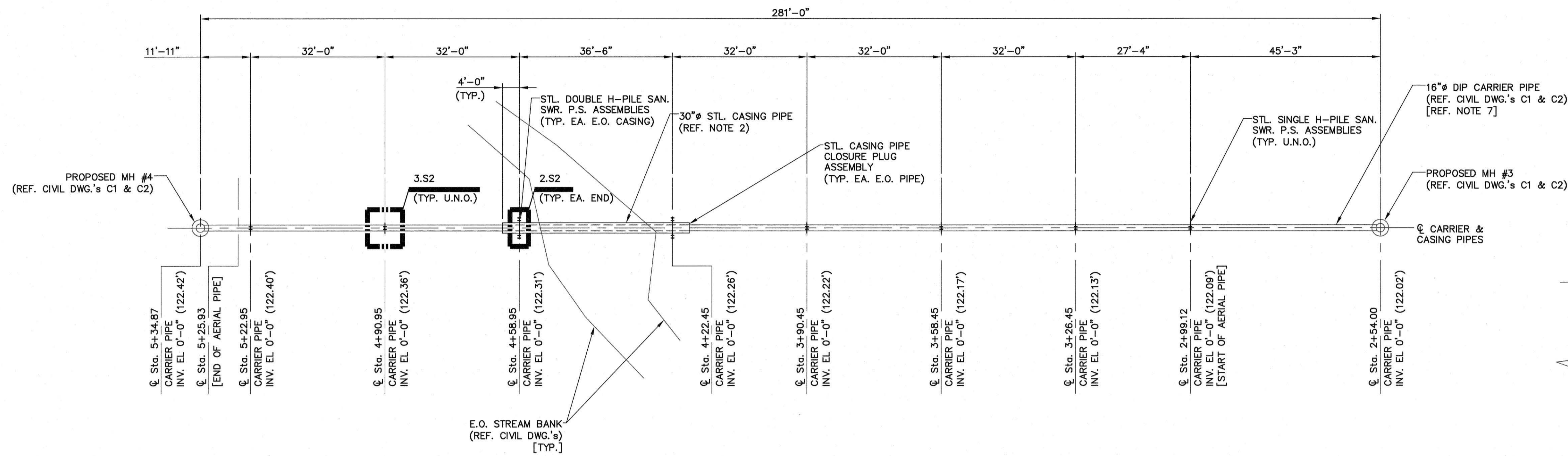
**SHADOWLAWN AERIAL CROSSING
 SEWER REPLACEMENT
 ACCESS, TRAFFIC CONTROL, AND EROSION & SEDIMENT
 CONTROL SHEET
 100% DESIGN**

RECEIVED
 MAR -1 2022



**FAYETTEVILLE
 PUBLIC WORKS COMMISSION**
FWC
 WATER RESOURCES ENGINEERING
 P.O. Box 1088 Fayetteville, NC 28402
 955 Old Wilmington Road, Fayetteville, NC 28301

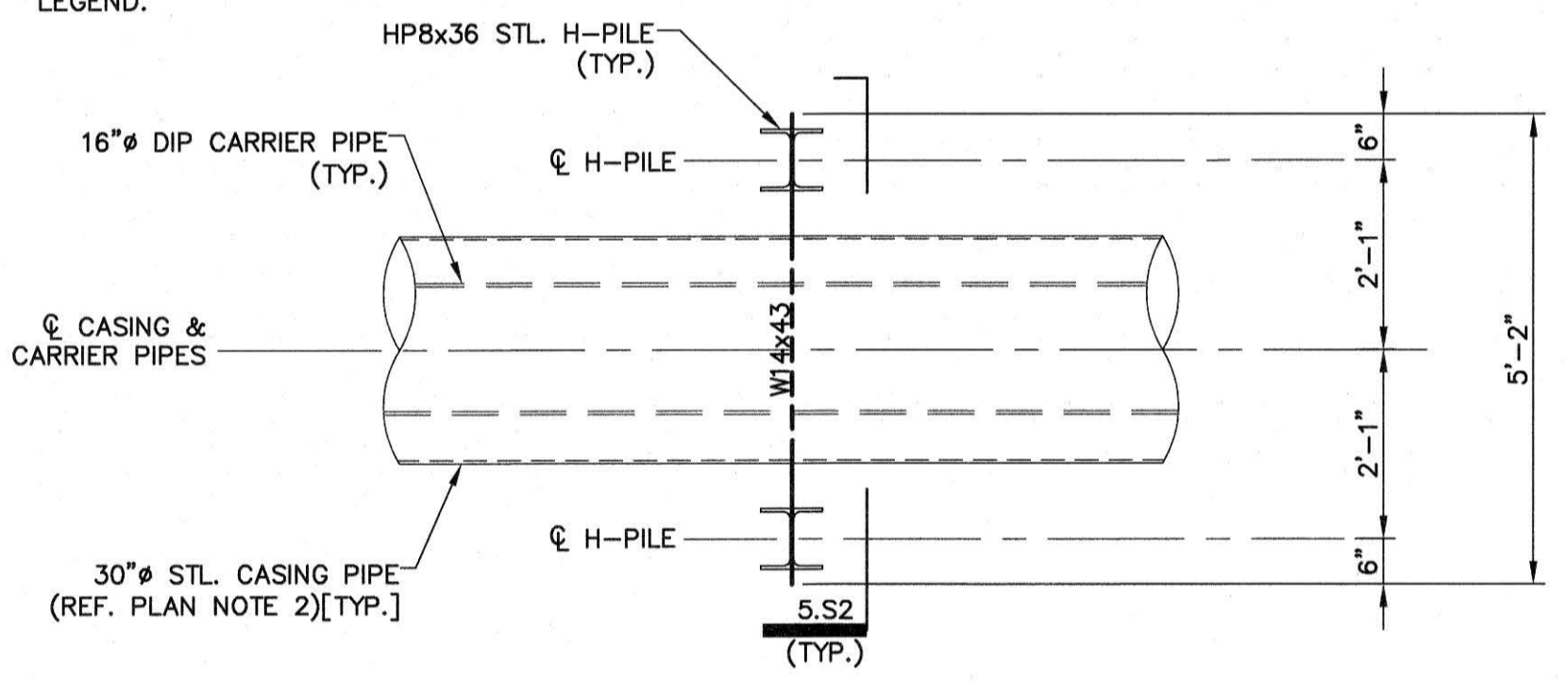
FWC DWG #DS-15464



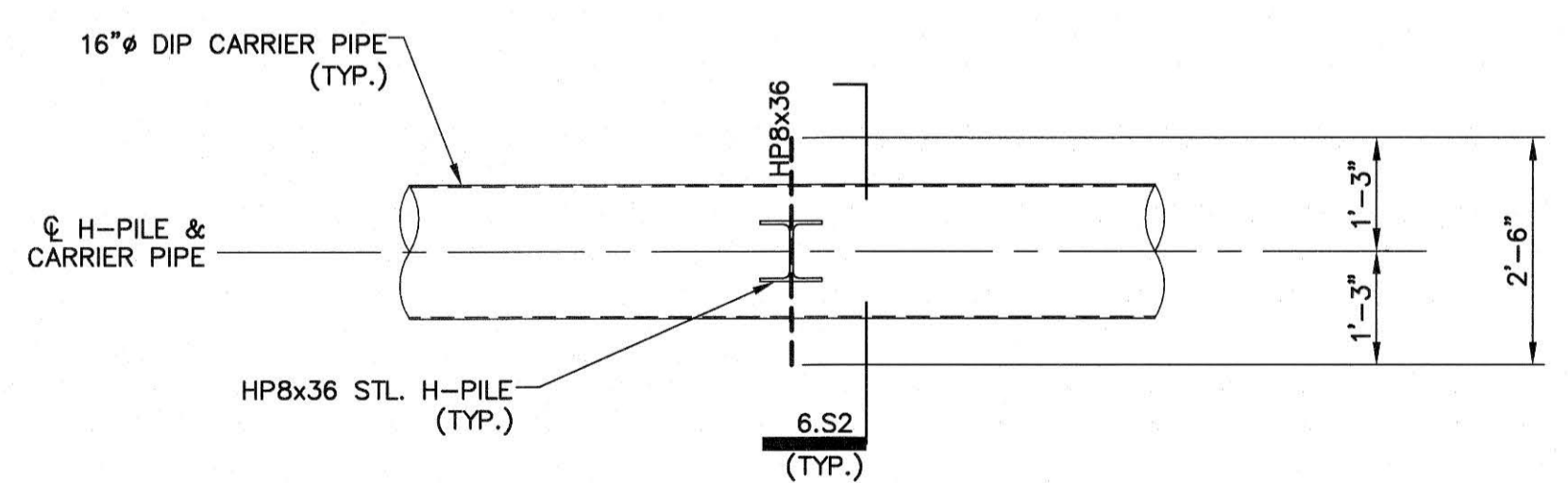
PLAN NOTES:

- REFERENCE ELEVATION FOR THE VARIOUS AERIAL PIPE SUPPORT ASSEMBLIES IS THE INVERT (INV.) ELEVATION OF THE CARRIER PIPE. THE CARRIER PIPE INV. EL = 0'-0". CORRESPONDING SUBGRADE ELEVATIONS BASED UPON N.A.V.D.-88. REFERENCE CIVIL DWG.'S FOR ADDITIONAL INFORMATION.
- STEEL CASING PIPE SECTION IS 30" OUTSIDE DIA. & 3/8" THK. IN CONFORMANCE W/ ASTM A53, GRADE B STEEL (F_y = 35 KSI). REFERENCE DETAIL 4.S2 FOR CASING PIPE JT. WELD CONN. INFORMATION AND REQUIREMENTS. COAT PER REQUIREMENTS OF PROJECT SPECIFICATIONS SECTION 09960.
- REFERENCE DWG. D1 & D2 FAYETTEVILLE PUBLIC WORKS COMMISSION (PWC) H-PILE DETAIL DWG. NO. M.13 SHT. 1 OF 3 & 3 OF 3 AND DETAIL D-2 FOR ADD'L STL. CONN. SPECIFICATIONS AND REQUIREMENTS.
- VERIFY ALL @ STA.'S & INV. EL.'S W/ CIVIL DWG.'S.
- REFERENCE PROJECT SPECIFICATIONS FOR ADDITIONAL MATERIAL SPECIFICATIONS, FABRICATION & INSTALLATION REQUIREMENTS.
- ALL STL. PILES & STL. BM.'S SHALL BE HOT DIPPED GALV'D.
- AERIAL DIP TO BE COATED PER REQUIREMENTS OF SECTION 09960 OF THE PROJECT SPECIFICATIONS EXCEPT WHERE DIP ENCASED BY CASING PIPE.
- REFERENCE DRAWING S1 FOR ADDITIONAL GENERAL NOTES, MATERIAL SPECIFICATIONS, DESIGN CRITERIA & LEGEND.

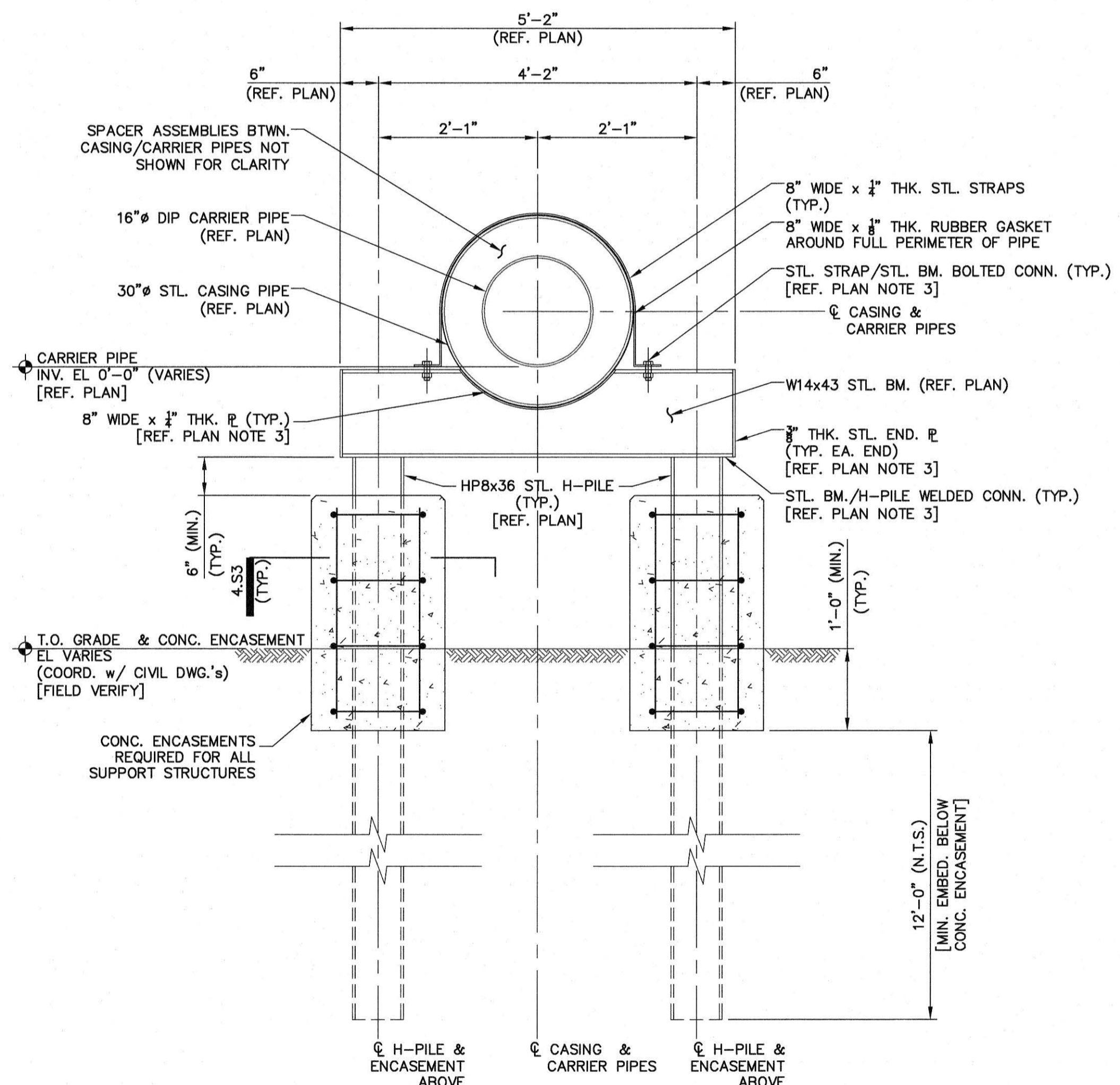
1 - PLAN - AERIAL 16"Ø SANITARY SEWER PIPE SUPPORTS
SCALE: 1/16"=1'-0"



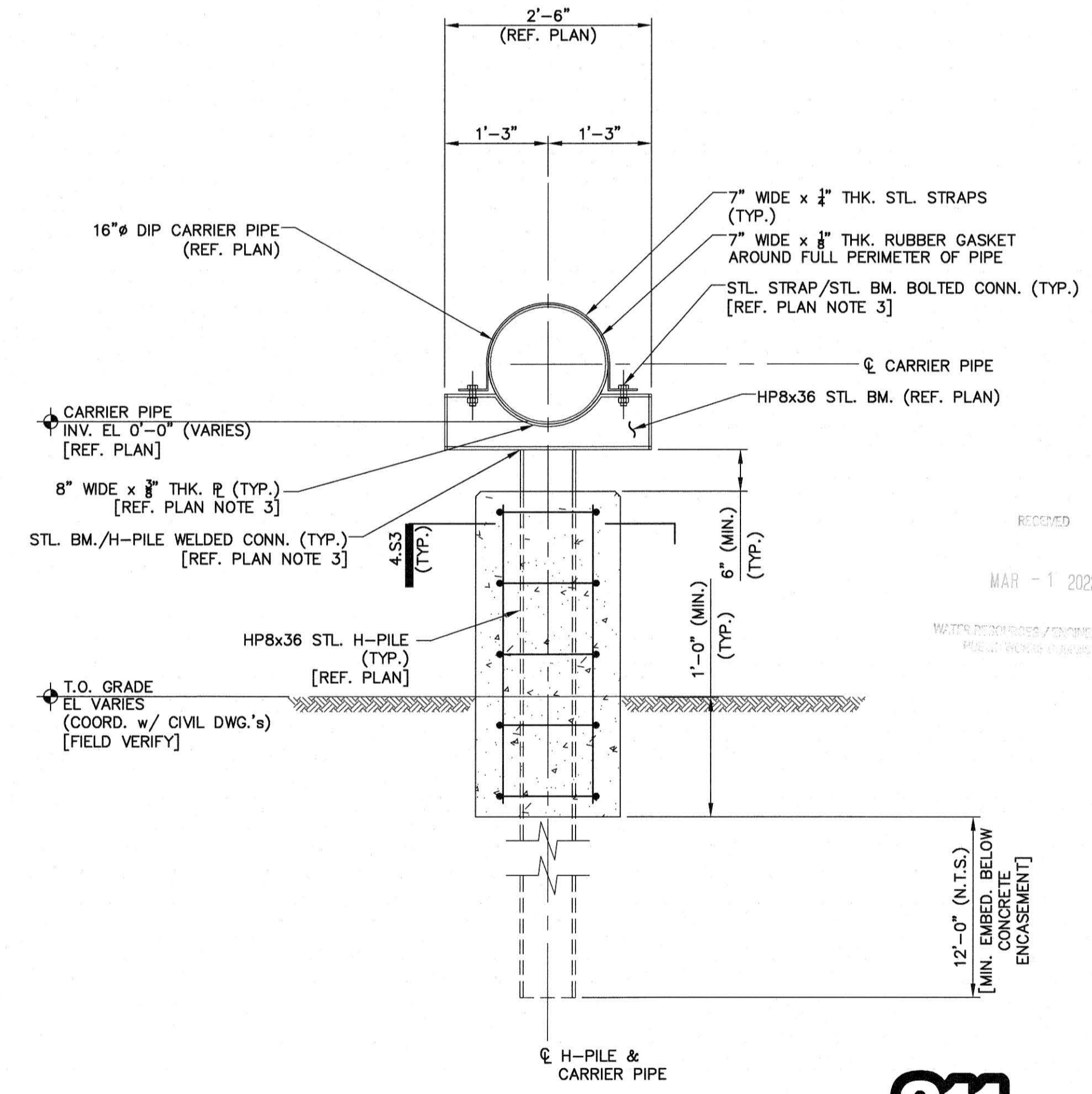
2 - PLAN - TYP. AERIAL DOUBLE H-PILE PIPE SUPPORT DETAIL
SCALE: 1/2"=1'-0"



3 - PLAN - TYP. AERIAL SINGLE H-PILE PIPE SUPPORT DETAIL
SCALE: 1/2"=1'-0"



5 - SECTION - TYP. AERIAL DOUBLE H-PILE PIPE CASING SUPPT. ASSEMBLY
SCALE: 3/4" = 1'-0"



6 - SECTION - TYP. AERIAL SINGLE H-PILE PIPE CASING SUPPT. ASSEMBLY
SCALE: 3/4" = 1'-0"

DATE	REVISIONS
08.22.21	NOT FOR CONSTRUCTION
08.23.21	FOR SUBMITTAL
09.10.21	FOR SUBMITTAL
09.24.21	ISSUED FOR PERMITTING
02.25.22	ISSUED FOR CONSTRUCTION

DATE: 2020 JUN
SURVEY/GPS BY: MCK&C
DRAWN BY: DAR
CHECKED BY: WFB
HOB: F-AS NOTED
SCALE: VERT: 1"=4'

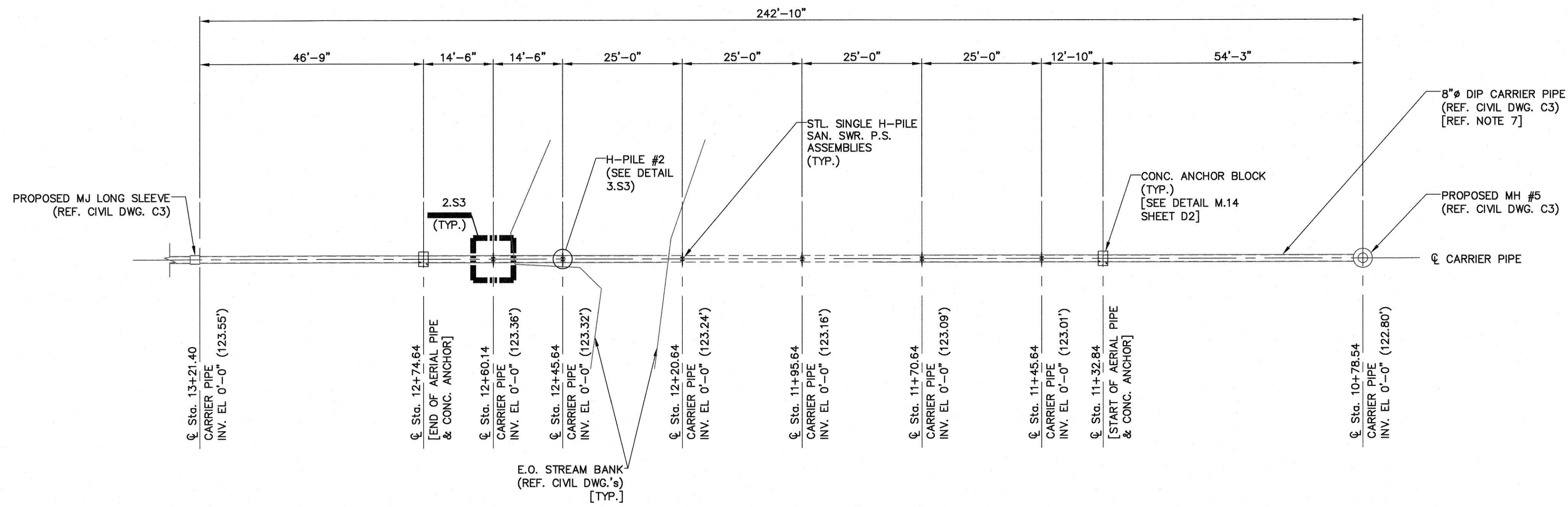
S2
10 OF 18



SHADOWLAWN AERIAL CROSSING SEWER REPLACEMENT
30" AERIAL PIPE SUPPORT
100% SUBMITTAL

FAYETTEVILLE PUBLIC WORKS COMMISSION
FWC WATER RESOURCES ENGINEERING
P.O. Box 1888 Fayetteville, NC 28403
855 old Wilmington Road, Fayetteville, NC 28301



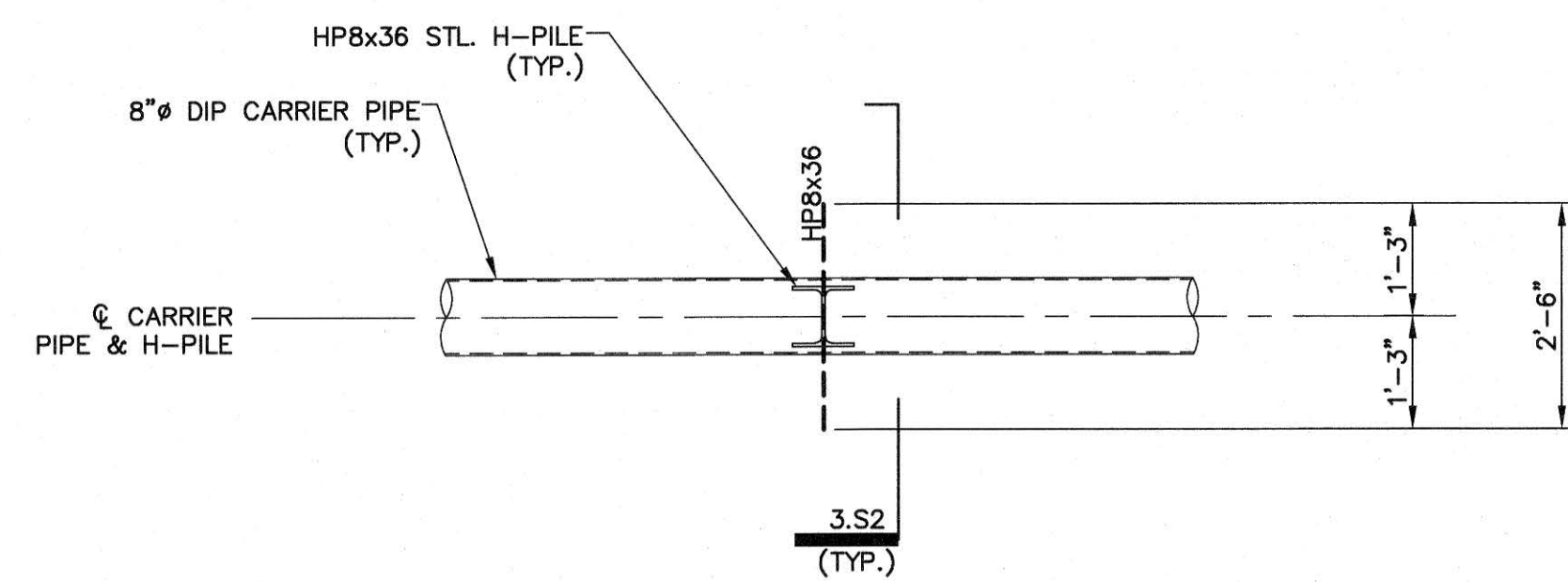


PLAN NOTES:

1. REFERENCE ELEVATION FOR THE VARIOUS AERIAL PIPE SUPPORT ASSEMBLIES IS THE INVERT (INV.) ELEVATION OF THE CARRIER PIPE. THE CARRIER PIPE INV. EL = 0'-0". CORRESPONDING SUBGRADE ELEVATIONS BASED UPON N.A.V.D.-88. REFERENCE CIVIL DWG.'S FOR ADDITIONAL INFORMATION.
2. STEEL CASING PIPE NOT REQUIRED.
3. REFERENCE DWG. D2 FAYETTEVILLE PUBLIC WORKS COMMISSION (PWC) H-PILE DETAIL DWG. NO. M.13 SHEET 3 OF 3 FOR ADD'L STL. CONN. SPECIFICATIONS AND REQUIREMENTS.
4. VERIFY ALL ϕ STA.'S & INV. EL.'S w/ CIVIL DWG.'S.
5. REFERENCE PROJECT SPECIFICATIONS FOR ADDITIONAL MATERIAL SPECIFICATIONS, FABRICATION & INSTALLATION REQUIREMENTS.
6. ALL STL. PILES & STL. BM.'S SHALL BE HOT DIPPED GALV'D.
7. AERIAL DIP TO BE COATED PER REQUIREMENTS OF SECTION 09960 OF THE PROJECT SPECIFICATIONS.
8. REFERENCE DRAWING S1 FOR ADDITIONAL GENERAL NOTES, MATERIAL SPECIFICATIONS, DESIGN CRITERIA & LEGEND.

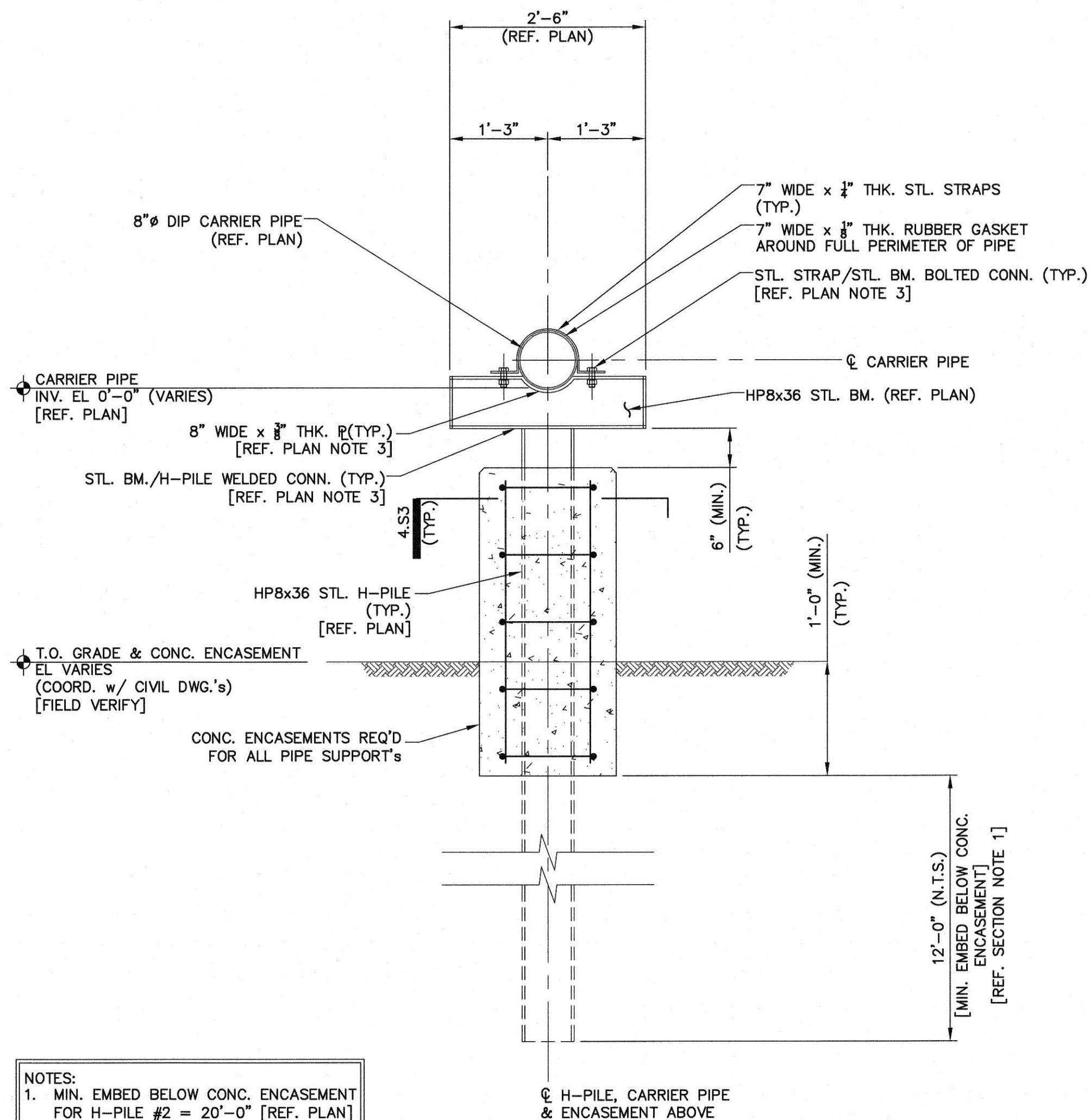
1 - PLAN - AERIAL 8"Ø SANITARY SEWER PIPE SUPPORTS

SCALE: 1/16"=1'-0"



2 - PLAN - TYP. AERIAL SINGLE H-PILE PIPE SUPPORT DETAIL

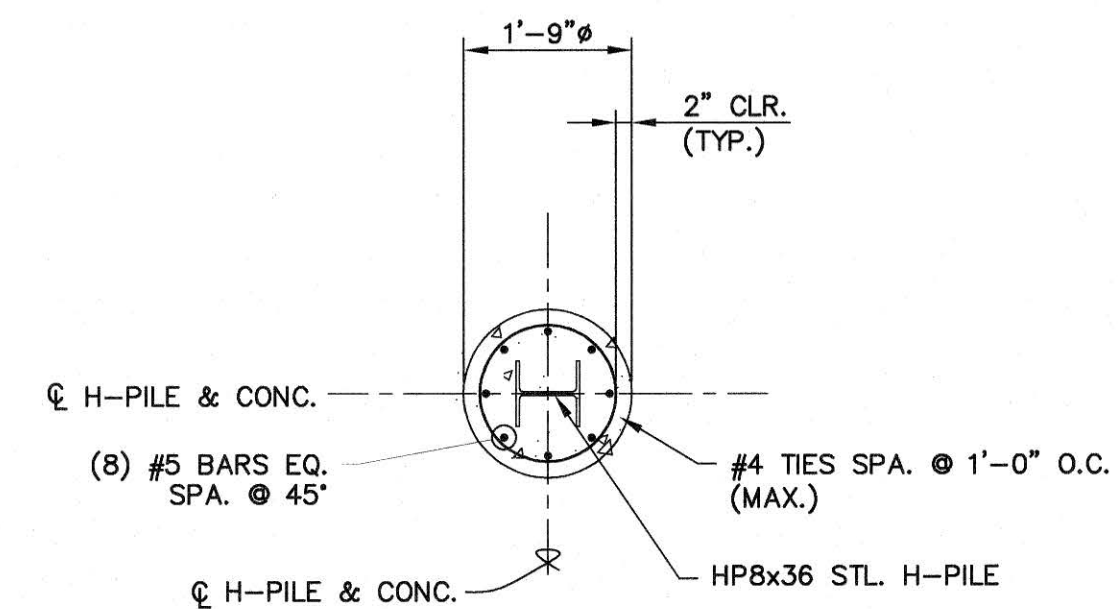
SCALE: 1/2"=1'-0"



- NOTES:
1. MIN. EMBED BELOW CONC. ENCASEMENT FOR H-PILE #2 = 20'-0" [REF. PLAN]

3 - SECTION - TYP. AERIAL SINGLE H-PILE PIPE CASING SUPPT. ASSEMBLY

SCALE: 3/4" = 1'-0"



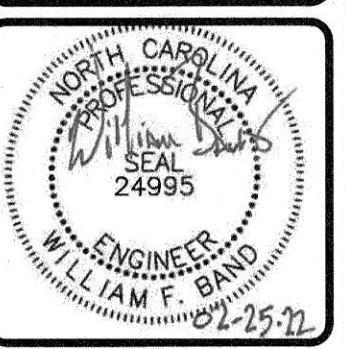
4 - SECTION - THRU CONC. ENCASEMENT

SCALE: 1/2" = 1'-0"

DATE	REVISIONS	BY
08.22.21	1 - FOR SUBMITTAL	MMP
08.23.21	2 - NOT FOR CONSTRUCTION	MMP
08.23.21	3 - 100% SUBMITTAL	MMP
09.10.21	4 - ISSUED FOR PERMITTING	MMP
09.24.21	5 - ISSUED FOR PERMITTING	MMP
02.24.22	6 - 100% SUBMITTAL	MMP
02.24.22	7 - ISSUED FOR CONSTRUCTION	MMP

DATE: 2020 JUN
SUBMITTED BY: MCK&C
DRAWN BY: MMP
CHECKED BY: WFB
SCALE: HOR: 1"=50'
VERT: 1"=50'

S3
11 OF 18



**SHADOWLAWN AERIAL CROSSING
SEWER REPLACEMENT
8" AERIAL PIPE SUPPORT
100% SUBMITTAL**

RECEIVED
MAR - 1 2022

WATER RESOURCES / ENGINEERING
FIELD MODELS CURRICULUM

FAYETTEVILLE
PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
PWC
855 Old Wilmington Road, Fayetteville, NC 28301



DATE	REVISIONS	BY
08.22.21	B - FOR SUBMITTAL	NT
08.03.21	C - FOR SUBMITTAL	NT
08.10.21	D - FOR SUBMITTAL	NT
08.10.21	E - FOR SUBMITTAL	NT
08.24.21	F - FOR SUBMITTAL	NT
02.23.22	G - FOR SUBMITTAL	NT

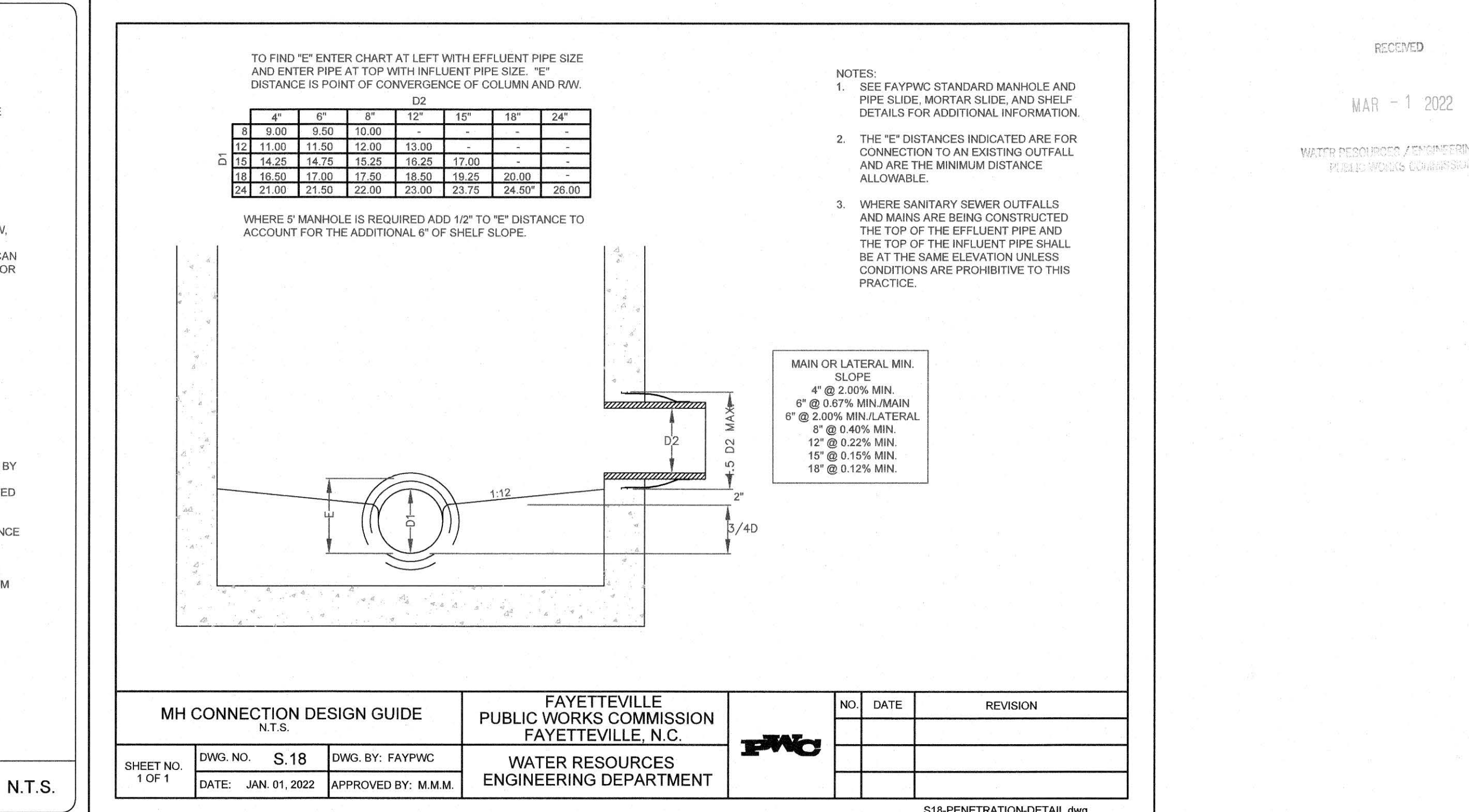
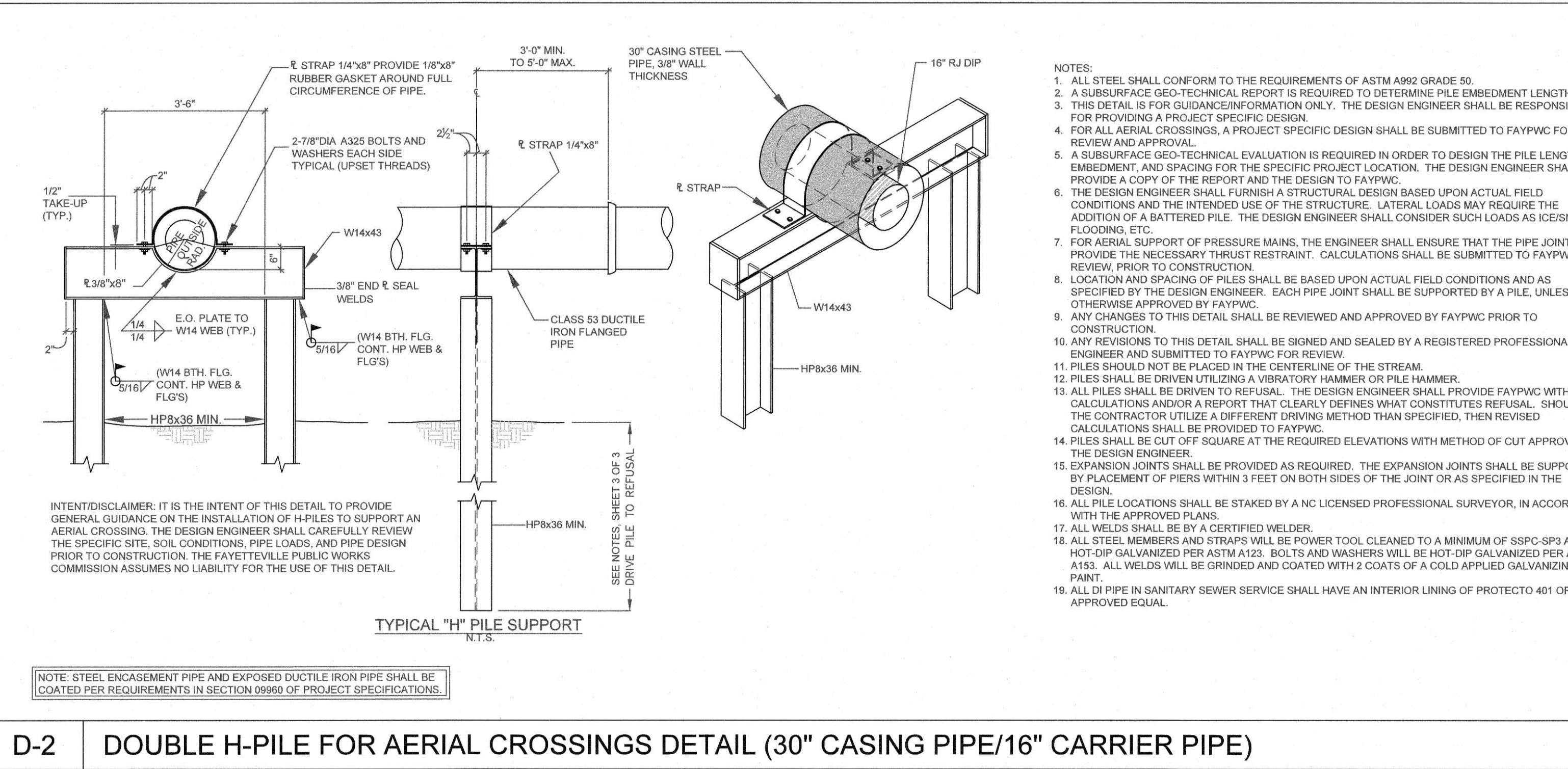
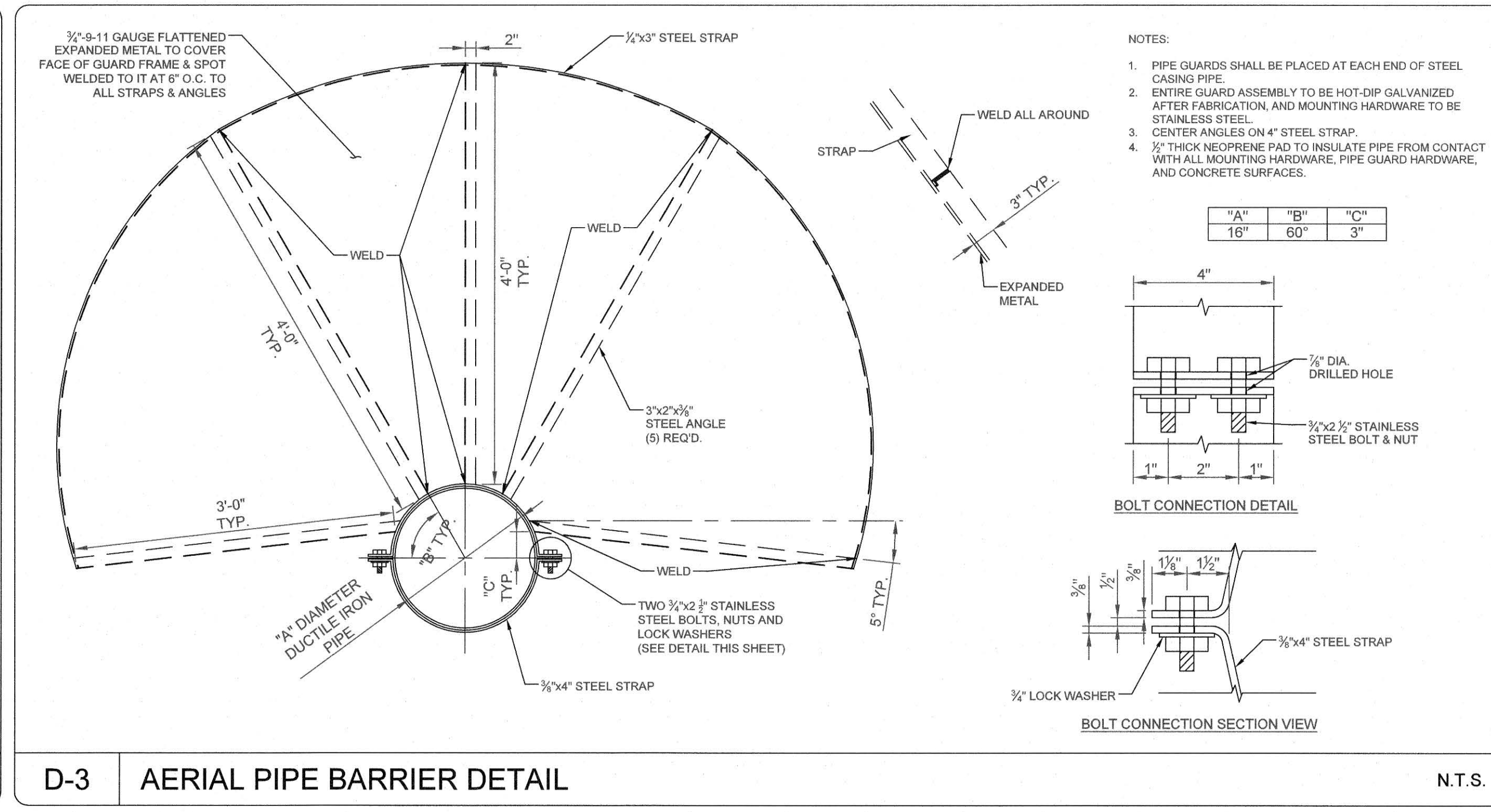
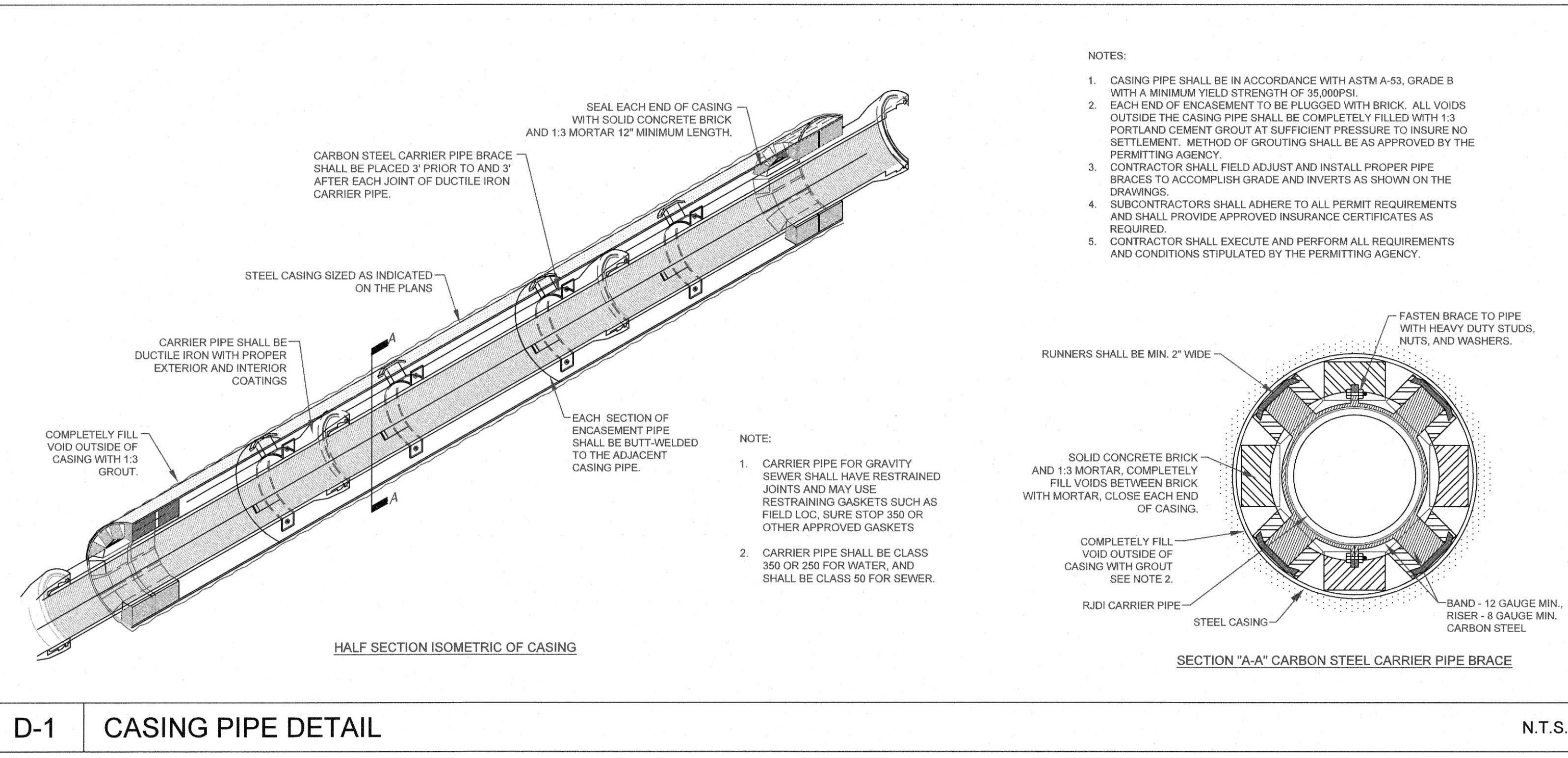
DATE: 2020 JUN
 SURVEYED BY: JCK&C
 DRAWN BY: MHP
 CHECKED BY: NT
 UOR: PNA
 SCALE: VERT: 1"=4'

DI
 12 OF 18



**SHADOWLAWN AERIAL CROSSING
 SEWER REPLACEMENT
 DETAILS
 100% DESIGN**

**FAYETTEVILLE
 PUBLIC WORKS COMMISSION
 WATER RESOURCES ENGINEERING**
 808 W. 10th Street, Fayetteville, NC 28401
 910-438-1100
 PWC DWG #DS-15464

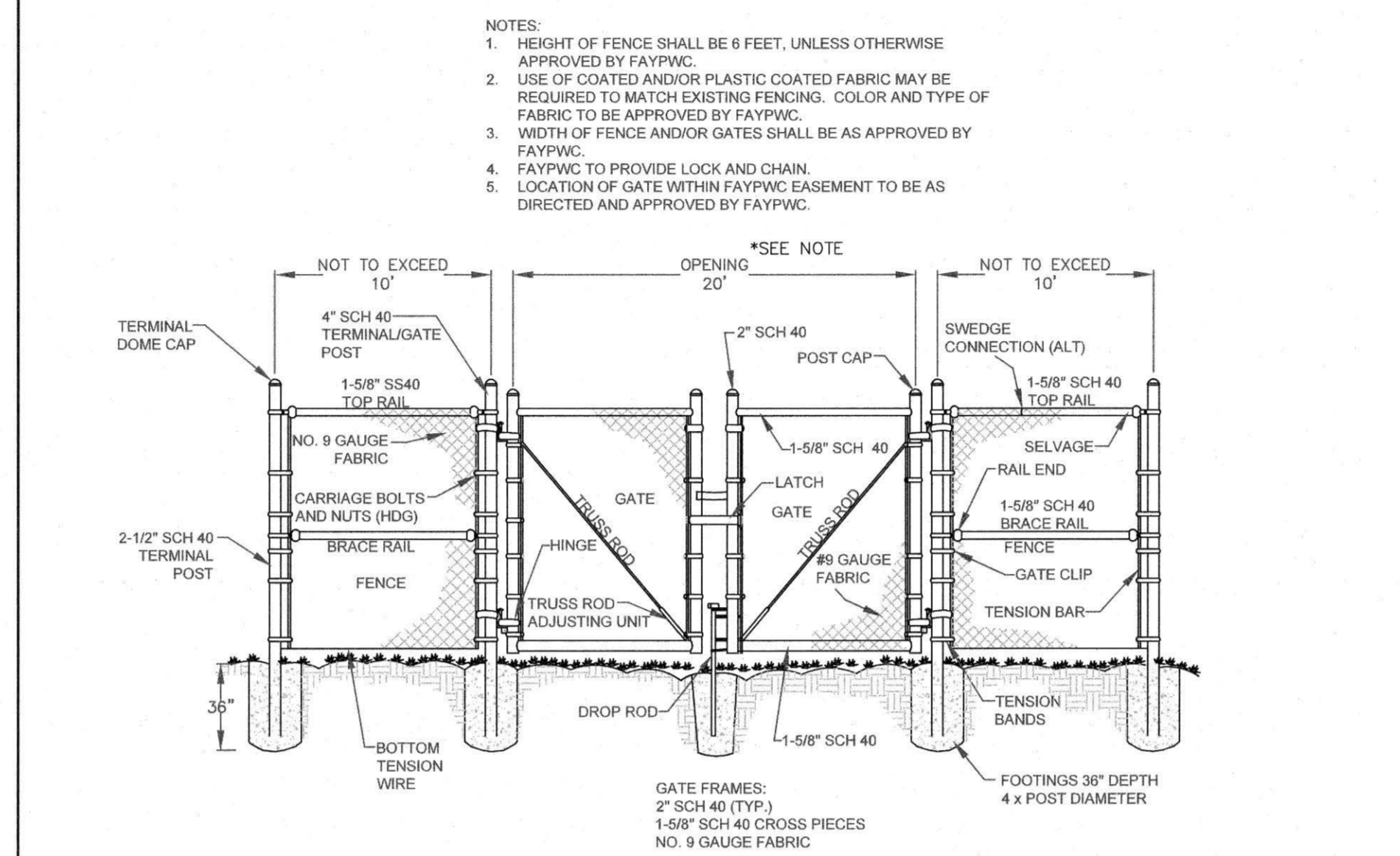


D-1 CASING PIPE DETAIL N.T.S.

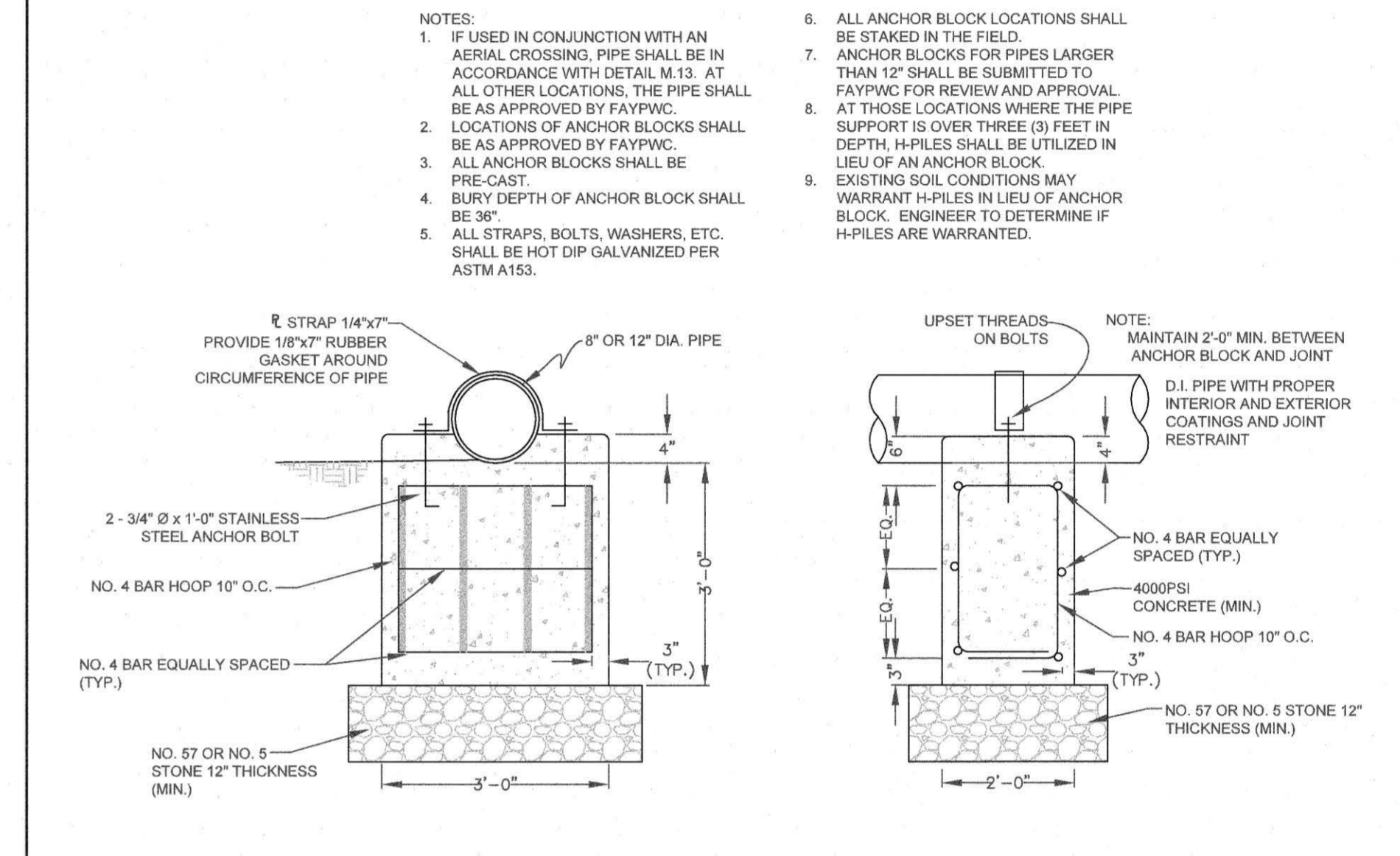
D-3 AERIAL PIPE BARRIER DETAIL N.T.S.

- CONTRACTOR SHALL SAW CUT OR MILL ALL PAVEMENTS STRAIGHT AND TRUE PRIOR TO TRENCHING. CONTRACTOR SHALL SAW CUT PATCH AREAS AGAIN IMMEDIATELY PRIOR TO PATCH PAVING. THE FINAL SAW CUT FOR PATCHES SHALL BE STRAIGHT WITH A NEAT SQUARE EDGE AND OF UNIFORM WIDTH PARALLEL WITH THE EDGE OF PAVEMENT CURB LINE. THE FINAL PRODUCT SHALL BE SUBJECT TO THE OWNERS APPROVAL.
- CONTRACTOR SHALL SWEEP STREETS AND PROVIDE DUST CONTROL AT ALL TIMES VIA WATER TRUCK, BROOMS, COMPACTORS, ETC. DEBRIS FROM SWEEPING OPERATIONS SHALL NOT BE DIRECTED TOWARD YARDS. CLEAN UP OF DEBRIS, TRASH, EXCESS MATERIALS ETC. SHALL BE PERFORMED DAILY.
- ANY TRENCHES OPENED FOR PAVING SHALL BE PAVED BY THE END OF THE SAME DAY THAT MAIN LINE TRENCHES ARE PAVED. LATERALS SHALL BE PATCHED ON BOTH SIDES OF THE STREET AS PAVING PROGRESSES.
- THE CONTRACTOR SHALL PATCH PAVE SERVICE LATERALS ON THE SAME DAY THAT MAIN LINE TRENCHES ARE PAVED. LATERALS SHALL BE PATCHED ON BOTH SIDES OF THE STREET AS PAVING PROGRESSES.
- THE CONTRACTOR SHALL BE REQUIRED TO IMPLEMENT PROPER TRAFFIC CONTROL PROVISIONS AND ANY DEVICES REQUIRED TO IDENTIFY OBSTRUCTIONS OR HAZARDS WITHIN THE RIGHT-OF-WAY TO INCLUDE REFLECTIVE CONES AT EACH SERVICE LATERAL, REFLECTIVE BARRELS ON RAISED MANHOLES, ETC.
- AT NO TIME SHALL THE CONTRACTOR LEAVE UNATTENDED AND/OR IMPROPERLY SECURE MAIN OR LATERAL TRENCHES WITH A VERTICAL ELEVATION DROP EXCEEDING 1" FROM EXISTING ASPHALT TO TRENCH SUB GRADE UNATTENDED OR OVERNIGHT.

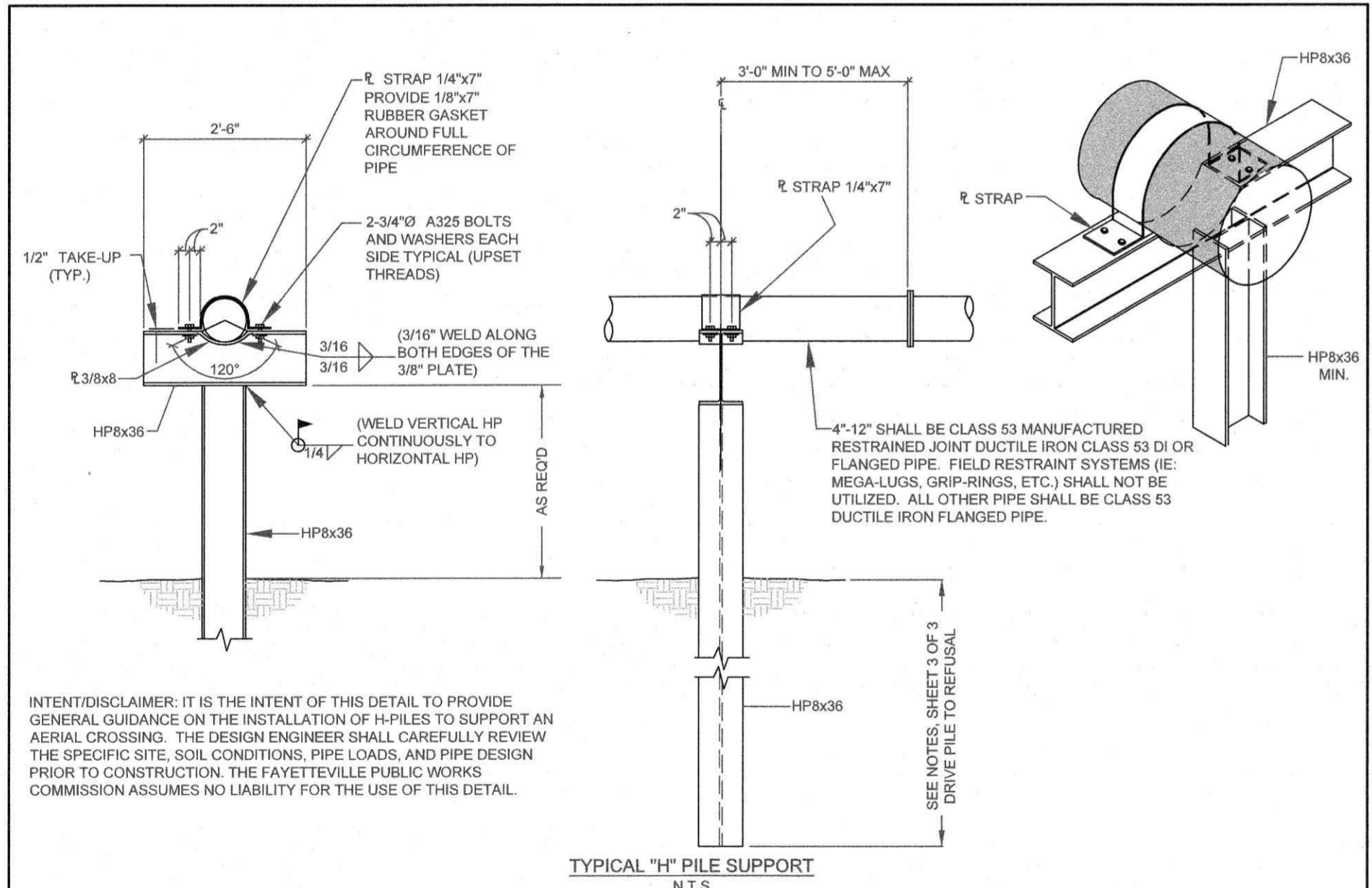
PAVEMENT REPAIR NOTES			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		
SHEET NO. 1 OF 1	DWG. NO. M.1	DWG. BY: FAYPWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	WATER RESOURCES ENGINEERING DEPARTMENT	NO. DATE REVISION
DATE: JAN. 01, 2022	APPROVED BY: M.M.M.	1 07/10 REVISED, DELETED NOTES			
M1-PAVEMENT-REPAIR-NOTES.dwg					



TYPICAL CHAIN LINK GATE AND FENCING N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		
SHEET NO. 1 OF 1	DWG. NO. M.17	DWG. BY: FAYPWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	WATER RESOURCES ENGINEERING DEPARTMENT	NO. DATE REVISION
DATE: JAN. 01, 2022	APPROVED BY: M.M.M.				
NOTE: OPENING 20' OR AS SHOWN ON DRAWINGS					



ANCHOR BLOCK DETAIL N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		
SHEET NO. 1 OF 1	DWG. NO. M.14	DWG. BY: FAYPWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	WATER RESOURCES ENGINEERING DEPARTMENT	NO. DATE REVISION
DATE: JAN. 01, 2022	APPROVED BY: M.M.M.				
M14-ANCHOR-BLOCK-DETAIL.dwg					



H-PILE DETAIL 4" THRU 16" PIPE FOR AERIAL CROSSINGS N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		
SHEET NO. 1 OF 3	DWG. NO. M.13	DWG. BY: FAYPWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	WATER RESOURCES ENGINEERING DEPARTMENT	NO. DATE REVISION
DATE: JAN. 01, 2022	APPROVED BY: M.M.M.	1 07/09 UPDATED DETAIL			
M13-H-PILE-AERIAL-CROSSING.dwg					

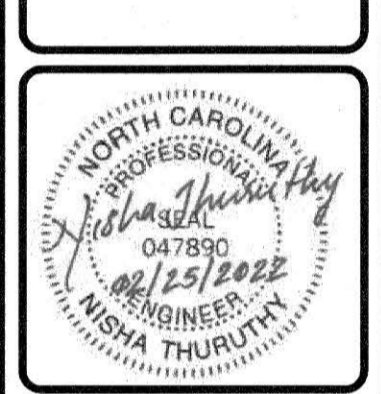
- NOTES:
- ALL STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A992 GRADE 50.
 - A SUBSURFACE GEO-TECHNICAL REPORT IS REQUIRED TO DETERMINE PILE EMBEDMENT LENGTH.
 - THIS DETAIL IS FOR GUIDANCE/INFORMATION ONLY. THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR PROVIDING A PROJECT SPECIFIC DESIGN.
 - FOR ALL AERIAL CROSSINGS, A PROJECT SPECIFIC DESIGN SHALL BE SUBMITTED TO FAYPWC FOR REVIEW AND APPROVAL.
 - A SUBSURFACE GEO-TECHNICAL EVALUATION IS REQUIRED IN ORDER TO DESIGN THE PILE LENGTH, EMBEDMENT, AND SPACING FOR THE SPECIFIC PROJECT LOCATION. THE DESIGN ENGINEER SHALL PROVIDE A COPY OF THE REPORT AND THE DESIGN TO FAYPWC.
 - THE DESIGN ENGINEER SHALL FURNISH A STRUCTURAL DESIGN BASED UPON ACTUAL FIELD CONDITIONS AND THE INTENDED USE OF THE STRUCTURE. LATERAL LOADS MAY REQUIRE THE ADDITION OF A BATTERED PILE. THE DESIGN ENGINEER SHALL CONSIDER SUCH LOADS AS ICE/SNOW, FLOODING, ETC.
 - FOR AERIAL SUPPORT OF PRESSURE MAINS, THE ENGINEER SHALL ENSURE THAT THE PIPE JOINTS CAN PROVIDE THE NECESSARY THRUST RESTRAINT. CALCULATIONS SHALL BE SUBMITTED TO FAYPWC FOR REVIEW, PRIOR TO CONSTRUCTION.
 - LOCATION AND SPACING OF PILES SHALL BE BASED UPON ACTUAL FIELD CONDITIONS AND AS SPECIFIED BY THE DESIGN ENGINEER. EACH PIPE JOINT SHALL BE SUPPORTED BY A PILE UNLESS OTHERWISE APPROVED BY FAYPWC.
 - ANY CHANGES TO THIS DETAIL SHALL BE REVIEWED AND APPROVED BY FAYPWC PRIOR TO CONSTRUCTION.
 - ANY REVISIONS TO THIS DETAIL SHALL BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED TO FAYPWC FOR REVIEW.
 - PILES SHOULD NOT BE PLACED IN THE CENTERLINE OF THE STREAM.
 - PILES SHALL BE DRIVEN UTILIZING A VIBRATORY HAMMER OR PILE HAMMER.
 - ALL PILES SHALL BE DRIVEN TO REFUSAL. THE DESIGN ENGINEER SHALL PROVIDE FAYPWC WITH CALCULATIONS AND/OR A REPORT THAT CLEARLY DEFINES WHAT CONSTITUTES REFUSAL. SHOULD THE CONTRACTOR UTILIZE A DIFFERENT DRIVING METHOD THAN SPECIFIED, THEN REVISED CALCULATIONS SHALL BE PROVIDED TO FAYPWC.
 - PILES SHALL BE CUT OFF SQUARE AT THE REQUIRED ELEVATIONS WITH METHOD OF CUT APPROVED BY THE DESIGN ENGINEER.
 - EXPANSION JOINTS SHALL BE PROVIDED AS REQUIRED. THE EXPANSION JOINTS SHALL BE SUPPORTED BY PLACEMENT OF PIERS WITHIN 3 FEET ON BOTH SIDES OF THE JOINT OR AS SPECIFIED IN THE DESIGN.
 - ALL PILE LOCATIONS SHALL BE STAKED BY A NC LICENSED PROFESSIONAL SURVEYOR, IN ACCORDANCE WITH THE APPROVED PLANS.
 - ALL WELDS SHALL BE BY A CERTIFIED WELDER.
 - ALL STEEL MEMBERS AND STRAPS WILL BE POWER TOOL CLEANED TO A MINIMUM OF SSPC-SP3 AND HOT-DIP GALVANIZED PER ASTM A153. BOLTS AND WASHERS WILL BE HOT-DIP GALVANIZED PER ASTM A153. ALL WELDS WILL BE GRINDING AND COATED WITH 2 COATS OF A COLD APPLIED GALVANIZING PAINT.
 - ALL DI PIPE IN SANITARY SEWER SERVICE SHALL HAVE AN INTERIOR LINING OF PROTECTO 401 OR APPROVED EQUAL.

H-PILE DETAIL NOTES			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		
SHEET NO. 3 OF 3	DWG. NO. M.13	DWG. BY: FAYPWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	WATER RESOURCES ENGINEERING DEPARTMENT	NO. DATE REVISION
DATE: JAN. 01, 2022	APPROVED BY: M.M.M.	1 07/09 UPDATED DETAIL			
M13-H-PILE-AERIAL-CROSSING.dwg					

DATE	REVISIONS	BY
08.22.21	B - 100% SUBMITTAL	NT
08.03.21	C - 100% SUBMITTAL	NT
08.10.21	D - 100% SUBMITTAL	NT
09.24.21	E - ISSUED FOR PERMITTING	NT
09.24.21	F - 100% SUBMITTAL	NT
02.25.22	G - ISSUED FOR CONSTRUCTION	NT

DATE: 2020 JUN	SURVEYED BY: MCK&C	SCALE: HOR: 1"=100'
	DRAWN BY: MPP	VERT: 1"=10'
	CHECKED BY: NT	

D2



SHADOWLAWN AERIAL CROSSING SEWER REPLACEMENT

DETAILS

100% DESIGN

FAYETTEVILLE PUBLIC WORKS COMMISSION WATER RESOURCES ENGINEERING

955 Old Wilmington Road, Fayetteville, NC 28301

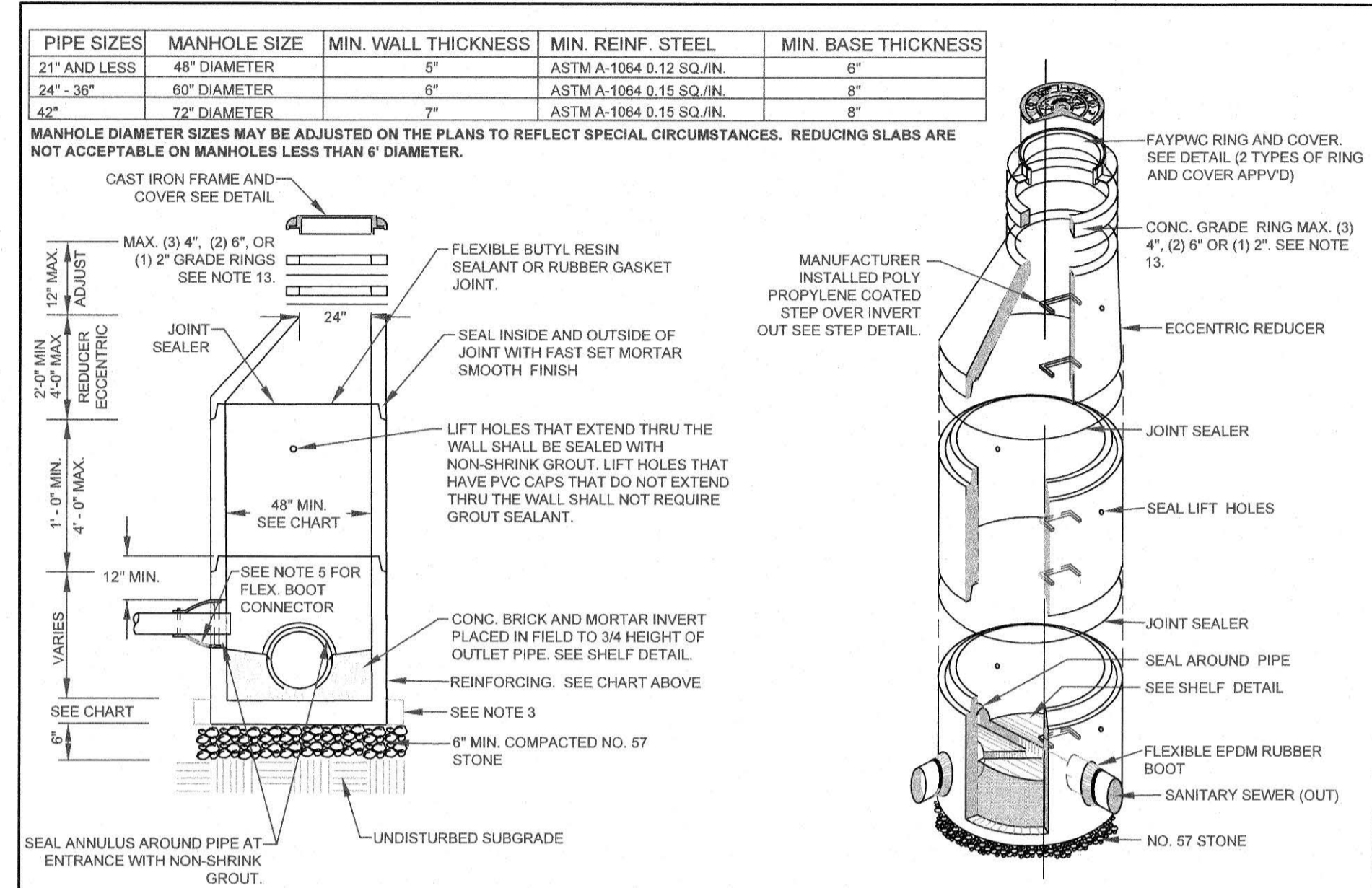
PWC DWG #DS-15464

MAR - 1 2022

- ALL SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYETTEVILLE FAYPWC STANDARDS.
- CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- CONSTRUCTION STAKING IS REQUIRED FOR ALL FAYPWC WATER AND SEWER UTILITY INSTALLATIONS. CUT SHEETS, SIGNED AND SEALED BY A NC PLS, SHALL BE PROVIDED TO THE FAYPWC WATER RESOURCES ENGINEERING DEPARTMENT AND THE CONTRACTOR IN ADVANCE OF CONSTRUCTION FOR FAYPWC WATER AND SEWER UTILITIES.
- CONTRACTOR SHALL MAINTAIN A COPY OF THE SIGNED AND SEALED CUT SHEET ON THE JOB SITE. CONSTRUCTION ON FAYPWC WATER AND SEWER UTILITIES CANNOT BEGIN UNTIL THE CONTRACTOR POSSESSES, ON SITE, A SIGNED AND SEALED CUT SHEET FROM THE PROFESSIONAL LAND SURVEYOR.
- ALL NEW WATER AND SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE TESTED AND/OR DISINFECTED IN ACCORDANCE WITH FAYETTEVILLE FAYPWC STANDARDS PRIOR TO PLACING INTO SERVICE.
- CONTRACTOR SHALL COORDINATE TESTING AND INSPECTION WITH THE FAYETTEVILLE FAYPWC PROJECT COORDINATOR.
- ALL DUCTILE IRON PIPE IN SANITARY SERVICE SHALL HAVE AN INTERIOR LINING OF PROTECTO 401 OR APPROVED EQUAL.
- ALL NEW MANHOLES ARE TO BE VACUUM-TESTED IN ACCORDANCE WITH FAYETTEVILLE FAYPWC STANDARDS.
- CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL SEWER MAIN AND LATERAL BREAKS TO THE FAYPWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH FAYPWC STANDARDS.
- TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
 - INSTALL AND TEST NEW MAINS, MANHOLES, AND LATERALS. CLEANOUTS SHALL BE INSTALLED 18" INSIDE R/W UNLESS OTHERWISE DIRECTED BY PWC.
 - CONNECT EXISTING PLUMBING TO NEW LATERAL UTILIZING THE NECESSARY FITTINGS AS DIRECTED BY FAYPWC.
 - AFTER ALL SERVICES HAVE BEEN TRANSFERRED TO THE NEW MAIN, THE EXISTING SEWER SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
- CONTRACTOR SHALL ABANDON (PULL-OUT) ANY EXISTING SEWER SERVICES THAT WILL NOT BE UTILIZED BY UNCOVERING THE EXISTING LATERAL AT THE MAIN CUT AND PLUG AT BOTH ENDS. REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE TAP OR TEE AT THE MAIN. FOR LATERALS THAT CONNECT TO A MANHOLE AND ARE TO BE ABANDONED (PULL-OUT), THE LATERAL SHALL BE REMOVED FROM THE MANHOLE AND THE REMAINING VOID IN THE MANHOLE SHALL BE FILLED WITH BLOCK AND MORTAR.
- SEWER PLUGS SHALL BE INSTALLED TO ELIMINATE ANY DEBRIS OR OTHER MATERIAL FROM ENTERING THE ACTIVE SEWER SYSTEM. UPON ACCEPTANCE OF THE NEW SEWER SYSTEM, THE CONTRACTOR SHALL CLEAN THE NEW MAINS, REMOVE ALL DEBRIS, AND THEN REMOVE THE PLUG.
- ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
- ALL WORK ON FAYPWC SEWER UTILITIES (MAIN, LATERALS, ETC) SHALL BE PERFORMED BY A LICENSED UTILITY CONTRACTOR. THE FAYETTEVILLE PUBLIC WORKS COMMISSION SHALL OBSERVE AND APPROVE ALL WORK ON FAYPWC SEWER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
- SEPARATION REQUIREMENTS:
 - LATERAL SEPARATION OF SEWER AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 18 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
 - THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18-INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
 - THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18-INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
 - CROSSING A WATER MAIN OVER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18-INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18-INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10-FEET ON EACH SIDE OF THE POINT OF CROSSING.
 - CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10-FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
 - CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 24-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A SEWER MAIN/LATERAL CROSSING UNDER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IF DUCTILE IRON PIPE IS USED, A MINIMUM OF SIX(6) INCHES OF SEPARATION SHALL BE MAINTAINED, UNLESS OTHERWISE APPROVED BY FAYPWC.

GENERAL NOTES SANITARY SEWER UTILITY		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. S.1	DWG. BY: FAYPWC			1	07/16	ADDED NOTE 6
DATE: JAN. 01, 2022	APPROVED BY: M.M.M.			2	01/18	ADDED NOTES 5, 8
				3	06/21	ADDED NOTES 1-8 AND RENUMBERED

WATER RESOURCES
ENGINEERING DEPARTMENT



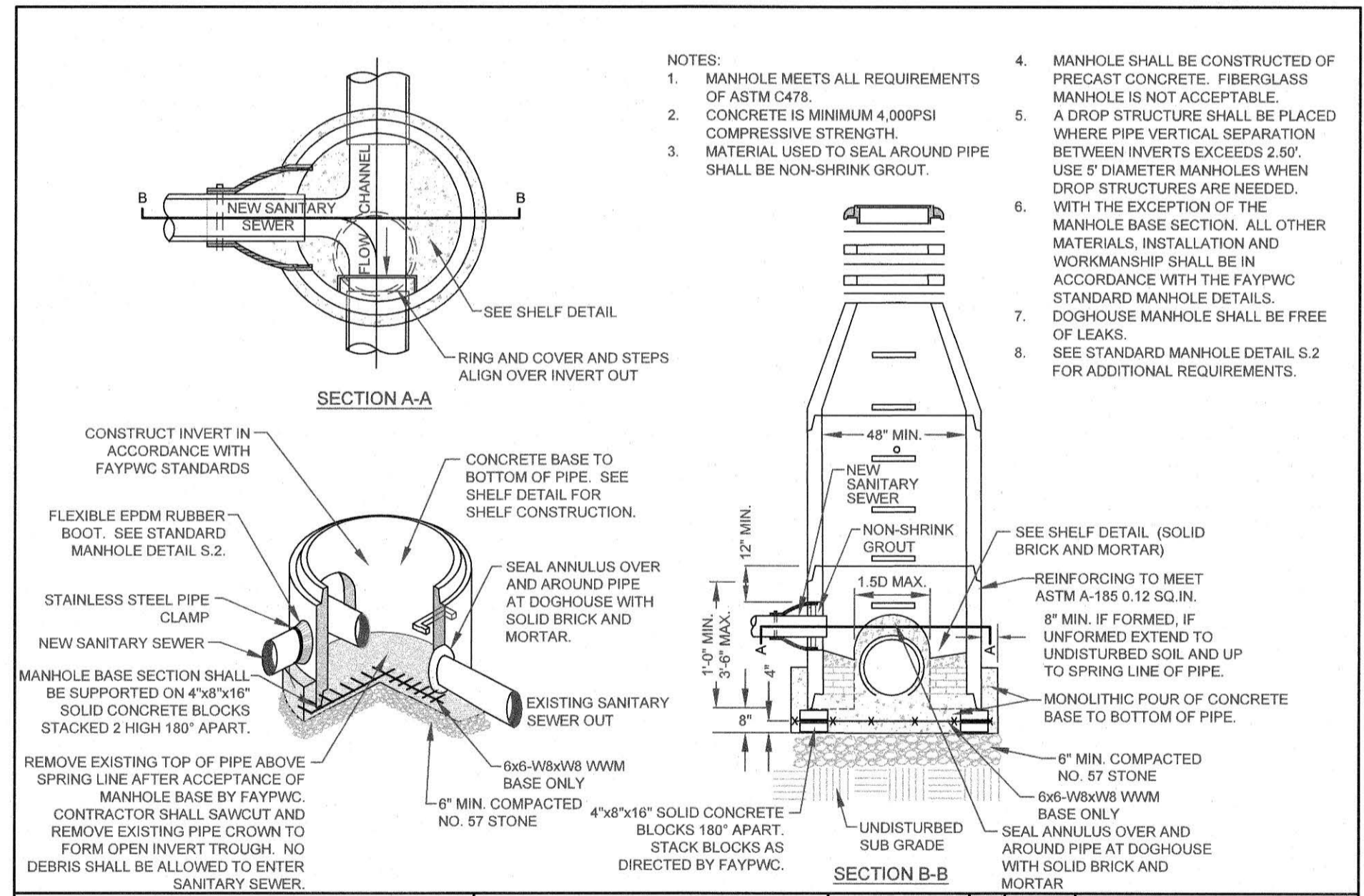
STANDARD MANHOLE N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. S.2	DWG. BY: FAYPWC			1	02/07	CREATED S.2.A ADDED NOTES 13-17
DATE: JAN. 01, 2022	APPROVED BY: M.M.M.			2	07/13	ADDED SHEET 2 OF 2

WATER RESOURCES
ENGINEERING DEPARTMENT

- NOTES:
- PRECAST REINFORCED CONCRETE MANHOLES SHALL BE IN ACCORDANCE WITH ASTM C-476.
 - MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 4,000PSI.
 - MANHOLES GREATER THAN 12' DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
 - FLEXIBLE BUTYL RESIN JOINT SEALANT SHALL BE IN ACCORDANCE WITH ASTM C980. RUBBER GASKET JOINTS SHALL BE IN ACCORDANCE WITH ASTM C-443.
 - FLEXIBLE EPDM RUBBER BOOT CONNECTORS SHALL BE IN ACCORDANCE WITH ASTM C923. INSTALLED BY MANUFACTURER WITH STAINLESS STEEL COMPRESSION RING AND TAKE-UP CLAMP. CONNECTION TO MAIN SHALL BE BY CONTRACTOR WITH STAINLESS STEEL PIPE CLAMP.
 - CONNECTIONS TO EXISTING MANHOLES SHALL BE BY CORING MANHOLE AND FIELD INSTALLING A FLEXIBLE EPDM RUBBER BOOT CONNECTOR. DO NOT ALLOW DEBRIS TO ENTER SYSTEM.
 - MORTAR SHALL BE QUICK SETTING, NON-SHRINK GROUT MIXED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - MANHOLE STEPS SHALL BE IN ACCORDANCE WITH ASTM C478 AND OSHA REGULATIONS. ALIGN STEPS WITH INVERT OUT.
 - PRECAST INVERTS ARE NOT ALLOWED.
 - VERTICAL DROPS BETWEEN THE INFLOW PIPES AND OUTFLOW PIPES SHALL REQUIRE THE FOLLOWING:
 - GREATER THAN 2.5' SEE DROP STRUCTURE DETAIL (MIN. 6" DIAMETER MH REQUIRED).
 - LESS THAN 2.5' SEE PIPE SLIDE DETAIL.
 - AN ECCENTRIC CONE SHALL BE UTILIZED ON ALL MANHOLES, UNLESS OTHERWISE APPROVED BY FAYPWC.
 - CONCRETE GRADE RINGS SHALL NOT BE USED FOR ABOVE GRADE ADJUSTMENTS (IE: OUTFALL AREAS). USE OF GRADE RINGS ARE ALLOWABLE IN YARD AREAS AND PAVEMENT, WHERE THE RING AND COVER ARE AT GROUND LEVEL.
 - THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1%, UNLESS OTHERWISE APPROVED BY FAYPWC. STANDING WATER IN INVERT OF MANHOLE IS NOT ACCEPTABLE.
 - THE EXTERIOR MANHOLE RISER JOINTS, INCLUDING THE JOINT AT THE CONE, SHALL BE SEALED ON THE OUTSIDE BY AN APPROVED JOINT WRAP. THE WRAP SHALL BE IN ACCORDANCE WITH FAYPWC SPECIFICATIONS.
 - MANHOLE BOOT FOR 4-INCH LATERALS, SHOULD IT BE NECESSARY TO INSTALL A 4-INCH LATERAL INTO A MANHOLE, THE RUBBER BOOT THAT THE LATERAL IS INSERTED INTO SHALL BE SECURELY FASTENED TO THE CORE HOLE BY UTILIZING A STAINLESS STEEL BAND THAT IS TIGHTENED USING A JACK OR TORQUE WRENCH (DIRECT DRIVE). BOTH STANDARD SIZE AND STEP DOWN BOOTS ARE ALLOWED. THE TORQUE WRENCH SHALL BE SUPPLIED BY THE MANUFACTURER. NO OTHER TYPE BANDS OR METHOD OF SECURING THE BOOT TO THE MANHOLE SHALL BE ACCEPTED.
 - FOR FOUR (4) INCH SDR 35 LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL BE 3.5-INCHES TO 4.25-INCHES.
 - FOR FOUR (4) INCH DUCTILE IRON LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL EITHER BE AS FOR VC OR 4.25-INCHES TO 4.81-INCHES.
 - IN ALL CASES, THE BOOT SHALL BE TIGHTENED ON THE LATERAL BY MEANS OF A SINGLE STAINLESS STEEL STRAP.
 - THE LATERAL INVERT SHALL BE AT THE TOP OF THE SHELF.
 - NO MORE THAN 4 FOUR-INCH LATERALS OR 3 SIX-INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE (REGARDLESS OF SIZE). SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
 - NO MORE THAN 5 LATERALS SHALL ENTER A 5' DIAMETER MANHOLE.
 - USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.
 - ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH FAYPWC STANDARDS.

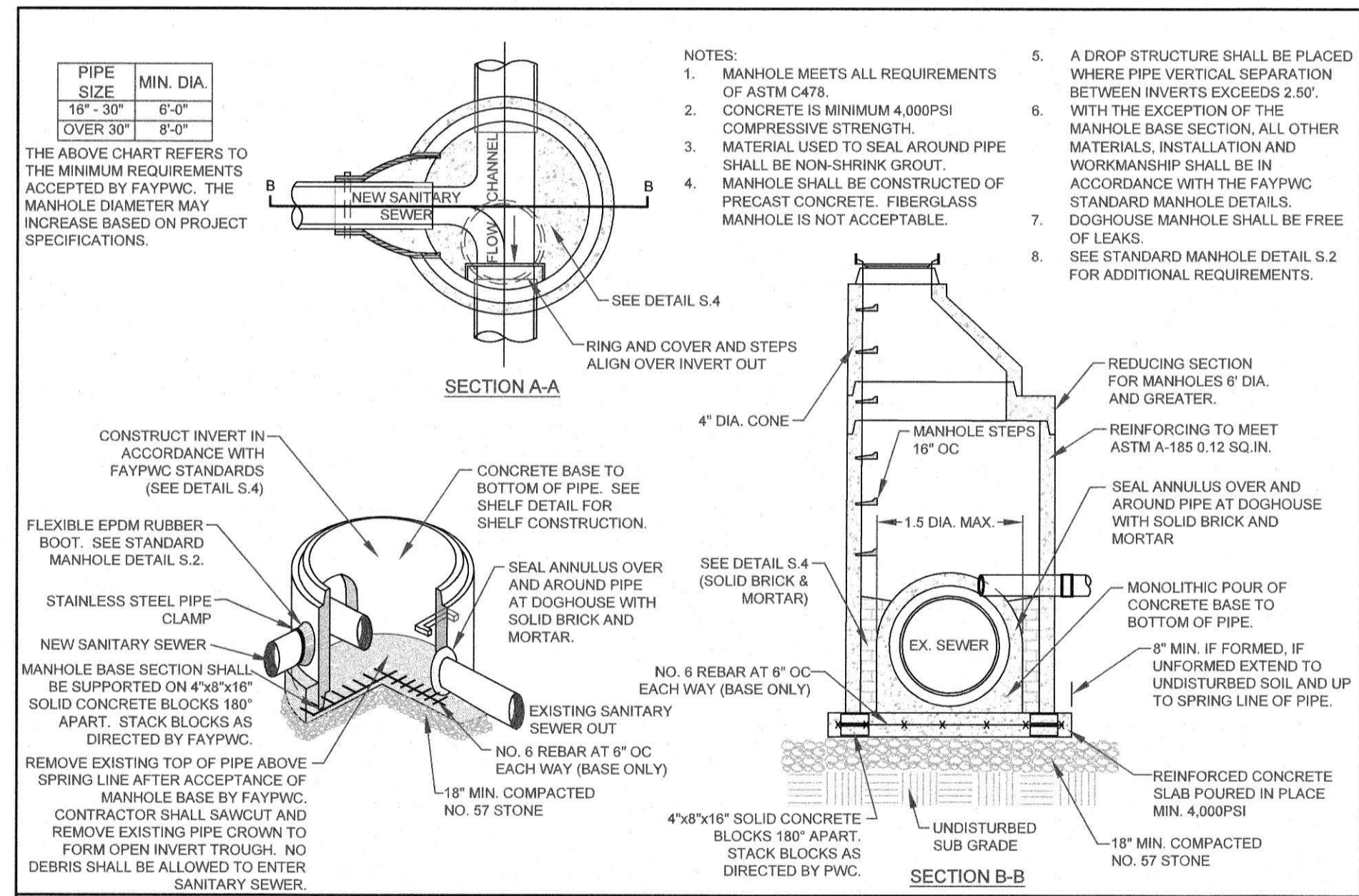
STANDARD MANHOLE		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. S.2	DWG. BY: FAYPWC			1	01/08	CREATED DETAIL, ADDED NOTES 14-20
DATE: JAN. 01, 2022	APPROVED BY: M.M.M.			2	07/13	REVISED NOTES 9, 10, 11, 15. CONVERTED TO S.2 SHEET 2 OF 2
				3	01/01/19	REVISED NOTES 10, 18

WATER RESOURCES
ENGINEERING DEPARTMENT



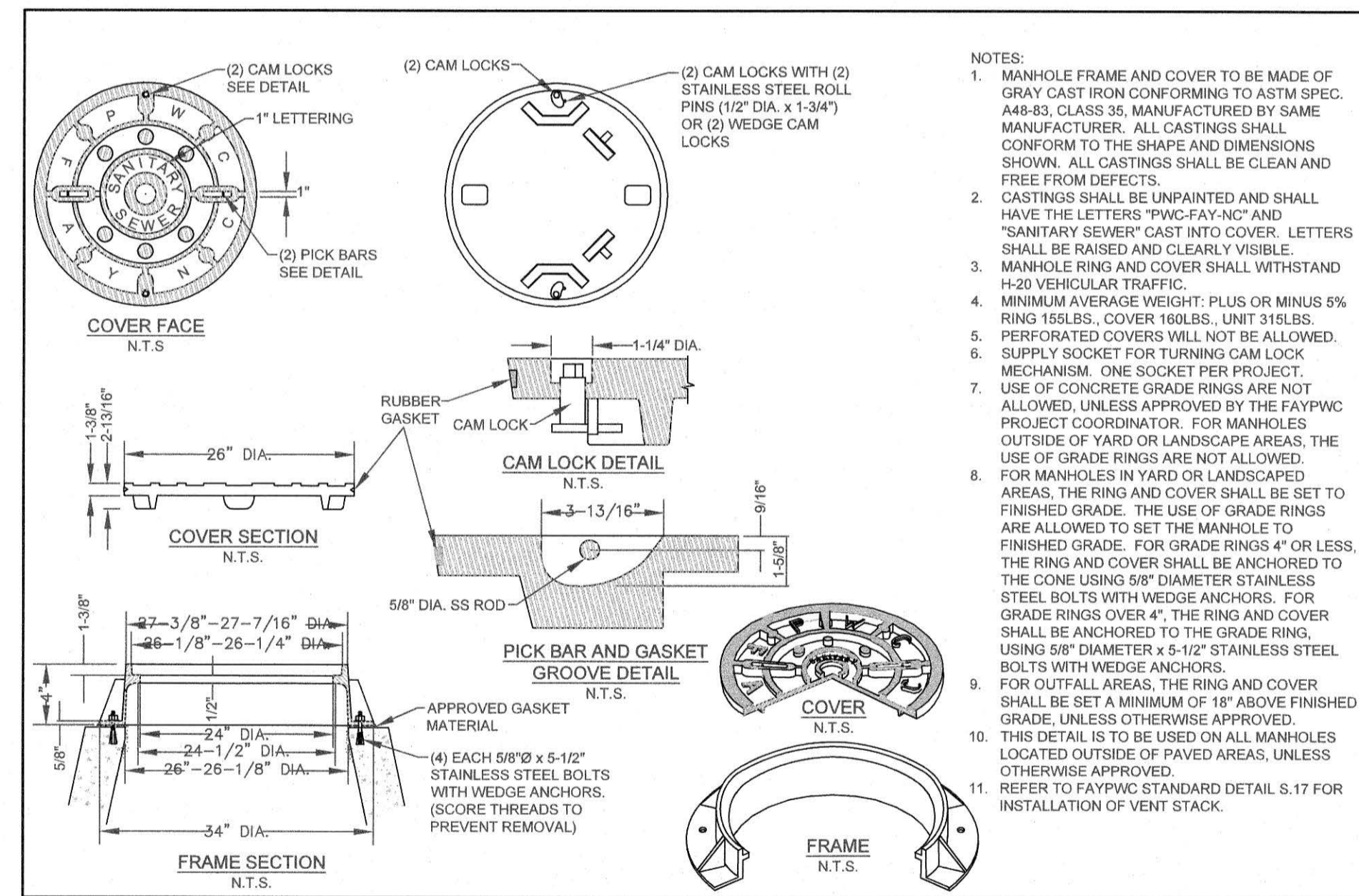
DOGHOUSE MANHOLE (MAINS 15" OR LESS) N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. S.3	DWG. BY: FAYPWC			1	07/16	ADDED SHEET 2
DATE: JAN. 01, 2022	APPROVED BY: M.M.M.			2	11/25/08	MADE CHANGES TO NOTES

WATER RESOURCES
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DOGHOUSE MANHOLE (MAINS 16" OR LARGER) N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. S.3	DWG. BY: FAYPWC			1	07/16	ADDED SHEET 2
DATE: JAN. 01, 2022	APPROVED BY: M.M.M.			2	11/25/08	MADE CHANGES TO NOTES
				3	01/01/19	ADDED MH CHART

WATER RESOURCES
ENGINEERING DEPARTMENT

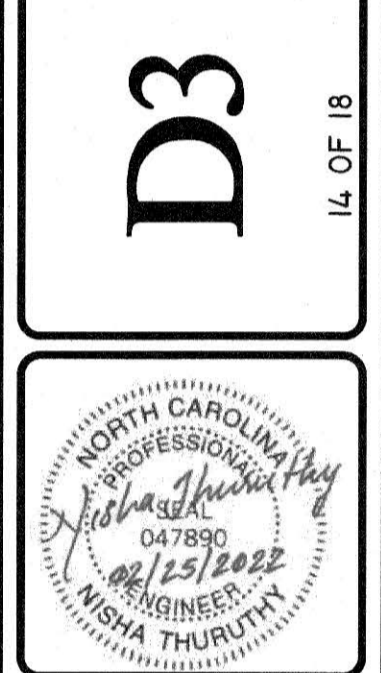


STANDARD NON-TRAFFIC AREA MANHOLE RING AND COVER WITH WIPER GASKET AND CAM LOCK N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. S.6	DWG. BY: FAYPWC			1	07/09	REVISED NOTES ON FRAME SECTION/REVISED NOTE 3
DATE: JAN. 01, 2022	APPROVED BY: M.M.M.			2	07/17	ADDED NOTE ON WEDGE CAM LOCKS
				3	01/18	UPDATED NOTES 7 AND 8

WATER RESOURCES
ENGINEERING DEPARTMENT

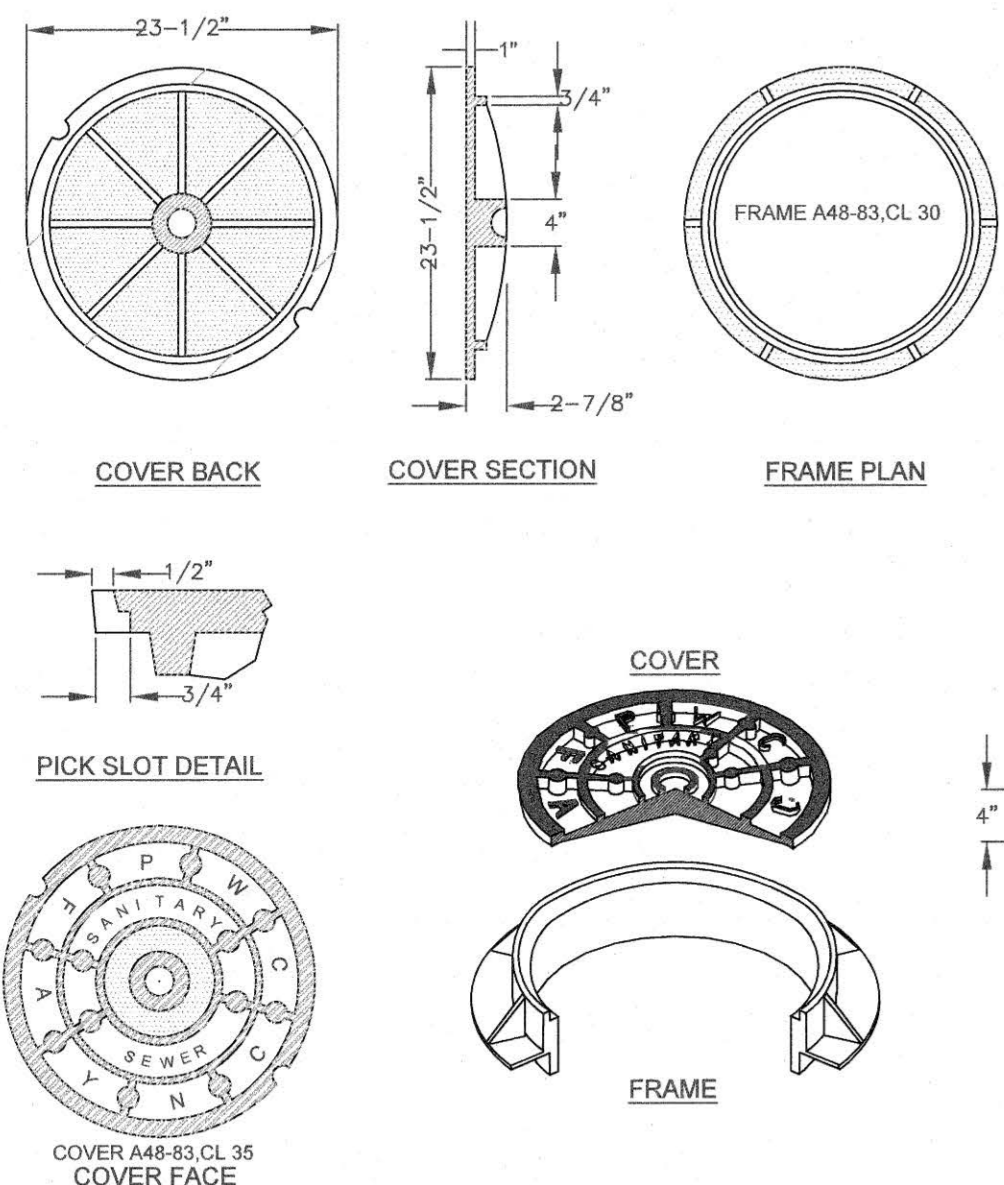
DATE	BY	REVISIONS
08-22-21	NT	ISSUED FOR CONSTRUCTION
08-03-21	NT	ISSUED FOR PERMITTING
08-10-21	NT	ISSUED FOR PERMITTING
08-24-21	NT	ISSUED FOR PERMITTING
08-25-22	NT	ISSUED FOR CONSTRUCTION

DATE: 2020 JUN
SURVEYED BY: JCK&C
DRAWN BY: LMP
CHECKED BY: NT
SCALE: HOR: 1"=NA
VERT: 1"=NA



**SHADOWLAWN AERIAL CROSSING
SEWER REPLACEMENT**
SEWER DETAILS
100% DESIGN

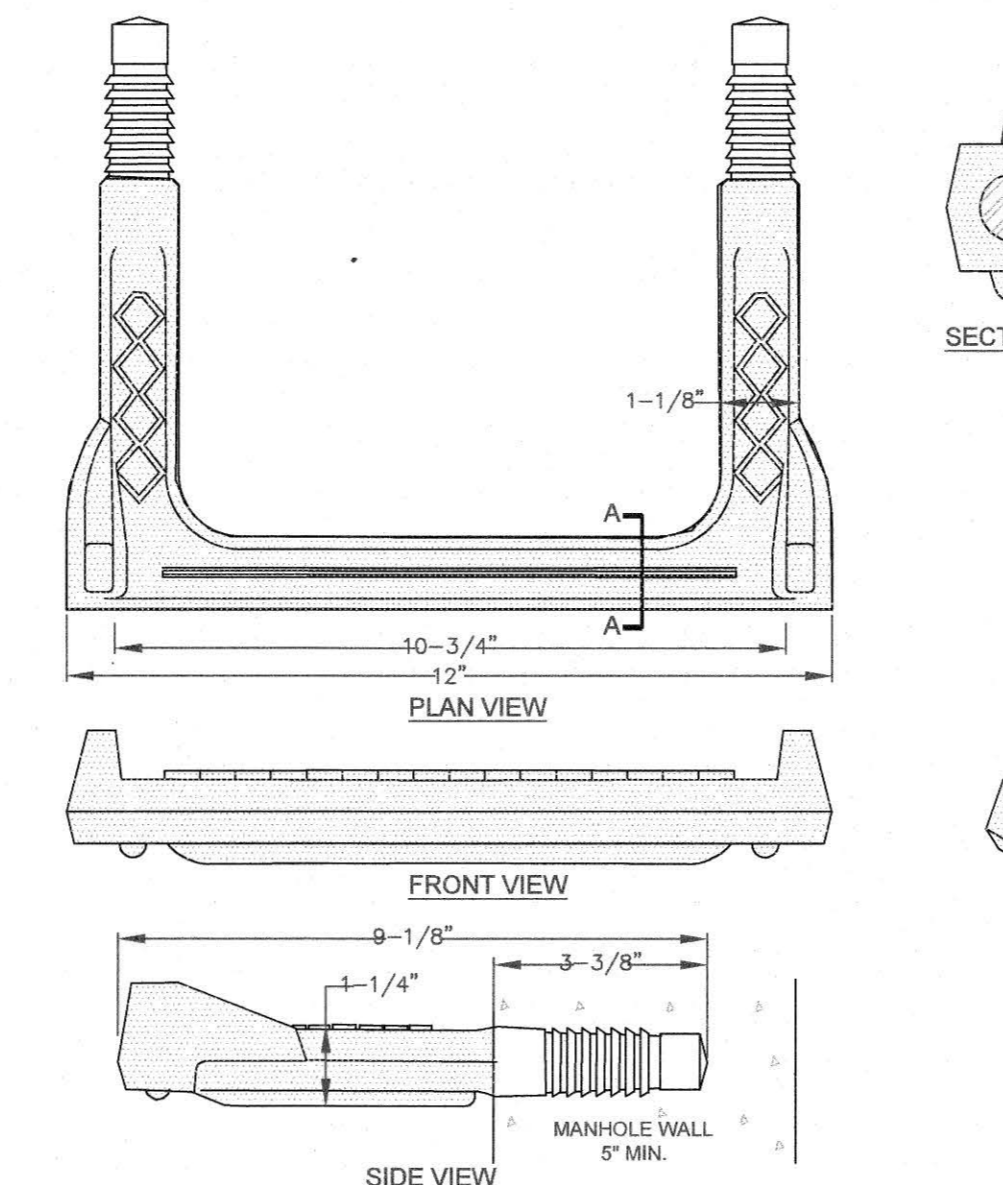
**FAYETTEVILLE
PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING**
Electric & Water Utilities
P.O. Box 1008, Fayetteville, NC 28402
956 Old Wilmington Road, Fayetteville, NC 28401



NOTES:
 1. DETAIL TO BE USED IN PAVED AREAS ONLY. ALL OTHER MANHOLES SHALL BE IN ACCORDANCE WITH DETAIL S.6, UNLESS OTHERWISE APPROVED.
 2. MANHOLE FRAME AND COVER SHALL BE MADE OF GRAY CAST IRON CONFORMING TO ASTM SPEC. A48-83 CL 30/35 RESPECTIVELY. MANUFACTURED BY SAME MANUFACTURER. ALL CASTINGS SHALL CONFORM TO THE SHAPES AND DIMENSIONS SHOWN. THEY SHALL BE CLEAN AND PERFECT, WITHOUT BLOW OR SAND HOLES OR DEFECTS OF ANY KIND, TENDING TO IMPAIR THEIR STRENGTH. NO PLUGGING OR STOPPING OF DEFECTIVE HOLES WILL BE PERMITTED.
 3. CASTINGS SHALL BE UNPAINTED AND SHALL HAVE THE LETTERS "PWC-FAY-NC" AND "SANITARY SEWER" CAST INTO COVER. LETTERS SHALL BE RAISED AND CLEARLY VISIBLE.
 4. MANHOLE RING AND COVER SHALL WITHSTAND H-20 VEHICULAR TRAFFIC. ROCKING COVERS SHALL NOT BE ACCEPTABLE.
 5. MINIMUM AVERAGE WEIGHT: PLUS OR MINUS 5% RING 175LBS., COVER 135LBS., UNIT 310LBS.
 6. PERFORATED COVERS WILL NOT BE ALLOWED.

STANDARD TRAFFIC AREA MANHOLE RING AND COVER N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
SHEET NO. 1 OF 1	DWG. NO. S.7 DATE: JAN. 01, 2022	DWG. BY: FAYPWC APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT

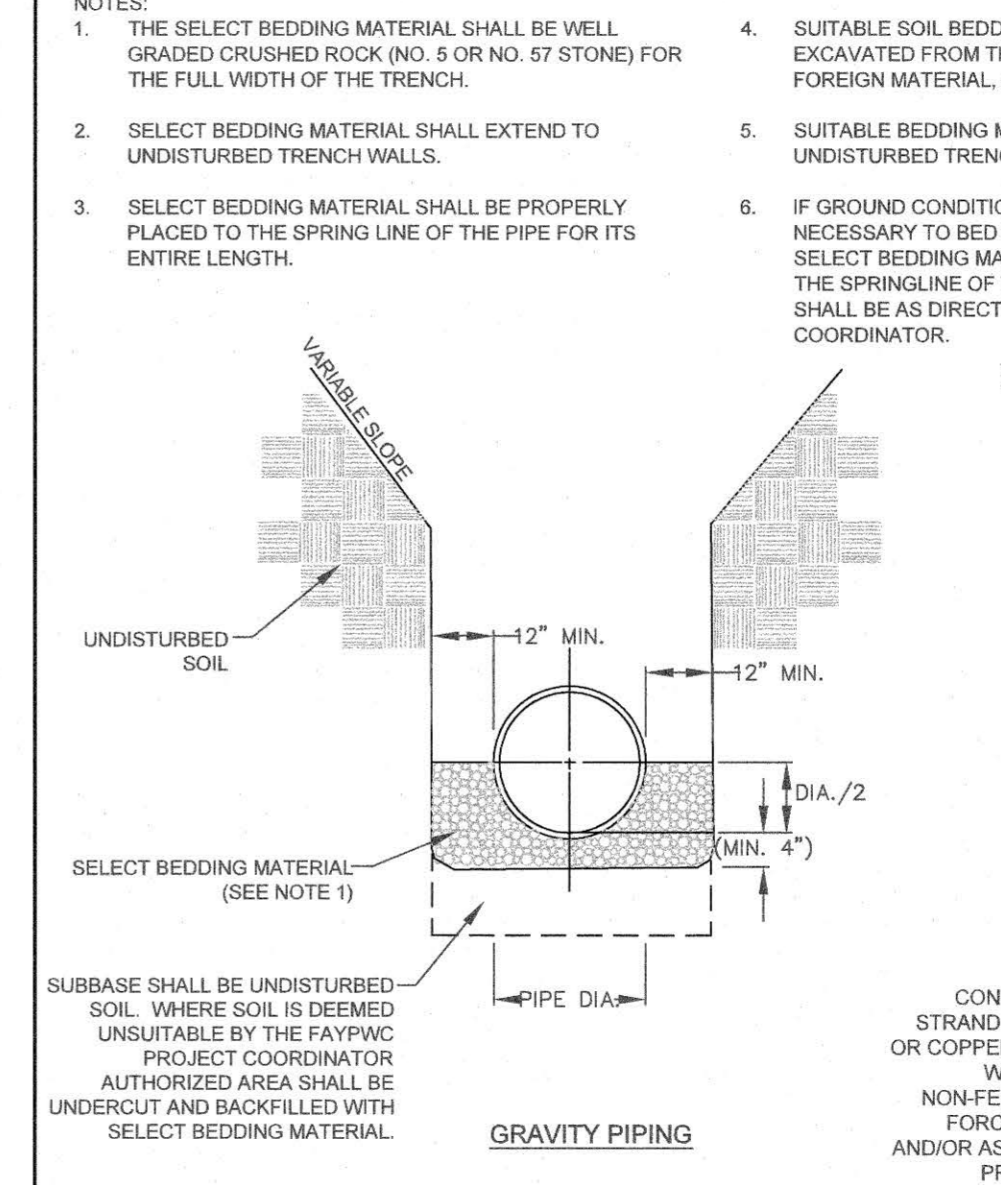
NO.	DATE	REVISION
1	01/05	CHANGED NON TRAFFIC DETAIL
2	07/06	ADDED NOTE ON CONCRETE COLLAR
3	02/07	REMOVED NON TRAFFIC AREA AND REVISED NOTES
4	07/08	REVISED ASPHALT THICKNESS



NOTES:
 1. COPOLYMER POLYPROPYLENE PLASTIC STEP SHALL BE PLACED 16" OC IN ALL STRUCTURES 5' DEPTH OR GREATER.
 2. STEPS SHALL BE INSTALLED BY MANUFACTURER AND SHALL BE ALIGNED OVER STRUCTURE INVERT OUT. DIMENSIONS SHOWN ARE TO CONVEY THE DESIRED SIZE OF THE STEP AND CONSTRUCTION MAY BE ACCEPTABLE PROVIDED MATERIAL SUBMITTAL IS APPROVED BY FAYPWC.
 3. MATERIALS OF CONSTRUCTION AND METHOD OF INSTALLATION SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND ASTM C-478.

STRUCTURE STEP N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
SHEET NO. 1 OF 1	DWG. NO. S.8 DATE: JAN. 01, 2022	DWG. BY: FAYPWC APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	01/05	CHANGED NON TRAFFIC DETAIL
2	07/06	ADDED NOTE ON CONCRETE COLLAR
3	02/07	REMOVED NON TRAFFIC AREA AND REVISED NOTES
4	07/08	REVISED ASPHALT THICKNESS



NOTES:
 1. THE SELECT BEDDING MATERIAL SHALL BE WELL GRADED CRUSHED ROCK (NO. 5 OR NO. 57 STONE) FOR THE FULL WIDTH OF THE TRENCH.
 2. SELECT BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS.
 3. SELECT BEDDING MATERIAL SHALL BE PROPERLY PLACED TO THE SPRING LINE OF THE PIPE FOR ITS ENTIRE LENGTH.
 4. SUITABLE SOIL BEDDING IS DEFINED AS "NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
 5. SUITABLE BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS.
 6. IF GROUND CONDITIONS WARRANT, IT MAY BE NECESSARY TO BED DUCTILE IRON FORCE MAINS IN SELECT BEDDING MATERIAL (NO. 5 OR NO. 57 STONE) TO THE SPRINGLINE OF THE PIPE. SUCH INSTALLATION SHALL BE AS DIRECTED BY THE FAYPWC PROJECT COORDINATOR.

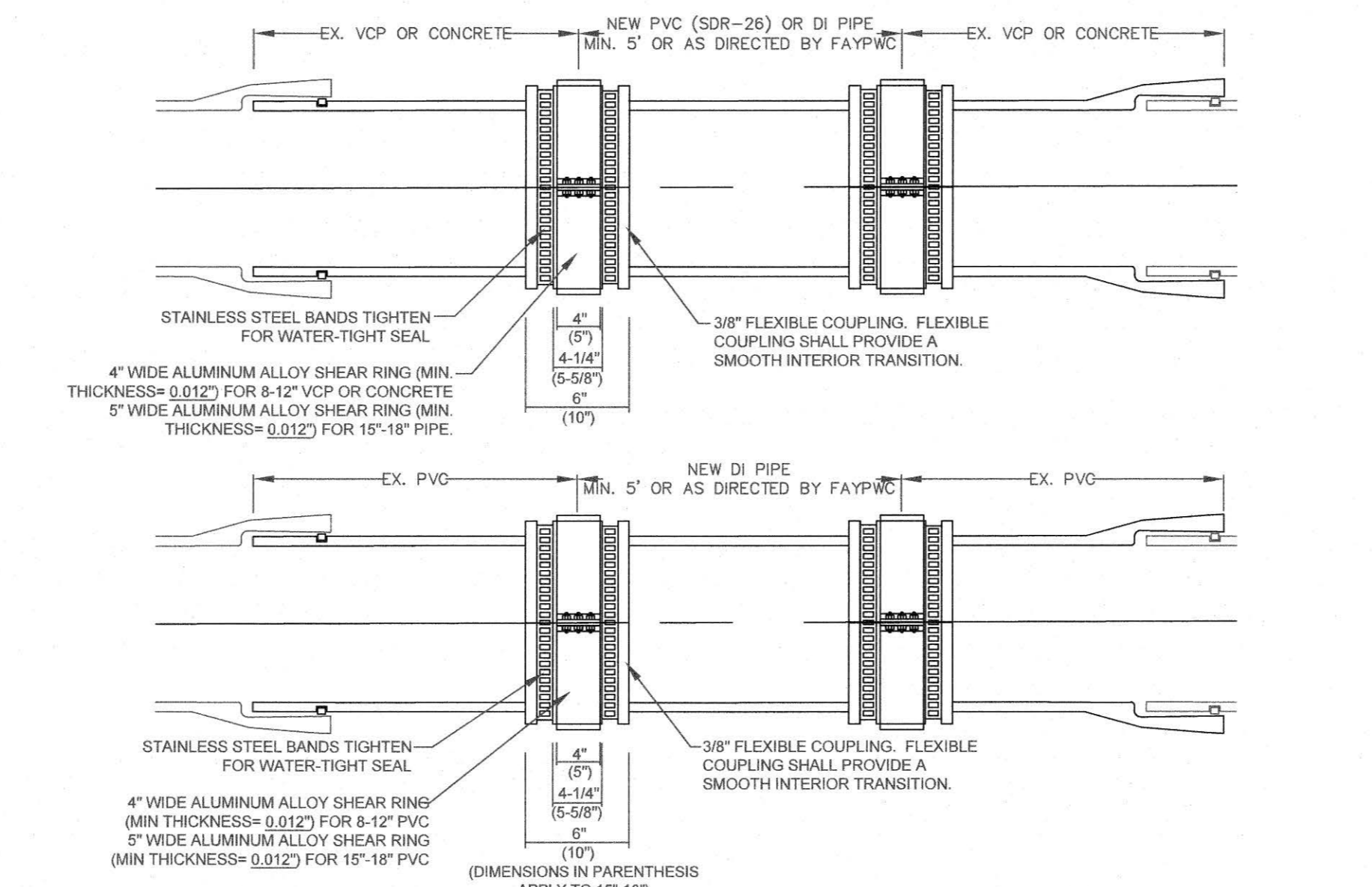
SEWER BEDDING N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
SHEET NO. 1 OF 1	DWG. NO. S.13 DATE: JAN. 01, 2022	DWG. BY: FAYPWC APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	01/01/05	REVISED NOTES
2	01/01/16	REVISED NOTES

NOTES:
 1. SANITARY SEWER REPAIR SHALL BE APPROVED BY FAYPWC PRIOR TO MAKING THE REPAIR. IF THE REPAIR IS WITHIN 20' OF AN EXISTING MANHOLE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND RELAY PIPE TO NEAREST MANHOLE, UNLESS OTHERWISE DIRECTED BY FAYPWC.
 2. ALL MATERIALS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE FAYETTEVILLE PUBLIC WORKS COMMISSION.
 3. CONTRACTOR SHALL PROVIDE ALL NECESSARY PUMPS, HEADER PIPE, PUMPING EQUIPMENT, ETC. PRIOR TO BEGINNING CONSTRUCTION. DUPLICATE SEWAGE HANDLING PUMPS, PIPING, ETC. SHALL BE ON-SITE AND AVAILABLE FOR IMMEDIATE USE SHOULD PRIMARY PUMP OR FORCE MAIN FAIL. INSURE PUMPS, HEADER PIPING, ETC. ARE PROPERLY SIZED AND OPERATIONAL BEFORE BEGINNING WORK.
 4. PIPE REPAIR SHALL EXHIBIT STRAIGHT HORIZONTAL ALIGNMENT AND INVERT SHALL BE THE SAME AS THE EXISTING PIPE SLOPE. DEFLECTIONS OF HORIZONTAL AND VERTICAL ALIGNMENT ARE NOT ACCEPTABLE.
 5. PIPE SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH FAYPWC STANDARD SPECIFICATION.
 6. REPLACEMENT PIPE SHALL BE PROPERLY BEDDED IN ACCORDANCE WITH FAYPWC STANDARD DETAIL S.13.
 7. THERE SHALL BE NO MORE THAN 1/4" SPACE BETWEEN THE EXISTING SEWER MAIN AND THE REPLACEMENT PIPE AT EACH END.
 8. DAMAGED SECTION SHALL BE CUT OUT WITHOUT DAMAGING THE PIPE TO REMAIN.
 9. DI SEWER PIPE AND FITTINGS SHALL HAVE AN INTERIOR COATING OF PROTECTO 401 OR APPROVED EQUAL.
 10. DI PIPE SHALL BE UTILIZED WHEN STATE MINIMUM SEPARATION REQUIREMENTS CANNOT BE MET OR AS DIRECTED BY FAYPWC.
 11. PIPE REPAIRS ON MATERIALS OTHER THAN SHOWN, SHALL BE AS DIRECTED BY FAYPWC.
 12. THE MINIMUM LENGTH OF REPAIR SHALL BE 5 FEET, UNLESS OTHERWISE DIRECTED BY FAYPWC.

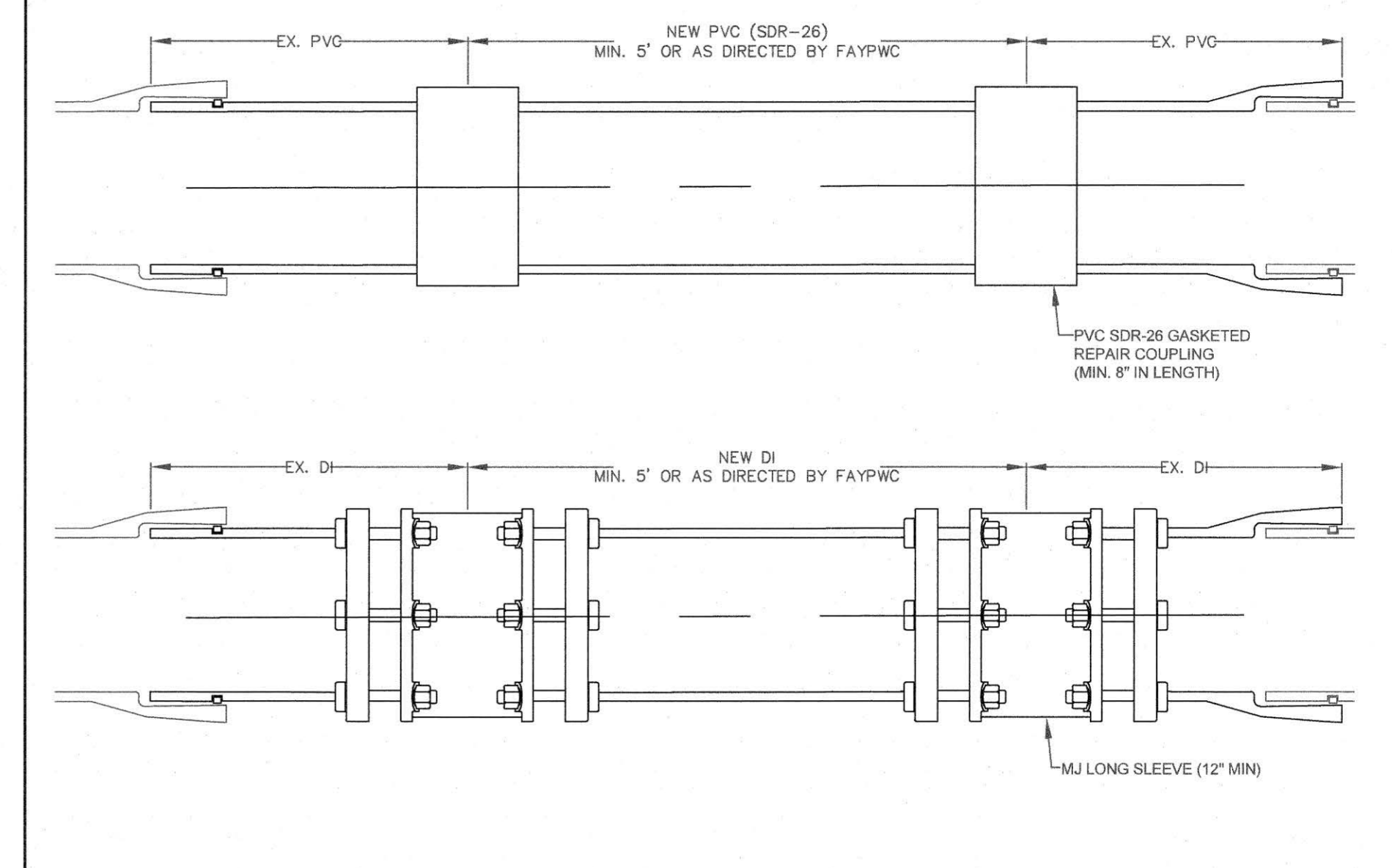
GRAVITY SANITARY SEWER PIPE REPAIR N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
SHEET NO. 1 OF 3	DWG. NO. S.15 DATE: JAN. 01, 2022	DWG. BY: FAYPWC APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	01/05	REVISED REPLACEMENT PIPE
2	07/11	REVISED NOTES



GRAVITY SANITARY SEWER PIPE REPAIR N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
SHEET NO. 2 OF 3	DWG. NO. S.15 DATE: JAN. 01, 2022	DWG. BY: FAYPWC APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	01/05	REVISED REPLACEMENT PIPE
2	07/11	REVISED NOTES



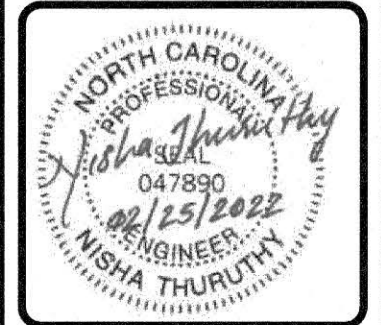
GRAVITY SANITARY SEWER PIPE REPAIR N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
SHEET NO. 3 OF 3	DWG. NO. S.15 DATE: JAN. 01, 2022	DWG. BY: FAYPWC APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	01/05	REVISED REPLACEMENT PIPE
2	07/11	REVISED NOTES, REPAIRS

DATE	REVISIONS	BY
06.22.21	ISSUED FOR CONSTRUCTION	NT
06.03.21	ISSUED FOR CONSTRUCTION	NT
06.10.21	ISSUED FOR CONSTRUCTION	NT
06.24.21	ISSUED FOR CONSTRUCTION	NT
06.25.22	ISSUED FOR CONSTRUCTION	NT

DATE: 2020 JUN	SURVEYED BY: JAC&C
DRAWN BY: MHP	CHECKED BY: NT
SCALE: HOR: 1"=NA	VERT: 1"=NA

D4
15 OF 18



**SHADOWLAWN AERIAL CROSSING
SEWER REPLACEMENT
SEWER DETAILS
100% DESIGN**

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
 P.O. Box 1088 Fayetteville, NC 28402
 955 Old Wilmington Road, Fayetteville, NC 28301

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WATER RESOURCES ENGINEERING
FAYETTEVILLE, NC

- THE INTENT OF THE CONSTRUCTION SEQUENCE IS TO PROVIDE THE CONTRACTOR WITH A GENERAL GUIDE FOR CONSTRUCTION PURPOSES. THIS SEQUENCE IS NOT INTENDED TO OUTLINE ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NCDQ SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
- ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS. NEEDED REPAIRS SHALL BE MADE IMMEDIATELY.
- IF IT IS DETERMINED DURING CONSTRUCTION THAT SIGNIFICANT SEDIMENT IS LEAVING THE SITE, DESPITE PROPER IMPLEMENTATION AND MAINTENANCE, THE CONTRACTOR IS OBLIGATED TO TAKE ADDITIONAL CORRECTIVE ACTION. CONTACT NCDQ ENVIRONMENTAL QUALITY DEPARTMENT, OWNER'S REPRESENTATIVE AND ENGINEER WITH ANY ADDITIONAL MEASURES NEEDED.
- CONTRACTOR SHALL ESTABLISH GROUND COVER ON DISTURBED AREAS WITHIN THE NUMBER OF CALENDAR DAYS AFTER COMPLETION OF GRADING PER THE SCHEDULE BELOW:
 - GRADUAL SLOPES: (14) CALENDAR DAYS
 - MODERATE SLOPES: (10) CALENDAR DAYS
 - STEEP SLOPES: (7) CALENDAR DAYS
 SLOPES ARE AS DEFINED BY THE AUTHORITIES HAVING JURISDICTION.
- CONTRACTOR SHALL ARRANGE PRE-CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE, ENGINEER AND NCDQ.
- MAINTAIN A COPY OF THE LETTER OF PLAN APPROVAL ON SITE FOR SEDIMENTATION AND EROSION CONTROL FROM NCDQ-LAND QUALITY SECTION AS WELL AS THE PREVIOUS 30 DAYS OF SELF INSPECTION RECORDS, RAIN GAUGE, APPROVAL CERTIFICATE/LETTER, APPROVED PLAN, AND NPDES PERMIT. THESE ITEMS SHOULD BE LOCATED NEAR THE MAIN CONSTRUCTION ENTRANCE. COORDINATE WITH THE INSPECTOR IF AN ALTERNATIVE LOCATION IS PREFERRED. ADDITIONAL INFORMATION AND A LINK TO THE NCDQ COMBINED SELF-MONITORING FORM CAN BE FOUND AT: [HTTPS://DEQ.NC.GOV/ABOUT/DIVISIONS/ENERGY-MINERAL-LAND-RESOURCES/ENERGY-MINERAL-LAND-PERMITS/STORMWATER-PERMITS/CONSTRUCTION-SW](https://deq.nc.gov/about/divisions/energy-mineral-land-resources/energy-mineral-land-permits/stormwater-permits/construction-sw).
- CONTRACTOR TO POST EROSION CONTROL PERMIT PROMINENTLY ON SITE AT ALL TIMES.
- CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES TO AVOID CONFLICT DURING INSTALLATION OF EROSION CONTROL MEASURES AND STORM DRAINAGE. CONTRACTOR IS TO CALL 1-800-632-4949 FOR "NC ONE CALL" TO HAVE UTILITIES LOCATED.
- CONTRACTOR TO HAVE A PROFESSIONAL LAND SURVEYOR FLAG PROPERTY LINES, EASEMENTS, LANDSCAPE BUFFERS, STREAM BUFFERS, TREE PROTECTION AREAS AND LIMITS OF DISTURBANCE.
- INSTALL TEMPORARY CONSTRUCTION ENTRANCE.
- INSTALL PIPE PROTECTION, WATTLES, TREE PROTECTION FENCING AND SILT FENCING AS SHOWN AND DETAILED ON PLAN. TIMBER ONLY AS NECESSARY TO INSTALL THESE DEVICES.
- INSTALL TEMPORARY STREAM CROSSING EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN AND DETAILED ON PLAN.
- CONTACT NCDQ SOIL EROSION & SEDIMENTATION AT 910-433-3300 AND ENGINEER UPON COMPLETION OF INITIAL EROSION CONTROL MEASURES.
- CONTRACTOR SHALL STRIP TOPSOIL AND STORE AT DESIGNATED LOCATION. PROVIDE SILT FENCE AROUND PERIMETER OF SLOPE OF ANY STOCKPILE LOCATIONS. CONTRACTOR SHALL REMOVE ALL ROOT MATTER AND ORGANICS FROM WITHIN THE CLEARING LIMITS.
- AFTER COMPLETION OF CLEARING AND GRUBBING, THE SITE SHALL BE TEMPORARILY STABILIZED EXCEPT IN AREAS OF ACTIVE CUT/FILL.
- BEGIN ROUGH GRADING WITHIN CLEARING LIMITS.
- MAINTAIN AND PROTECT EXISTING UTILITIES AT ALL TIMES. MAINTAIN SILT FENCE AND OTHER EROSION CONTROL MEASURES UNTIL THEY ARE APPROVED TO BE REMOVED PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE PLANS.
- ONCE GROUND COVER HAS BEEN ESTABLISHED AND OTHER CONSTRUCTION IS COMPLETE, CONTACT NCDQ SOIL EROSION AND SEDIMENTATION AND ENGINEER FOR SITE INSPECTION BEFORE REMOVING ANY TEMPORARY EROSION CONTROL MEASURES.
- TOTAL DISTURBED AREA IS 2.32 ACRES.
- WHEN THE PROJECT IS COMPLETE, THE PERMITEE SHALL CONTACT DEMLR TO CLOSE OUT THE E&SC PLAN.
- PERMANENT GROUND COVER SHOULD BE ESTABLISHED IN 90 CALENDAR DAYS. HOWEVER, NPDES GROUND COVER REQUIREMENTS TAKE PRECEDENCE.
- EROSION AND SEDIMENT CONTROL (E&SC) PERMIT AND A CERTIFICATE OF COVERAGE (COC) MUST BE OBTAINED BEFORE ANY LAND DISTURBING ACTIVITIES OCCUR.
- CONTRACTOR RESPONSIBLE FOR PERIODIC INSPECTION AND MAINTENANCE OF EROSION CONTROL MEASURES.

EC-1 CONSTRUCTION SEQUENCE

N.T.S.

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE

SPECIES	RATE (lb/acre)
TALL FESCUE	300
KOBE LESPEDEZA	40

NURSE PLANTS:
BETWEEN MAY 1 AND AUG. 15, ADD 10 lb/acre GERMAN MILLET OR 15 lb/acre SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 lb/ac RYE (GRAIN)

SEEDING DATES:

BEST	POSSIBLE
FALL: AUG. 15 - SEPT. 15	AUG. 20 - OCT. 25
LATE WINTER: FEB. 15 - MAR. 21	FEB. 1 - APR. 15

FALL IS BEST FOR TALL FESCUE AND LATE WINTER FOR LESPEDEZAS. OVERSEEDING OF DOBE LESPEDEZA OVER FALL-SEEDED TALL FESCUE IS VERY EFFECTIVE.

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH:
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT (min. 400 gal/acre). NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL. *

MAINTENANCE:
REFERTILIZE IN THE SECOND YEAR UNLESS GROWTH IS FULLY ADEQUATE. MAY BE MOWED ONCE OR TWICE A YEAR, BUT MOWING IS NOT NECESSARY. RESEED, FERTILIZE AND MULCH DAMAGED AREAS IMMEDIATELY.

RECOMMENDATIONS FOR GRASS-LINED CHANNELS

SEEDING MIXTURE

SPECIES	RATE (lb/acre)
TALL FESCUE	300

NURSE PLANTS:
BETWEEN MAY 1 AND AUG. 15, ADD 10 lb/acre SUDANGRASS OR 15 lb/acre GERMAN MILLET. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 lb/ac RYE (GRAIN)

SEEDING DATES:

BEST	POSSIBLE
AUG. 25 - OCT.	FEB. - APR. 15

AVOID SEEDING FROM NOV. TO JAN. IF SEEDING MUST BE DONE AT THIS TIME, ADD 40 lb/acre RYE GRAIN AND USE A CHANNEL LINING THAT OFFERS MAXIMUM PROTECTION

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 1,000 lb/acre 10-10-10 FERTILIZER

MULCH:
USE ROLLED EROSION CONTROL PRODUCT TO COVER THE BOTTOM OF THE CHANNELS AND DITCHES, AND STAPLE SECURELY. THE LINING SHOULD EXTEND TO THE TOP OF BANK. ON CHANNEL SIDE SLOPES ABOVE THIS HEIGHT, AND IN DRAINAGES NOT REQUIRING TEMPORARY LININGS, APPLY 4,000 lb/acre GRAIN STRAW, AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

MULCH AND ANCHORING MATERIALS MUST NOT BE ALLOWED TO WASH DOWN SLOPES WHERE THEY CAN CLOG DRAINAGE DEVICES.

MAINTENANCE:
INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE IN LATE WINTER OF THE FOLLOWING YEAR; USE SOIL TESTS OR APPLY 150 lb/acre 10-10-10. MOW REGULARLY TO A HEIGHT OF 2-4 INCHES.

EC-4 PERMANENT SEEDING SCHEDULE

N.T.S.

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, WHERE REQUIRED.
- RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
- REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE EC-4).
- CONTINUE TILLAGE UNTIL A WELL - PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
- SEE EC-4 FOR PERMANENT SEEDING SCHEDULE.
- SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
- CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

EC-2 SEEDBED PREPARATION

N.T.S.

RECOMMENDATIONS FOR RIPARIAN BUFFERS AND WETLANDS

SEEDING MIXTURE

RECOMMENDED APPLICATION RATE: 20-25 LBS. PER ACRE

SPECIES	COMMON NAME	PERCENT
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	15
PANICUM VIRGATUM	SWITCHGRASS	15
AGROSTIS STOLONIFERA	CREeping BENTGRASS	10
RUDBECKIA HIRTA	BLACK-EYED SUSAN	10
COREOPSIS LANCEOLATA	COREOPSIS	10
PANICUM CLANDESTINUM	DEER TONGUE	10
ANDROPOGON GERARDII	BIG BLUESTEM	5
JUNCUS EFUSUS	SOFT RUSH	5
ECHINOCHLOA MURICATA	AWNED BARNYARD GRASS	5
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	5
SORGHASTRUM NUTANS	INDIAN GRASS	5
TRIPSACUM DACTYLOIDES	GAMMA	5

AS SPECIFIED BY MELLOW MARSH IN SILER CITY OR APPROVED EQUAL.

SEEDING DATES:
BEST: MAR. 1 - MAY 1
POSSIBLE: OCT. - FEB.

NO SEEDING FROM JUNE TO SEPTEMBER.

SOIL AMENDMENTS:
CONTRACTOR TO WORK COMPOST INTO THE SOILS SURFACE AT A MINIMUM OF 2 INCHES. FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 1,500 lb/acre GROUND AGRICULTURAL LIMESTONE.

MAINTENANCE:
INSPECT AND REPAIR MULCH FREQUENTLY. MOWING IN AUGUST - SEPTEMBER ONLY TO HELP DISPERSE SEEDS.

* IF CRIMPING IS TO BE USED, INSTALL 1/2 OF THE MULCH, THEN CRIMP, AND INSTALL THE OTHER 1/2 OF MULCH ON TOP.

NOTE:
SEE NCDENR'S EROSION AND SEDIMENT CONTROL PLANNING DESIGN MANUAL SECTION 6.11 FOR ADDITIONAL PERMANENT SEEDING OPTIONS.

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE

SPECIES	RATE (lb/acre)
RYE (GRAIN)	120
ANNUAL LESPEDEZA (KOBE IN PIEDMONT & COASTAL PLAIN, KOREAN IN MOUNTAINS)	50

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE

SEEDING DATES:

(ABOVE 2,500')	FEB. 15 - MAY 15
MOUNTAINS	
(BELOW 2,500')	FEB. 1 - MAY 1
PIEDMONT:	JAN. 1 - MAY 1
COASTAL PLAIN:	DEC. 1 - APR. 15

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH:
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT (min. 400 gal/acre), NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL. *

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

RECOMMENDATIONS FOR FALL

SEEDING MIXTURE

SPECIES	RATE (lb/acre)
RYE (GRAIN)	120

SEEDING DATES:

MOUNTAINS:	AUG. 15 - DEC. 15
COASTAL PLAIN AND PIEDMONT:	AUG. 15 - DEC. 30

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH:
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT (min. 400 gal/acre), NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL. *

MAINTENANCE:
REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOPDRESS WITH 50 lb/acre OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 lb/acre KOBE (PIEDMONT AND COASTAL PLAIN) OR KOREAN (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

RECOMMENDATIONS FOR SUMMER

SEEDING MIXTURE

SPECIES	RATE (lb/acre)
GERMAN MILLET	40

IN THE PIEDMONT AND MOUNTAINS, A SMALL-STEMMED SUDANGRASS MAY BE SUBSTITUTED AT A RATE OF 50 lb/acre.

SEEDING DATES:

MOUNTAINS:	MAY 15 - AUG. 15
PIEDMONT:	MAY 1 - AUG. 15
COASTAL PLAIN:	APR. 15 - AUG. 15

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

MULCH:
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT (min. 400 gal/acre), NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL. *

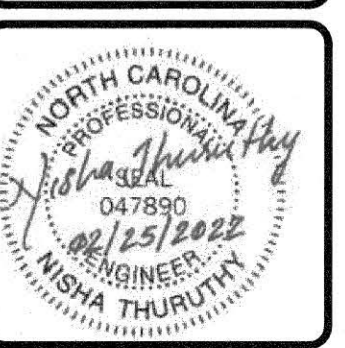
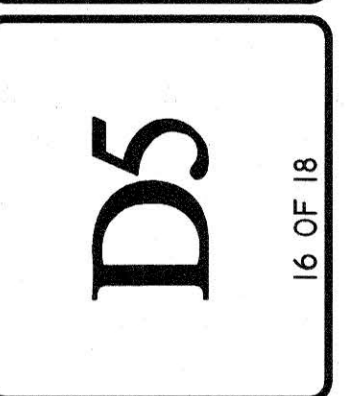
MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

EC-3 TEMPORARY SEEDING SCHEDULE

N.T.S.

DATE	REVISIONS	BY
08.22.21	1 - FOR CONSTRUCTION	NT
08.03.21	2 - FOR SUBMITTAL	NT
08.10.21	3 - FOR PERMITTING	NT
08.24.21	4 - FOR SUBMITTAL	NT
08.25.22	5 - FOR CONSTRUCTION	NT

DATE: 2020 JUN	DRAWN BY: MHP	CHECKED BY: NT	SCALE: HOR: 1"=10' VERT: 1"=10'
SURVEYED BY: MCK&C			



SHADOWLAWN AERIAL CROSSING SEWER REPLACEMENT

EROSION AND SEDIMENT CONTROL DETAILS

100% DESIGN

RECEIVED
MAR - 1 2022

FAYETTEVILLE PUBLIC WORKS COMMISSION

JWC WATER RESOURCES ENGINEERING

955 Old Wilmington Road, Fayetteville, NC 28301

Phone: 704.438.1111

CONSTRUCTION SPECIFICATIONS:

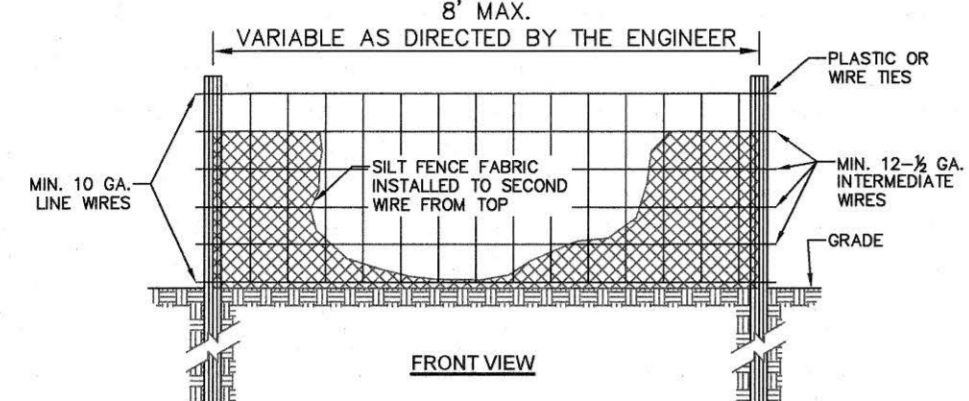
- USE A SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT OF POLYOLEFINS OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS IN ASTM D 6481, WHICH IS SHOWN IN PART IN TABLE 6.62B OF THE EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

SYNTHETIC FILTER FABRIC SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 TO 120° F.

- ENSURE THAT POSTS FOR SEDIMENT FENCES ARE 1.25 LB/LINEAR FT MINIMUM STEEL WITH A MINIMUM LENGTH OF 5 FEET. MAKE SURE THAT STEEL POSTS HAVE PROJECTIONS TO FACILITATE FASTENING THE FABRIC.
- FOR REINFORCEMENT OF STANDARD STRENGTH FILTER FABRIC, USE WIRE FENCE WITH A MINIMUM 14 GAUGE AND A MAXIMUM MESH SPACING OF 6 INCHES.

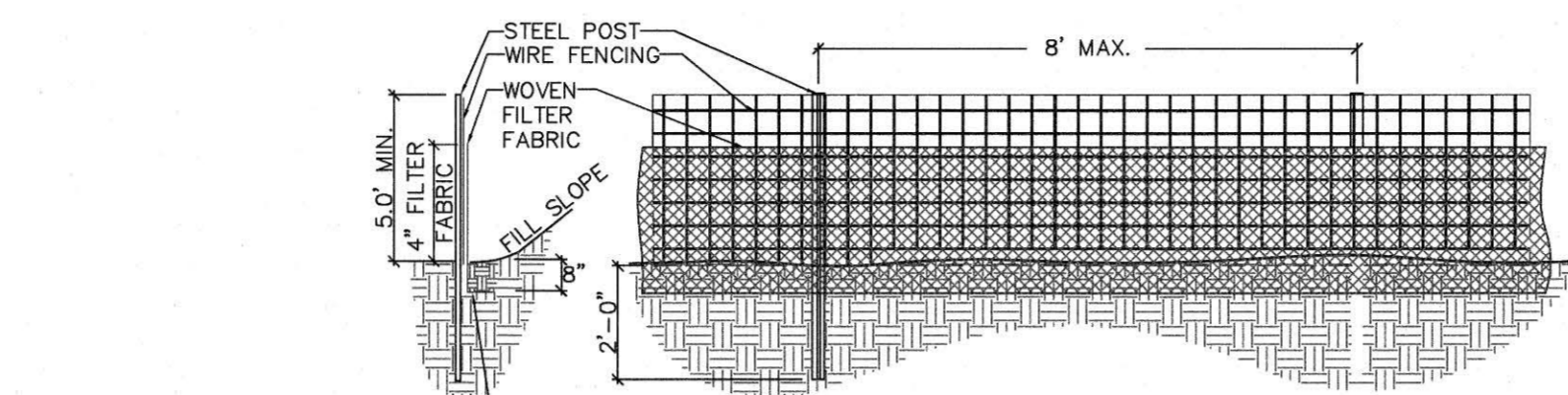
MAINTENANCE:

- INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
- SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
- REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
- REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



EC-5 TEMPORARY SILT FENCE

N.T.S.



GENERAL NOTES:

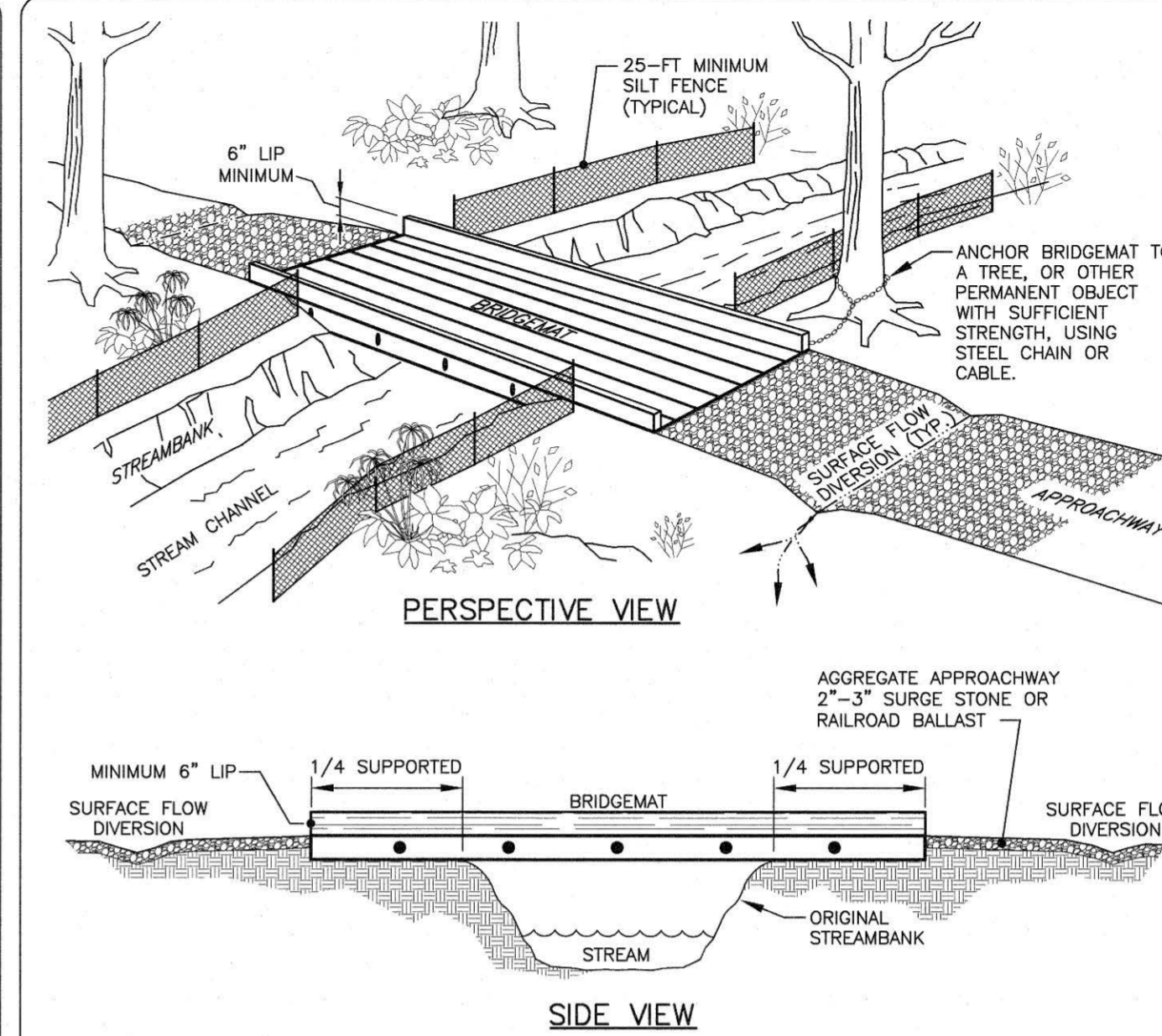
- WIRE FENCING SHALL BE A MINIMUM OF 60" IN WIDTH AND SHALL BE STEEL CHAIN LINK FENCING, MIN #10 GAUGE.
- WOVEN FILTER FABRIC BE USED WHERE SILT FENCE IS TO REMAIN FOR A PERIOD OF MORE THAN 30 DAYS.
- STEEL POSTS SHALL BE MIN 7' LONG. POSTS SHALL BE OF ADEQUATE SIZE AND THICKNESS TO SUPPORT SPECIFIED WIRE FENCING AND FILTER FABRIC.
- TURN SILT FENCE UP SLOPE AT ENDS.
- ORANGE SAFETY FENCE IS REQUIRED AT BACK OF SILT FENCE (WITHIN 5 FT.) WHEN GRADING IS ADJACENT TO SWIM BUFFERS OR WETLANDS (REFER TO SWIM BUFFER GUIDELINES).
- WHEN SILT FENCE IS PLACED IN DUPLICATE AT STREAM AND WETLAND CROSSINGS, THE FENCING SHALL BE SPACED A MINIMUM OF 3' APART.

MAINTENANCE NOTES:

- FILTER BARRIERS SHALL BE INSPECTED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY.
- SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
- SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THE DEPOSITS REACH 1-FOOT IN HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS REMOVED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

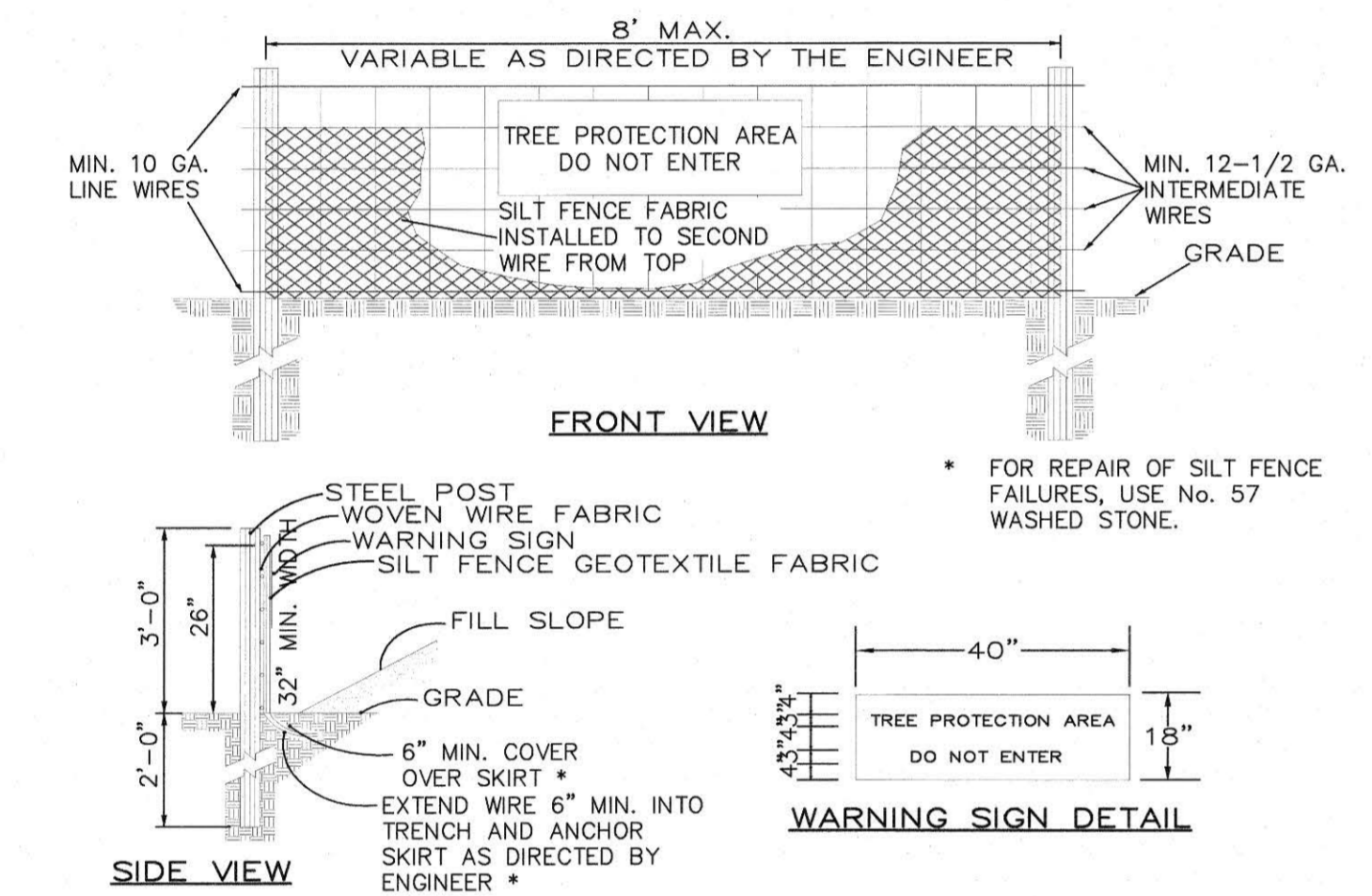
EC-6 TEMP. SUPER SILT FENCE FOR HIGH HAZARD AREAS

N.T.S.



EC-9 TIMBER MATTING FOR TEMP. STREAM CROSSING

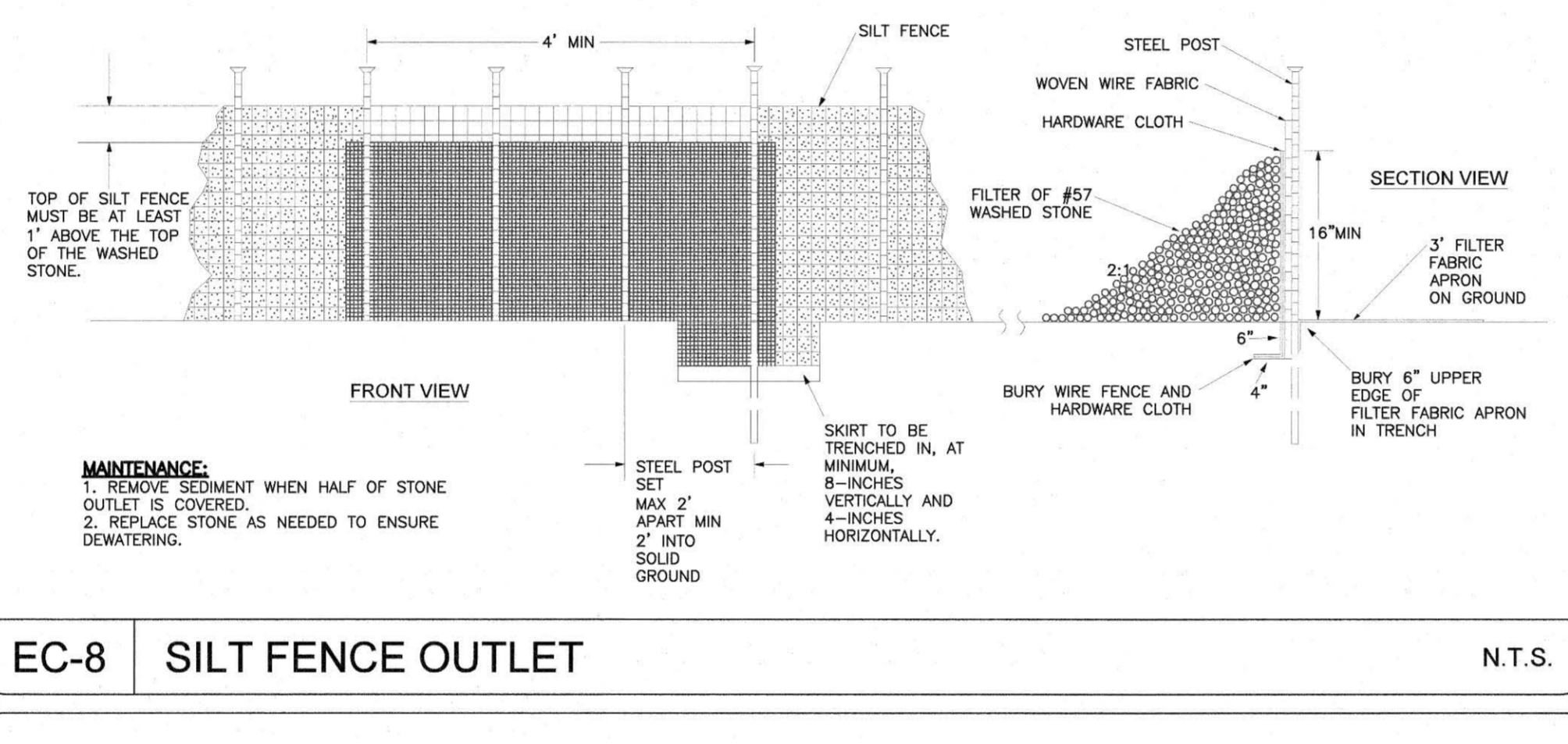
N.T.S.



- NOTES:**
- WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
 - LETTERS TO BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
 - SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS.
 - PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.
 - FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
 - ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
 - MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.
 - ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF RALEIGH INSPECTIONS DEPARTMENT BASED ON ACTUAL FIELD CONDITIONS.
 - PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.
 - FOR CONDITIONS WHERE PRACTICE APPLIES: PLANNING CONSIDERATIONS (HOWEVER FLOW SHALL NOT RUN PARALLEL WITH THE FENCE) AND DESIGN CRITERIA.
 - END OF SILT FENCE NEEDS TO BE TURNED UPHILL.
 - SEE N.C. STATE DENR PRACTICE & SPECIFICATION SEDIMENTS FENCE SECTION, FOR CONDITIONS WHERE PRACTICE APPLIES; PLANNING CONSIDERATIONS.
 - SEE N.C. STATE DENR PRACTICE & SPECIFICATION SEDIMENTS FENCE SECTION, (HOWEVER FLOW SHALL NOT RUN PARALLEL WITH THE FENCE).
- MAINTENANCE:**
(SEE MAINTENANCE NOTES EC-5, TEMP. SILT FENCE DETAIL, THIS SHEET)

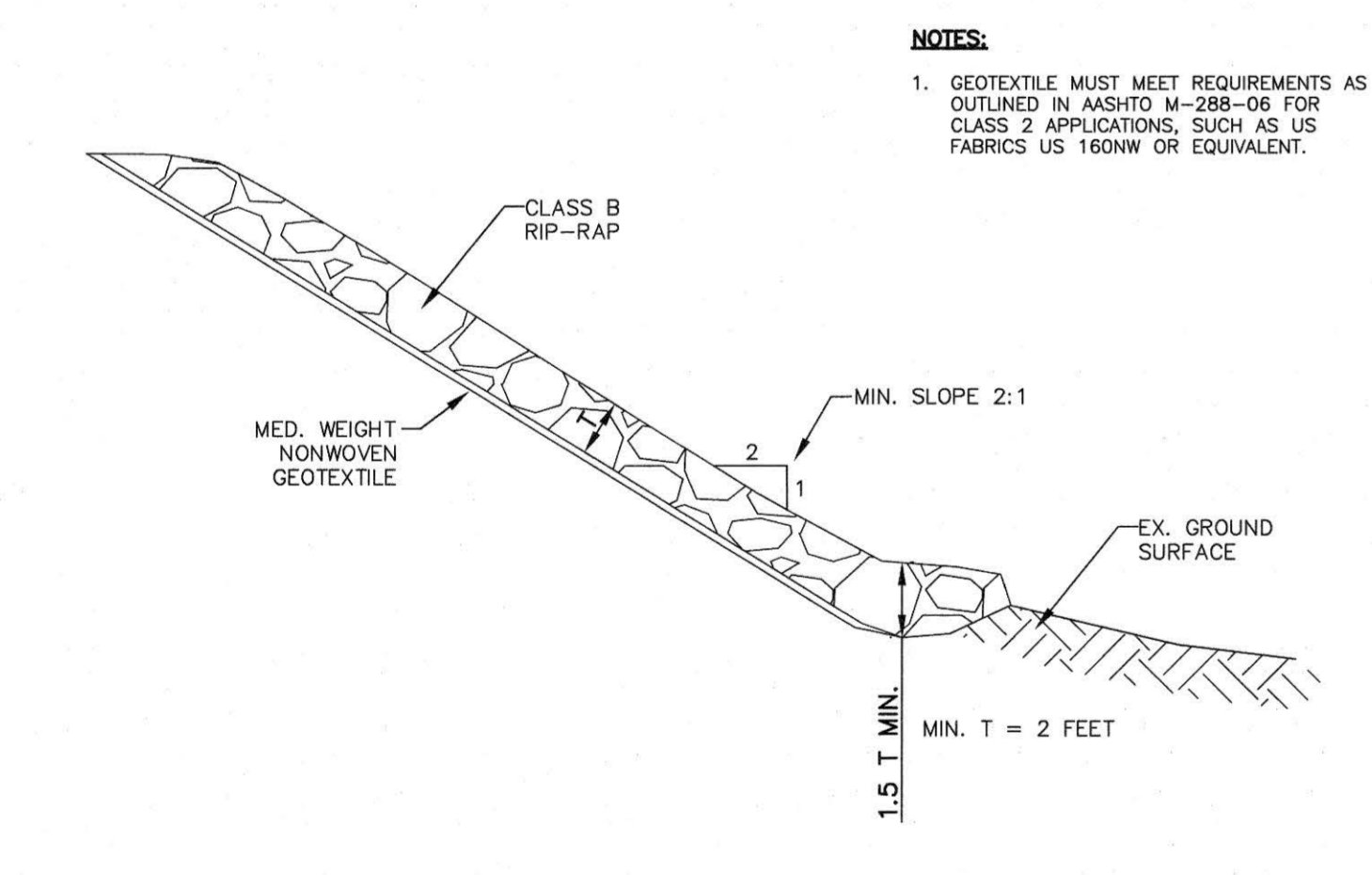
EC-7 TEMP. SILT/TREE PROTECTION FENCE

N.T.S.



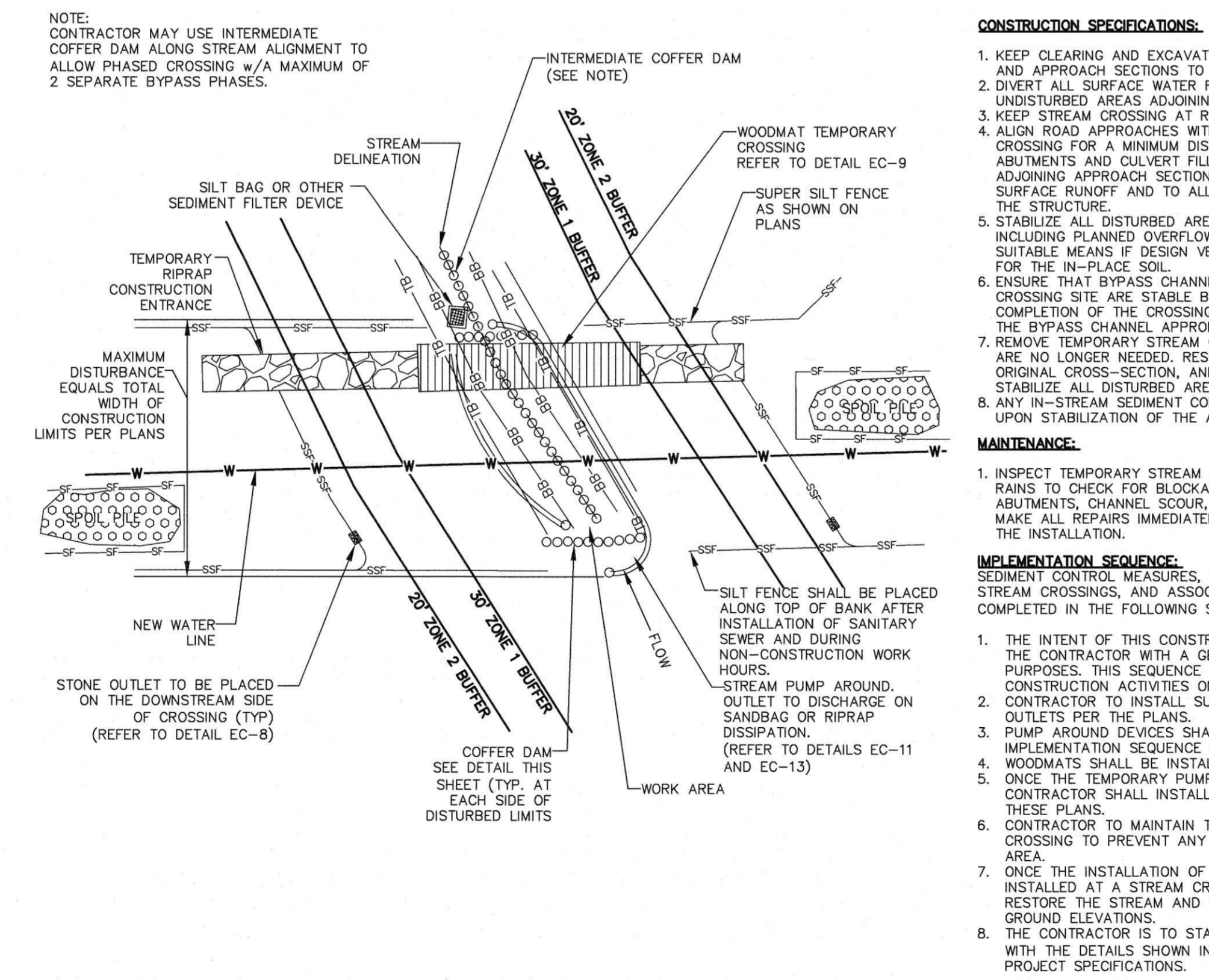
EC-8 SILT FENCE OUTLET

N.T.S.



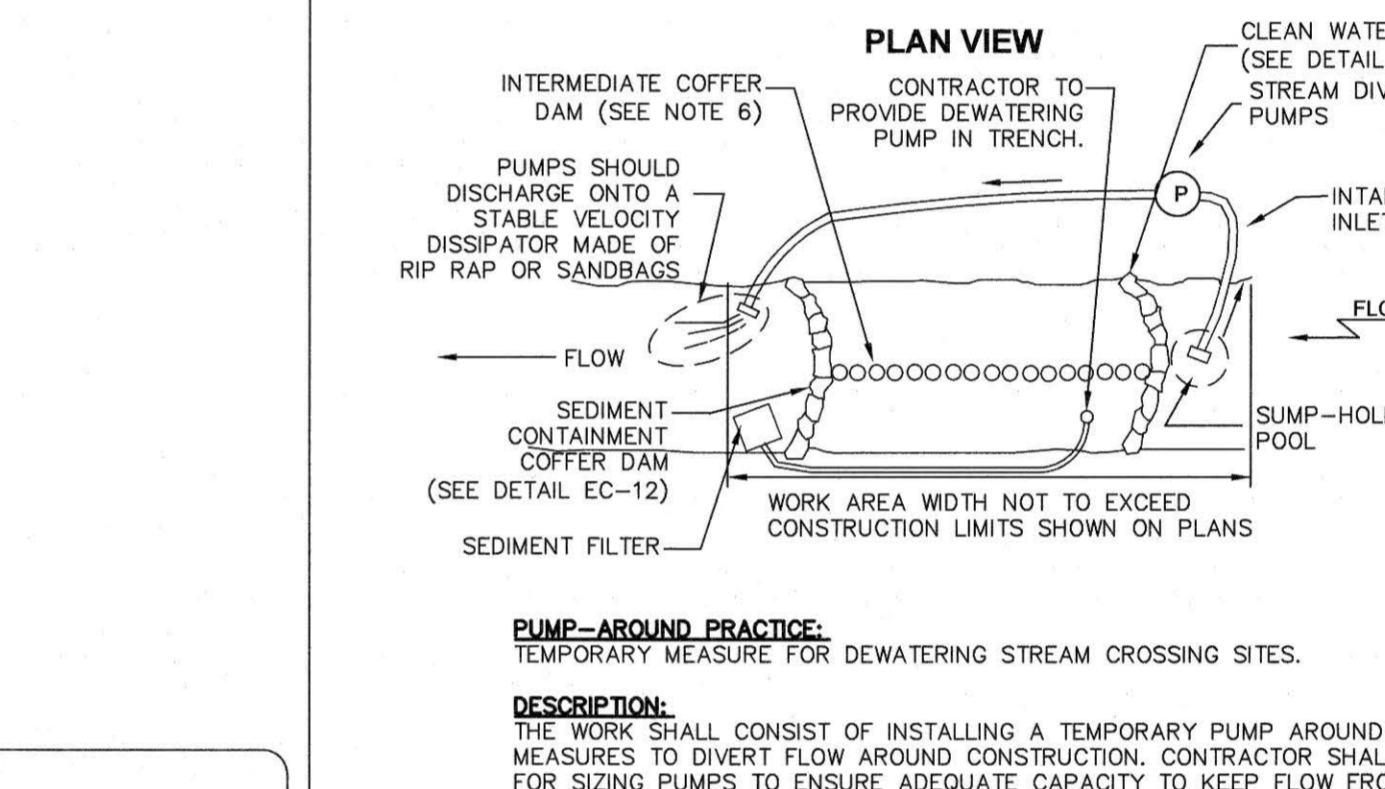
EC-15 RIP-RAP SLOPE STABILIZATION DETAIL

N.T.S.



EC-10 TEMPORARY STREAM CROSSING LAYOUT

N.T.S.



EC-11 COFFER DAM FOR TEMP. STREAM CROSSING

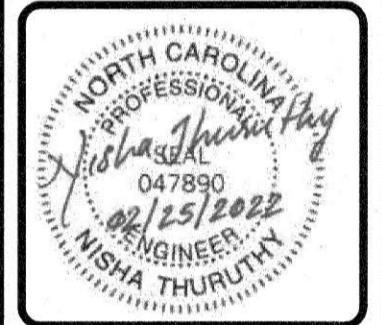
N.T.S.

DATE	2020 JUN
BY	FOR CONSTRUCTION
DATE	08-22-21
BY	NOT FOR CONSTRUCTION
DATE	08-03-21
BY	FOR SUBMITTAL
DATE	08-03-21
BY	FOR SUBMITTAL
DATE	08-10-21
BY	FOR PRELIMINARY
DATE	08-24-21
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DATE	08-25-22
BY	FOR PRELIMINARY

D6

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**SHADOWLAWN AERIAL CROSSING
SEWER REPLACEMENT**

**EROSION AND SEDIMENT CONTROL DETAILS
100% DESIGN**

- NOTES:**
- GEOTEXTILE MUST MEET REQUIREMENTS AS OUTLINED IN ASHTO M-288-86 FOR CLASS 2 APPLICATIONS, SUCH AS US FABRICS US 160N OR EQUIVALENT.

- CONSTRUCTION SPECIFICATIONS:**
- KEEP CLEARING AND EXCAVATION OF THE STREAM BANKS AND BED AND APPROACH SECTIONS TO A MINIMUM UNDISTURBED AREAS ADJOINING THE STREAM.
 - KEEP STREAM CROSSING AT RIGHT ANGLES TO THE STREAM FLOW.
 - KEEP ROAD APPROACHES WITH THE CENTER LINE OF THE CROSSING FOR A MINIMUM DISTANCE OF 30 FEET. RAISE BRIDGE ABUTMENTS AND CULVERT FILLS A MINIMUM OF 1 FOOT ABOVE THE ADJOINING APPROACH SECTIONS TO PREVENT EROSION FROM SURFACE RUNOFF AND TO ALLOW FLOOD FLOWS TO PASS AROUND THE STRUCTURE.
 - STABILIZE ALL DISTURBED AREAS SUBJECT TO FLOWING WATER, INCLUDING PLANNED OVERFLOW AREAS, WITH RIPRAP OR OTHER SUITABLE MEANS IF DESIGN VELOCITY EXCEEDS THE ALLOWABLE FOR THE IN-PLACE CHANNEL.
 - ENSURE THAT BYPASS CHANNELS NECESSARY TO DEWATER THE CROSSING SITE ARE STABLE BEFORE DIVERTING THE STREAM. UPON COMPLETION OF THE CROSSING, FILL, COMPACT, AND STABILIZE THE BYPASS CHANNEL APPROPRIATELY.
 - REMOVE TEMPORARY STREAM CROSSINGS IMMEDIATELY WHEN THEY ARE NO LONGER NEEDED. RESTORE THE STREAM CHANNEL TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILIZE ALL DISTURBED AREAS.
 - ANY IN-STREAM SEDIMENT CONTROL MEASURES MUST BE REMOVED UPON STABILIZATION OF THE AREA.
- MAINTENANCE:**
- INSPECT TEMPORARY STREAM CROSSINGS AFTER RUNOFF-PRODUCING RAINS TO CHECK FOR BLOCKAGE IN CHANNEL, EROSION OF ABUTMENTS, CHANNEL SCOUR, RIPRAP DISPLACEMENT, OR PIPING. MAKE ALL REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.
- IMPLEMENTATION SEQUENCE:**
- THE INTENT OF THIS CONSTRUCTION SEQUENCE IS TO PROVIDE THE CONTRACTOR WITH A GENERAL GUIDE FOR CONSTRUCTION PURPOSES. THIS SEQUENCE IS NOT INTENDED TO OUTLINE ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
 - CONTRACTOR TO INSTALL SUPER SILT FENCE AND SILT FENCE OUTLETS PER THE PLANS.
 - PUMP AROUND DEVICES SHALL BE INSTALLED PER THE IMPLEMENTATION SEQUENCE SHOWN ON DETAIL EC-11.
 - WOODMATS SHALL BE INSTALLED PER DETAIL EC-9.
 - ONCE THE TEMPORARY PUMP AROUND HAS BEEN INSTALLED, THE CONTRACTOR SHALL INSTALL THE SEWER LINE AS SHOWN IN THESE PLANS.
 - CONTRACTOR TO MAINTAIN THE PUMP AROUND AT EACH STREAM CROSSING TO PREVENT ANY SEDIMENT FROM LEAVING THE WORK AREA.
 - ONCE THE INSTALLATION OF THE WATER LINE HAS BEEN INSTALLED AT A STREAM CROSSING, THE CONTRACTOR IS TO RESTORE THE STREAM AND BANKS TO PRE-CONSTRUCTION GROUND ELEVATIONS.
 - THE CONTRACTOR IS TO STABILIZE THE SLOPES IN ACCORDANCE WITH THE DETAILS SHOWN IN THESE PLANS (EC-14) AND THE PROJECT SPECIFICATIONS.

- INSTALLATION NOTES:**
- REFER TO "NORTH CAROLINA DIVISION OF FOREST RESOURCES" LITERATURE, INSTALLATION MAINTENANCE GUIDELINES, & "NORTH CAROLINA FORESTRY BMP MANUAL-2006".
 - INSTALL WATER DIVERSION DEVICES (WATER BARS, TURNOUTS, BROAD-BASED DIPS, ETC.) ON BOTH SIDES OF THE MATS.
 - STABILIZE EXPOSED MINERAL SOIL WITH TREE TOPS OR BRUSH DURING MAT INSTALLATION, AND SEEDING/MULCH AFTER MAT REMOVAL.
 - INSTALL MATS TO CREATE A MINIMUM TEN FOOT BRIDGE WIDTH.
 - INCLUDE COARSE AGGREGATE ON THE APPROACHWAY FOR A MINIMUM OF 25 FEET AND SILT FENCE ALONG STREAMBANKS ADJACENT TO CROSSING FOR A MINIMUM OF 25 FEET.
- MAINTENANCE NOTES:**
- KEEP MATS' SURFACE FREE OF MINERAL SOIL AND DEBRIS THAT COULD ENTER STREAM.
 - PERIODICALLY CHECK MAT HARDWARE: RETIGHTEN NUTS & CABLE CLAMPS AS NECESSARY TO MAINTAIN BRIDGE STRENGTH AND INTEGRITY.
 - IMMEDIATELY REMOVE ANY DEBRIS WHICH ENTERS THE STREAM AT THE CROSSING LOCATION.
- REMOVAL NOTES:**
- CLEAN OFF BRIDGE SURFACE.
 - REMOVE MATS BY USING MAT CABLE LOOP OR SKIDDER GRAPPLE.
 - PERMANENTLY STABILIZE DISTURBED PORTIONS OF STREAMBANK AND APPROACH ROADS WITH PERENNIAL GRASSES/MULCH (OR WETLAND MIX WHEN APPLICABLE).
 - LEAVE APPROPRIATE WATER DIVERSION STRUCTURES IN PLACE ON BOTH SIDES OF STREAM.
 - RESTORE THE STREAM CHANNEL TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILIZE ALL DISTURBED AREAS.

- PUMP-AROUND PRACTICE:**
TEMPORARY MEASURE FOR DEWATERING STREAM CROSSING SITES.
- DESCRIPTION:**
THE WORK SHALL CONSIST OF INSTALLING A TEMPORARY PUMP AROUND AND SUPPORTING MEASURES TO DIVERT FLOW AROUND CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING PUMPS TO ENSURE ADEQUATE CAPACITY TO KEEP FLOW FROM ENTERING WORK AREA.
- IMPLEMENTATION SEQUENCE:**
SEDIMENT CONTROL MEASURES, PUMP-AROUND PRACTICES, AND ASSOCIATED CONSTRUCTION SHALL BE COMPLETED IN THE FOLLOWING SEQUENCE (REFER TO DETAIL).
- COFFER DAMS SHALL BE SITUATED AT THE ENDS OF THE WORK AREA AS SHOWN ON THE PLANS (REFER TO DETAIL EC-12), AND WATER ON THE UPSIDE OF THE DAM AREA SHALL BE PUMPED AROUND THE WORK AREA.
 - THE DIVERSION PUMPS SHALL DISCHARGE ONTO A STABLE VELOCITY DISSIPATER MADE OF RIP-RAP OR SANDBAGS.
 - WATER FROM THE WORK AREA SHALL BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A TEMPORARY WOOD CHIP DEWATERING BASIN, SILT BAG OR OTHER APPROVED SEDIMENT FILTERING MEASURE (REFER TO DETAIL EC-13).
 - AFTER THE WATER MAIN IS INSTALLED AND THE SLOPES HAVE BEEN STABILIZED, THE PUMP INTAKE HOSES, DISSIPATOR PADS AND FILTER MEASURES SHALL BE REMOVED AND THEN THE COFFER DAMS SHALL BE REMOVED.
 - A PUMP AROUND MUST BE INSTALLED ON ANY TRIBUTARY OR STORM DRAIN OUTFALL WHICH CONTRIBUTES BASEFLOW TO THE WORK AREA. THIS SHALL BE ACCOMPLISHED BY LOCATING A COFFER DAM AT THE DOWNSTREAM END OF THE TRIBUTARY OR STORM DRAIN OUTFALL AND PUMPING THE STREAM FLOW AROUND THE WORK AREA. THIS WATER SHALL DISCHARGE ONTO THE SAME VELOCITY DISSIPATER USED FOR THE MAIN STREAM PUMP AROUND.
 - CONTRACTOR MAY USE INTERMEDIATE COFFER DAM ALONG STREAM ALIGNMENT TO ALLOW PHASED CROSSING W/A MAXIMUM OF 2 SEPARATE BYPASS PHASES.

- NOTES:**
- GEOTEXTILE MUST MEET REQUIREMENTS AS OUTLINED IN ASHTO M-288-86 FOR CLASS 2 APPLICATIONS, SUCH AS US FABRICS US 160N OR EQUIVALENT.

RECEIVED

MAR -1 2022

WATER RESOURCES ENGINEERING

FAZETTEVILLE
PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING

P.O. Box 1088 Fayetteville, NC 28402
955 Old Wilmington Road, Fayetteville, NC 28301

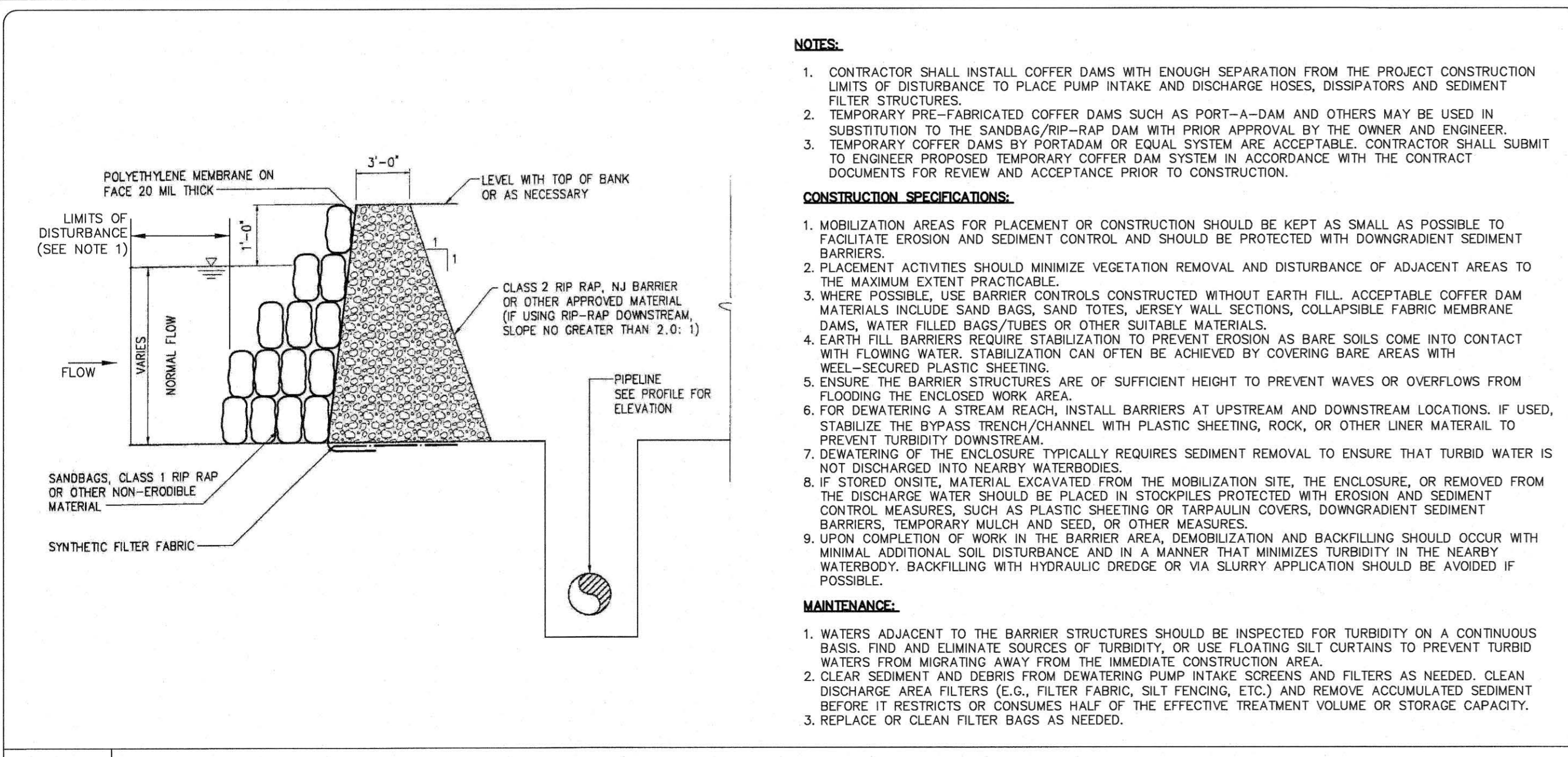
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EC-15 RIP-RAP SLOPE STABILIZATION DETAIL

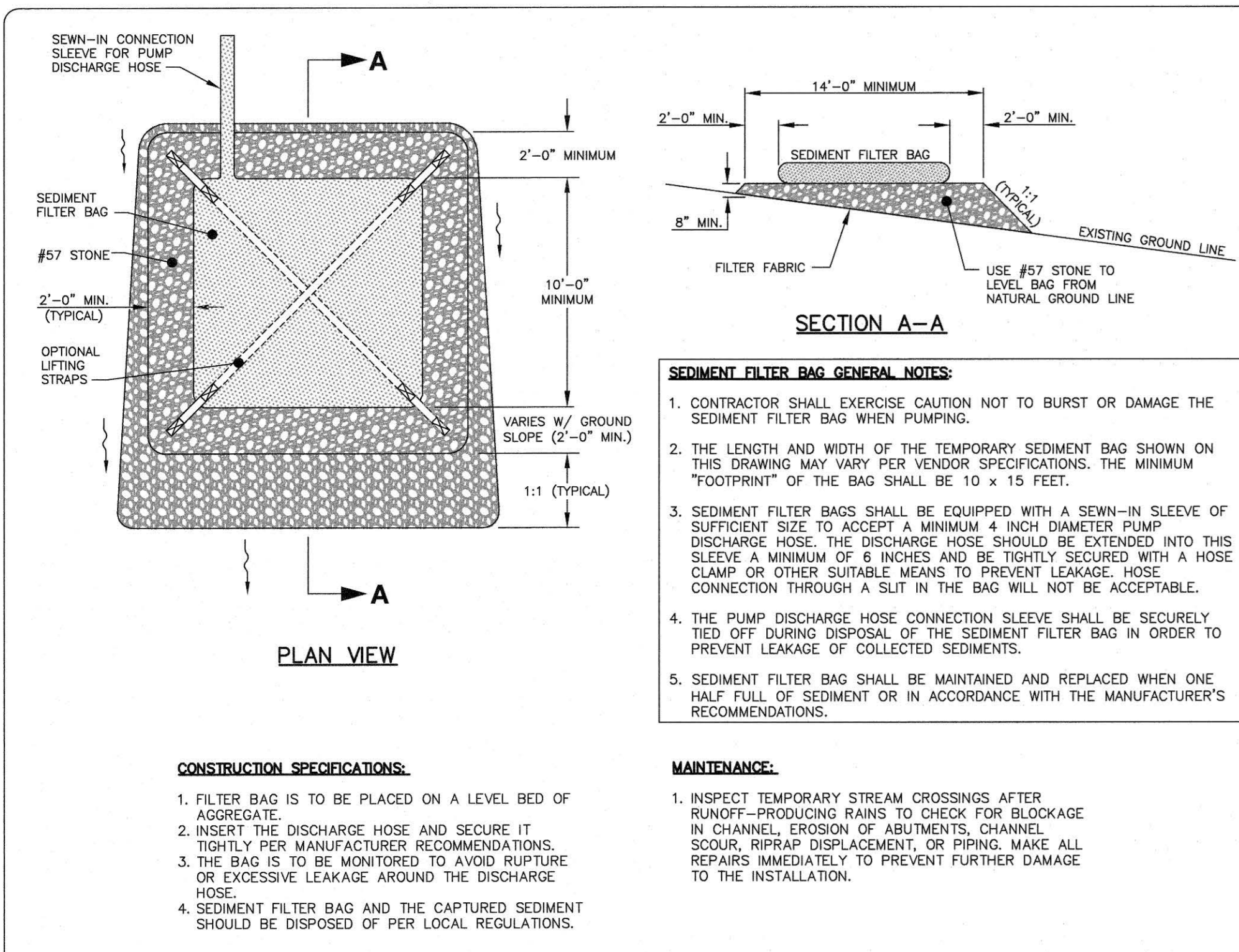
EC-10 TEMPORARY STREAM CROSSING LAYOUT

EC-11 COFFER DAM FOR TEMP. STREAM CROSSING



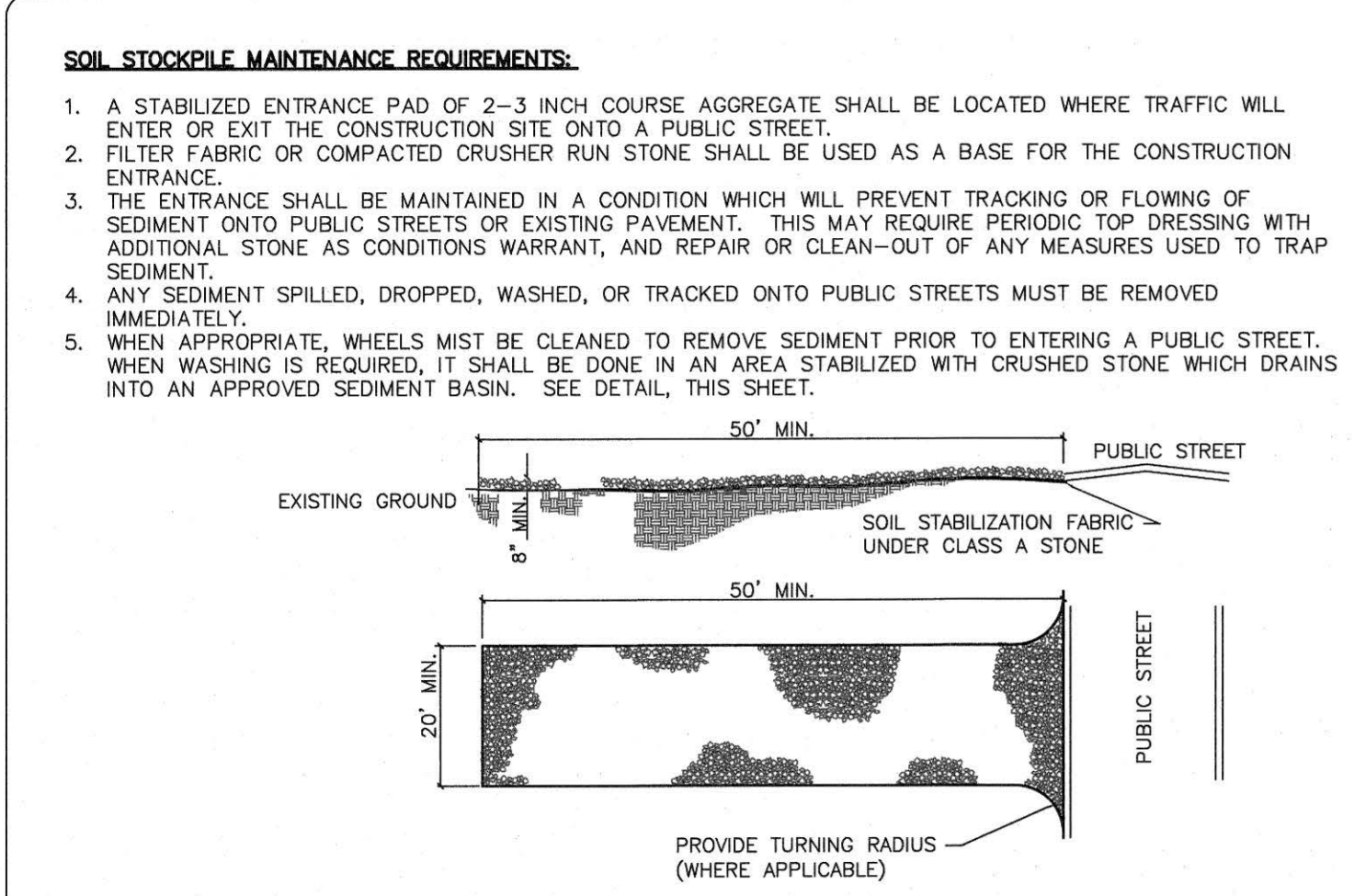
EC-12 COFFER DAM DETAIL

N.T.S.



EC-13 SEDIMENT FILTER BAG WITH GRAVEL PAD

N.T.S.



EC-14 TEMP. CONSTRUCTION ENTRANCE

N.T.S.

SECTION E: GROUND STABILIZATION	
Site Area Description	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7
(b) High Quality Water (HQW) Zones	7
(c) Slopes steeper than 3:1	7
(d) Slopes 3:1 to 4:1	14
(e) Areas with slopes flatter than 4:1	14

Notes: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION	
Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> Temporary grass seed covered with straw or other mulches and tackifiers Hydroseeding Rollered erosion control products with or without temporary grass seed Appropriately applied straw or other mulch Plastic sheeting 	<ul style="list-style-type: none"> Permanent grass seed covered with straw or other mulches and tackifiers Geotextile fabrics such as permanent soil reinforcement matting Hydroseeding Shrubs and other permanent plantings covered with mulch Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls Rollered erosion control products with grass seed

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING	
Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date of each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date of a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date of a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING	
Item to Document	Documentation Requirements
(a) Visible sediment deposition in a stream or wetland.	Initial and date of each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) Oil spills if:	Initial and date of a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.	Initial and date of a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) Anticipated bypasses and unanticipated bypasses.	Complete, date and sign an inspection report.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment.	Initial and date of a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING	
Item to Document	Documentation Requirements
(a) Visible sediment deposition in a stream or wetland.	Initial and date of each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above.	Initial and date of a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)].	Complete, date and sign an inspection report.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)].	Initial and date of a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(i)(7)].	Initial and date of a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

PART II, SECTION 6, ITEM (4) DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT	
(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these terms.	
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit.	
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems.	
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above.	
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and	
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.	

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING	
Item to Document	Documentation Requirements
(a) Visible sediment deposition in a stream or wetland.	Initial and date of each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above.	Initial and date of a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)].	Complete, date and sign an inspection report.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)].	Initial and date of a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(i)(7)].	Initial and date of a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

DATE: 2020 JUN
SUBMITTER: MCK&C
DRAWN BY: MHP
CHECKED BY: NT
SCALE: HOR: 1"=10' VERT: 1"=10'

18 OF 18

SHADOWLAWN AERIAL CROSSING SEWER REPLACEMENT EROSION AND SEDIMENT CONTROL DETAILS 100% DESIGN

FAYETTEVILLE PUBLIC WORKS COMMISSION WATER RESOURCES ENGINEERING
905 Old Wilmington Road, Fayetteville, NC 28301

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