

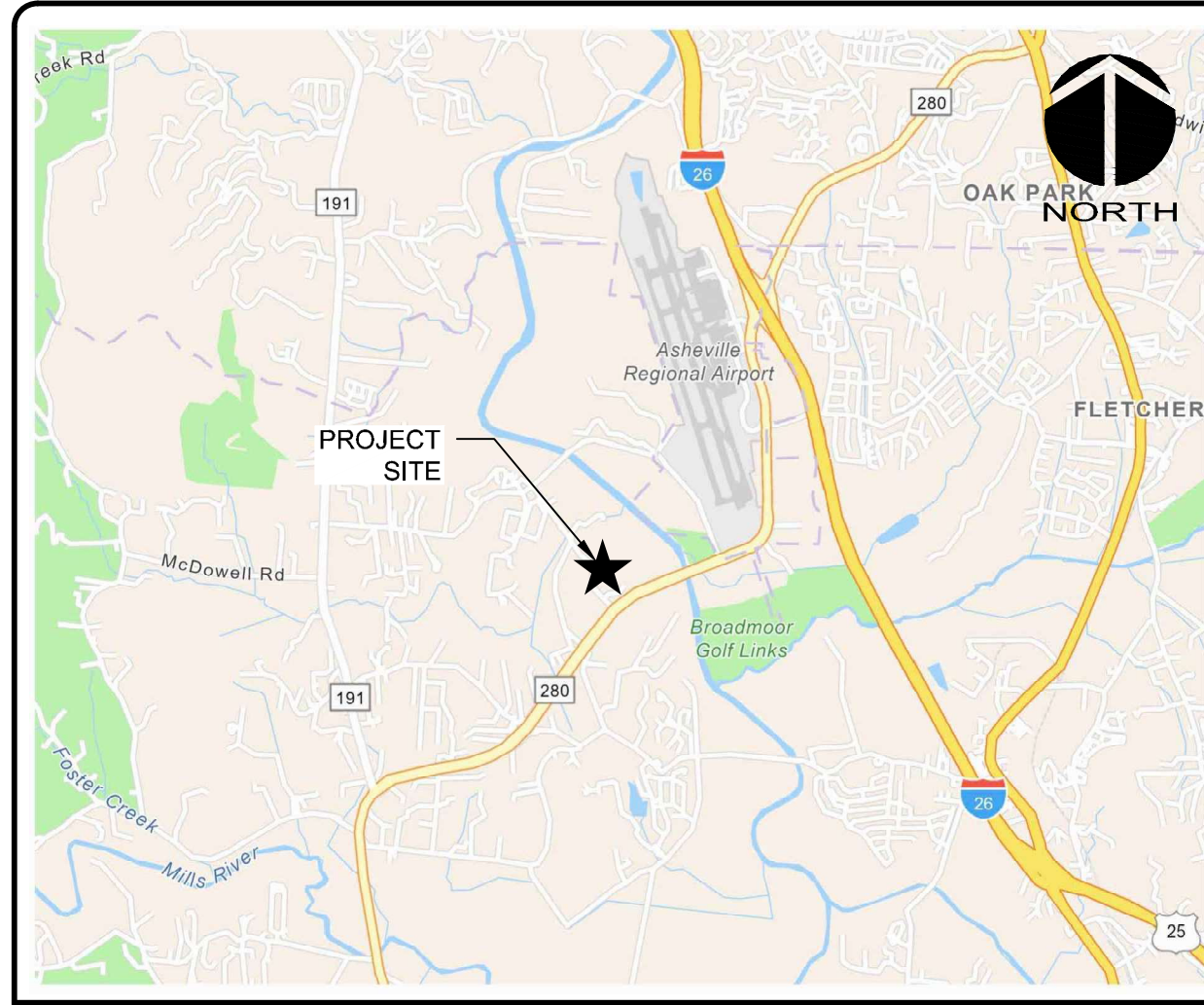
ITT PUMP STATION REPLACEMENT

MSD PROJECT NO. 2020061

M&C PROJECT NO. 09596-0001

JUNE 2026

ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION



VICINITY MAP NOT TO SCALE

PROJECT NAME: ITT PUMP STATION REPLACEMENT

OWNER
METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY
2028 RIVERSIDE DR
ASHEVILLE, NC 28804

PROJECT LOCATION
470 BROADPOINTE DR
FLETCHER, NC 28732



35 N Market Street
Asheville, North Carolina 28801
Phone: (828) 252-8181, Fax: (828) 252-8857

NC License# F-1222
www.mckimcreed.com



Know what's below.
Call before you dig.

PROJECT INFORMATION

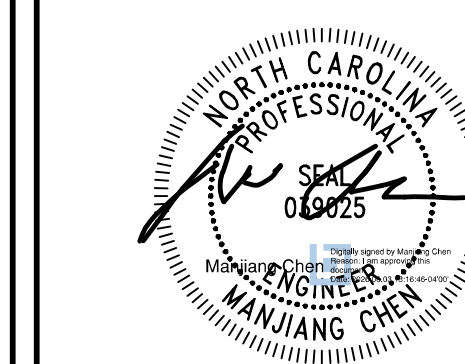


SITE MAP

SCALE: 1" = 200'

SHEET INDEX

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CDE04.1	EXISTING FORCE MAIN DEMOLITION
CDE05.1	GRAVITY SEWER DEMOLITION
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CU04.2	FORCE MAIN PLAN AND PROFILE STA. 10+00 - STA. 20+00
CU04.3	FORCE MAIN PLAN AND PROFILE STA. 20+00 - STA. 26+48
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SHEET INDEX

1 ABBREVIATIONS table listing various construction terms and their abbreviations such as ISFD, 1SBKBUS, AC, AL, etc.

1 ABBREVIATIONS CONTINUED table listing terms like RCP, REC, RED, RFCA, etc.

2 EXISTING SYMBOL LEGEND table with columns for DESCRIPTION and SYMBOL, listing items like WATER METER, WATER WELL, YARD HYDRANT.

3 EXISTING LINE LEGEND table with columns for DESCRIPTION and LINETYPE, listing items like UNDERGROUND CABLE TV, UNDERGROUND PER RECORD CABLE TV, etc.

4 PROPOSED SYMBOL LEGEND table with columns for DESCRIPTION and SYMBOL, listing items like 11.25' HORIZONTAL BEND, 22.50' HORIZONTAL BEND, etc.

5 PROPOSED LINE LEGEND table with columns for DESCRIPTION and LINETYPE, listing items like PERMANENT EASEMENT, TEMPORARY EASEMENT, etc.

5 PROPOSED LINE LEGEND table with columns for DESCRIPTION and LINETYPE, listing items like COMBINATION SILT FENCE/TREE PROTECTION, TEMPORARY SILT FENCE, etc.

6 PROFILE LINE LEGEND table with columns for DESCRIPTION and LINETYPE, listing items like EXISTING GRADE PAVEMENT PROFILE, EXISTING GRADE GROUND PROFILE, etc.

7 AREA LEGEND table with columns for DESCRIPTION and LINETYPE, listing items like WETLANDS, RIP-RAP, TEMP. SLOPE STABILIZATION, etc.

8 MECHANICAL SYMBOLS table with columns for VALVE SYMBOL and DESCRIPTION, listing items like BUTTERFLY VALVE, CHECK VALVE, GATE VALVE, etc.

9 CROSS-REF SYMBOLOGY table with symbols and descriptions for SECTION CUT SYMBOL, STRUCTURE / BUILDING ELEVATION, and DETAIL.

- 1 GENERAL NOTES section containing 24 numbered notes regarding contractor responsibilities, safety, utility protection, and construction requirements.

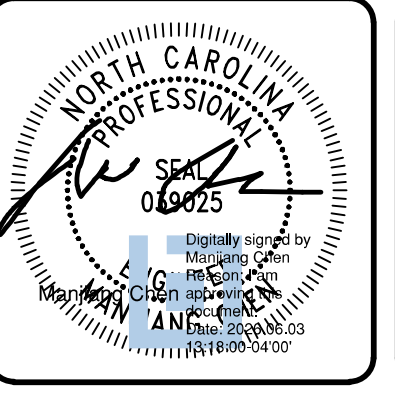
- 2 RESTORATION GENERAL NOTES section containing 4 numbered notes about replacing existing paving, restoring irrigation systems, and restoring disturbed areas.

- 3 SURVEYORS NOTES section containing 10 numbered notes about survey methods, bearings, and field conditions.

- 4 HYDROGRAPHIC NOTES section containing 10 numbered notes about elevations, datums, and surveying equipment.

- 5 CONSTRUCTION SEQUENCE section containing 14 numbered notes detailing the order of construction activities and specific installation instructions.

REVISIONS table with columns for REV. NO., DESCRIPTION, and DATE, including a note 'ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION'.



MCKIM & CREED logo and contact information: 35 N Market Street, Asheville, North Carolina 28801.

METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY logo and name.

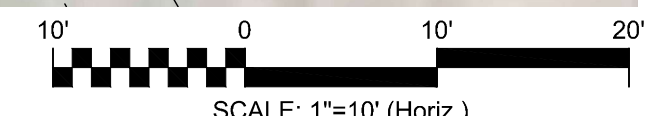
ITT PUMP STATION REPLACEMENT LEGEND AND NOTES section including a table with SCALE, HORIZONTAL, and VERTICAL settings, and a G01.0 DRAWING NUMBER.



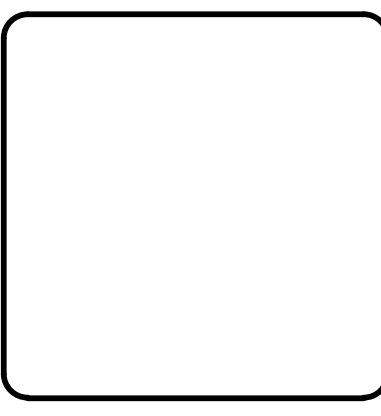
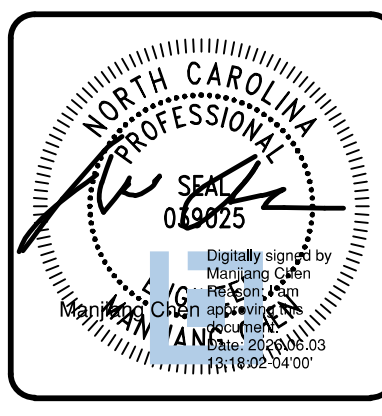
NOTES:

1. THE EXISTING PUMP STATION SHALL REMAIN OPERATION DURING THE CONSTRUCTION. BY-PASS PUMPING IS ALLOWED AS SPECIFIED IN SECTION 11500 TEMP WW BYPASS PUMPING SYSTEMS AND INCLUDED IN CONTRACTOR'S BID PRICE.
2. CONTRACTOR SHALL COORDINATE BYPASS PUMPING WITH MSD PRIOR TO COMMENCING.
3. DEMOLITION OF EXISTING PUMP STATION SHALL OCCUR AFTER PROPOSED PUMP STATION, FORCE MAIN, AND GRAVITY SEWER ARE COMPLETED, TESTED AND IN SERVICE. RIVER WATER IS ACCEPTABLE FOR TESTING THE PROPOSED PUMP STATION, FORCE MAIN, AND GRAVITY MAIN.
4. CONTRACTOR IS ADVISED TO INSPECT STATION SITE AS NECESSARY TO UNDERSTAND THE SCOPE OF DEMOLITION WORK AND EXISTING CONDITIONS. NO ADDITIONAL PAYMENT WILL BE RECOMMENDED BY ENGINEER TO OWNER TO COVER THE COST OF DEMOLITION AND REMOVAL OF EXISTING ITEMS NOT SHOWN OR DETAILED HEREIN BUT NECESSARY FOR THE COMPLETION OF THE WORK.
5. PRIOR TO DEMOLITION AND SALVAGE ACTIVITIES, CONTRACTOR SHALL COMPLETELY EMPTY STRUCTURE OF ALL SEWAGE AND SEWAGE RELATED DEBRIS. SEWAGE AND SEWAGE RELATED DEBRIS SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL GOVERNMENT REQUIREMENTS. AFTER REMOVAL, CONTRACTOR SHALL SANITIZE THE ENTIRE FACILITY BY WASHING EQUIPMENT, PIPING, AND ETC. PREVIOUSLY EXPOSED TO SEWAGE WITH A MIXTURE OF CHLORINE AND WATER TO THE SATISFACTION OF OWNER.
6. PRIOR TO DEMOLITION
 - a. SALVAGE OPERATIONS SHALL BE CONDUCTED. CONTRACTOR SHALL SALVAGE, REMOVE, AND DELIVER TO OWNER ITEMS LISTED IN NOTE 9. ITEMS NOT LISTED MAY BE SALVAGED BY CONTRACTOR.
 - b. ALL PIPE ENTERING AND EXISTING THE STRUCTURE SHALL BE DISCONNECTED FROM THE STRUCTURE. PIPING SHALL BE FILLED SOLID WITH WATERTIGHT MASONRY PLUG A MINIMUM DISTANCE OF ONE PIPE DIAMETER PLUS 12 INCHES.
 - c. POTABLE WATER SERVICE TO THE EXISTING PUMP STATION SHALL BE DISCONNECTED AND REROUTED TO PROPOSED PUMP STATION WHEN PROPOSED PUMP STATION AND FORCE MAIN ARE COMPLETED, TESTED AND IN SERVICE.
7. PUMP STATION AND ALL CONNECTED DEVICES AND MATERIALS LOCATED WITHIN A 3' DEPTH BELOW GRADE ARE TO BE DEMOLISHED AND REMOVED. ALL VOIDS AND RECESSES BELOW GRADE ARE TO BE FILLED WITH STRUCTURAL OR NON-COMPRESSIBLE FILL.
8. ALL ABANDONED PIPES THAT WILL REMAIN IN GROUND ARE TO BE PLUGGED PER THE ABANDONMENT DETAIL.
9. REMOVE AND SALVAGE ELECTRIC PANELS AND COVER, GENERATOR, AND PUMPS. GENERATOR SHALL BE RELOCATED TO THE NEW PUMP STATION.
10. DEMOLISH ARV MANHOLES.
11. AFTER DEMOLITION ACTIVITIES ARE COMPLETED, VOIDS AND RECESSES BELOW GROUND ARE TO BE FILLED WITH STRUCTURAL OR NON-COMPRESSIBLE FILL.
12. THE CONTRACTOR IS PERMITTED TO RE-GRADE THE EXISTING PUMP STATION SITE, USING MATERIAL FROM THE EXISTING SITE TO FILL THE WET WELL.
13. PERFORM ALL WORK WITHIN THE EXISTING RIGHT-OF-WAY AND EASEMENT, UNLESS OTHERWISE SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER.
14. MH 49-481331 IS LOCATED APPROXIMATELY 355 FT SOUTHWEST OF MH 49-481330, ALONG THE EXISTING ACCESS ROAD.

DEMOLITION SITE PLAN
HORIZ. SCALE: 1"=10'



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0	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026
REVISIONS		

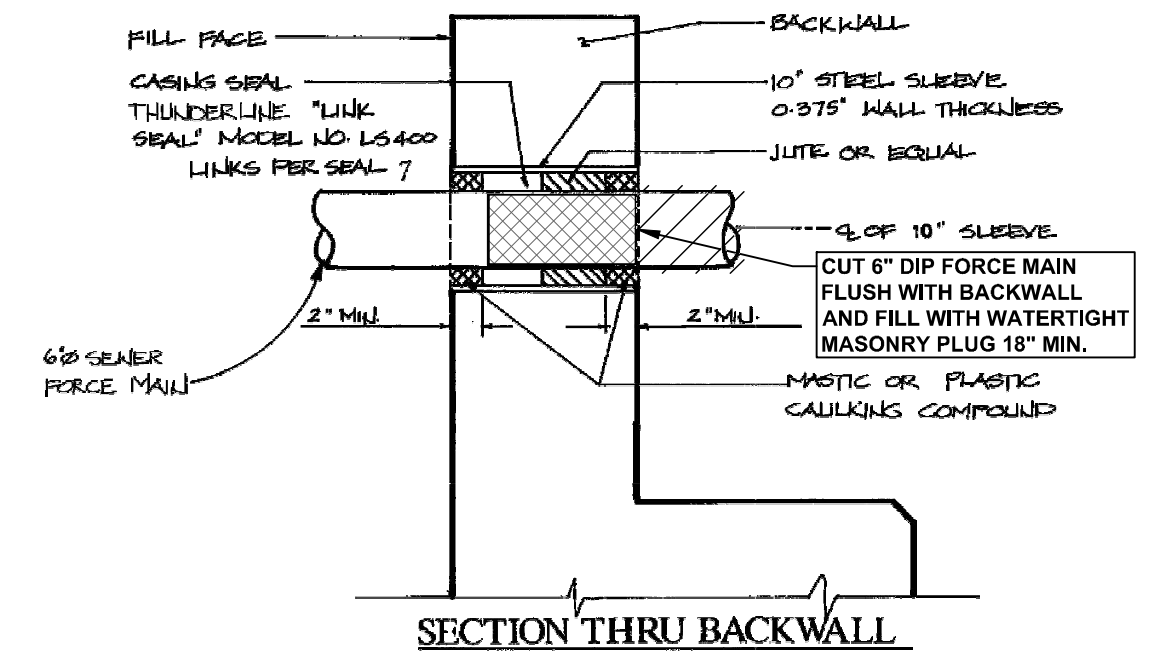
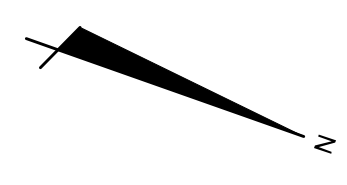
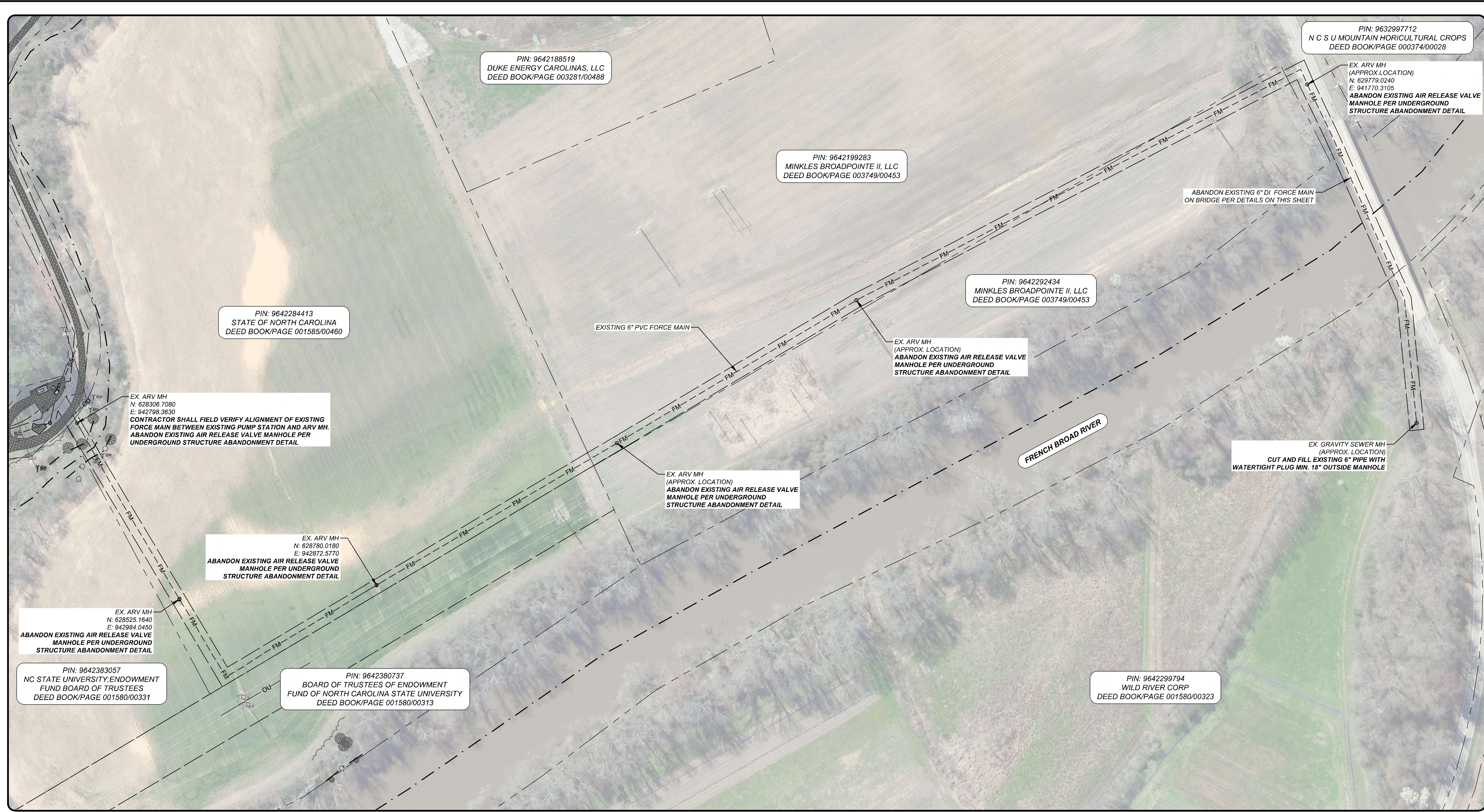


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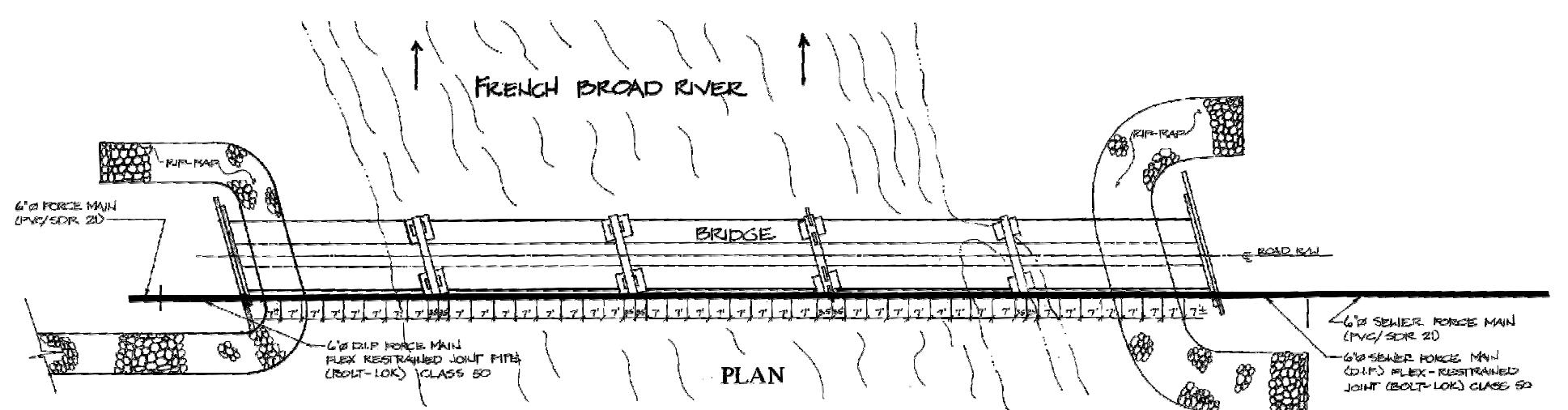
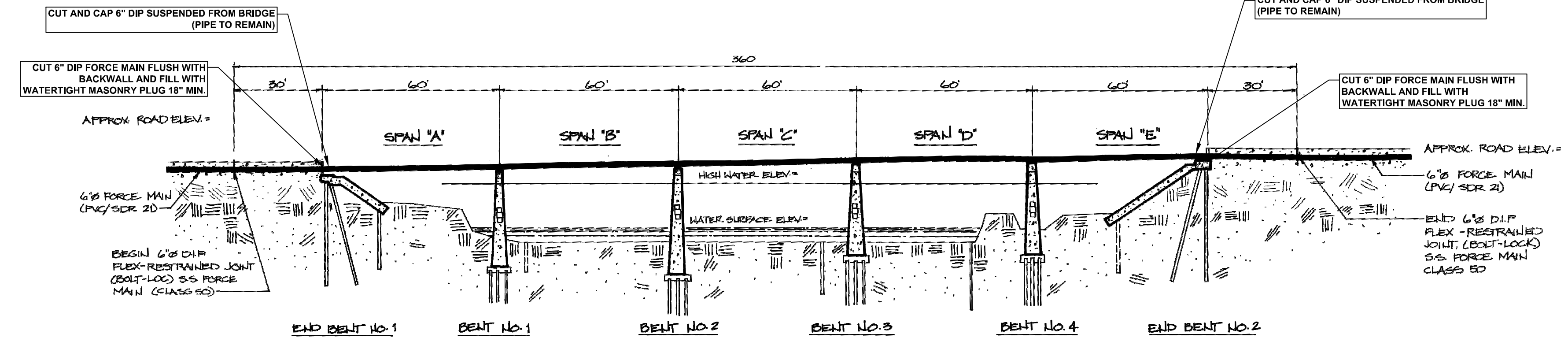
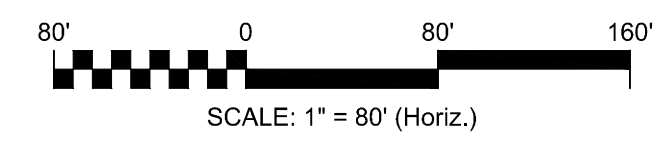
ITT PUMP STATION REPLACEMENT
CIVIL
EXISTING SITE DEMOLITION

PROJ. START DATE: 2024 MAR 09	SCALE: 1"=10'	HORIZONTAL: 1"=10'	VERTICAL: N/A	DRAWING NUMBER: CDE01.1
DESIGNED: MC	CHECKED: MC			
STATUS: NOT RELEASED FOR CONSTRUCTION	ISSUED FOR BID			



BACKWALL DETAIL
N.T.S.
EXISTING 6" DI FORCE MAIN BRIDGE BACKWALL PENETRATION DETAIL
(1997 WGLA RECORD DRAWINGS, N.T.S.)

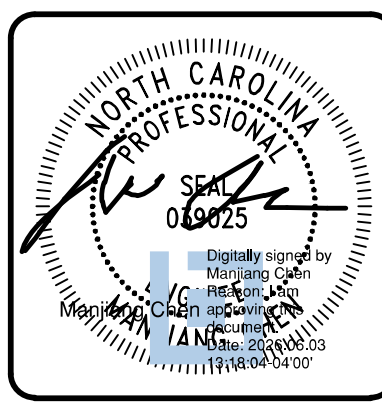
EXISTING FORCE MAIN AND ARV DEMOLITION
HORIZ. SCALE: 1" = 80'



SECTION ALONG BRIDGE

EXISTING 6" DI FORCE MAIN ON BRIDGE
(1997 WGLA RECORD DRAWINGS, N.T.S.)

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REVISIONS		

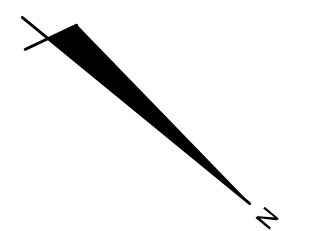


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ITT PUMP STATION REPLACEMENT
CIVIL
EXISTING FORCE MAIN DEMOLITION

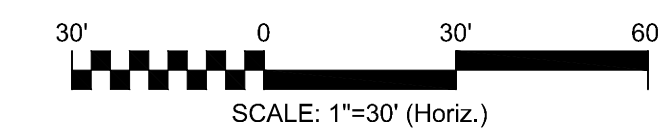
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SCALE: 1" = 80' HORIZONTAL: 1" = 80' VERTICAL: N/A	DRAWING NUMBER: CDE04.1 REVISION: 0



PIN: 9642383057
 THE BOARD OF TRUSTEES OF THE
 ENDOWMENT FUND OF NORTH
 CAROLINA STATE UNIVERSITY
 AT RALEIGH
 ADDRESS N/A
 DB 1580 PG 331
 PB 2014 PG 9331

PIN: 9642275609
 UPM-RAFLATAC, INC.
 400 BROADPOINTE DR
 DB 970 PG 405
 PB 1988 PG 405

PLAN VIEW
 HORIZ. SCALE: 1"=30'



NOTE:

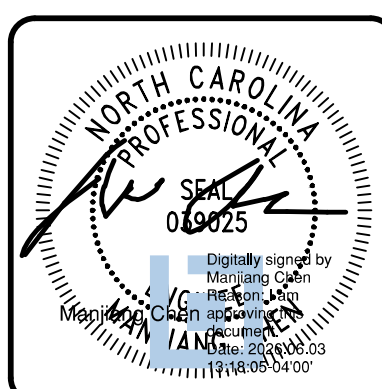
1. EXISTING 24" DIP SEWER LINE SHALL BE DEMOLISHED PRIOR TO THE INSTALLATION OF THE PROPOSED SEWER LINE. BYPASS PUMPING SHALL BE PROVIDED WITHOUT THE INTERRUPTION OF EXISTING SEWER SERVICE.
2. ALL ABANDONED PIPES THAT WILL REMAIN IN GROUND ARE TO BE PLUGGED PER THE ABANDONMENT DETAIL SHOWN ON MD01.2.
3. PERFORM ALL WORK WITHIN THE EXISTING RIGHT-OF-WAY AND EASEMENT, UNLESS OTHERWISE SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER.
4. ALTHOUGH SHOWN AS EXISTING ON THESE PLANS, THE UNDERGROUND ELECTRICAL LINES ARE EXPECTED TO BE RELOCATED BY DUKE ENERGY IN ADVANCE OF OR CONCURRENT WITH CONSTRUCTION ACTIVITIES.

REV. NO.	DESCRIPTION	DATE

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REVISIONS

JUNE 2026



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ITT PUMP STATION REPLACEMENT

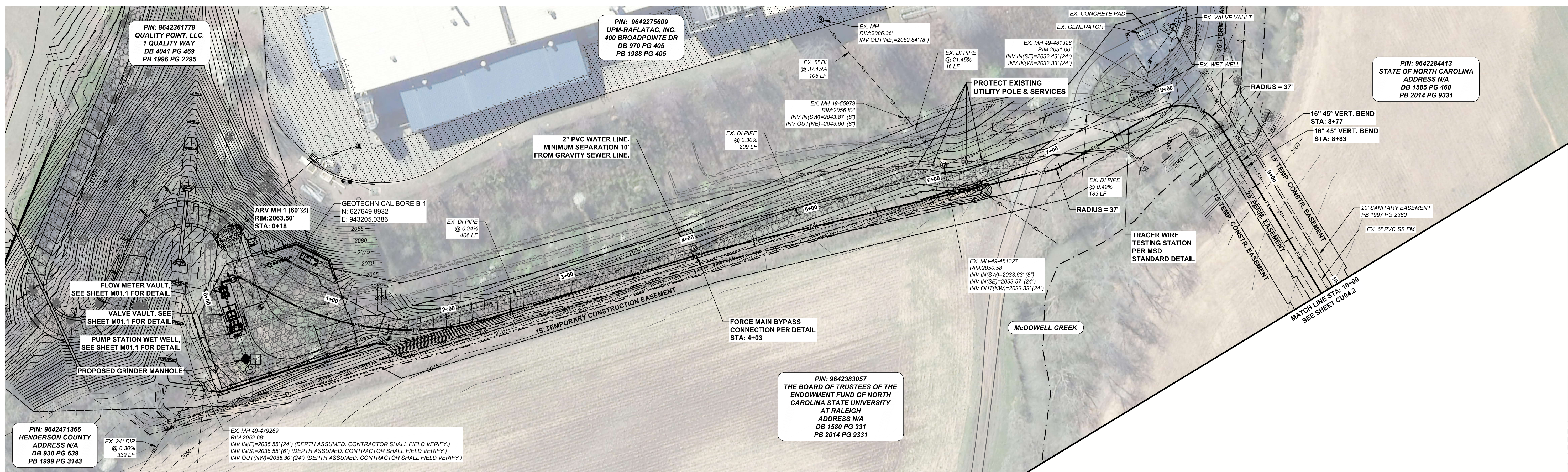
CIVIL

GRAVITY SEWER DEMOLITION

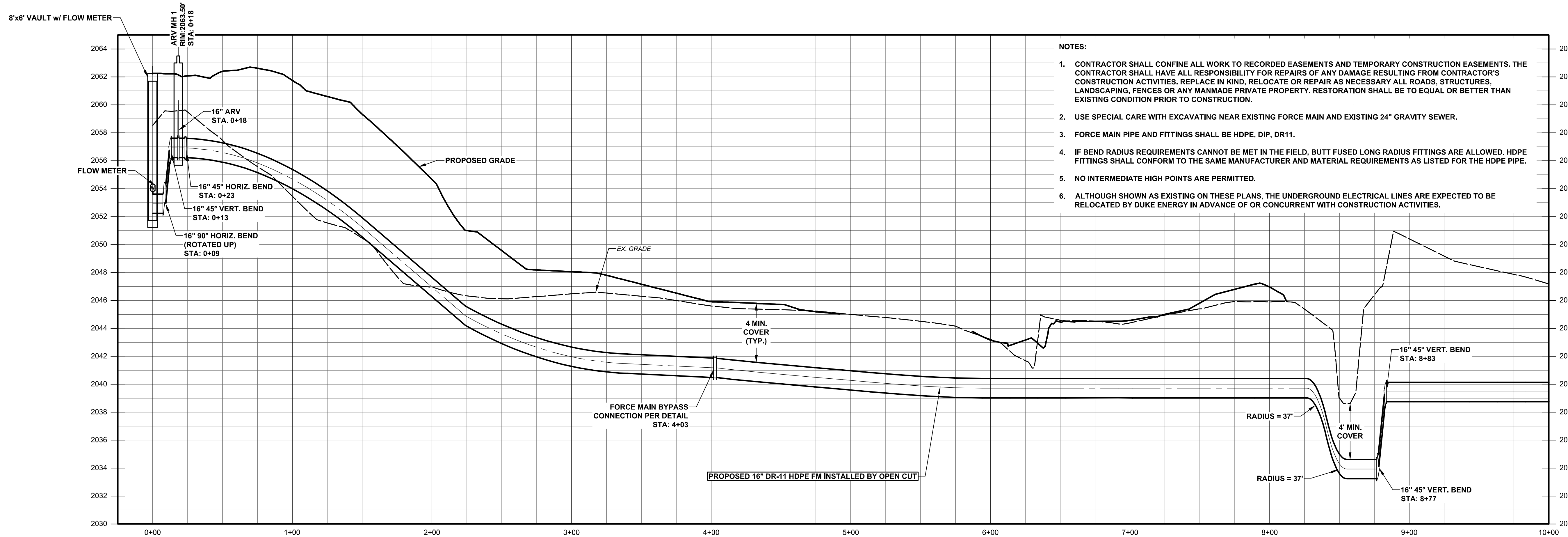
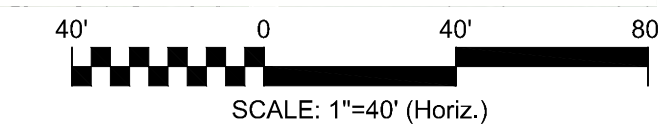
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DESIGNED: MC	HORIZONTAL: 1"=30'	
CHECKED: MC	VERTICAL: N/A	0
PROJ. MGR.: MC		REVISION

STATUS: ISSUED FOR BID

NOT RELEASED FOR CONSTRUCTION

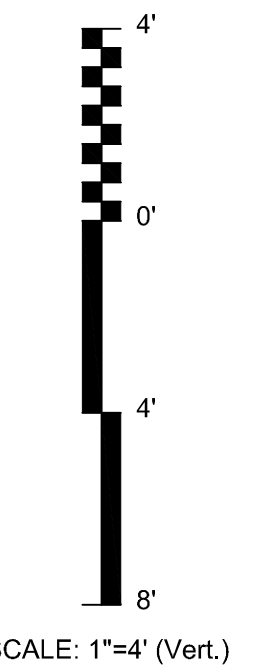


PLAN VIEW
HORIZ. SCALE: 1"=40'

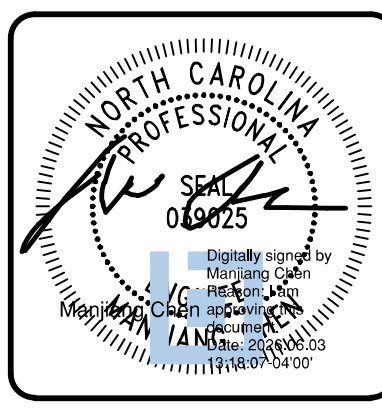


FORCE MAIN PROFILE VIEW
HORIZ. SCALE: 1"=40'
VERT. SCALE: 1"=4'

- NOTES:
- CONTRACTOR SHALL CONFINE ALL WORK TO RECORDED EASEMENTS AND TEMPORARY CONSTRUCTION EASEMENTS. THE CONTRACTOR SHALL HAVE ALL RESPONSIBILITY FOR REPAIRS OF ANY DAMAGE RESULTING FROM CONTRACTOR'S CONSTRUCTION ACTIVITIES. REPLACE IN KIND, RELOCATE OR REPAIR AS NECESSARY ALL ROADS, STRUCTURES, LANDSCAPING, FENCES OR ANY MANMADE PRIVATE PROPERTY. RESTORATION SHALL BE TO EQUAL OR BETTER THAN EXISTING CONDITION PRIOR TO CONSTRUCTION.
 - USE SPECIAL CARE WITH EXCAVATING NEAR EXISTING FORCE MAIN AND EXISTING 24" GRAVITY SEWER.
 - FORCE MAIN PIPE AND FITTINGS SHALL BE HDPE, DIP, DR11.
 - IF BEND RADIUS REQUIREMENTS CANNOT BE MET IN THE FIELD, BUTT FUSED LONG RADIUS FITTINGS ARE ALLOWED. HDPE FITTINGS SHALL CONFORM TO THE SAME MANUFACTURER AND MATERIAL REQUIREMENTS AS LISTED FOR THE HDPE PIPE.
 - NO INTERMEDIATE HIGH POINTS ARE PERMITTED.
 - ALTHOUGH SHOWN AS EXISTING ON THESE PLANS, THE UNDERGROUND ELECTRICAL LINES ARE EXPECTED TO BE RELOCATED BY DUKE ENERGY IN ADVANCE OF OR CONCURRENT WITH CONSTRUCTION ACTIVITIES.



REV. NO.	DESCRIPTION	DATE

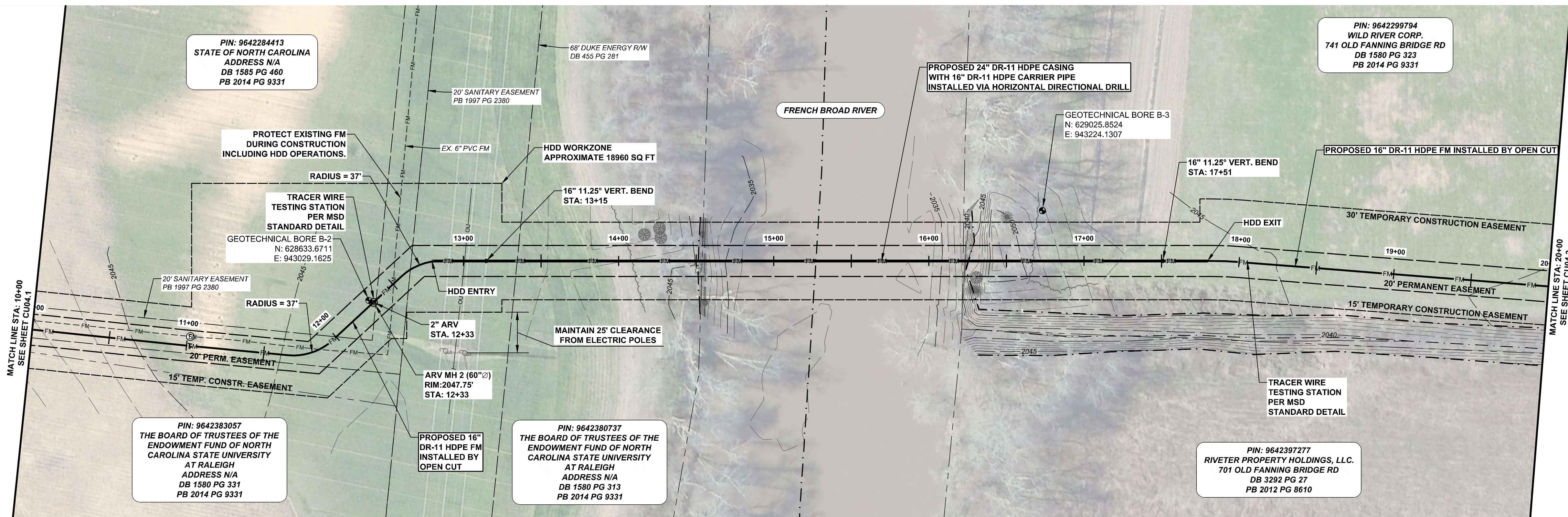


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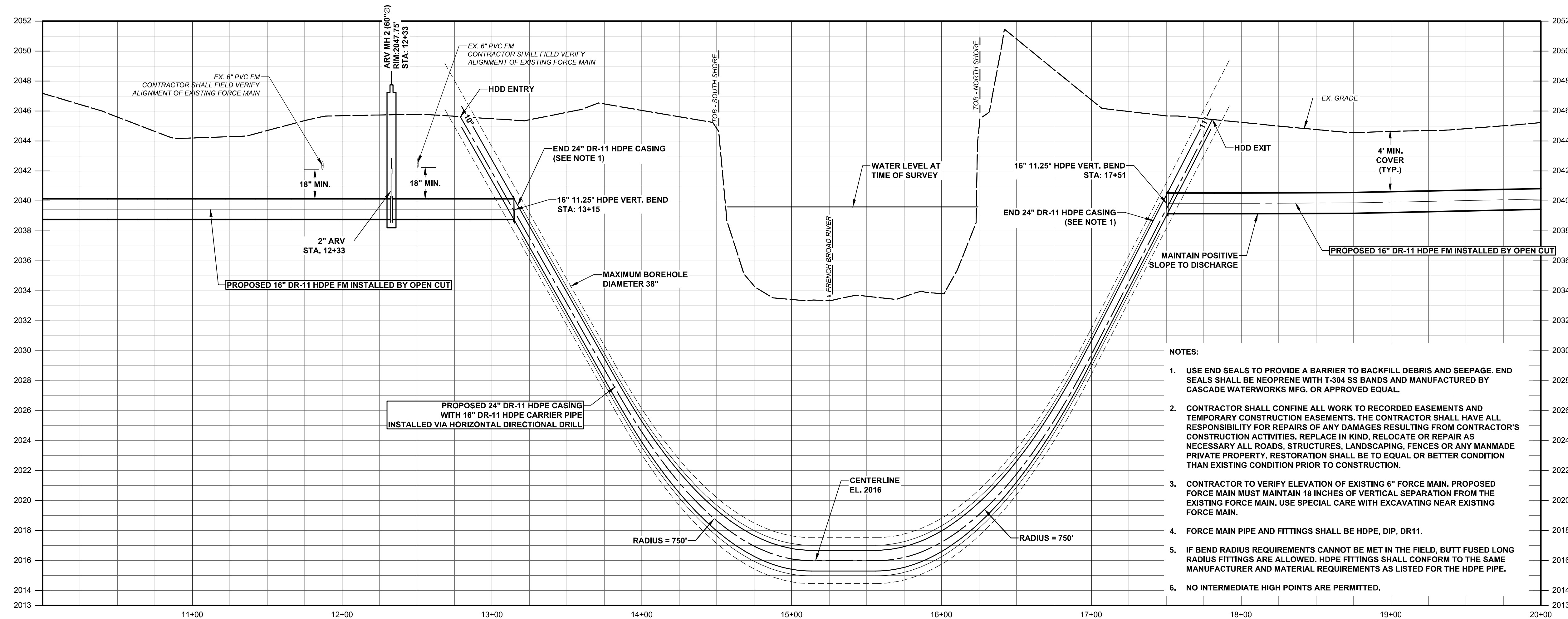
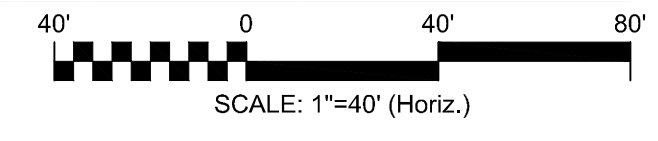
METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
 CIVIL
FORCE MAIN PLAN AND PROFILE
 STA. 0+00 - STA. 10+00

PROJ. START DATE: 2024 MAR	SCALE: 1"=40'	HORIZONTAL: 1"=40'	VERTICAL: 1"=4'
DESIGNED: MC	DRAWN: AWB		
CHECKED: MC	DESIGNED: MC	DRAWING NUMBER: CU04.1	
PROJ. MGR.: MC	CHECKED: MC	REVISION: 0	
STATUS: NOT RELEASED FOR CONSTRUCTION		ISSUED FOR BID	

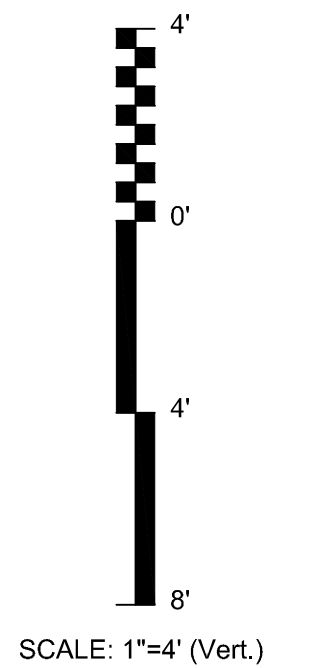


PLAN VIEW
HORIZ. SCALE: 1"=40'

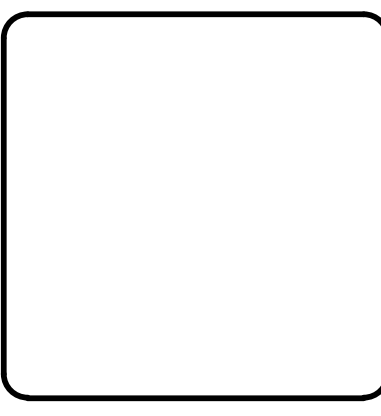
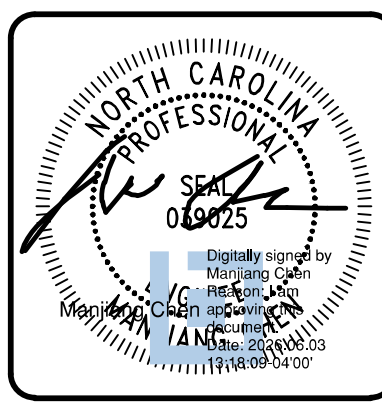


FORCE MAIN PROFILE VIEW
HORIZ. SCALE: 1"=40'
VERT. SCALE: 1"=4'

- NOTES:
- USE END SEALS TO PROVIDE A BARRIER TO BACKFILL DEBRIS AND SEEPAGE. END SEALS SHALL BE NEOPRENE WITH T-304 SS BANDS AND MANUFACTURED BY CASCADE WATERWORKS MFG. OR APPROVED EQUAL.
 - CONTRACTOR SHALL CONFINE ALL WORK TO RECORDED EASEMENTS AND TEMPORARY CONSTRUCTION EASEMENTS. THE CONTRACTOR SHALL HAVE ALL RESPONSIBILITY FOR REPAIRS OF ANY DAMAGES RESULTING FROM CONTRACTOR'S CONSTRUCTION ACTIVITIES. REPLACE IN KIND, RELOCATE OR REPAIR AS NECESSARY ALL ROADS, STRUCTURES, LANDSCAPING, FENCES OR ANY MANMADE PRIVATE PROPERTY. RESTORATION SHALL BE TO EQUAL OR BETTER CONDITION THAN EXISTING CONDITION PRIOR TO CONSTRUCTION.
 - CONTRACTOR TO VERIFY ELEVATION OF EXISTING 6" FORCE MAIN. PROPOSED FORCE MAIN MUST MAINTAIN 18 INCHES OF VERTICAL SEPARATION FROM THE EXISTING FORCE MAIN. USE SPECIAL CARE WITH EXCAVATING NEAR EXISTING FORCE MAIN.
 - FORCE MAIN PIPE AND FITTINGS SHALL BE HDPE, DIP, DR11.
 - IF BEND RADIUS REQUIREMENTS CANNOT BE MET IN THE FIELD, BUTT FUSED LONG RADIUS FITTINGS ARE ALLOWED. HDPE FITTINGS SHALL CONFORM TO THE SAME MANUFACTURER AND MATERIAL REQUIREMENTS AS LISTED FOR THE HDPE PIPE.
 - NO INTERMEDIATE HIGH POINTS ARE PERMITTED.



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REVISIONS		

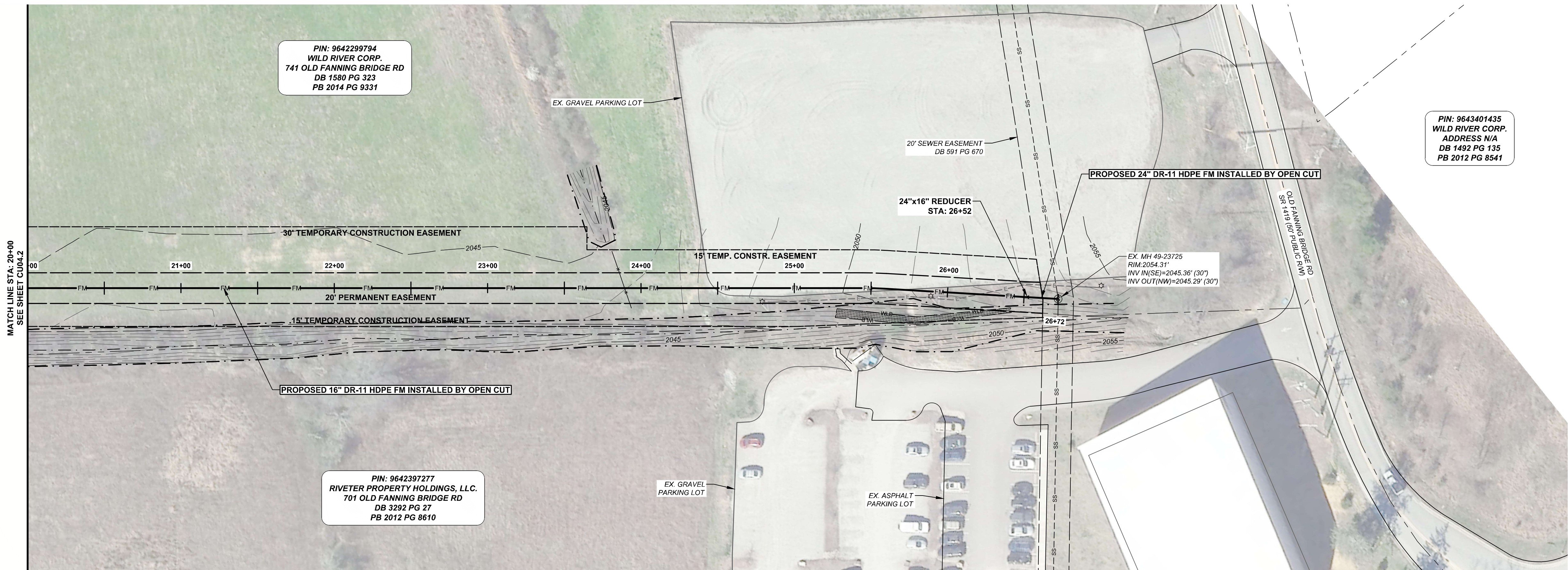


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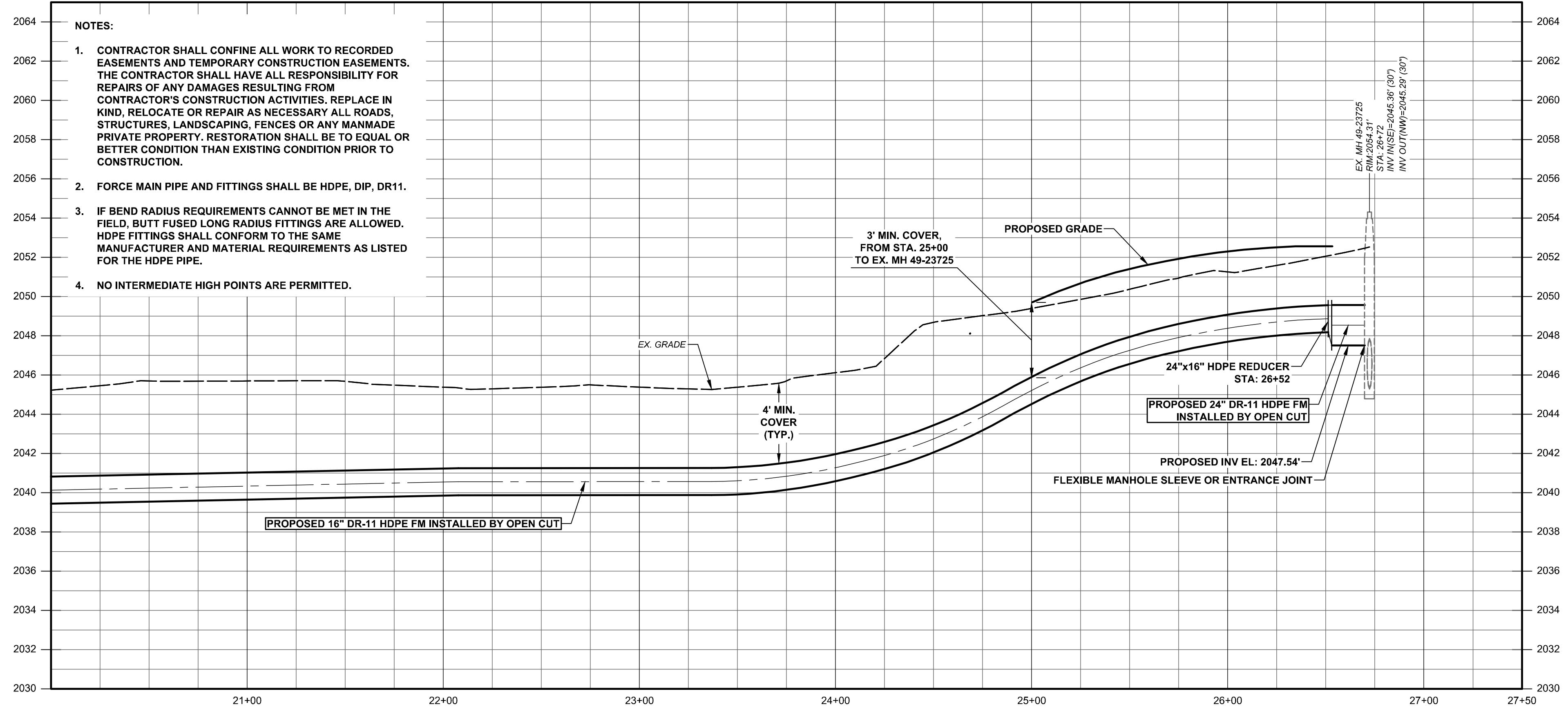
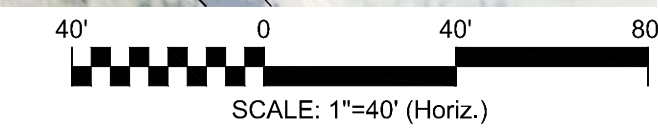
METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
CIVIL
FORCE MAIN PLAN AND PROFILE
STA. 10+00 - STA. 20+00

PROJ. START DATE: 2024 MAR	SCALE: 1"=40'	CU04.2
DESIGNED: MC	HORIZONTAL: 1"=40'	
CHECKED: MC	VERTICAL: 1"=4'	0
PROJ. MGR.: MC	ISSUED FOR BID	
NOT RELEASED FOR CONSTRUCTION		



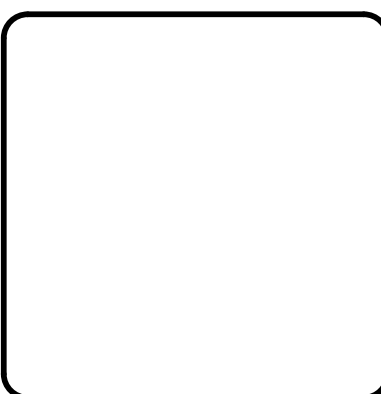
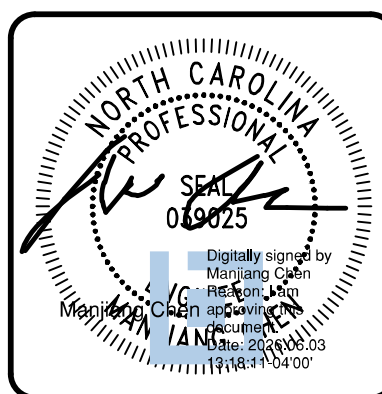
PLAN VIEW
HORIZ. SCALE: 1"=40'



FORCE MAIN PROFILE VIEW
HORIZ. SCALE: 1"=40'
VERT. SCALE: 1"=4'

- NOTES:**
- CONTRACTOR SHALL CONFINE ALL WORK TO RECORDED EASEMENTS AND TEMPORARY CONSTRUCTION EASEMENTS. THE CONTRACTOR SHALL HAVE ALL RESPONSIBILITY FOR REPAIRS OF ANY DAMAGES RESULTING FROM CONTRACTOR'S CONSTRUCTION ACTIVITIES. REPLACE IN KIND, RELOCATE OR REPAIR AS NECESSARY ALL ROADS, STRUCTURES, LANDSCAPING, FENCES OR ANY MANMADE PRIVATE PROPERTY. RESTORATION SHALL BE TO EQUAL OR BETTER CONDITION THAN EXISTING CONDITION PRIOR TO CONSTRUCTION.
 - FORCE MAIN PIPE AND FITTINGS SHALL BE HDPE, DIP, DR11.
 - IF BEND RADIUS REQUIREMENTS CANNOT BE MET IN THE FIELD, BUTT FUSED LONG RADIUS FITTINGS ARE ALLOWED. HDPE FITTINGS SHALL CONFORM TO THE SAME MANUFACTURER AND MATERIAL REQUIREMENTS AS LISTED FOR THE HDPE PIPE.
 - NO INTERMEDIATE HIGH POINTS ARE PERMITTED.

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026
REVISIONS		

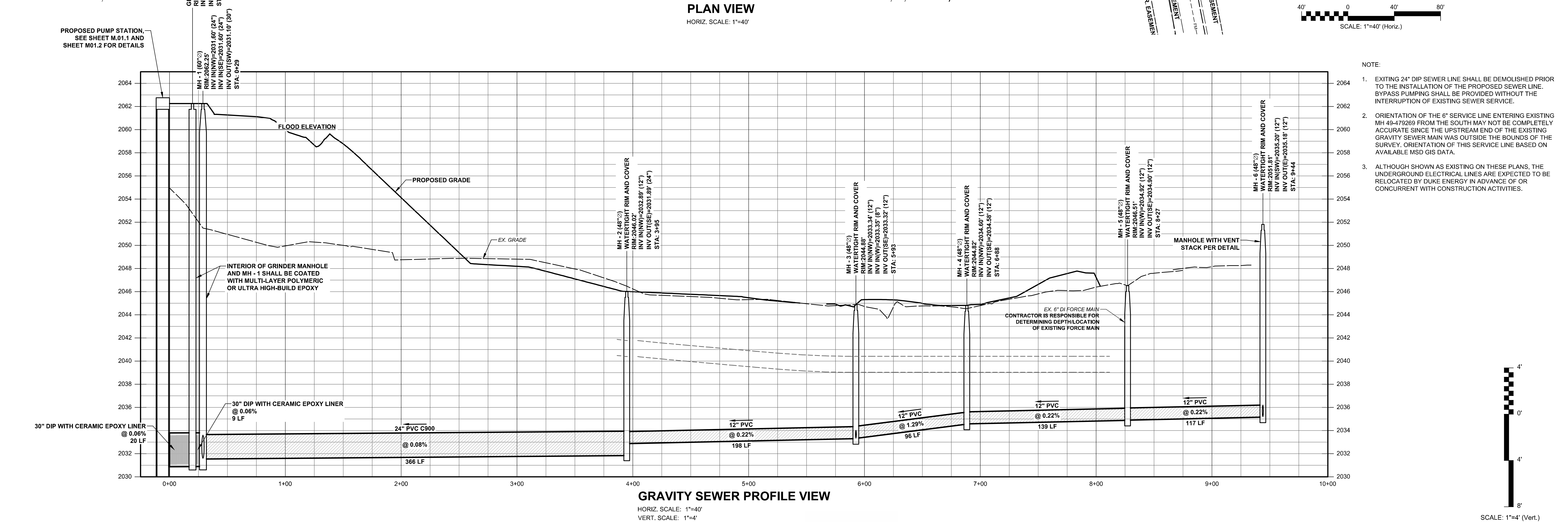
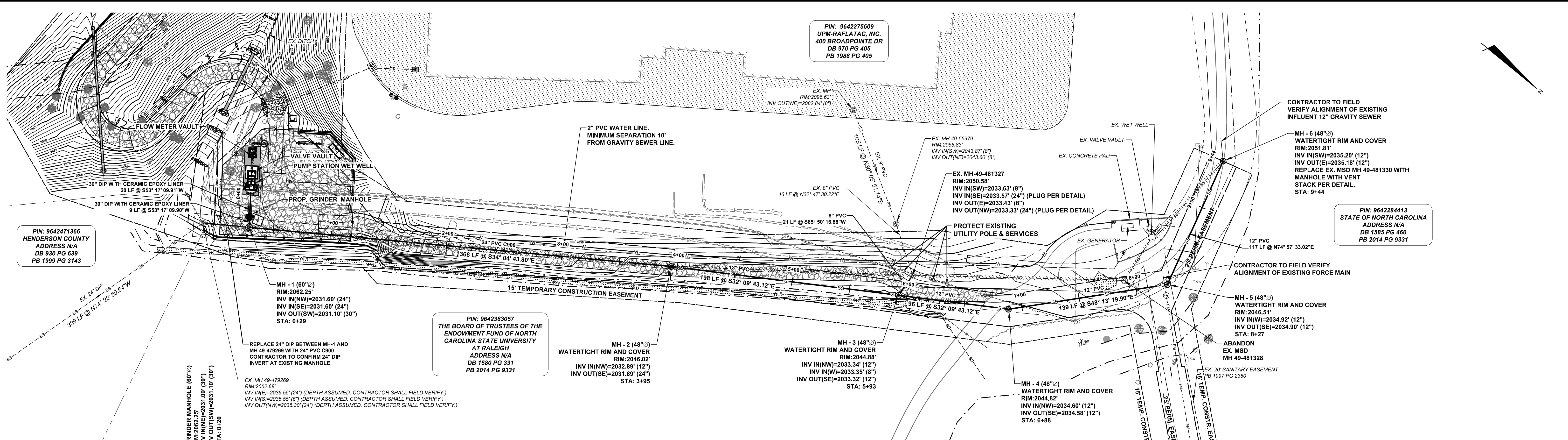


MCKIM & CREED
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Asheville, North Carolina 28801
Phone: (828) 252-8181, Fax: (828) 252-8857
NC License# F-1222
www.mckimcreed.com

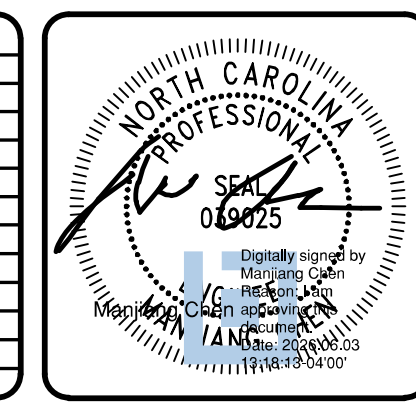
METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
CIVIL
FORCE MAIN PLAN AND PROFILE
STA. 20+00 - STA. 26+48

PROJ. START DATE: 2024 MAR	SCALE: 1"=40'	HORIZONTAL: 1"=40'	DRAWING NUMBER: CU04.3
DESIGNED: AWB	VERTICAL: 1"=4'		
CHECKED: MC	STATUS: ISSUED FOR BID		
PROJ. MGR: MC	NOT RELEASED FOR CONSTRUCTION		



REV. NO.	DESCRIPTION	DATE
1	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2024
REVISIONS		



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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

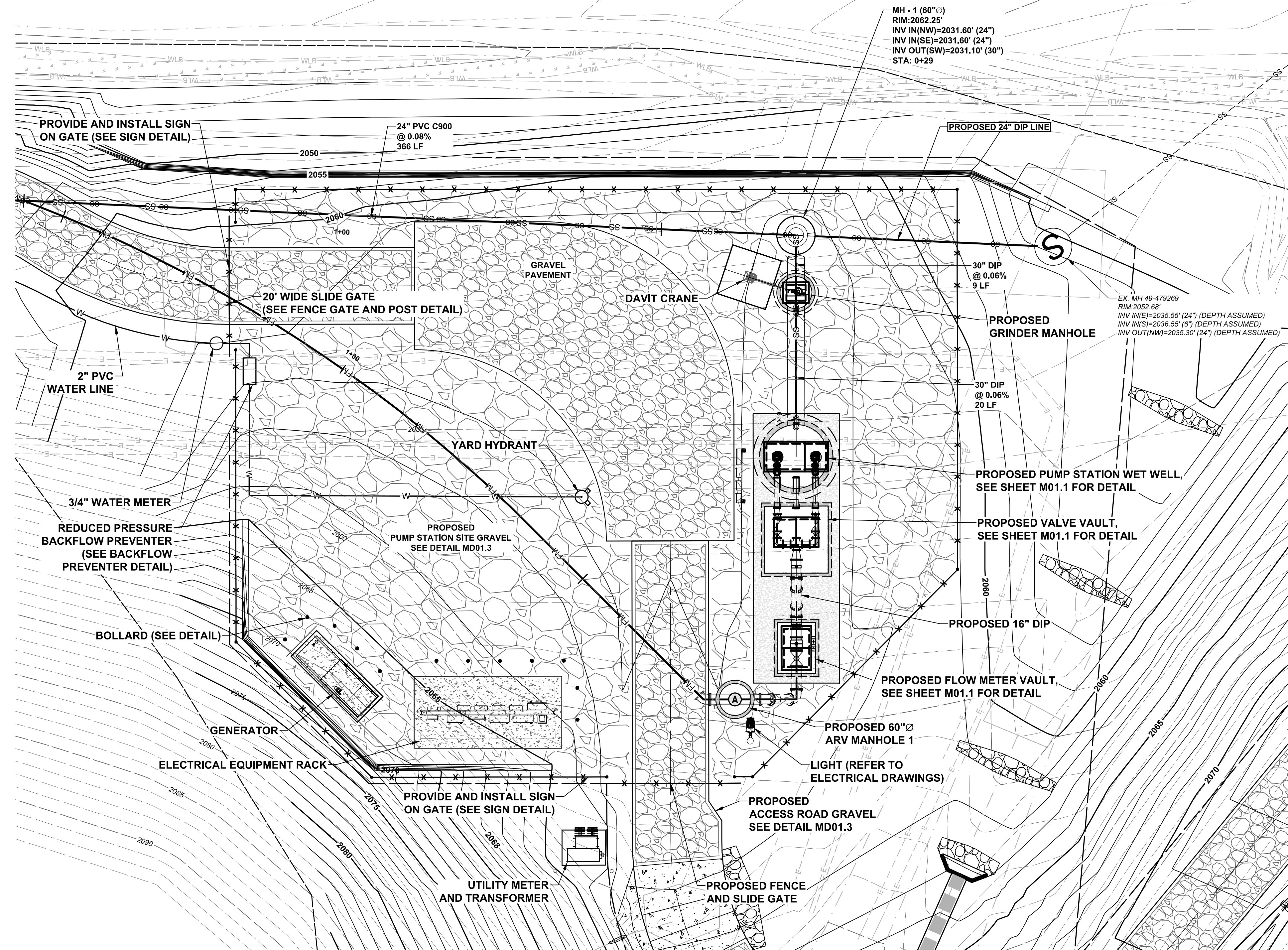
ITT PUMP STATION REPLACEMENT
CIVIL
GRAVITY SEWER PLAN AND PROFILE
STA. 0+00 - STA. 9+31

PROJ. START DATE: 2024 MAR 09
MSD PROJ. # 00000001
DRAWN: AWB
DESIGNED: MC
CHECKED: MC
PROJ. MGR: MC

SCALE: 1"=40'
HORIZONTAL: 1"=40'
VERTICAL: 1"=4'

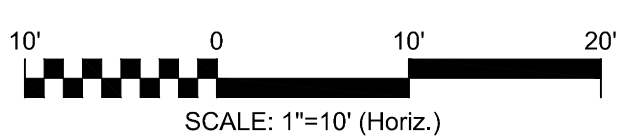
STATUS: ISSUED FOR BID
NOT RELEASED FOR CONSTRUCTION

CU05.1
DRAWING NUMBER
0
REVISION



SITE PLAN
HORIZ. SCALE: 1"=10'

- NOTE:**
1. ORIENTATION OF THE 6" SERVICE LINE ENTERING EXISTING MH 49-479269 FROM THE SOUTH MAY NOT BE COMPLETELY ACCURATE SINCE THE UPSTREAM END OF THE EXISTING GRAVITY SEWER MAIN WAS OUTSIDE THE BOUNDS OF THE SURVEY. ORIENTATION OF THIS SERVICE LINE BASED ON AVAILABLE MSD GIS DATA.
 2. ALTHOUGH SHOWN AS EXISTING ON THESE PLANS, THE UNDERGROUND ELECTRICAL LINES ARE EXPECTED TO BE RELOCATED BY DUKE ENERGY IN ADVANCE OF OR CONCURRENT WITH CONSTRUCTION ACTIVITIES.

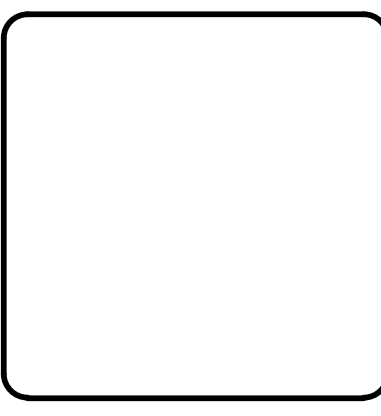
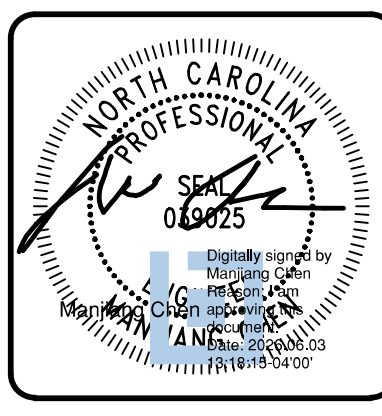


REV. NO.	DESCRIPTION	DATE

ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION

REVISIONS

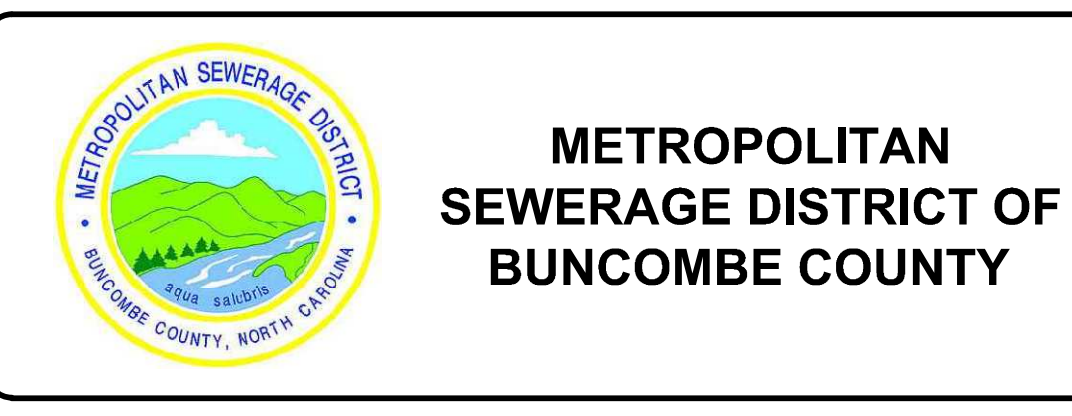
JUNE 2026



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ITT PUMP STATION REPLACEMENT

CIVIL

PROPOSED SITE PLAN

PROJ. START DATE: 2024 MAR	SCALE	CS01.1
MSD PROJ. # 00000001	HORIZONTAL: 1"=5'	
DRAWN: AWB	VERTICAL: N/A	0
DESIGNED: MC		REVISION
CHECKED: MC		
PROJ. MGR: MC		
STATUS: NOT RELEASED FOR CONSTRUCTION	ISSUED FOR BID	

PIN: 9642275609
UPM-RAFLATAC, INC.
400 BROADPOINTE DR
DB 970 PG 405
PB 1988 PG 405

PROP. GRAVEL
ACCESS DRIVE
(TYP.)

PROP. ±78 LF
REDIROCK PRE-CAST
CONCRETE BLOCK
WALL (TYP.)

PROP. 20' SLIDE GATE

PROP. FENCE (TYP.)

PROP. CONCRETE
SPILLWAY

PROP. 20' SLIDE GATE

PROP. HEADWALL
(TYP.)

PROP. PERMANENT EASEMENT

PROP. TEMPORARY EASEMENT

MATCHLINE - SEE SHEET CS02.2

PROP. ±171 LF
REDIROCK PRE-CAST
CONCRETE BLOCK
WALL (TYP.)

PROP. STORM
MANHOLE (TYP.)

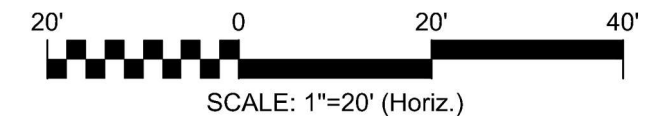
PROP. ±168 LF
REDIROCK PRE-CAST
CONCRETE BLOCK
WALL (TYP.)

EXISTING STORM
MANHOLE TO BE
MODIFIED (TYP.)

PIN: 9642361779
QUALITY POINT LLC
ADDRESS N/A
DB 4041 PG 469
BK 1996 SLIDE 2295

PIN: 9642471366
HENDERSON COUNTY
ADDRESS N/A
DB 930 PG 639
BK 1999 SLIDE 3143

SITE PLAN
HORIZ. SCALE: 1"=20'

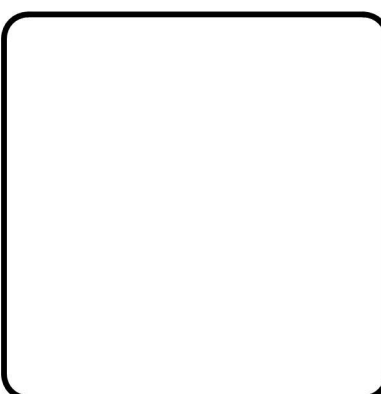


REV. NO.	DESCRIPTION	DATE

ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION

REVISIONS

JUNE 2026



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**METROPOLITAN
SEWERAGE DISTRICT OF
BUNCOMBE COUNTY**

ITT PUMP STATION REPLACEMENT

CIVIL

PROPOSED UPPER ACCESS ROAD PLAN

STATUS: **NOT RELEASED FOR CONSTRUCTION**

PROJ. START DATE: 2024 MAR	SCALE	ISSUED FOR BID
DESIGNED: PNH	HORIZONTAL: 1"=20'	
CHECKED: PNH	VERTICAL: N/A	REVISION
PROJ. MGR: MC		

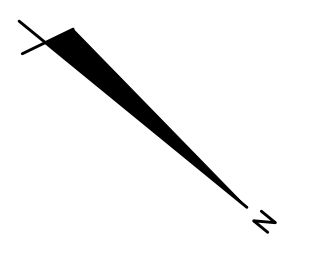
CS02.1

DRAWING NUMBER

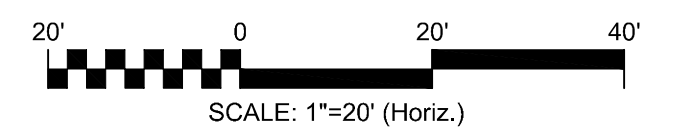
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REVISION

I:\09596\0001\PDNR\80-DWG\1_PRODUCTION_SHEETS\1_PLAN_SHEETS\2_WORKING_DWG\C3.0 SITE-OVERALL.DWG 05/30/2026 12:36:01 PATRICK_CUSACK



SITE PLAN
HORIZ. SCALE: 1"=20'

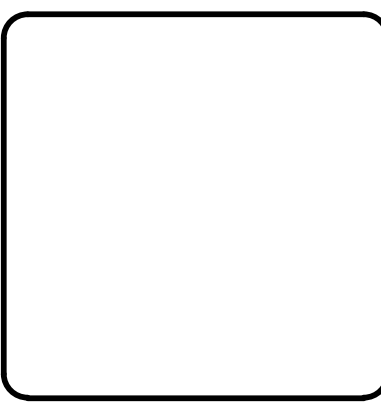
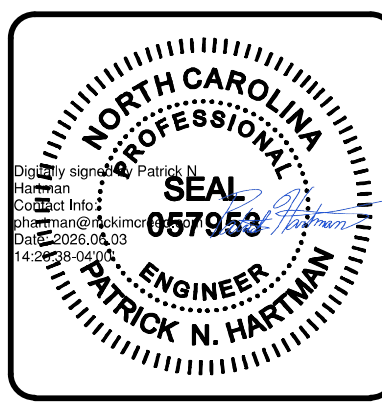


REV. NO.	DESCRIPTION	DATE

ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION

REVISIONS

JUNE 2026



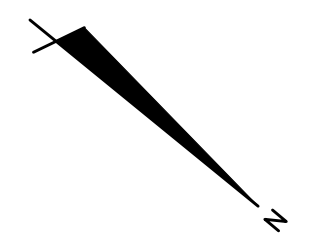
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 Asheville, North Carolina 28801
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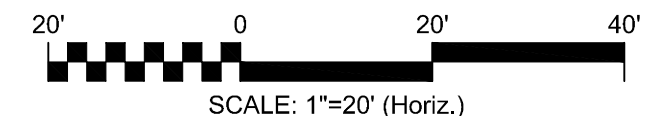
METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
 CIVIL
PROPOSED LOWER ACCESS ROAD PLAN
 1 OF 2

PROJ. START DATE: 2024 MAR TIME PROJ. # 00000001 MSB PROJ. # 00000001 DRAWN: PNH DESIGNED: PNH CHECKED: PNH PROJ. MGR.: MC	SCALE HORIZONTAL: 1"=20' VERTICAL: N/A	CS02.2 DRAWING NUMBER 0 REVISION
STATUS: NOT RELEASED FOR CONSTRUCTION		ISSUED FOR BID



SITE PLAN
HORIZ. SCALE: 1"=20'



REV. NO.	DESCRIPTION	DATE



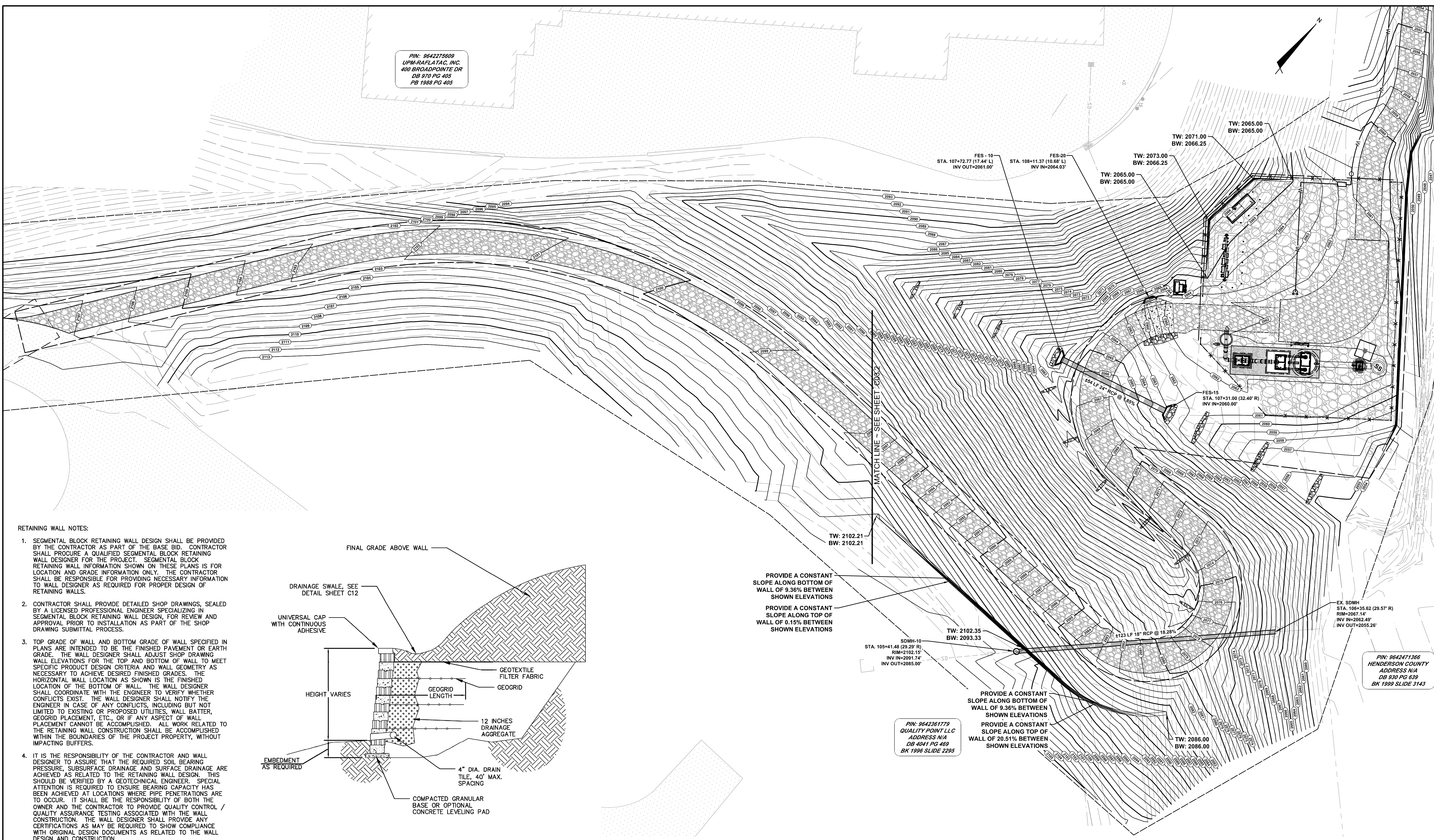
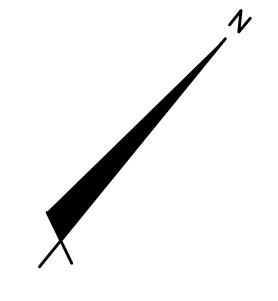
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 NC License# F-1222
 www.mckimcreed.com

METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
 CIVIL
PROPOSED LOWER ACCESS ROAD PLAN
2 OF 2

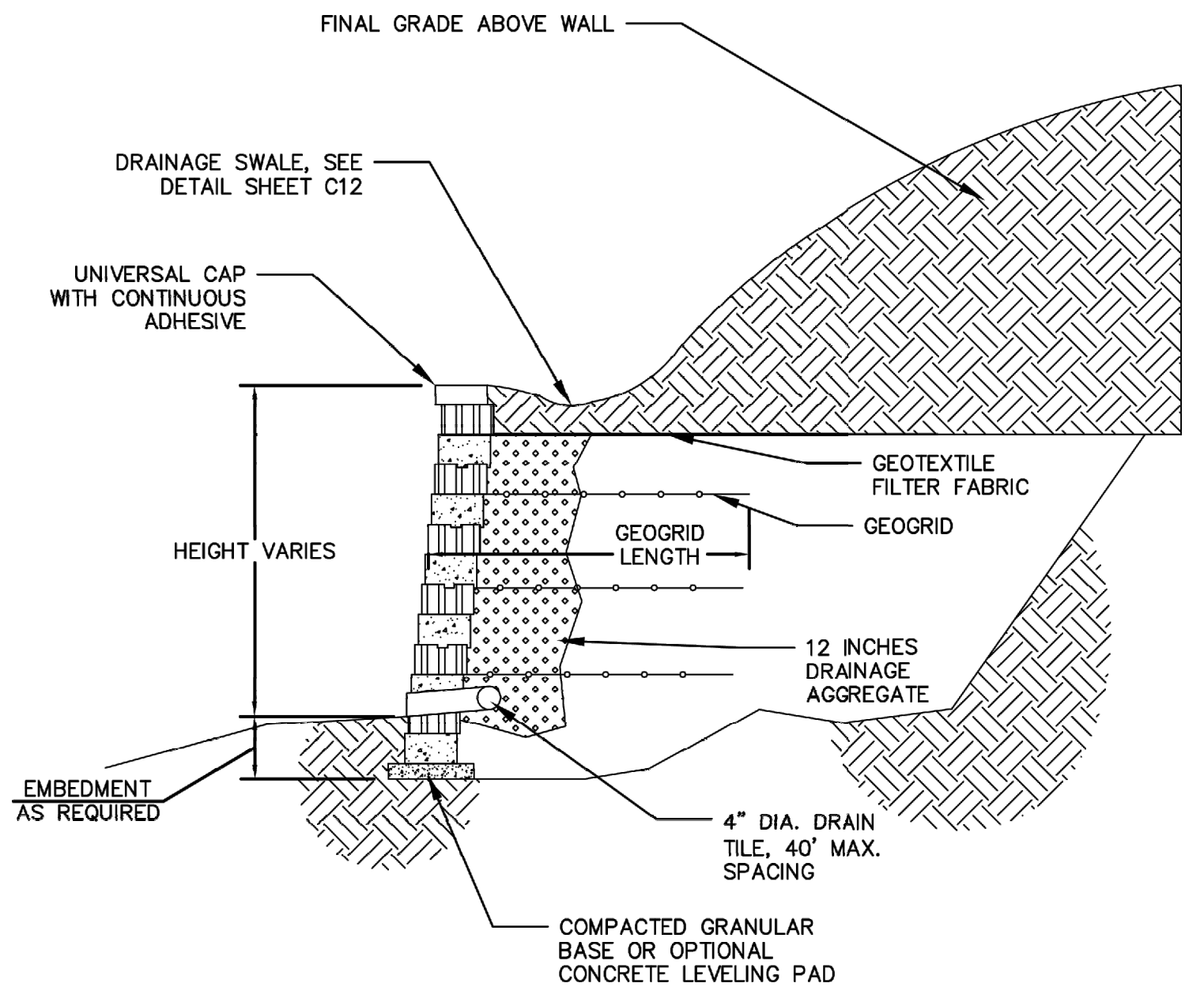
PROJ. START DATE: 2024 MAR TIME PROJ. # 00000001 MSB PROJ. # 20240601 DRAWN: PNH DESIGNED: PNH CHECKED: PNH PROJ. MGR.: MC	SCALE HORIZONTAL: 1"=20' VERTICAL: N/A	CS02.3 DRAWING NUMBER 0 REVISION
STATUS: NOT RELEASED FOR CONSTRUCTION		ISSUED FOR BID

PIN: 9642275609
 UPM-RAFLATA, INC.
 400 BROADPOINTE DR
 DB 970 PG 405
 PB 1988 PG 405



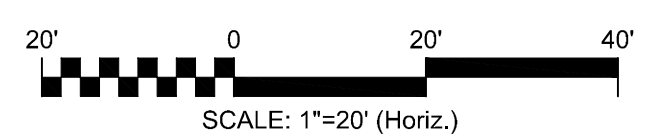
RETAINING WALL NOTES:

- SEGMENTAL BLOCK RETAINING WALL DESIGN SHALL BE PROVIDED BY THE CONTRACTOR AS PART OF THE BASE BID. CONTRACTOR SHALL PROCURE A QUALIFIED SEGMENTAL BLOCK RETAINING WALL DESIGNER FOR THE PROJECT. SEGMENTAL BLOCK RETAINING WALL INFORMATION SHOWN ON THESE PLANS IS FOR LOCATION AND GRADE INFORMATION ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING NECESSARY INFORMATION TO WALL DESIGNER AS REQUIRED FOR PROPER DESIGN OF RETAINING WALLS.
- CONTRACTOR SHALL PROVIDE DETAILED SHOP DRAWINGS, SEALED BY A LICENSED PROFESSIONAL ENGINEER SPECIALIZING IN SEGMENTAL BLOCK RETAINING WALL DESIGN, FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION AS PART OF THE SHOP DRAWING SUBMITTAL PROCESS.
- TOP GRADE OF WALL AND BOTTOM GRADE OF WALL SPECIFIED IN PLANS ARE INTENDED TO BE THE FINISHED PAVEMENT OR EARTH GRADE. THE WALL DESIGNER SHALL ADJUST SHOP DRAWING WALL ELEVATIONS FOR THE TOP AND BOTTOM OF WALL TO MEET SPECIFIC PRODUCT DESIGN CRITERIA AND WALL GEOMETRY AS NECESSARY TO ACHIEVE DESIRED FINISHED GRADES. THE HORIZONTAL WALL LOCATION AS SHOWN IS THE FINISHED LOCATION OF THE BOTTOM OF WALL. THE WALL DESIGNER SHALL COORDINATE WITH THE ENGINEER TO VERIFY WHETHER CONFLICTS EXIST. THE WALL DESIGNER SHALL NOTIFY THE ENGINEER IN CASE OF ANY CONFLICTS, INCLUDING BUT NOT LIMITED TO EXISTING OR PROPOSED UTILITIES, WALL BATTER, GEOGRID PLACEMENT, ETC., OR IF ANY ASPECT OF WALL PLACEMENT CANNOT BE ACCOMPLISHED. ALL WORK RELATED TO THE RETAINING WALL CONSTRUCTION SHALL BE ACCOMPLISHED WITHIN THE BOUNDARIES OF THE PROJECT PROPERTY, WITHOUT IMPACTING BUFFERS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND WALL DESIGNER TO ASSURE THAT THE REQUIRED SOIL BEARING CAPACITY, SUBSURFACE DRAINAGE AND SURFACE DRAINAGE ARE ACHIEVED AS RELATED TO THE RETAINING WALL DESIGN. THIS SHOULD BE VERIFIED BY A GEOTECHNICAL ENGINEER. SPECIAL ATTENTION IS REQUIRED TO ENSURE BEARING CAPACITY HAS BEEN ACHIEVED AT LOCATIONS WHERE PIPE PENETRATIONS ARE TO OCCUR. IT SHALL BE THE RESPONSIBILITY OF BOTH THE OWNER AND THE CONTRACTOR TO PROVIDE QUALITY CONTROL / QUALITY ASSURANCE TESTING ASSOCIATED WITH THE WALL CONSTRUCTION. THE WALL DESIGNER SHALL PROVIDE ANY CERTIFICATIONS AS MAY BE REQUIRED TO SHOW COMPLIANCE WITH ORIGINAL DESIGN DOCUMENTS AS RELATED TO THE WALL DESIGN AND CONSTRUCTION.



SEGMENTAL BLOCK RETAINING WALL
 N.T.S.

GRADING PLAN
 HORIZ. SCALE: 1"=20'



REV. NO.	DESCRIPTION	DATE

ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION

JUNE 2026



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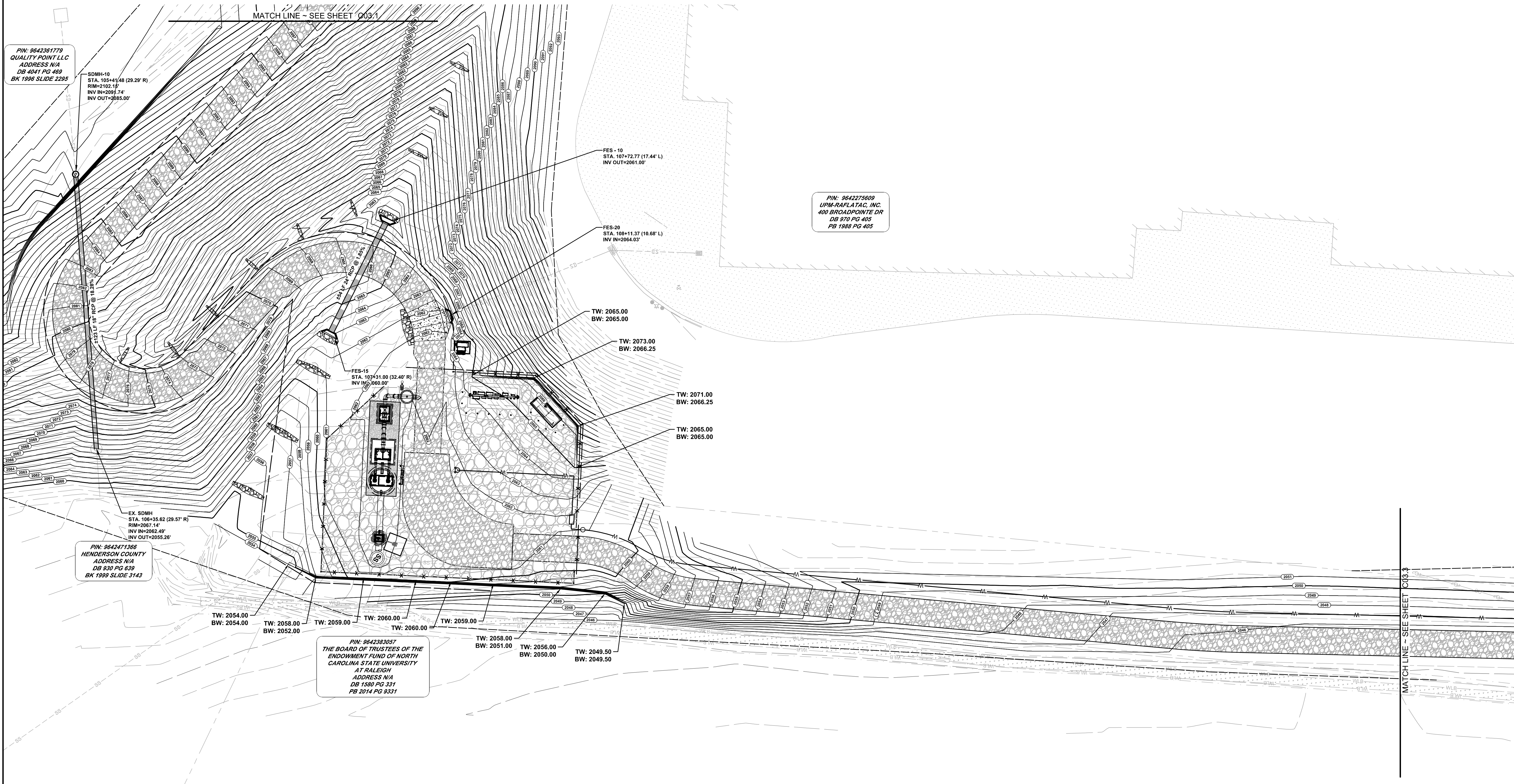
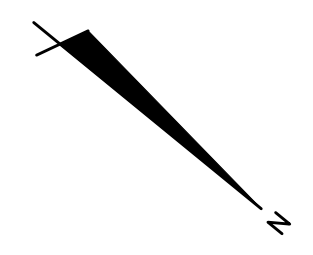
NC License# F-1222
 www.mckimcreed.com

METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT

CIVIL
GRADING PLAN 1 OF 3

PROJ. START DATE: 2024 MAR 09 09:00:01 ISS. PROJ. # 2020061	SCALE HORIZONTAL: 1"=20' VERTICAL: N/A	C03.1 DRAWING NUMBER
DRAWN: PNH DESIGNED: PNH CHECKED: PNH PROJ. MGR.: MC		0 REVISION
STATUS: NOT RELEASED FOR CONSTRUCTION		ISSUED FOR BID



PIN: 9642361779
QUALITY POINT LLC
ADDRESS N/A
DB 4041 PG 469
BK 1996 SLIDE 2295

SDMH-10
STA. 105+41.48 (29.29' R)
RIM=2102.14'
INV IN=2091.74'
INV OUT=2085.00'

FES-10
STA. 107+72.77 (17.44' L)
INV OUT=2061.00'

PIN: 9642275009
UPM-RAFLATA, INC.
400 BROADPOINTE DR
DB 970 PG 405
PB 1988 PG 405

FES-20
STA. 108+11.37 (10.68' L)
INV IN=2064.03'

TW: 2065.00
BW: 2065.00

TW: 2073.00
BW: 2066.25

TW: 2071.00
BW: 2066.25

TW: 2065.00
BW: 2065.00

FES-15
STA. 107+31.00 (32.40' R)
INV IN=2060.00'

EX. SDMH
STA. 106+35.62 (29.57' R)
RIM=2067.14'
INV IN=2062.49'
INV OUT=2055.26'

PIN: 9642471366
HENDERSON COUNTY
ADDRESS N/A
DB 930 PG 639
BK 1999 SLIDE 3143

TW: 2054.00
BW: 2054.00

TW: 2058.00
BW: 2052.00

TW: 2059.00

TW: 2060.00

TW: 2060.00

TW: 2059.00

TW: 2058.00
BW: 2051.00

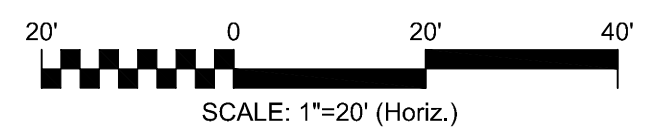
TW: 2056.00
BW: 2050.00

TW: 2049.50
BW: 2049.50

PIN: 9642383057
THE BOARD OF TRUSTEES OF THE
ENDOWMENT FUND OF NORTH
CAROLINA STATE UNIVERSITY
AT RALEIGH
ADDRESS N/A
DB 1580 PG 331
PB 2014 PG 9331

GRADING PLAN

HORIZ. SCALE: 1"=20'



REV. NO.	DESCRIPTION	DATE

ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION

REVISIONS

JUNE 2026



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NC License# F-1222
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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT

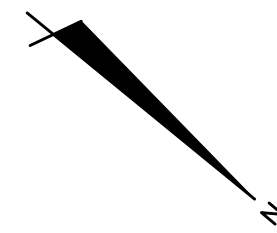
CIVIL

GRADING PLAN 2 OF 3

PROJ. START DATE: 2024 MAR	SCALE: 1"=20'	C03.2
DESIGNED: PNH	HORIZONTAL: 1"=20'	
CHECKED: PNH	VERTICAL: N/A	0
PROJ. MGR.: MC		REVISION

STATUS: **ISSUED FOR BID**

NOT RELEASED FOR CONSTRUCTION

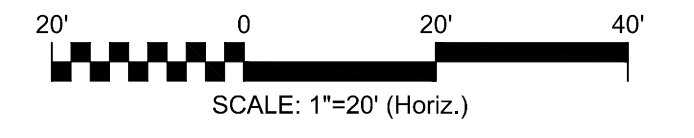


PIN: 9642275609
UPM-RAFLATAC, INC.
400 BROADPOINTE DR
DB 970 PG 405
PB 1988 PG 405

PIN: 9642284413
STATE OF NORTH CAROLINA
ADDRESS N/A
DB 1585 PG 460
PB 2014 PG 9331

PIN: 9642383057
THE BOARD OF TRUSTEES OF THE
ENDOWMENT FUND OF NORTH
CAROLINA STATE UNIVERSITY
AT RALEIGH
ADDRESS N/A
DB 1580 PG 331
PB 2014 PG 9331

GRADING PLAN
HORIZ. SCALE: 1"=20'

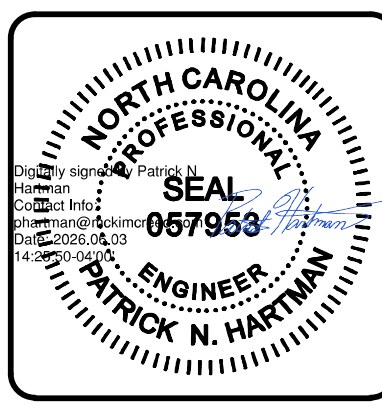


REV. NO.	DESCRIPTION	DATE

ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION

REVISIONS

JUNE 2026



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Asheville, North Carolina 28801
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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT

CIVIL

GRADING PLAN 3 OF 3

PROJ. START DATE: 2024 MAR	SCALE
DESIGNED: PNH	HORIZONTAL: 1"=20'
CHECKED: PNH	VERTICAL: N/A
PROJ. MGR: MC	

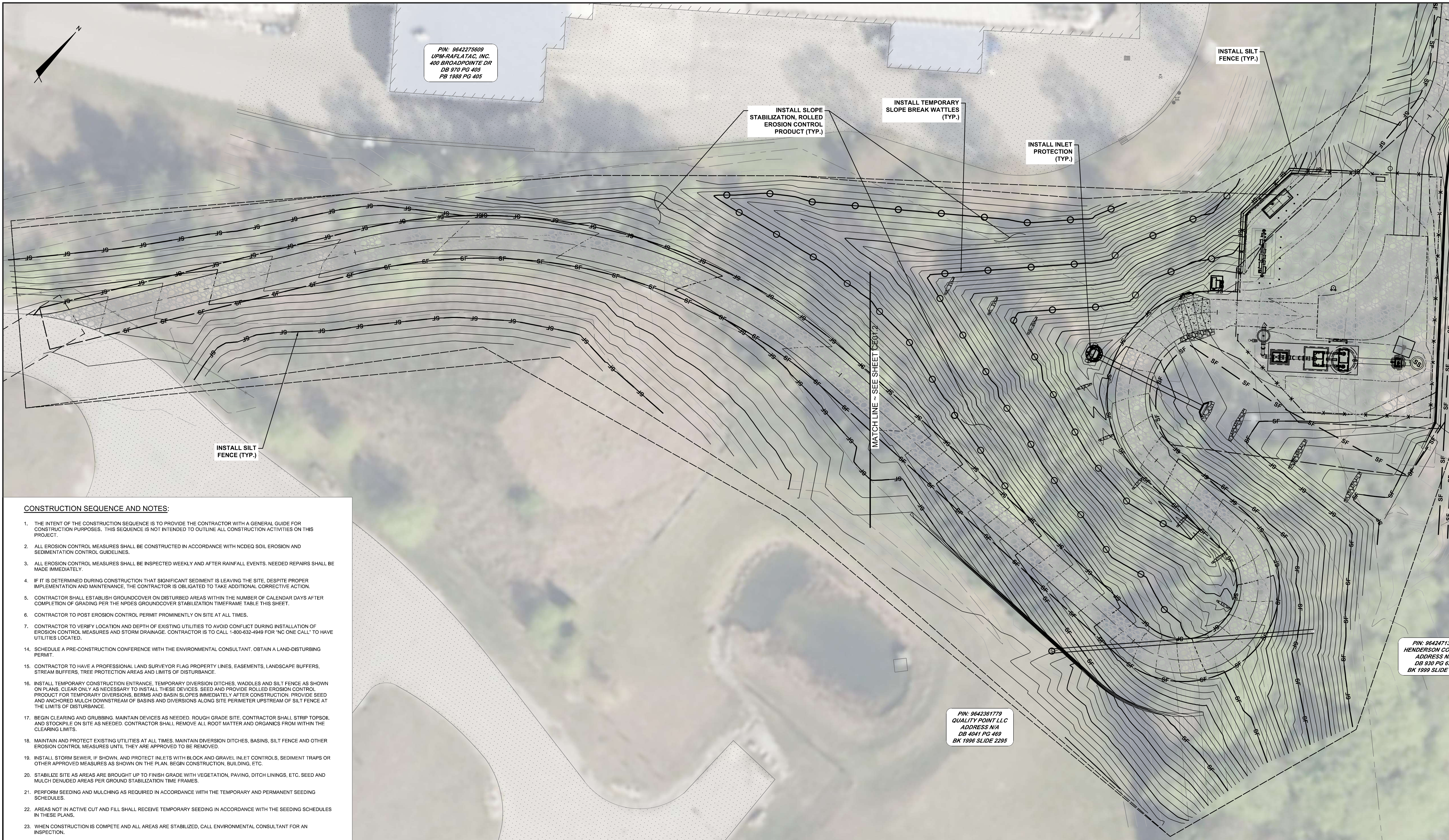
C03.3

DRAWING NUMBER

0

REVISION

ISSUED FOR BID
NOT RELEASED FOR CONSTRUCTION



PIN: 9642275609
 UPM-RAFLATAC, INC.
 400 BROADPOINTE DR
 DB 919 PG 405
 PB 1988 PG 405

PIN: 96424713
 HENDERSON CO
 ADDRESS N/A
 DB 930 PG 63
 BK 1999 SLIDE 2

PIN: 9642361779
 QUALITY POINT LLC
 ADDRESS N/A
 DB 4041 PG 469
 BK 1996 SLIDE 2295

CONSTRUCTION SEQUENCE AND NOTES:

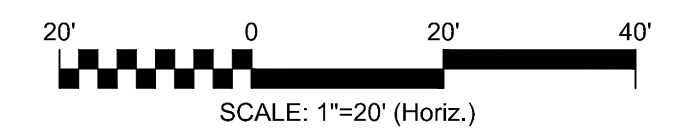
1. THE INTENT OF THE CONSTRUCTION SEQUENCE IS TO PROVIDE THE CONTRACTOR WITH A GENERAL GUIDE FOR CONSTRUCTION PURPOSES. THIS SEQUENCE IS NOT INTENDED TO OUTLINE ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
2. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH NCDEQ SOIL EROSION AND SEDIMENTATION CONTROL GUIDELINES.
3. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS. NEEDED REPAIRS SHALL BE MADE IMMEDIATELY.
4. 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.
5. CONTRACTOR SHALL ESTABLISH GROUND COVER ON DISTURBED AREAS WITHIN THE NUMBER OF CALENDAR DAYS AFTER COMPLETION OF GRADING PER THE NCDPS GROUND COVER STABILIZATION TIMEFRAME TABLE THIS SHEET.
6. CONTRACTOR TO POST EROSION CONTROL PERMIT PROMINENTLY ON SITE AT ALL TIMES.
7. 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.
14. SCHEDULE A PRE-CONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL CONSULTANT. OBTAIN A LAND-DISTURBING PERMIT.
15. CONTRACTOR TO HAVE A PROFESSIONAL LAND SURVEYOR FLAG PROPERTY LINES, EASEMENTS, LANDSCAPE BUFFERS, STREAM BUFFERS, TREE PROTECTION AREAS AND LIMITS OF DISTURBANCE.
16. INSTALL TEMPORARY CONSTRUCTION ENTRANCE, TEMPORARY DIVERSION DITCHES, WADDLES AND SILT FENCE AS SHOWN ON PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEED AND PROVIDE ROLLED EROSION CONTROL PRODUCT FOR TEMPORARY DIVERSIONS, BERMS AND BASIN SLOPES IMMEDIATELY AFTER CONSTRUCTION. PROVIDE SEED AND ANCHORED MULCH DOWNSTREAM OF BASINS AND DIVERSIONS ALONG SITE PERIMETER UPSTREAM OF SILT FENCE AT THE LIMITS OF DISTURBANCE.
17. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE. CONTRACTOR SHALL STRIP TOPSOIL AND STOCKPILE ON SITE AS NEEDED. CONTRACTOR SHALL REMOVE ALL ROOT MATTER AND ORGANICS FROM WITHIN THE CLEARING LIMITS.
18. MAINTAIN AND PROTECT EXISTING UTILITIES AT ALL TIMES. MAINTAIN DIVERSION DITCHES, BASINS, SILT FENCE AND OTHER EROSION CONTROL MEASURES UNTIL THEY ARE APPROVED TO BE REMOVED.
19. INSTALL STORM SEWER, IF SHOWN, AND PROTECT INLETS WITH BLOCK AND GRAVEL INLET CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN ON THE PLAN. BEGIN CONSTRUCTION, BUILDING, ETC.
20. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
21. PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE TEMPORARY AND PERMANENT SEEDING SCHEDULES.
22. AREAS NOT IN ACTIVE CUT AND FILL SHALL RECEIVE TEMPORARY SEEDING IN ACCORDANCE WITH THE SEEDING SCHEDULES IN THESE PLANS.
23. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED, CALL ENVIRONMENTAL CONSULTANT FOR AN INSPECTION.
24. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC. AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROLS DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
25. WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT. OBTAIN A CERTIFICATE OF COMPLETION.

EROSION CONTROL NOTE:

1. ROLLED EROSION CONTROL PRODUCT SHALL BE USED IN ALL AREAS WHERE GRADING EXCEEDS 5 FEET IN VERTICAL CHANGE AND 3:1 OR STEEPER SLOPE.

EROSION CONTROL PLAN

HORIZ. SCALE: 1"=20'



REV. NO.	DESCRIPTION	DATE
6	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026
REVISIONS		

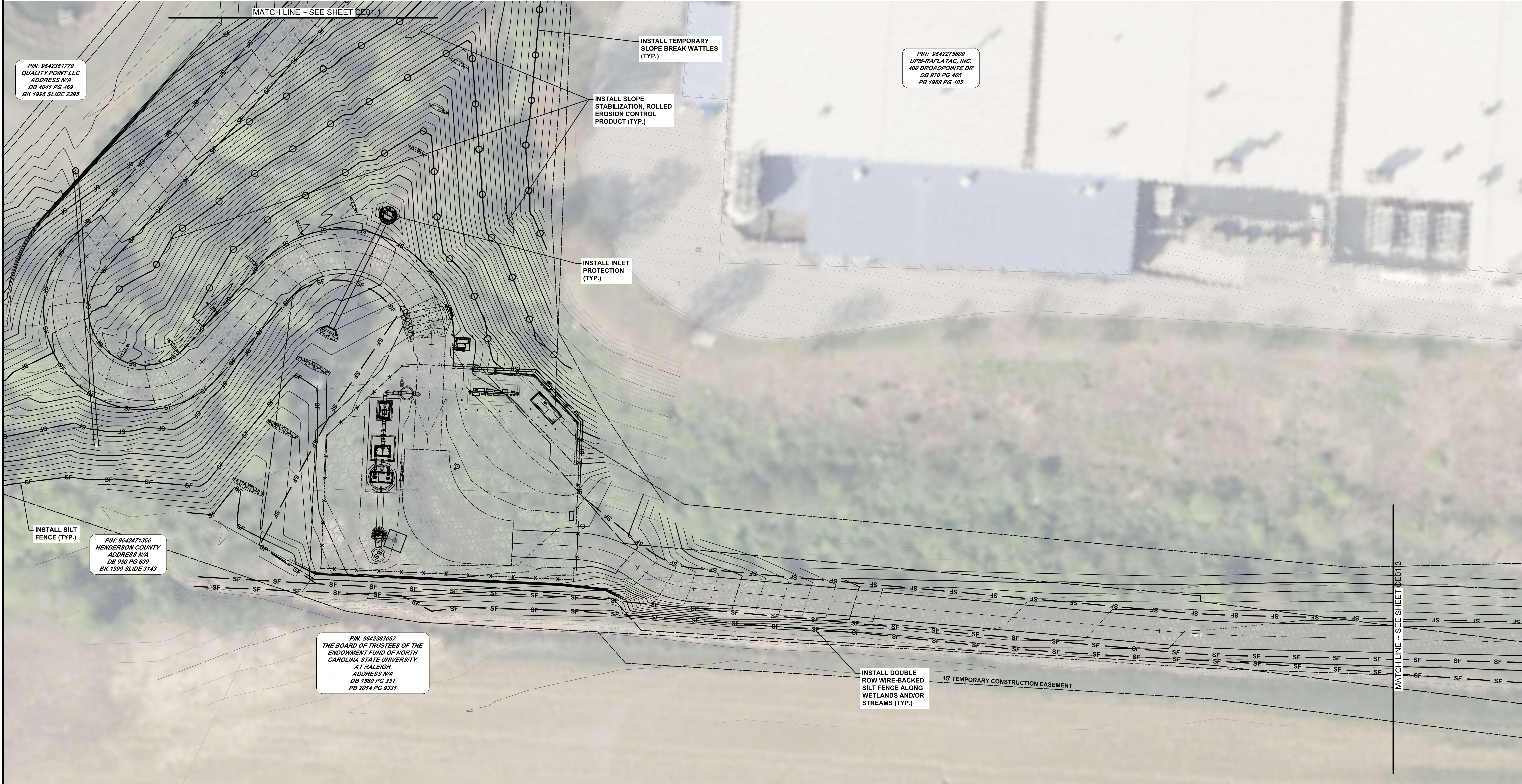
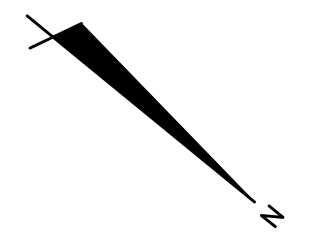


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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
 CIVIL
EROSION CONTROL UPPER ACCESS ROAD PLAN

PROJ. START DATE: 2024 MAR	SCALE	CE01.1
DESIGNED: PNH	HORIZONTAL: 1"=20'	
CHECKED: PNH	VERTICAL: N/A	0
PROJ. MGR: MC		REVISION
STATUS: NOT RELEASED FOR CONSTRUCTION		ISSUED FOR BID



PIN: 9642361779
QUALITY POINT LLC
ADDRESS N/A
DB 4041 PG 469
BK 1996 SLIDE 2295

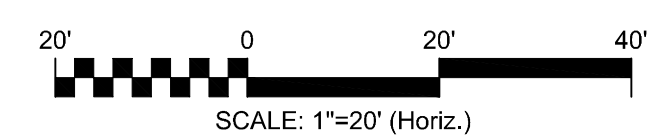
PIN: 9642275609
UPM-RAFLATA-C, INC.
400 BROADPOINTE DR
DB 970 PG 405
PB 1988 PG 405

PIN: 9642471366
HENDERSON COUNTY
ADDRESS N/A
DB 930 PG 639
BK 1999 SLIDE 3143

PIN: 9642383057
THE BOARD OF TRUSTEES OF THE
ENDOWMENT FUND OF NORTH
CAROLINA STATE UNIVERSITY
AT RALEIGH
ADDRESS N/A
DB 1580 PG 331
PB 2014 PG 9331

EROSION CONTROL NOTE:
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EROSION CONTROL PLAN
HORIZ. SCALE: 1"=20'



REV. NO.	DESCRIPTION	DATE

ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION
REVISIONS
JUNE 2026

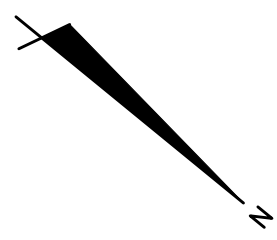


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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
CIVIL
EROSION CONTROL LOWER ACCESS ROAD
PLAN 1 OF 2

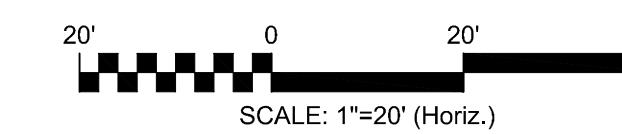
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PROJ. MGR: MC		0
STATUS: NOT RELEASED FOR CONSTRUCTION		REVISION



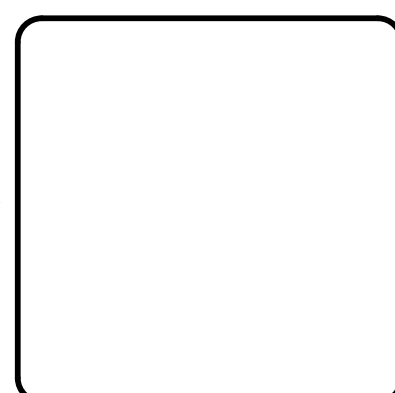
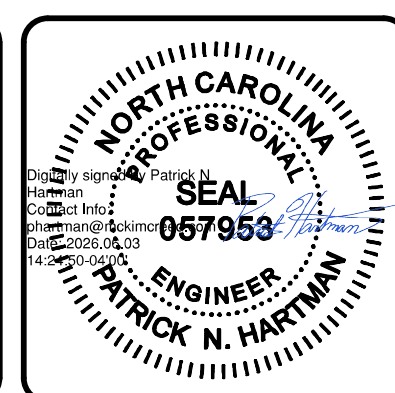
1. ROLLED EROSION CONTROL PRODUCT SHALL BE USED IN ALL AREAS WHERE GRADING EXCEEDS 5 FEET IN VERTICAL CHANGE AND 3:1 OR STEEPER SLOPE.

EROSION CONTROL PLAN

HORIZ. SCALE: 1"=20'



REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026
REVISIONS		

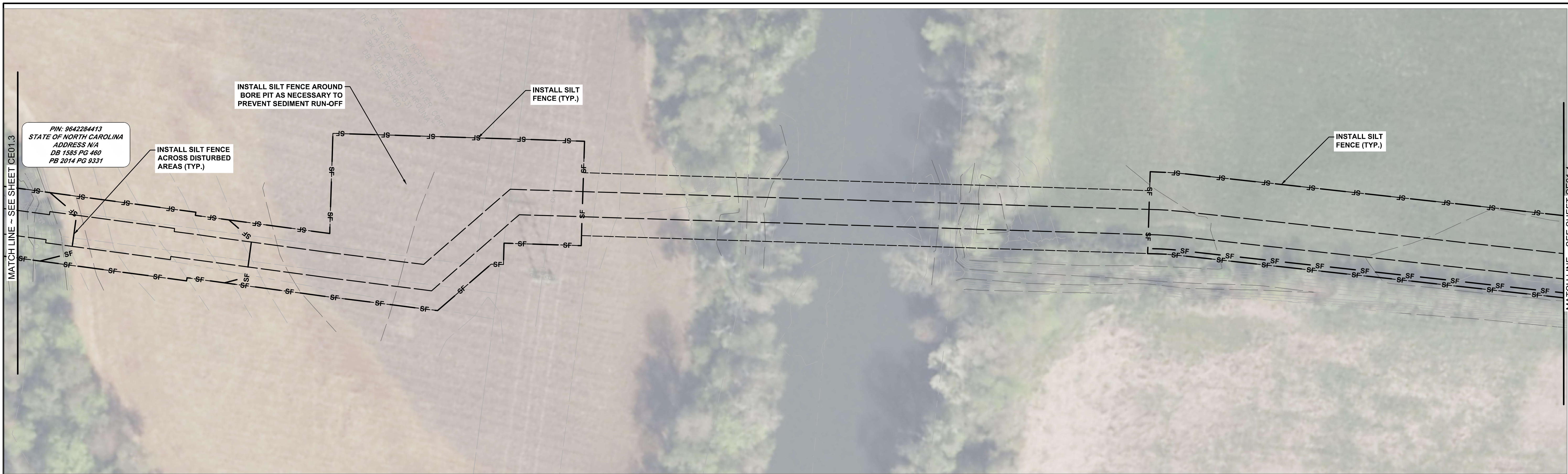


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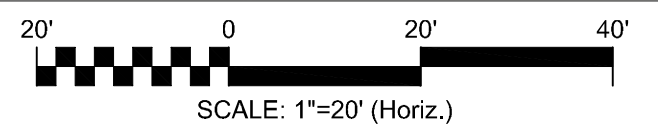
METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
 CIVIL
EROSION CONTROL LOWER ACCESS ROAD
PLAN 2 OF 2

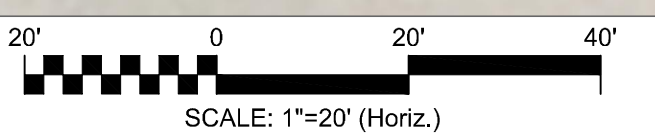
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DESIGNED: PNH	HORIZONTAL: 1"=20'	
CHECKED: PNH	VERTICAL: N/A	
PROJ. MGR: MC		
STATUS: NOT RELEASED FOR CONSTRUCTION		REVISION: 0



EROSION CONTROL PLAN
HORIZ. SCALE: 1"=20'



EROSION CONTROL PLAN
HORIZ. SCALE: 1"=20'



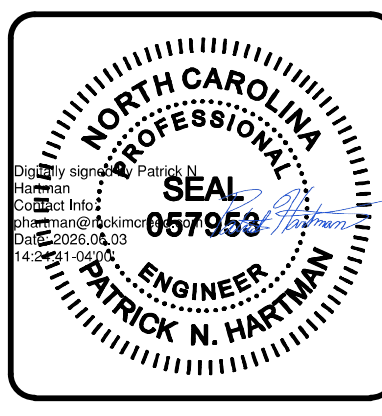
EROSION CONTROL NOTE:
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REV. NO.	DESCRIPTION	DATE

ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION

REVISIONS

JUNE 2026



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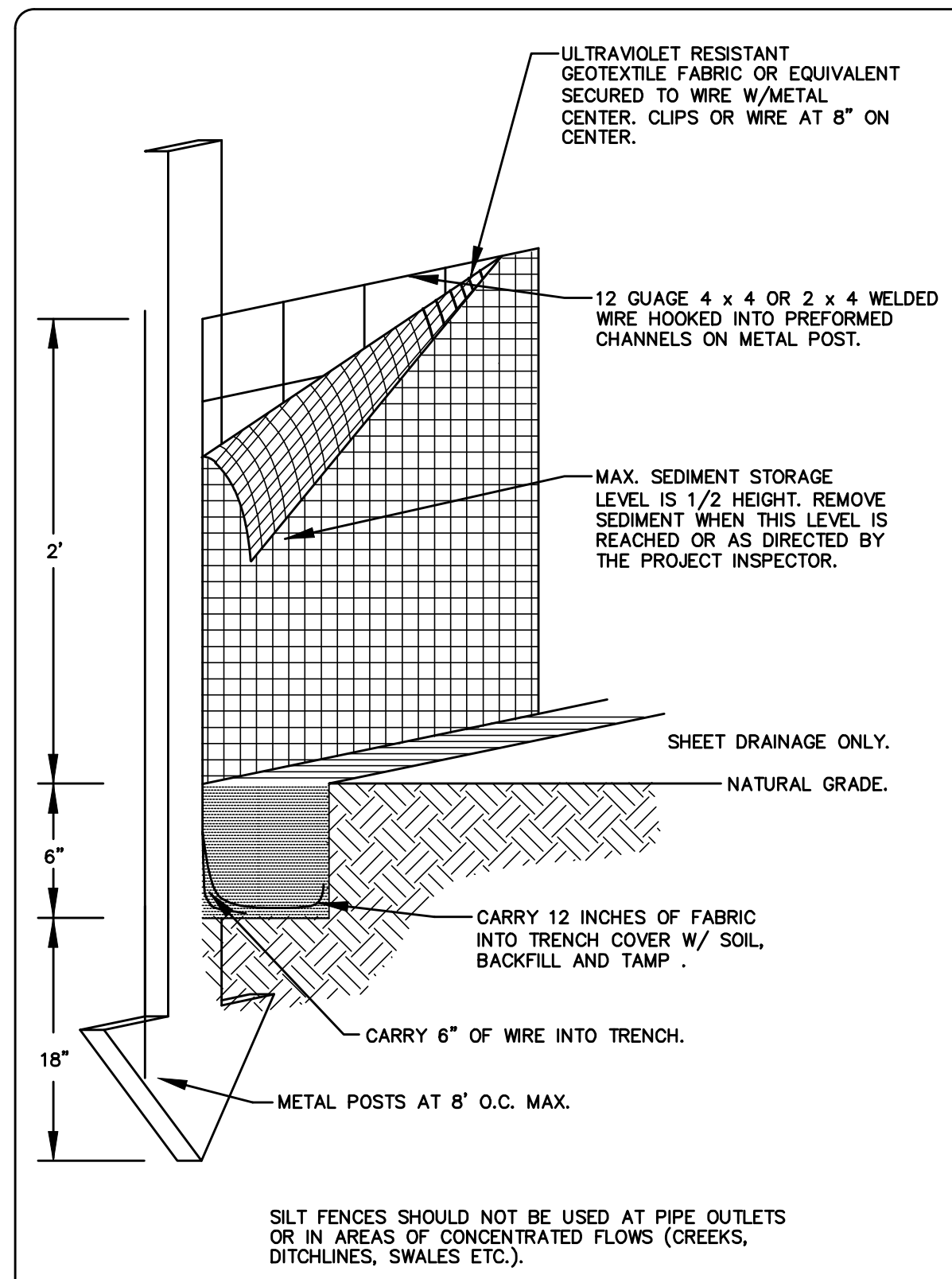
METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
CIVIL
EROSION CONTROL FORCE MAIN CROSSING PLAN

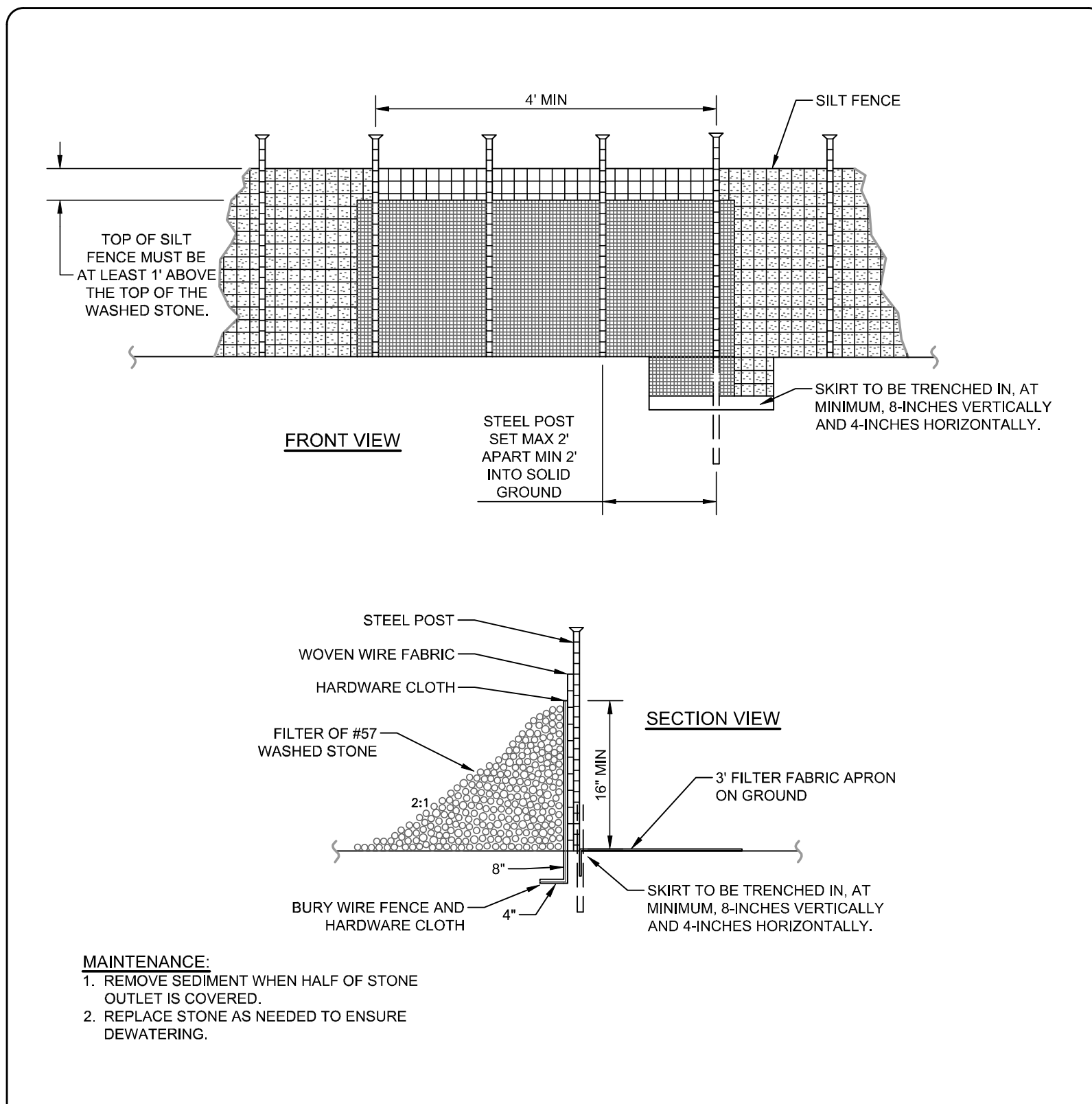
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CHECKED: PNH	
PROJ. MGR: MC	

CE01.4
DRAWING NUMBER
0
REVISION

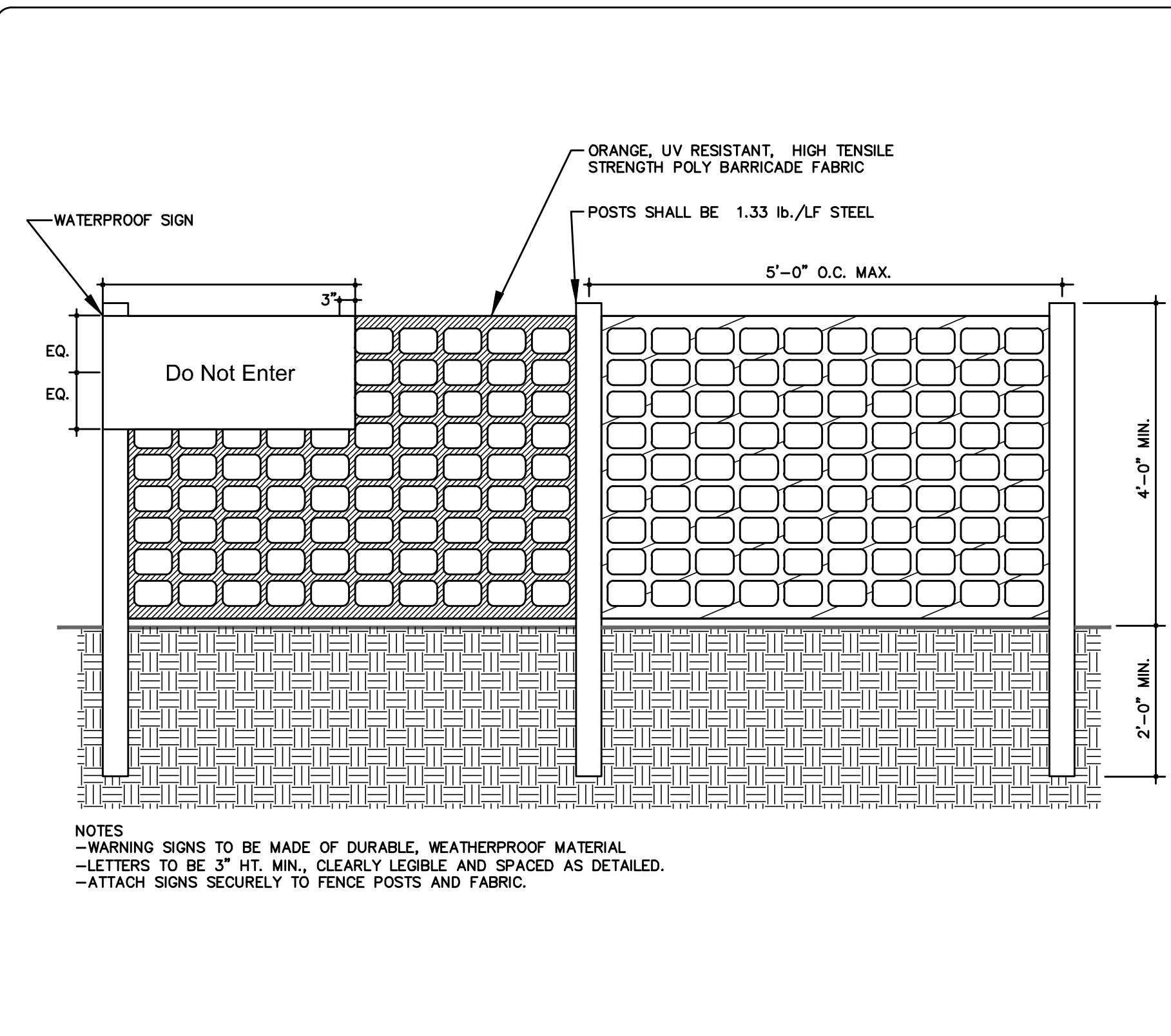
STATUS: **ISSUED FOR BID**
NOT RELEASED FOR CONSTRUCTION



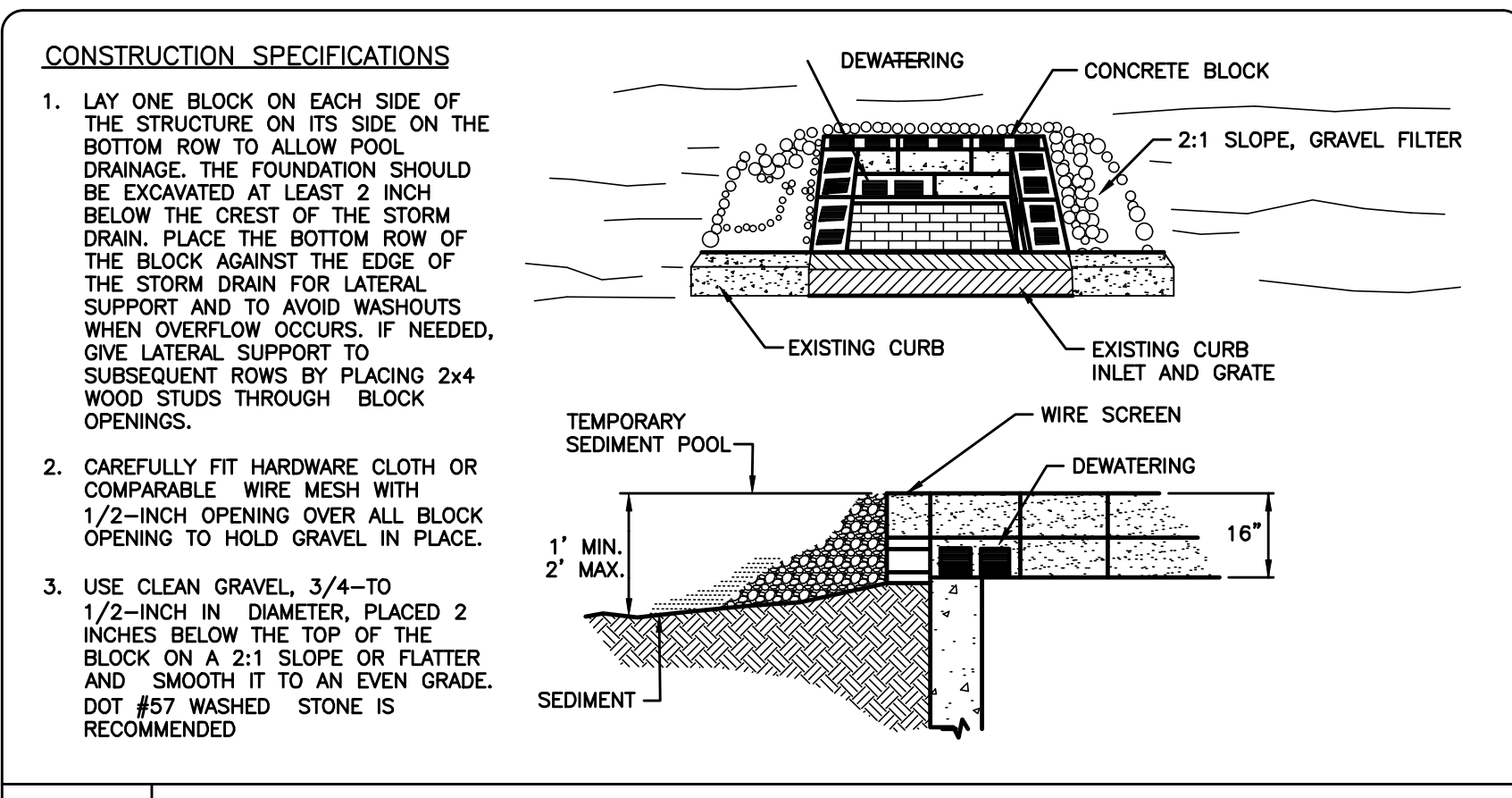
EC-01 SILT FENCE DETAIL N.T.S.



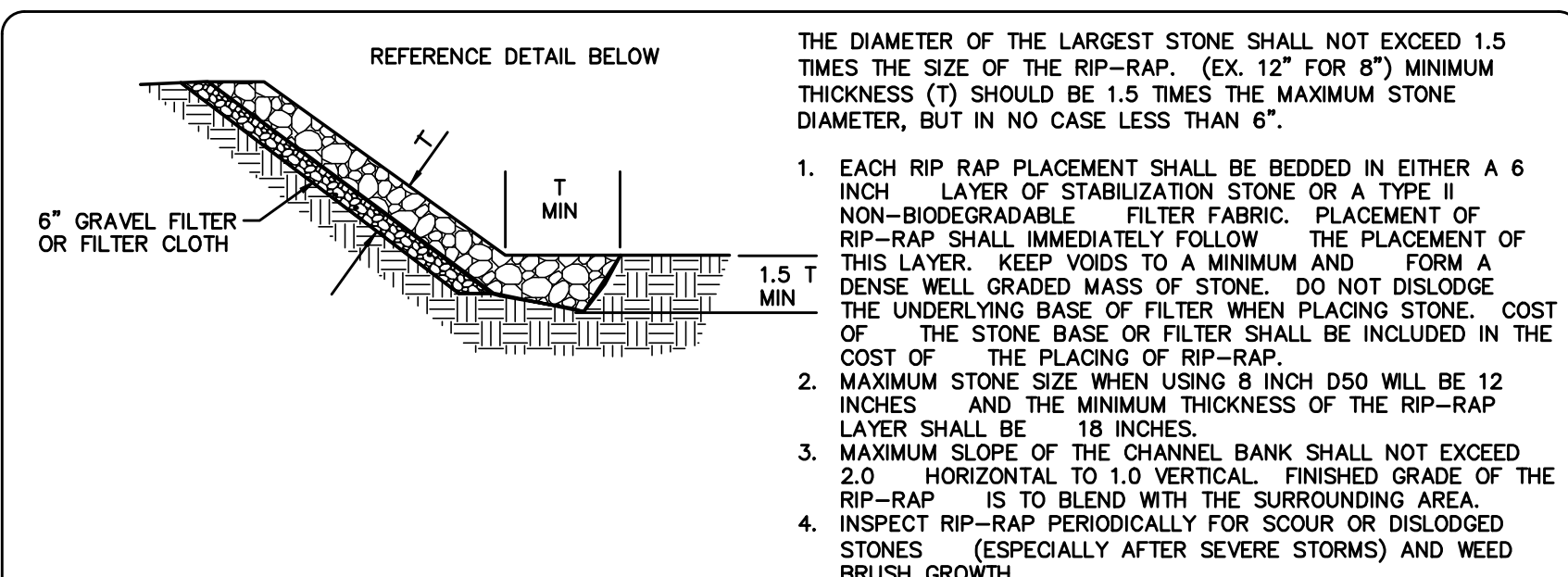
EC-02 SILT FENCE OUTLET N.T.S.



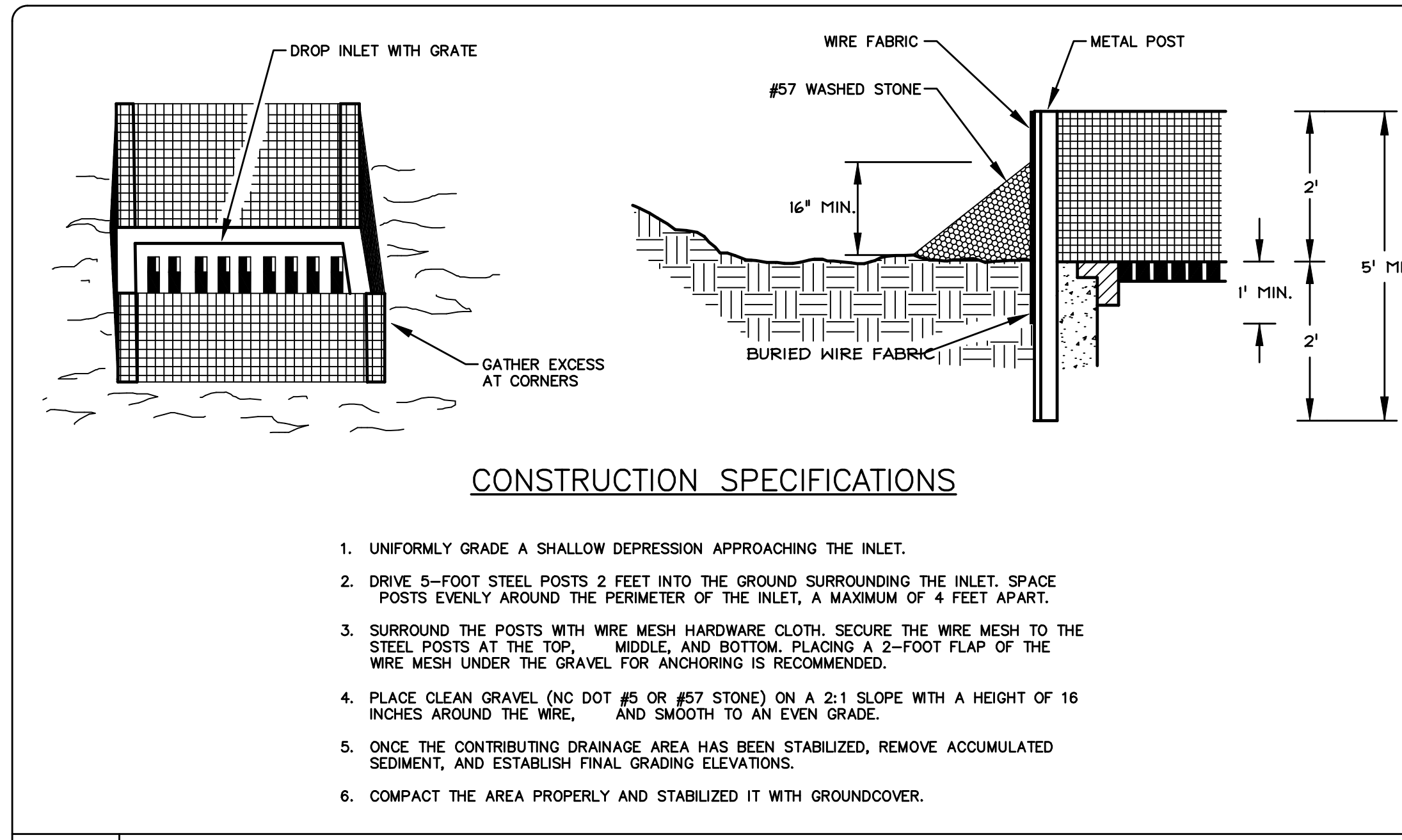
EC-03 TREE PROTECTION FENCE DETAIL N.T.S.



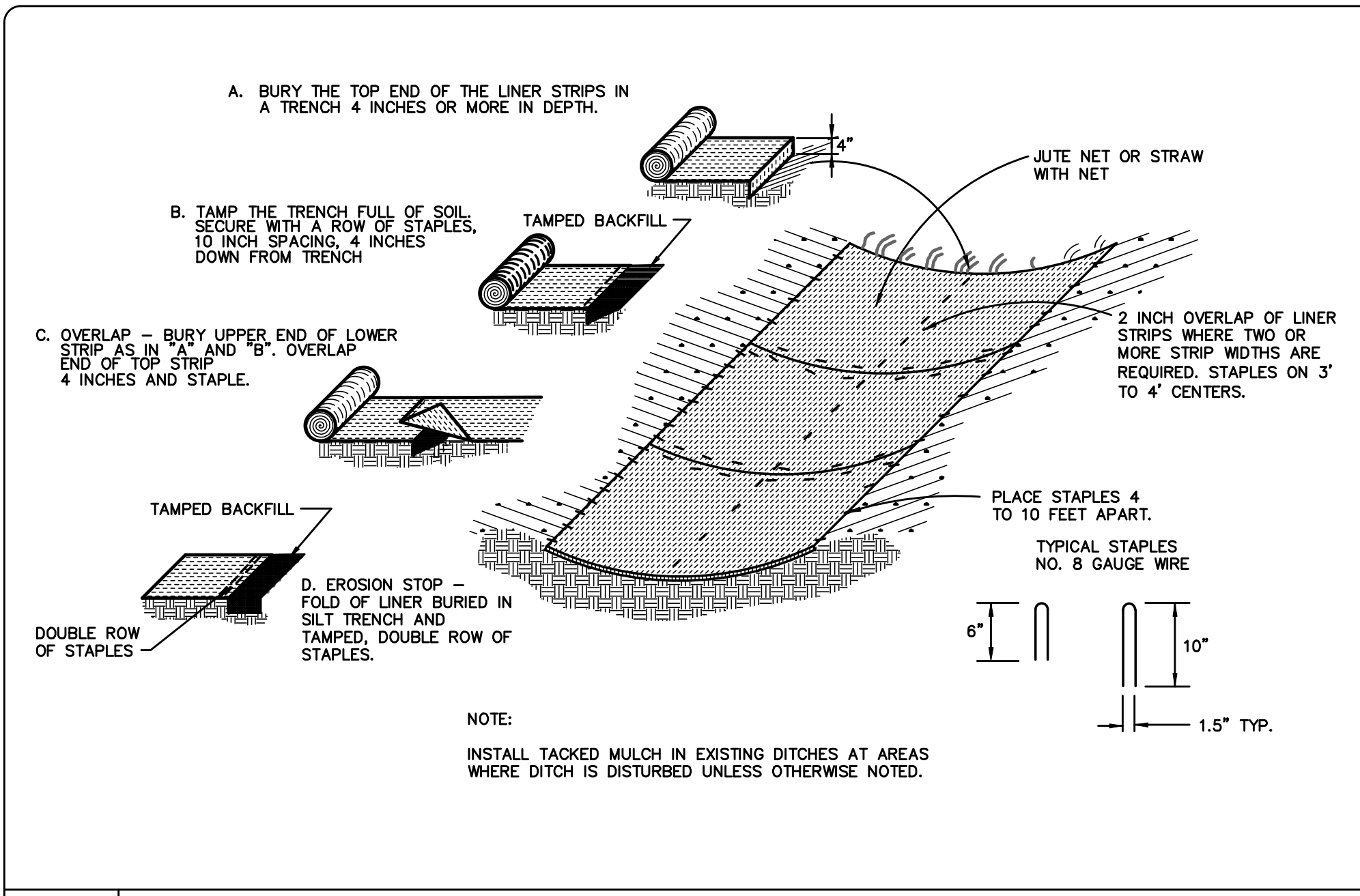
EC-08 RIP RAP PLACEMENT DETAIL N.T.S.



EC-08 RIP RAP PLACEMENT DETAIL N.T.S.



EC-04 INLET PROTECTION (STAGE ONE) N.T.S.



EC-07 MATTING DETAIL N.T.S.

SEEDING SCHEDULE FOR STABILIZATION GRASS

SHOULDERS, SIDE DITCHES, SLOPES (MAX. 3:1)

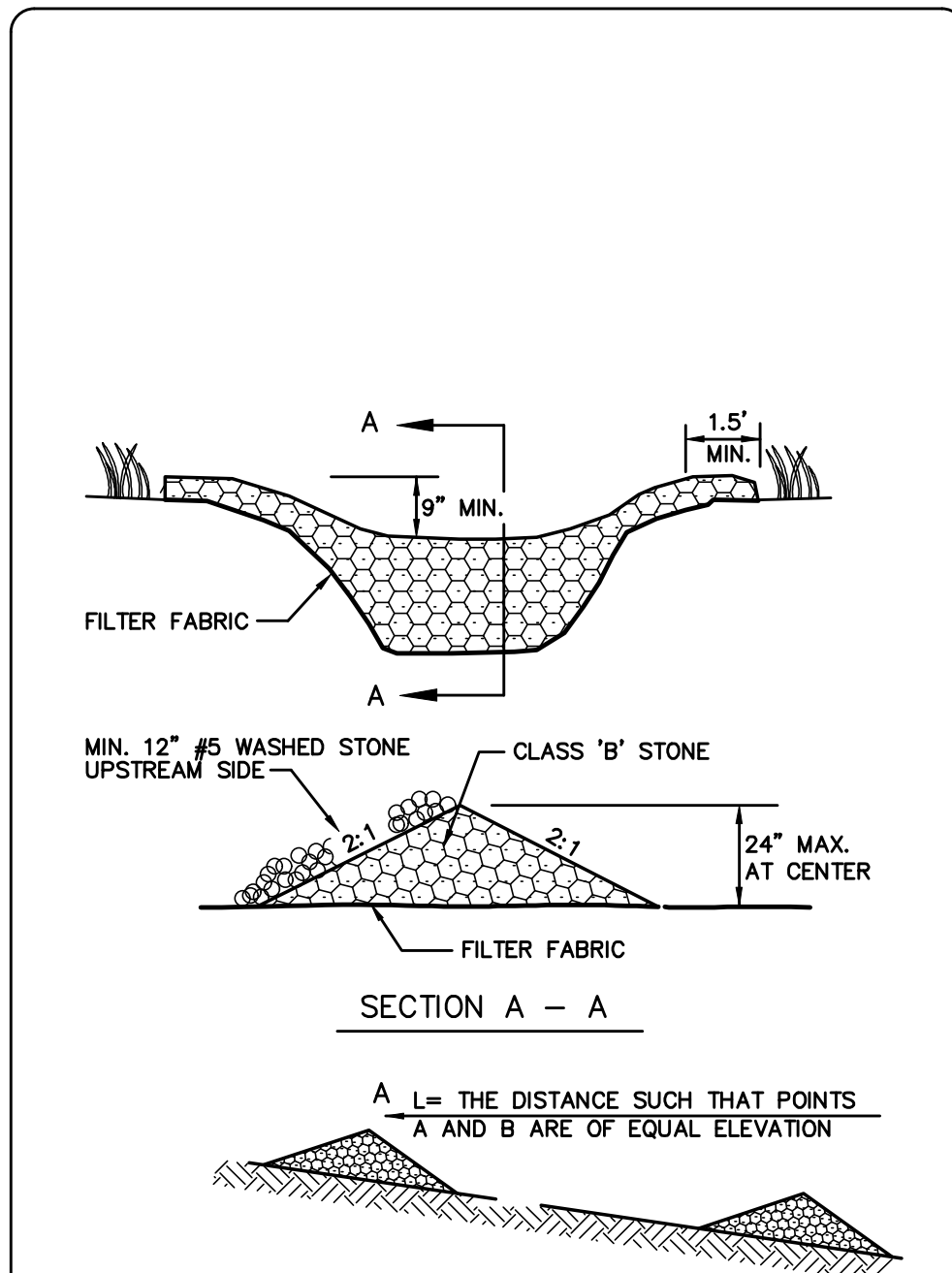
DATE	TYPE	PLANTING RATE
AUG. 15 - NOV. 1	TALL FESCUE	300 LBS/ACRE
NOV. 1 - MAR. 1	*** TALL FESCUE AND ABRUZZI RYE	25 LBS/ACRE
MAR. 1 - APR. 15	TALL FESCUE	300 LBS/ACRE
APR. 15 - JUN. 30	HULLED COMMON BERMO DAGGRASS	25 LBS/ACRE
JUL. 1 - AUG. 15	*** TALL FESCUE AND BROWNTOP MILLET OR SORGHUM - SUDAN HYBRIDS	35 LBS/ACRE

SHOULDERS, SIDE DITCHES, SLOPES (3:1 TO 2:1)

DATE	TYPE	PLANTING RATE
MAR. 1 - JUN. 1	SERICEA LESPEDEZA (SCARIFIED)	50 LBS/ACRE
(MAR. 1 - APR. 15) OR (MAR. 1 - JUN. 30)	ADD TALL FESCUE OR ADD WEEPING LOVERGRASS OR ADD HULLED COMMON BERMO DAGGRASS	120 LBS/ACRE
(MAR. 1 - JUN. 30) OR (JUN. 1 - SEP. 1)	*** TALL FESCUE AND BROWNTOP MILLET OR SORGHUM - SUDAN HYBRIDS	25 LBS/ACRE
SEP. 1 - MAR. 1	SERICEA LESPEDEZA (UN-HULLED - UNSCARIFIED) AND TALL FESCUE	30 LBS/ACRE
NOV. 1 - MAR. 1	ADD ABRUZZI RYE	120 LBS/ACRE

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENuded AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS. OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE. *** TEMPORARY - RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12\"/>

EC-10 SEEDING SCHEDULE (GRASS) N.T.S.



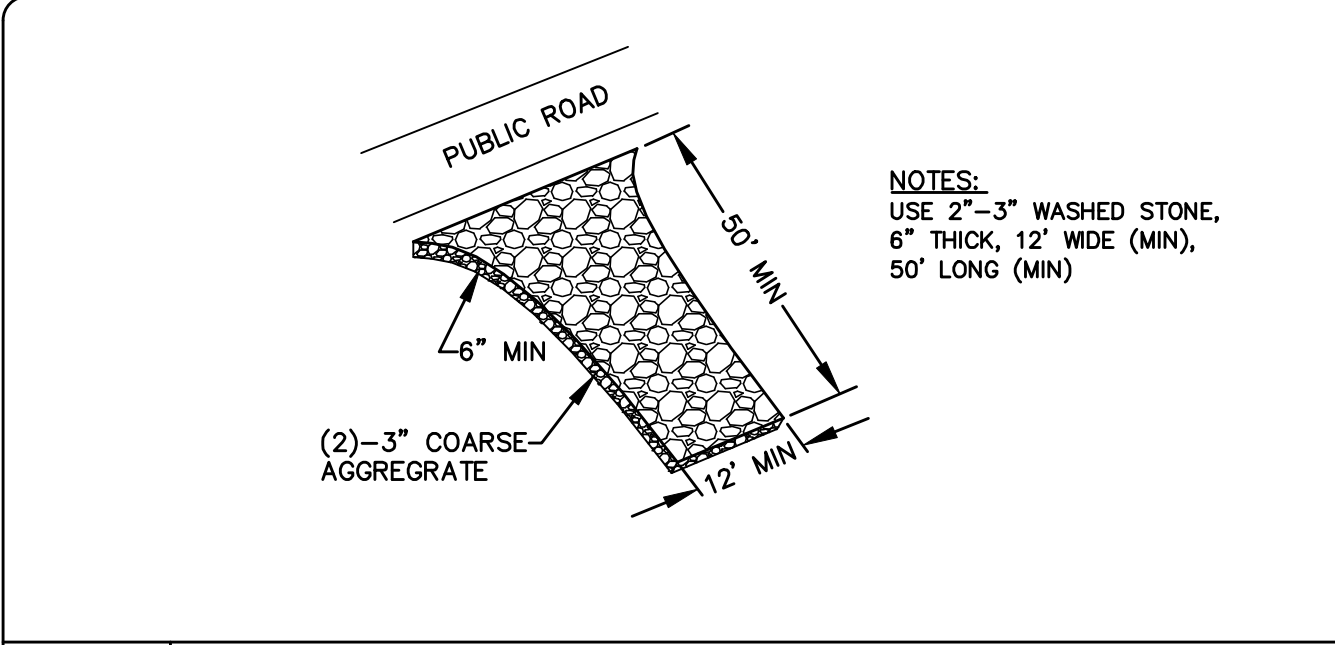
EC-05 INLET PROTECTION N.T.S.

- SEEDBED PREPARATION
- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
 - 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 BELOW*).
 - CONTINUE TILLAGE UNTIL A WELL - PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
 - SEED ON A FRESHLY PREPARED SEEDBED AND COVER SLIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
 - MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
 - INSPECT ALL SEEDBED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDING WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED REESTABLISHED FOLLOWING ORIGINAL LINE, FERTILIZER AND SEEDING RATES.
 - CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED. * APPLY: AGRICULTURAL LIMESTONE - 2 TONS/ACRE OR 3 TONS/ACRE IN CLAY SOILS FERTILIZER - 1000 LBS/ACRE (10-10-10) SUPERPHOSPHATE - 500 LBS/ACRE (20%) MULCH - 2 TONS/ACRE (SMALL GRAIN STRAW) ANCHOR - ASPHALT EMULSION AT 450 GAL./ACRE

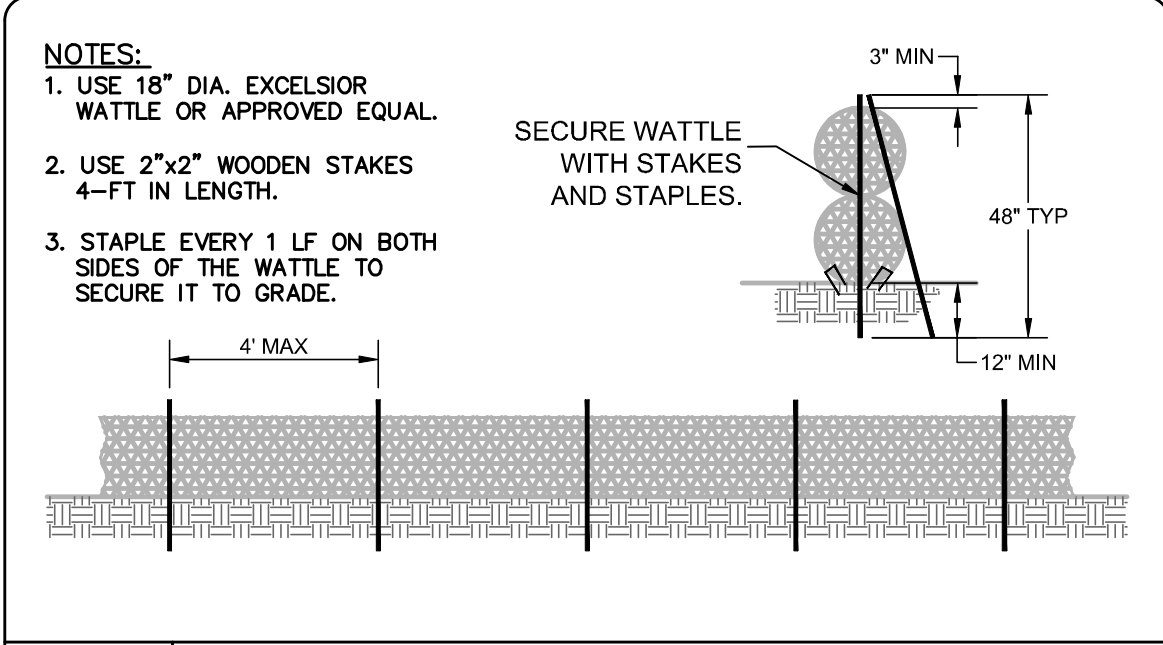
EC-11 SEEDBED PREPARATION N.T.S.

- CONSTRUCTION SEQUENCE
- INSTALL TEMPORARY SILT FENCING, CHECK DAMS, OR OTHER MEASURES AS SHOWN ON THE APPROVED PLANS.
 - INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCE WHERE REQUIRED TO ACCESS WORK AREA.
 - PROTECT INLETS WITH SILT FENCING, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN ON THE PLANS.
 - CALL FOR ONSITE INSPECTION BY ENVIRONMENTAL INSPECTOR AND OBTAIN CERTIFICATION OF COMPLIANCE, PRIOR TO CONSTRUCTION IN EACH AREA.
 - OPEN TRENCH, INSTALL PIPELINE, AND BACKFILL TRENCH.
 - STABILIZE SITE AS TRENCH IS RESTORED TO ORIGINAL GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC.
 - WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR FINAL SITE INSPECTION BY ENVIRONMENTAL INSPECTOR.
 - REMOVE SILT FENCING & CHECK DAMS AFTER FINAL APPROVAL FROM ENVIRONMENTAL INSPECTOR.

EC-12 CONSTRUCTION SEQUENCE N.T.S.

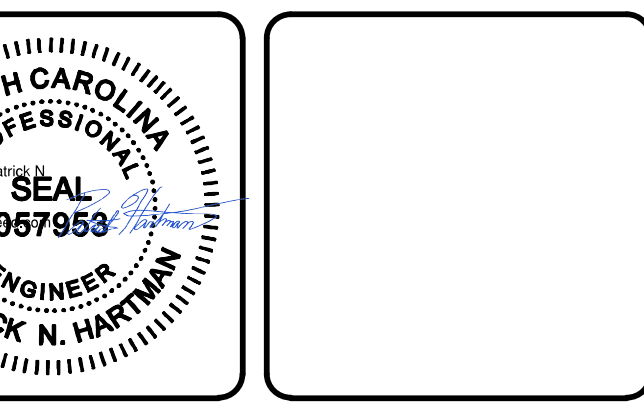


EC-09 GRAVEL CONSTRUCTION ENTRANCE N.T.S.



EC-13 TEMP. SLOPE BREAK WATTLE N.T.S.

REV. NO.	DESCRIPTION	DATE
1	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2024



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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT

CIVIL

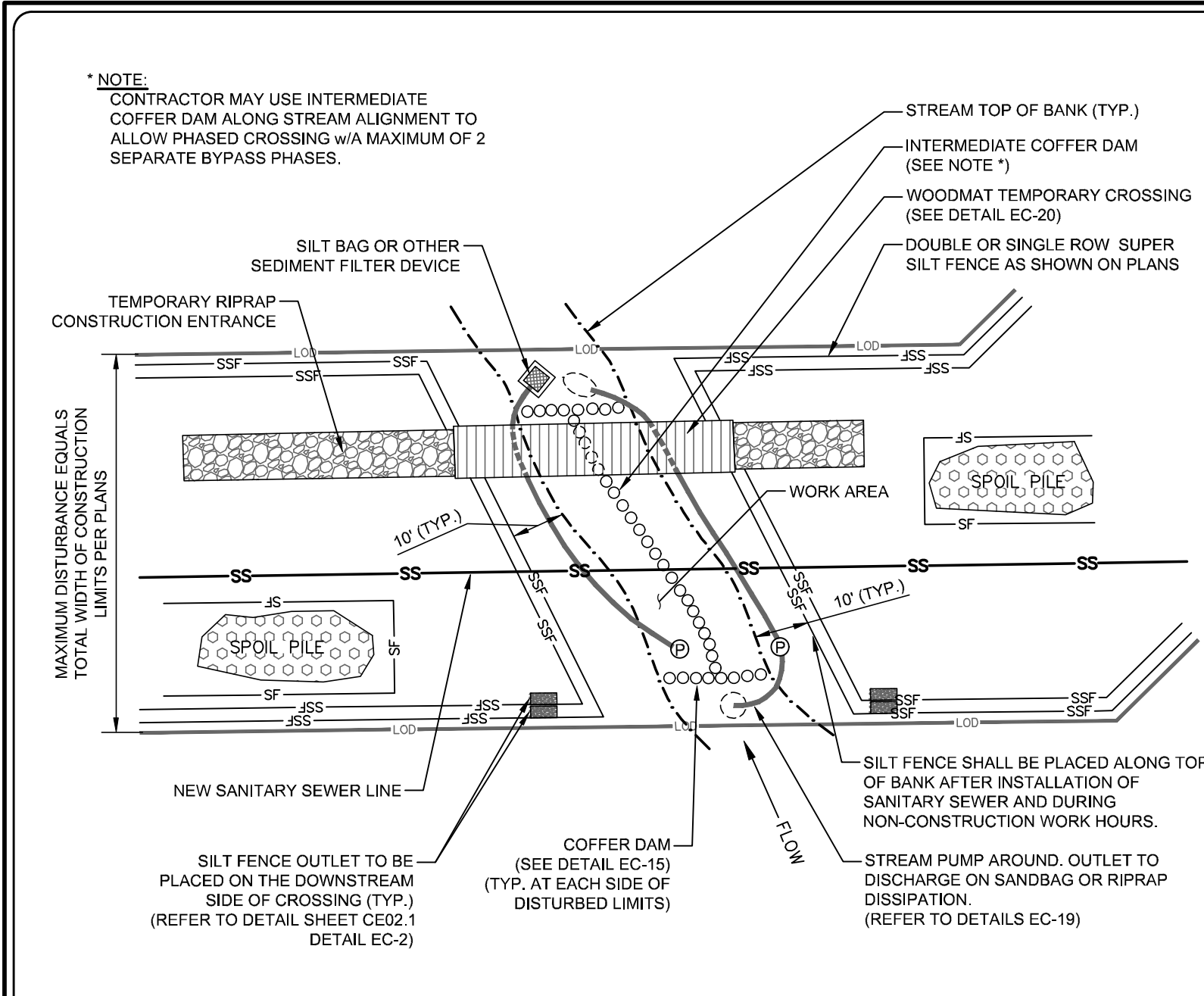
EROSION AND SEDIMENTATION CONTROL DETAILS

PROJ. START DATE: 2024 MAR 09
MISD PROJ. # 20240061
DRAWN: PNH
DESIGNED: PNH
CHECKED: PNH
PROJ. MGR: MC

SCALE: HORIZONTAL: AS NOTED VERTICAL: AS NOTED

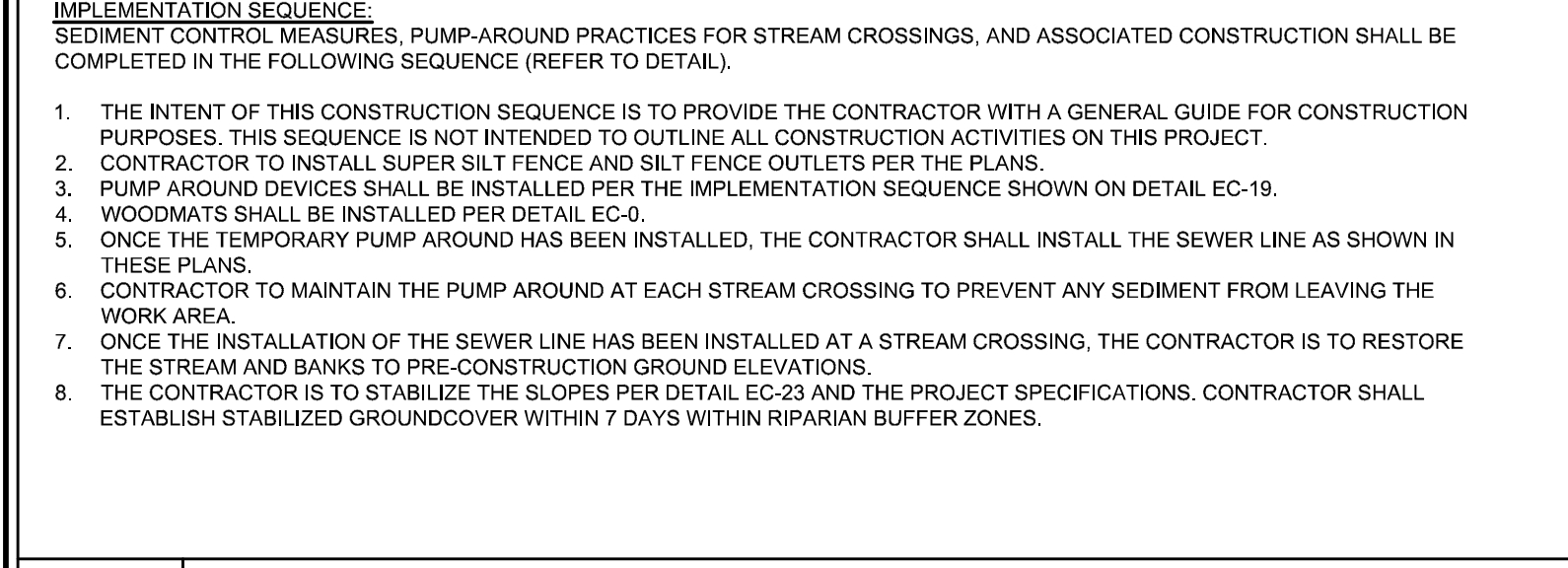
CE02.1
DRAWING NUMBER
0 REVISION

STATUS: ISSUED FOR BID NOT RELEASED FOR CONSTRUCTION

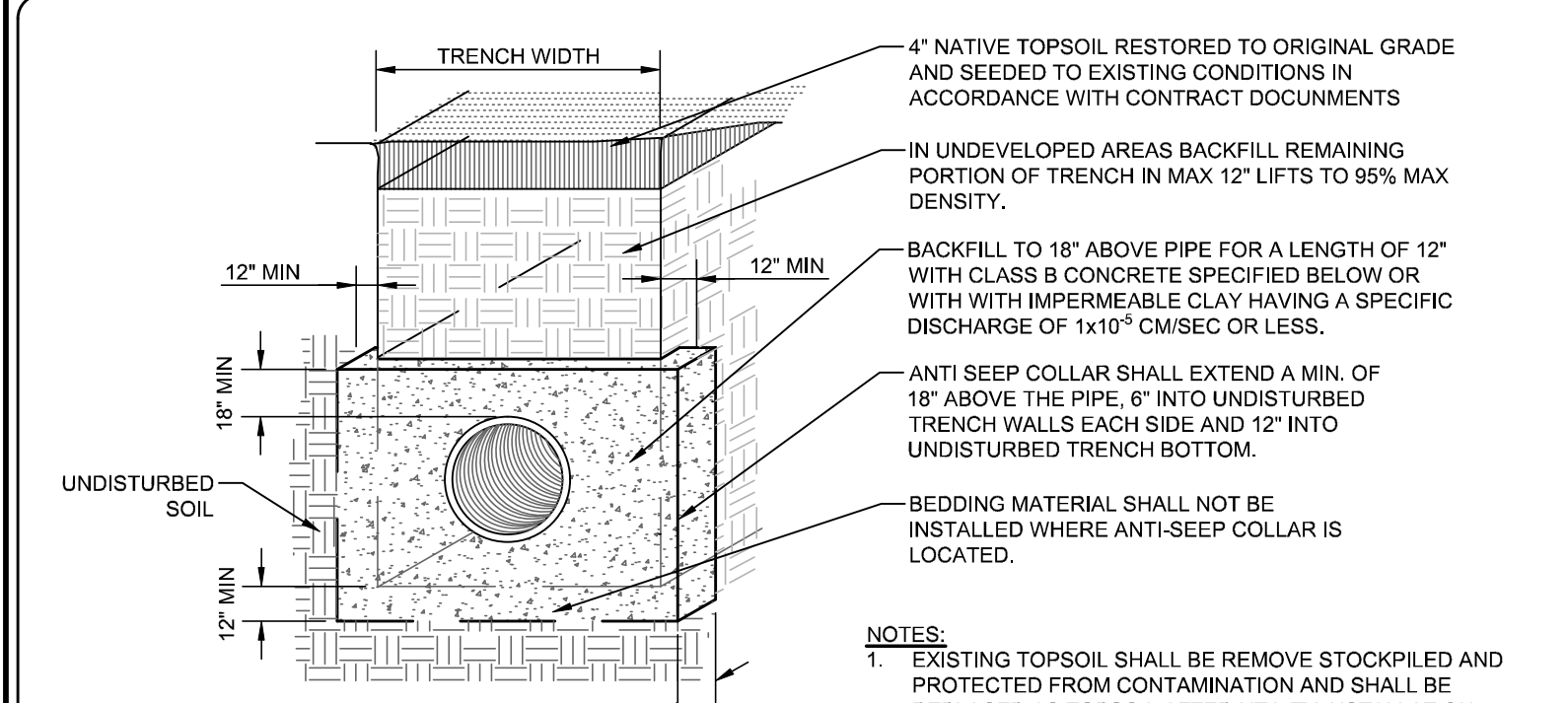


- CONSTRUCTION SPECIFICATIONS:**
- KEEP CLEARING AND EXCAVATION OF THE STREAM BANKS AND BED AND APPROACH SECTIONS TO A MINIMUM.
 - DIVERT ALL SURFACE WATER FROM THE CONSTRUCTION SITE ONTO UNDISTURBED AREAS ADJOINING THE STREAM.
 - KEEP STREAM CROSSING AT RIGHT ANGLES TO THE STREAM FLOW.
 - ALIGN ROAD 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 SOIL.
 - 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:**
SEDIMENT CONTROL MEASURES, PUMP-AROUND PRACTICES FOR STREAM CROSSINGS, AND ASSOCIATED CONSTRUCTION SHALL BE COMPLETED IN THE FOLLOWING SEQUENCE (REFER TO DETAIL).
- 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 SHALL BE INSTALLED PER THE IMPLEMENTATION SEQUENCE SHOWN ON DETAIL EC-19.
 - WOODMATS SHALL BE INSTALLED PER DETAIL EC-0.
 - 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 SEWER 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 PER DETAIL EC-23 AND THE PROJECT SPECIFICATIONS. CONTRACTOR SHALL ESTABLISH STABILIZED GROUND COVER WITHIN 7 DAYS WITHIN RIPARIAN BUFFER ZONES.

EC-16 TEMPORARY STREAM CROSSING N.T.S.



EC-17 TEMPORARY WETLAND CROSSING N.T.S.

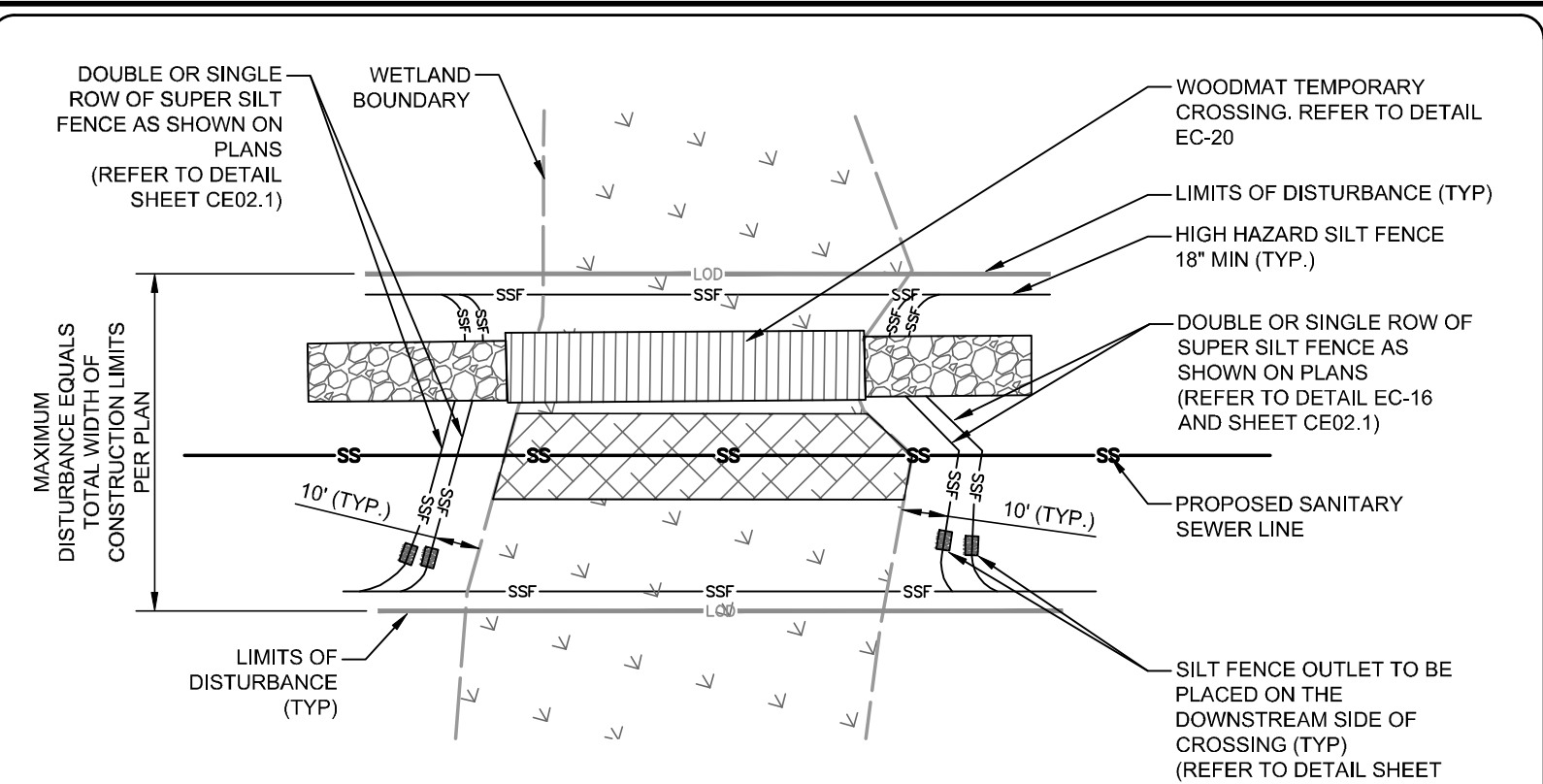


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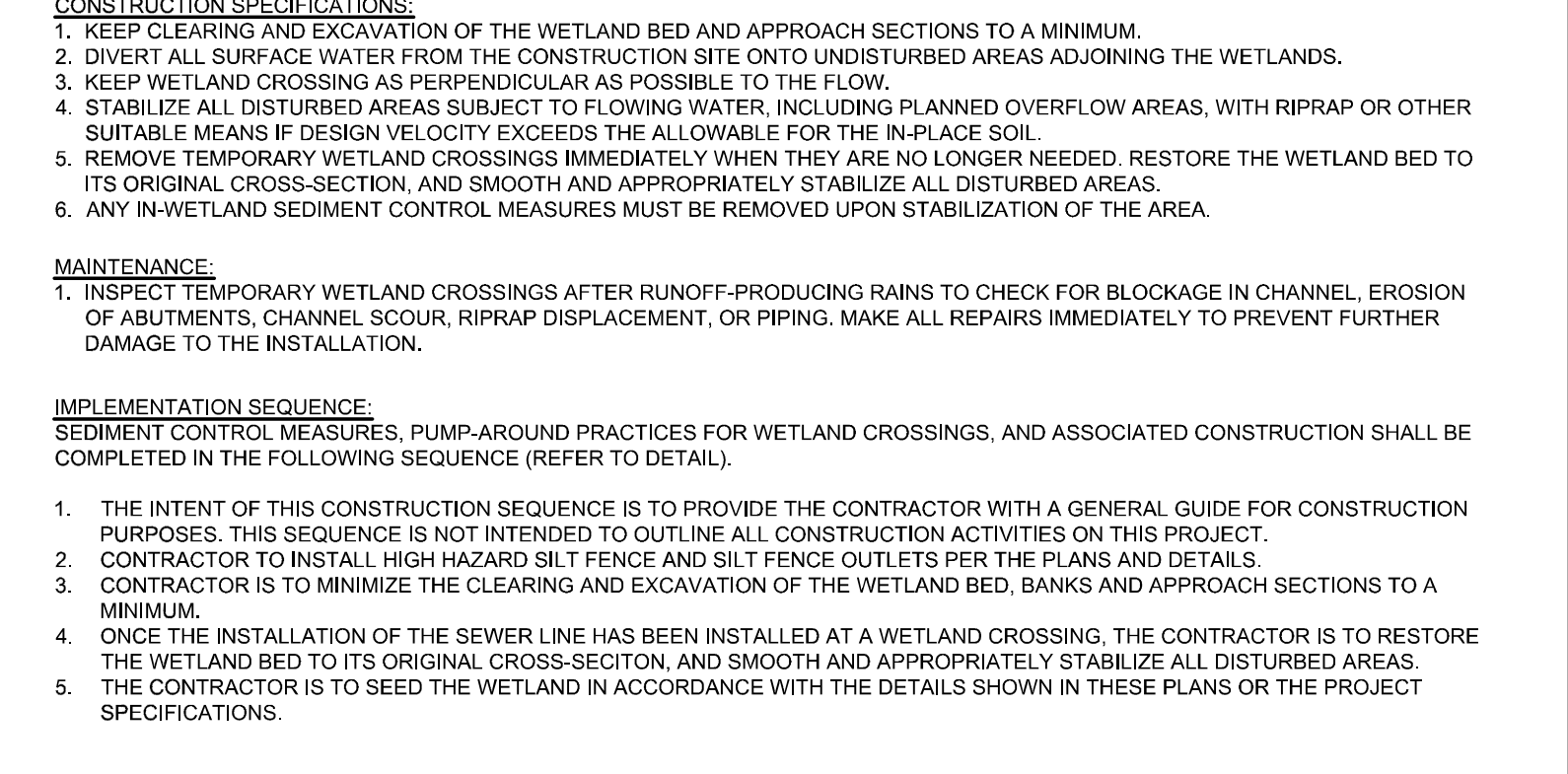
- EXISTING TOPSOIL SHALL BE REMOVE STOCKPILED AND PROTECTED FROM CONTAMINATION AND SHALL BE REPLACED AS TOPSOIL AFTER UTILITY INSTALLATION.
- ANTI-SEEP COLLAR SHALL BE PLACED AT THE DOWNSTREAM WETLAND BOUNDARY AND A MIN. SPACING OF 150' UP THE GRADIENT UNTIL THE UTILITY EXITS THE WETLAND BOUNDARY UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
- ANTI-SEEP COLLARS MAY BE CONSTRUCTED WITH DIRECTIONALLY DRILLED AND PERPENDICULAR WETLAND CROSSINGS THAT ARE OPEN CUT AND LESS THAN 150' IN LENGTH DO NOT REQUIRE ANTI-SEEP COLLARS.
- CONTRACTOR SHALL PROVIDE SUITABLE FORMING (TO BE REMOVED) TO CONTAIN CONCRETE FOR PROPER SHAPE AND DIMENSIONS.
- ANTI-SEEP COLLAR MATERIAL AND INSTALLATION SHALL BE APPROVED BY THE PROJECT COORDINATOR PRIOR TO PLACING AND BACKFILLING.
- CONSTRUCTION AND SEEDING IN WETLAND AREAS SHALL BE IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS AND THE OWNER'S PERMIT REQUIREMENTS.

CLASS B CONCRETE SPECIFICATIONS	
A) MINIMUM CEMENT CONTENT, SACKS PER CUBIC YARD WITH ROUNDED COURSE AGGREGATE	5.0
B) MINIMUM CEMENT CONTENT, SACKS PER CUBIC YARD WITH ANGULAR COURSE AGGREGATE	5.5
C) MAXIMUM WATER-CEMENT RATIO GALLONS PER SACK	6.8
D) SLUMP RANGE	2" TO 4"
E) MINIMUM STRENGTH - 28 DAY PSI	2,500

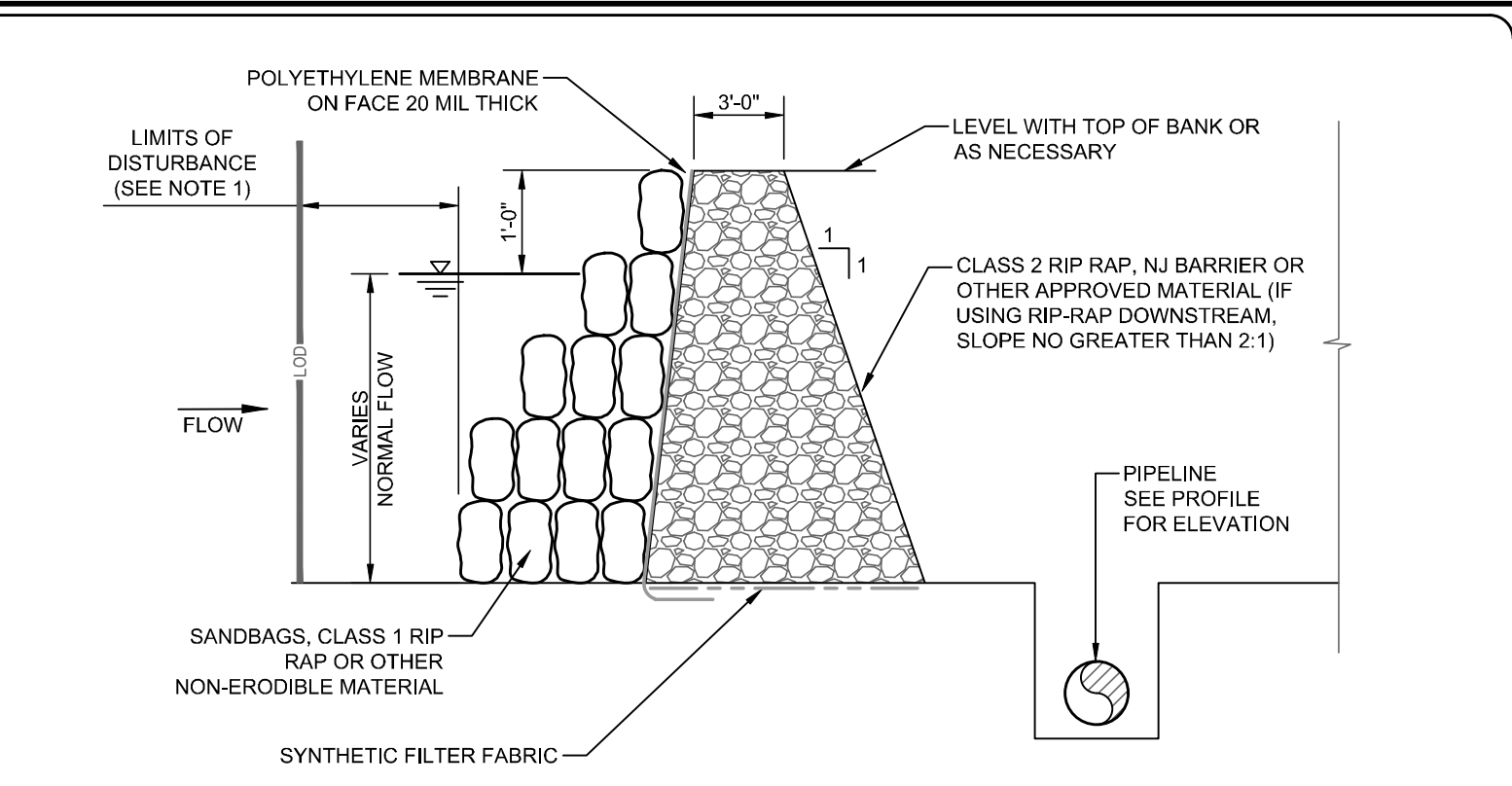
EC-18 ANTI-SEEP COLLAR N.T.S.



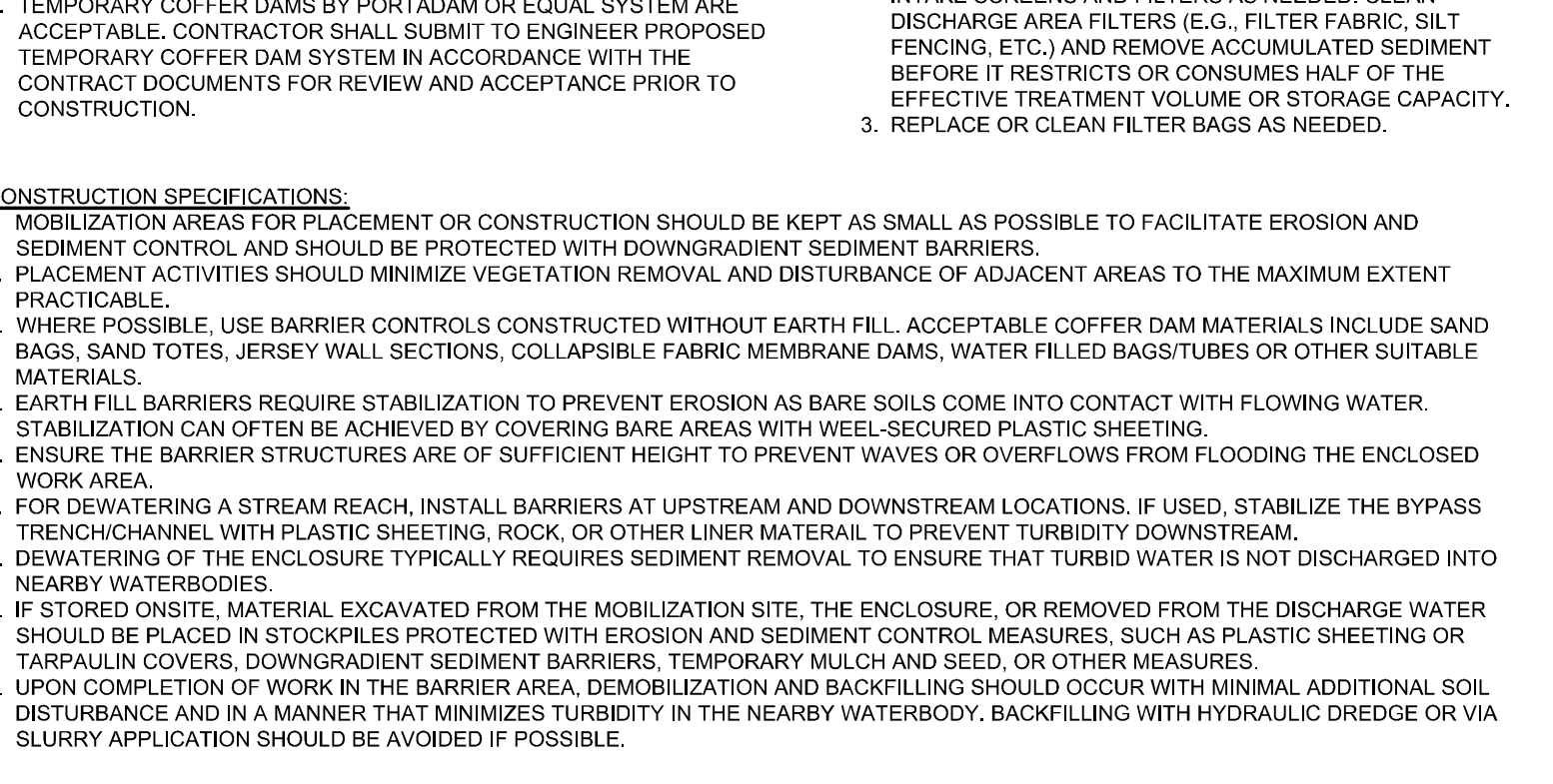
- NOTES:**
- THE TOP 12" OF SOIL REMOVED FROM THE DISTURBED WETLAND AREA SHALL BE STOCKPILED ADJACENT TO THE WORK AREA AND REUSED FOR FINAL BACKFILL AT THE RESTORED GROUND SURFACE.
 - THE CONTRACTOR SHALL USE MATTING OR OTHER MEASURES NECESSARY FOR CROSSING WETLAND AREAS DURING EXCAVATION, INSTALLATION AND BACKFILL OF THE SANITARY SEWER.
 - WETLAND AREAS SHALL BE RESTORED TO THE PRE-CONSTRUCTION GROUND ELEVATIONS AND REPLANTED IN ACCORDANCE WITH THE WETLAND SEEDING SCHEDULE, TECHNICAL SPECIFICATIONS AND THE APPROVED SECTION 404-01 NATIONAL PERMIT.
- CONSTRUCTION SPECIFICATIONS:**
- KEEP CLEARING AND EXCAVATION OF THE WETLAND BED AND APPROACH SECTIONS TO A MINIMUM.
 - DIVERT ALL SURFACE WATER FROM THE CONSTRUCTION SITE ONTO UNDISTURBED AREAS ADJOINING THE WETLANDS.
 - KEEP WETLAND CROSSING AS PERPENDICULAR AS POSSIBLE TO THE FLOW.
 - 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 SOIL.
 - REMOVE TEMPORARY WETLAND CROSSINGS IMMEDIATELY WHEN THEY ARE NO LONGER NEEDED. RESTORE THE WETLAND BED TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILIZE ALL DISTURBED AREAS.
 - ANY IN-WETLAND SEDIMENT CONTROL MEASURES MUST BE REMOVED UPON STABILIZATION OF THE AREA.
- MAINTENANCE:**
- INSPECT TEMPORARY WETLAND 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:**
SEDIMENT CONTROL MEASURES, PUMP-AROUND PRACTICES FOR WETLAND CROSSINGS, AND ASSOCIATED CONSTRUCTION SHALL BE COMPLETED IN THE FOLLOWING SEQUENCE (REFER TO DETAIL).
- 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 HIGH HAZARD SILT FENCE AND SILT FENCE OUTLETS PER THE PLANS AND DETAILS.
 - CONTRACTOR IS TO MINIMIZE THE CLEARING AND EXCAVATION OF THE WETLAND BED, BANKS AND APPROACH SECTIONS TO A MINIMUM.
 - ONCE THE INSTALLATION OF THE SEWER LINE HAS BEEN INSTALLED AT A WETLAND CROSSING, THE CONTRACTOR IS TO RESTORE THE WETLAND BED TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILIZE ALL DISTURBED AREAS.
 - THE CONTRACTOR IS TO SEED THE WETLAND IN ACCORDANCE WITH THE DETAILS SHOWN IN THESE PLANS OR THE PROJECT SPECIFICATIONS.



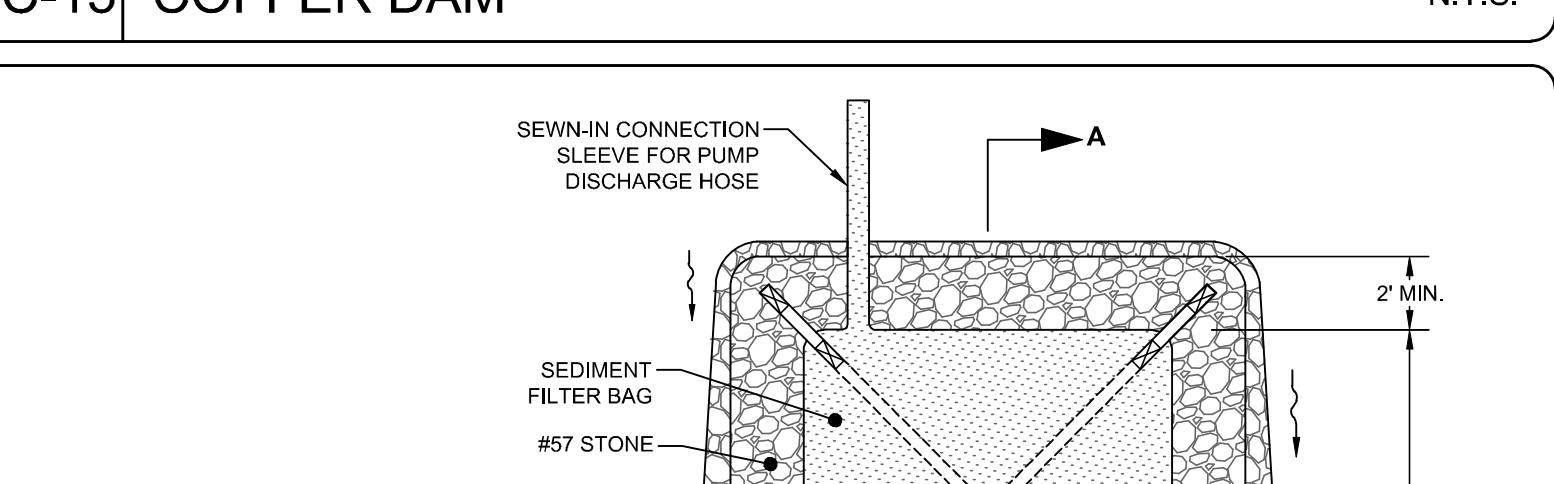
EC-20 WOODMAT TEMPORARY CROSSING N.T.S.



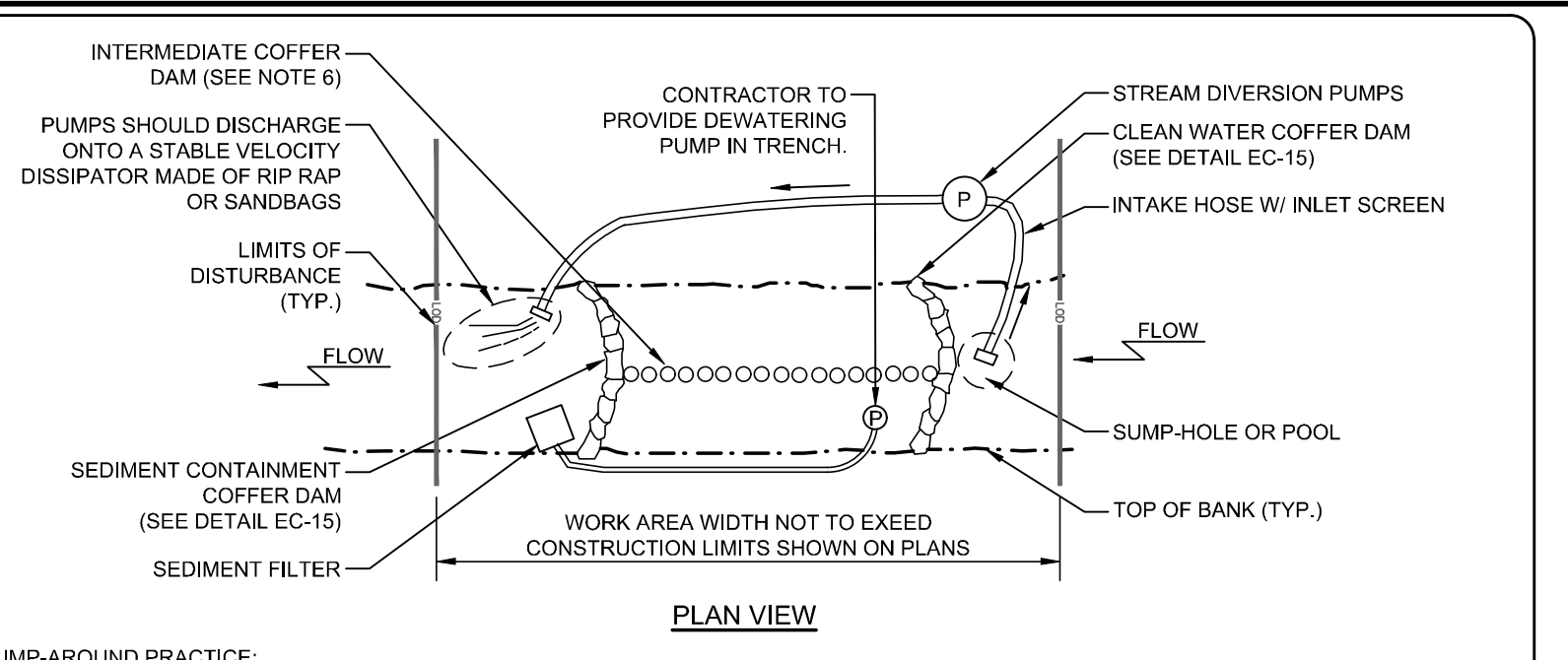
- NOTES:**
- CONTRACTOR SHALL INSTALL COFFER DAMS WITH ENOUGH SEPARATION FROM THE PROJECT CONSTRUCTION LIMITS OF DISTURBANCE TO PLACE PUMP INTAKE AND DISCHARGE HOSES, DISSIPATORS AND SEDIMENT FILTER STRUCTURES.
 - TEMPORARY PRE-FABRICATED COFFER DAMS SUCH AS PORT-A-DAM AND OTHERS MAY BE USED IN SUBSTITUTION TO THE SANDBAG/RIPRAP DAM WITH PRIOR APPROVAL BY THE OWNER AND ENGINEER.
 - TEMPORARY COFFER DAMS BY PORTADAM OR EQUAL SYSTEM ARE ACCEPTABLE. CONTRACTOR SHALL SUBMIT TO ENGINEER PROPOSED TEMPORARY COFFER DAM SYSTEM IN ACCORDANCE WITH THE CONTRACT DOCUMENTS FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
- MAINTENANCE:**
- WATERS ADJACENT TO THE BARRIER STRUCTURES SHOULD BE INSPECTED FOR TURBIDITY ON A CONTINUOUS BASIS. FIND AND ELIMINATE SOURCES OF TURBIDITY, OR USE FLOATING SILT CURTAINS TO PREVENT TURBID WATERS FROM MIGRATING AWAY FROM THE IMMEDIATE CONSTRUCTION AREA.
 - KEEP SEDIMENT AND DEBRIS FROM DEWATERING PUMP INTAKE SCREENS AND FILTERS AS NEEDED. CLEAN DISCHARGE AREA FILTERS (E.G. FILTER FABRIC, SILT FENCING, ETC.) AND REMOVE ACCUMULATED SEDIMENT BEFORE IT RESTRICTS OR CONSUMES HALF OF THE EFFECTIVE TREATMENT VOLUME OR STORAGE CAPACITY.
 - REPLACE OR CLEAN FILTER BAGS AS NEEDED.
- CONSTRUCTION SPECIFICATIONS:**
- MOBILIZATION AREAS FOR PLACEMENT OR CONSTRUCTION SHOULD BE KEPT AS SMALL AS POSSIBLE TO FACILITATE EROSION AND SEDIMENT CONTROL AND SHOULD BE PROTECTED WITH DOWNGRADIENT SEDIMENT BARRIERS.
 - PLACEMENT ACTIVITIES SHOULD MINIMIZE VEGETATION REMOVAL AND DISTURBANCE OF ADJACENT AREAS TO THE MAXIMUM EXTENT PRACTICABLE.
 - WHERE POSSIBLE, USE BARRIER CONTROLS CONSTRUCTED WITHOUT EARTH FILL. ACCEPTABLE COFFER DAM MATERIALS INCLUDE SAND BAGS, SAND TOTES, JERSEY WALL SECTIONS, COLLAPSIBLE FABRIC MEMBRANE DAMS, WATER FILLED BAGS/TUBES OR OTHER SUITABLE MATERIALS.
 - EARTH FILL BARRIERS REQUIRE STABILIZATION TO PREVENT EROSION AS BARE SOILS COME INTO CONTACT WITH FLOWING WATER. STABILIZATION CAN OFTEN BE ACHIEVED BY COVERING BARE AREAS WITH WEEL-SECURED PLASTIC SHEETING.
 - ENSURE THE BARRIER STRUCTURES ARE OF SUFFICIENT HEIGHT TO PREVENT WAVES OR OVERFLOWS FROM FLOODING THE ENCLOSED WORK AREA.
 - FOR DEWATERING A STREAM REACH, INSTALL BARRIERS AT UPSTREAM AND DOWNSTREAM LOCATIONS. IF USED, STABILIZE THE BYPASS TRENCH CHANNEL WITH PLASTIC SHEETING, ROCK, OR OTHER LINER MATERIAL TO PREVENT TURBIDITY DOWNSTREAM.
 - DEWATERING OF THE ENCLOSURE TYPICALLY REQUIRES SEDIMENT REMOVAL TO ENSURE THAT TURBID WATER IS NOT DISCHARGED INTO NEARBY WATERBODIES.
 - IF STORED ON-SITE, MATERIAL EXCAVATED FROM THE MOBILIZATION SITE, THE ENCLOSURE, OR REMOVED FROM THE DISCHARGE WATER SHOULD BE PLACED IN STOCKPILES PROTECTED WITH EROSION AND SEDIMENT CONTROL MEASURES, SUCH AS PLASTIC SHEETING OR TARPULIN COVERS, DOWNGRADIENT SEDIMENT BARRIERS, TEMPORARY MULCH AND SEED, OR OTHER MEASURES.
 - UPON COMPLETION OF WORK IN THE BARRIER AREA, DEMOBILIZATION AND BACKFILLING SHOULD OCCUR WITH MINIMAL ADDITIONAL SOIL DISTURBANCE AND IN A MANNER THAT MINIMIZES TURBIDITY IN THE NEARBY WATERBODY. BACKFILLING WITH HYDRAULIC DREDGE OR VIA SLURRY APPLICATION SHOULD BE AVOIDED IF POSSIBLE.



EC-14 SEDIMENT FILTER BAG WITH GRAVEL PAD N.T.S.



EC-23 STREAM BANK RIP-RAP RESTORATION N.T.S.



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 DISSIPATOR MADE OF RIPRAP 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-16).
- AFTER THE SANITARY SEWER 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 DISSIPATOR USED FOR THE MAIN STREAM PUMP AROUND.
- CONTRACTOR MAY USE INTERMEDIATE COFFER DAM ALONG STREAM ALIGNMENT TO ALLOW PHASED CROSSING WITH A MAXIMUM OF 2 SEPARATE BYPASS PHASES.

- CONSTRUCTION SPECIFICATIONS:**
- MOBILIZATION AREAS FOR PLACEMENT OR CONSTRUCTION SHOULD BE KEPT AS SMALL AS POSSIBLE TO FACILITATE EROSION AND SEDIMENT CONTROL AND SHOULD BE PROTECTED WITH DOWNGRADIENT SEDIMENT BARRIERS.
 - PLACEMENT ACTIVITIES SHOULD MINIMIZE VEGETATION REMOVAL AND DISTURBANCE OF ADJACENT AREAS TO THE MAXIMUM EXTENT PRACTICABLE.
 - WHERE POSSIBLE, USE BARRIER CONTROLS CONSTRUCTED WITHOUT EARTH FILL. ACCEPTABLE COFFER DAM MATERIALS INCLUDE SAND BAGS, SAND TOTES, JERSEY WALL SECTIONS, COLLAPSIBLE FABRIC MEMBRANE DAMS, WATER FILLED BAGS/TUBES OR OTHER SUITABLE MATERIALS.
 - EARTH FILL BARRIERS REQUIRE STABILIZATION TO PREVENT EROSION AS BARE SOILS COME INTO CONTACT WITH FLOWING WATER. STABILIZATION CAN OFTEN BE ACHIEVED BY COVERING BARE AREAS WITH WEEL-SECURED PLASTIC SHEETING.
 - ENSURE THE BARRIER STRUCTURES ARE OF SUFFICIENT HEIGHT TO PREVENT WAVES OR OVERFLOWS FROM FLOODING THE ENCLOSED WORK AREA.
 - FOR DEWATERING A STREAM REACH, INSTALL BARRIERS AT UPSTREAM AND DOWNSTREAM LOCATIONS. IF USED, STABILIZE THE BYPASS TRENCH CHANNEL WITH PLASTIC SHEETING, ROCK, OR OTHER LINER MATERIAL TO PREVENT TURBIDITY DOWNSTREAM.
 - DEWATERING OF THE ENCLOSURE TYPICALLY REQUIRES SEDIMENT REMOVAL TO ENSURE THAT TURBID WATER IS NOT DISCHARGED INTO NEARBY WATERBODIES.
 - IF STORED ON-SITE, MATERIAL EXCAVATED FROM THE MOBILIZATION SITE, THE ENCLOSURE, OR REMOVED FROM THE DISCHARGE WATER SHOULD BE PLACED IN STOCKPILES PROTECTED WITH EROSION AND SEDIMENT CONTROL MEASURES, SUCH AS PLASTIC SHEETING OR TARPULIN COVERS, DOWNGRADIENT SEDIMENT BARRIERS, TEMPORARY MULCH AND SEED, OR OTHER MEASURES.
 - UPON COMPLETION OF WORK IN THE BARRIER AREA, DEMOBILIZATION AND BACKFILLING SHOULD OCCUR WITH MINIMAL ADDITIONAL SOIL DISTURBANCE AND IN A MANNER THAT MINIMIZES TURBIDITY IN THE NEARBY WATERBODY. BACKFILLING WITH HYDRAULIC DREDGE OR VIA SLURRY APPLICATION SHOULD BE AVOIDED IF POSSIBLE.

EC-19 TEMPORARY PUMP AROUND N.T.S.

EC-22 ANTI-SEEP COLLAR N.T.S.

REV. NO.	DESCRIPTION	DATE
1	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026

EC-20 WOODMAT TEMPORARY CROSSING N.T.S.

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EC-14 SEDIMENT FILTER BAG WITH GRAVEL PAD N.T.S.

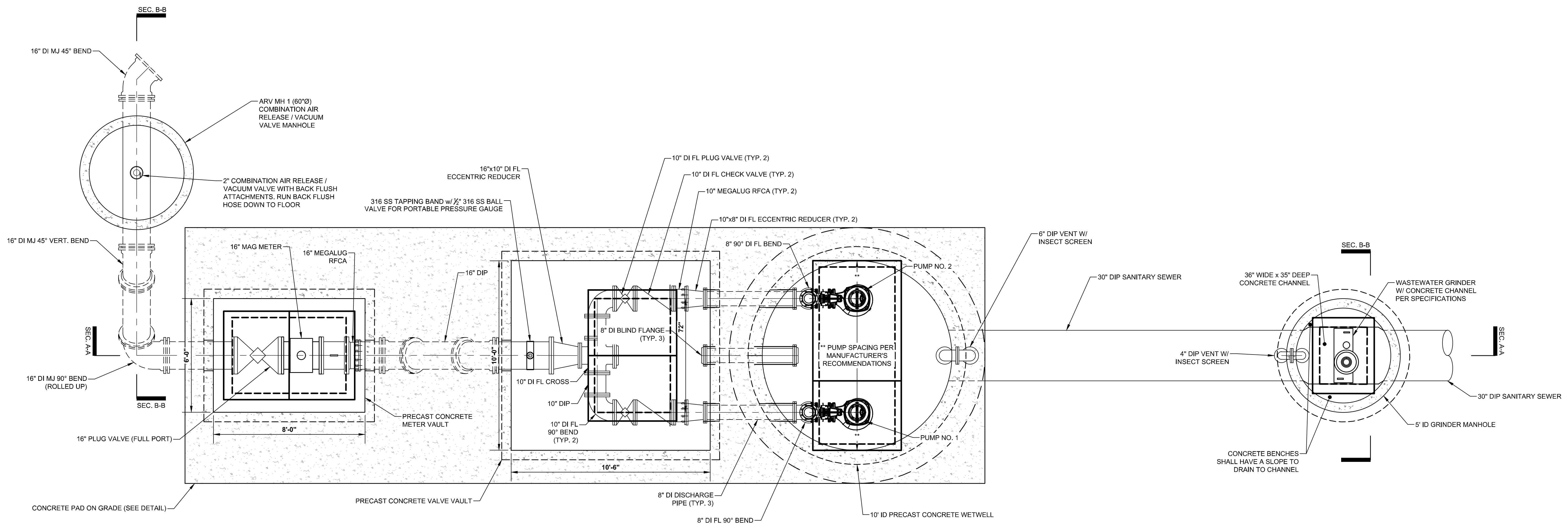
METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

EC-23 STREAM BANK RIP-RAP RESTORATION N.T.S.

ITT PUMP STATION REPLACEMENT
CIVIL
STREAM CROSSING DETAILS

PROJ. START DATE: 2024 MAR	SCALE:
ISS. PROJ. # 00000001	HORIZONTAL: AS NOTED
DRAWN: PNH	VERTICAL: AS NOTED
DESIGNED: PNH	CE02.3
CHECKED: PNH	0
PROJ. MGR: MC	REVISION

STATUS: ISSUED FOR BID
NOT RELEASED FOR CONSTRUCTION



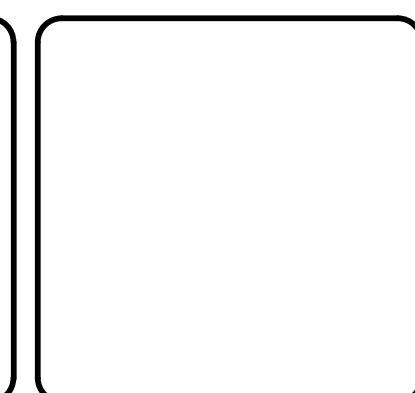
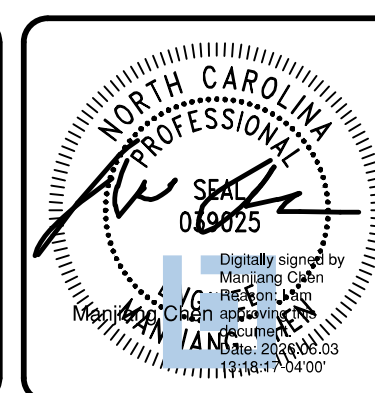
PUMP STATION PLAN

HORIZ. SCALE: 3/8" = 1'-0"

PUMP STATION NOTES

1. ALL PRECAST WET WELLS AND VALVE VAULTS SHALL MEET THE REQUIREMENTS OF ASTM SPECIFICATION G-478, AND G-990.
2. CAST-IN-PLACE CONCRETE SHALL BE CLASS "A", 4000 P.S.L.
3. THE ENGINEER SHALL SUBMIT SEALED AND SIGNED CALCULATIONS VERIFYING THAT UNDERGROUND STRUCTURES ARE DESIGNED TO RESIST BOUYANT FORCES WITH A FACTOR OF SAFETY OF 1.5
4. ALL MOUNTING HARDWARE, WEDGE ANCHORS, FLANGE BOLTS AND LIFT CHAINS OR CABLES SHALL BE 316 STAINLESS STEEL.
5. ALUMINUM ACCESS DOORS SHALL BE DIAMOND PLATE WITH A TROUGH TYPE FRAME THAT DRAINS BACK TO THE WET WELL. ALL HINGES, HARDWARE, AND BOLTS SHALL BE STAINLESS STEEL. ACCESS DOORS AND FRAMES SHALL HAVE FALL PROTECTION AS MANUFACTURED BY U.S.F. FABRICATION, OR APPROVED EQUAL.
6. VALVE VAULT HATCHES SHALL BE SIZED AND POSITIONED TO PROVIDE CLEAR VERTICAL ACCESS TO ALL VALVES AND FITTINGS.
7. CONTRACTOR SHALL RESTRAIN ALL PIPING BETWEEN THE VALVE VAULT AND WET WELL.
8. NO FLANGE JOINTS SHALL BE BURIED.
9. DUCTILE IRON PIPE SHALL BE CERAMIC EPOXY LINED.
10. ALL BOLTS, MACHINE SCREWS, LOCKWASHERS, AND OTHER HARDWARE (EXCEPT NUTS) USED IN THE ASSEMBLY OF DISCHARGE ELBOWS, GUIDE RAILS, PUMP GUIDES, HOIST CHAINS, FLOAT CABLE CONNECTORS, AND ACCESS FRAMES AND COVERS SHALL BE OF STAINLESS STEEL. NUTS SHALL BE BRASS, INSTALLED WITH ANTI-SEIZE COMPOUND.
11. CONTRACTOR SHALL, IF NEEDED, OVERSIZE THE PUMP STATION LID TO ACCOMMODATE HATCH SIZE.

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2024
REVISIONS		

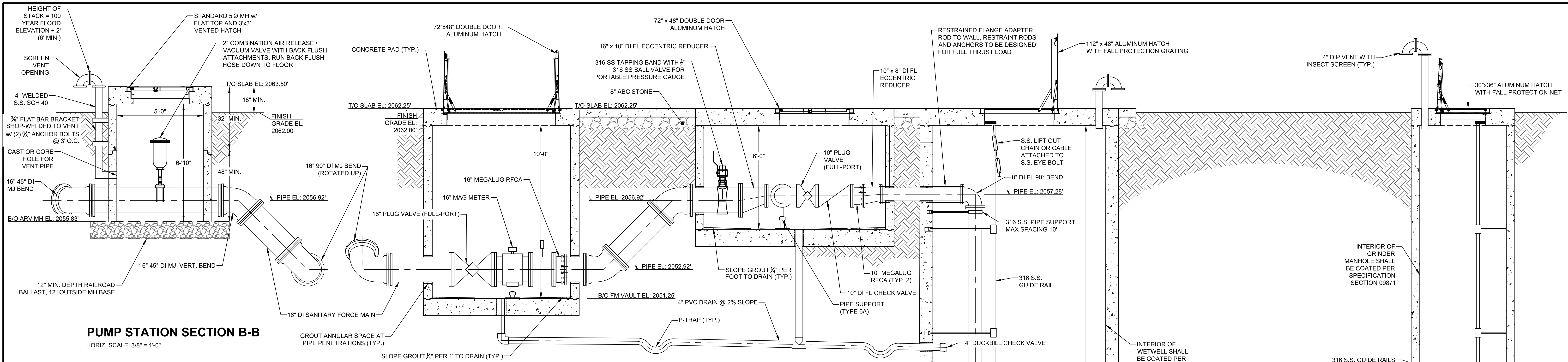


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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
 MECHANICAL
PUMP STATION PLAN

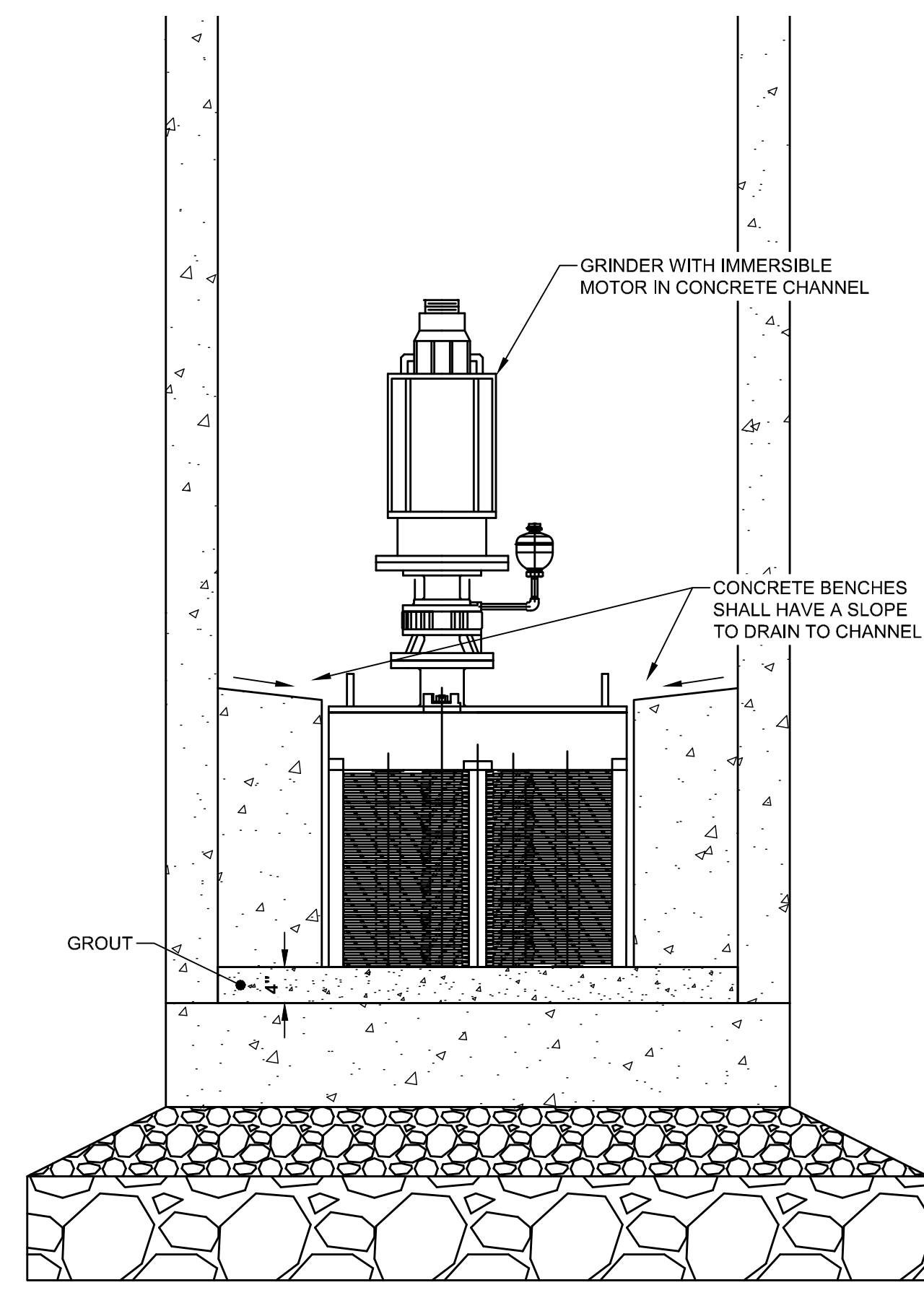
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DESIGNED: MC	HORIZONTAL: AS NOTED	
CHECKED: MC	VERTICAL: N/A	0
PROJ. MGR: MC		REVISION
STATUS:		ISSUED FOR BID
		NOT RELEASED FOR CONSTRUCTION



PUMP STATION SECTION B-B
HORIZ. SCALE: 3/8" = 1'-0"

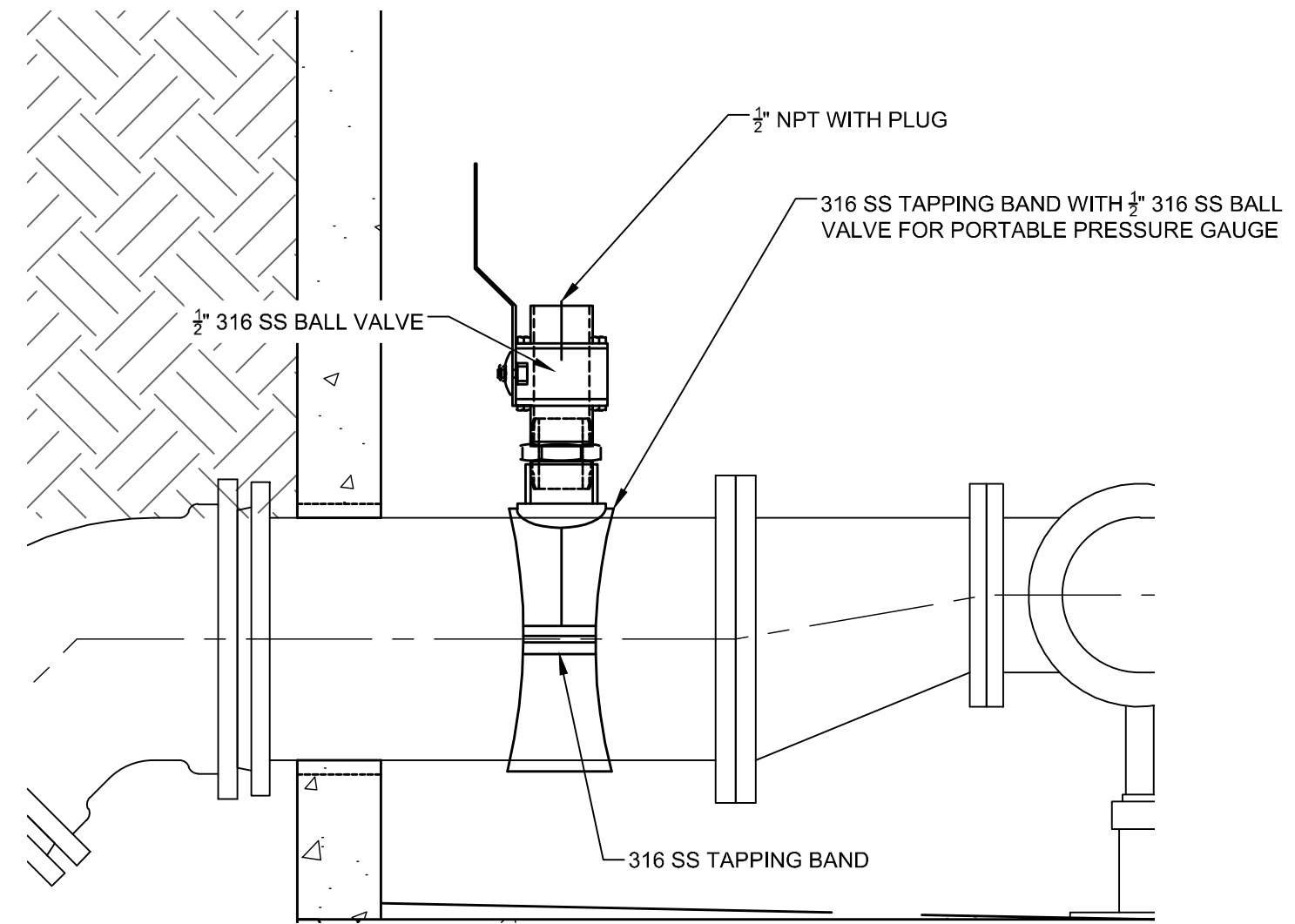
- ARV MANHOLE NOTES**
- FOUR LAYERS OF NON-WOVEN GEOTEXTILE FABRIC SHALL BE LAID BETWEEN ARV MANHOLE AND RAILROAD BALLAST.

- PUMP STATION NOTES**
- ALL PRECAST WET WELLS AND VALVE VAULTS SHALL MEET THE REQUIREMENTS OF ASTM SPECIFICATION G-478, AND C-890.
 - CAST-IN-PLACE CONCRETE SHALL BE CLASS "A", 4000 P.S.L.
 - THE ENGINEER SHALL SUBMIT SEALED AND SIGNED CALCULATIONS VERIFYING THAT UNDERGROUND STRUCTURES ARE DESIGNED TO RESIST BOUYANT FORCES WITH A FACTOR OF SAFETY OF 1.5.
 - ALL MOUNTING HARDWARE, WEDGE ANCHORS, FLANGE BOLTS AND LIFT CHAINS OR CABLES SHALL BE 316 STAINLESS STEEL.
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 - CONTRACTOR SHALL RESTRAIN ALL PIPING BETWEEN THE VALVE VAULT AND WET WELL.
 - DUCTILE IRON PIPE SHALL BE CERAMIC EPOXY LINED.
 - ALL BOLTS, MACHINE SCREWS, LOCKWASHERS, AND OTHER HARDWARE (EXCEPT NUTS) USED IN THE ASSEMBLY OF DISCHARGE ELBOWS, GUIDE RAILS, PUMP GUIDES, HOIST CHAINS, FLOAT CABLE CONNECTORS, AND ACCESS FRAMES AND COVERS SHALL BE OF 316 STAINLESS STEEL. NUTS SHALL BE BRASS, INSTALLED WITH ANTI-SEIZE COMPOUND.
 - CONTRACTOR SHALL, IF NEEDED, OVERSIZE THE PUMP STATION LID TO ACCOMMODATE HATCH SIZE.

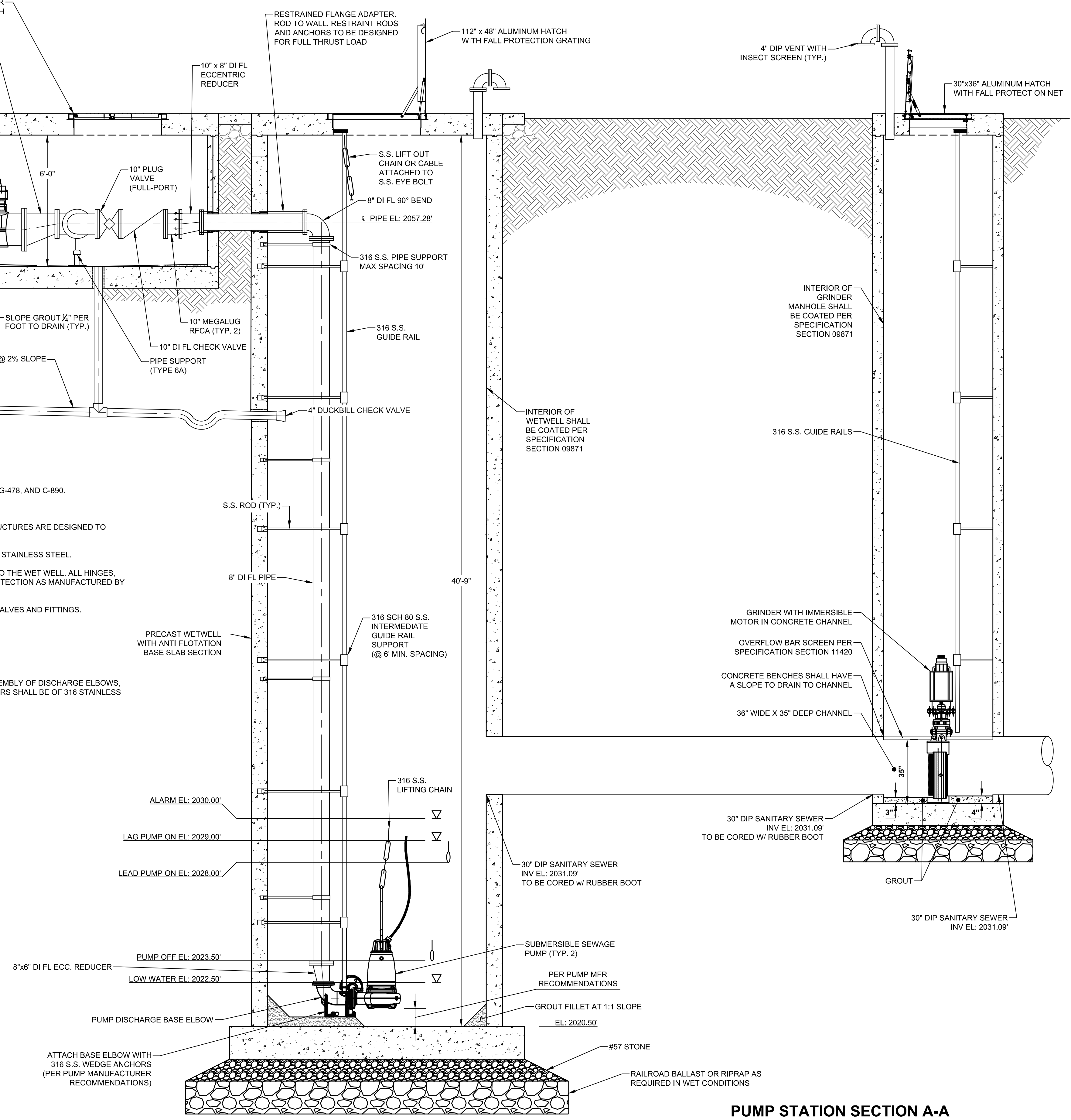


GRINDER MANHOLE SECTION B-B
HORIZ. SCALE: 3/4" = 1'-0"

- GRINDER MANHOLE NOTES**
- GUIDE RAILS NOT SHOWN FOR CLARITY.

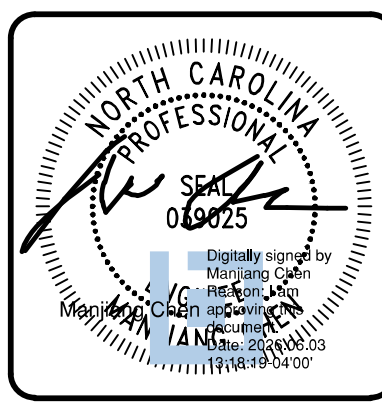


PORTABLE PRESSURE GAUGE CONNECTION DETAIL
HORIZ. SCALE: 1" = 1'-0"



PUMP STATION SECTION A-A
HORIZ. SCALE: 3/8" = 1'-0"

REV. NO.	DESCRIPTION	DATE
1	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2024
REVISIONS		

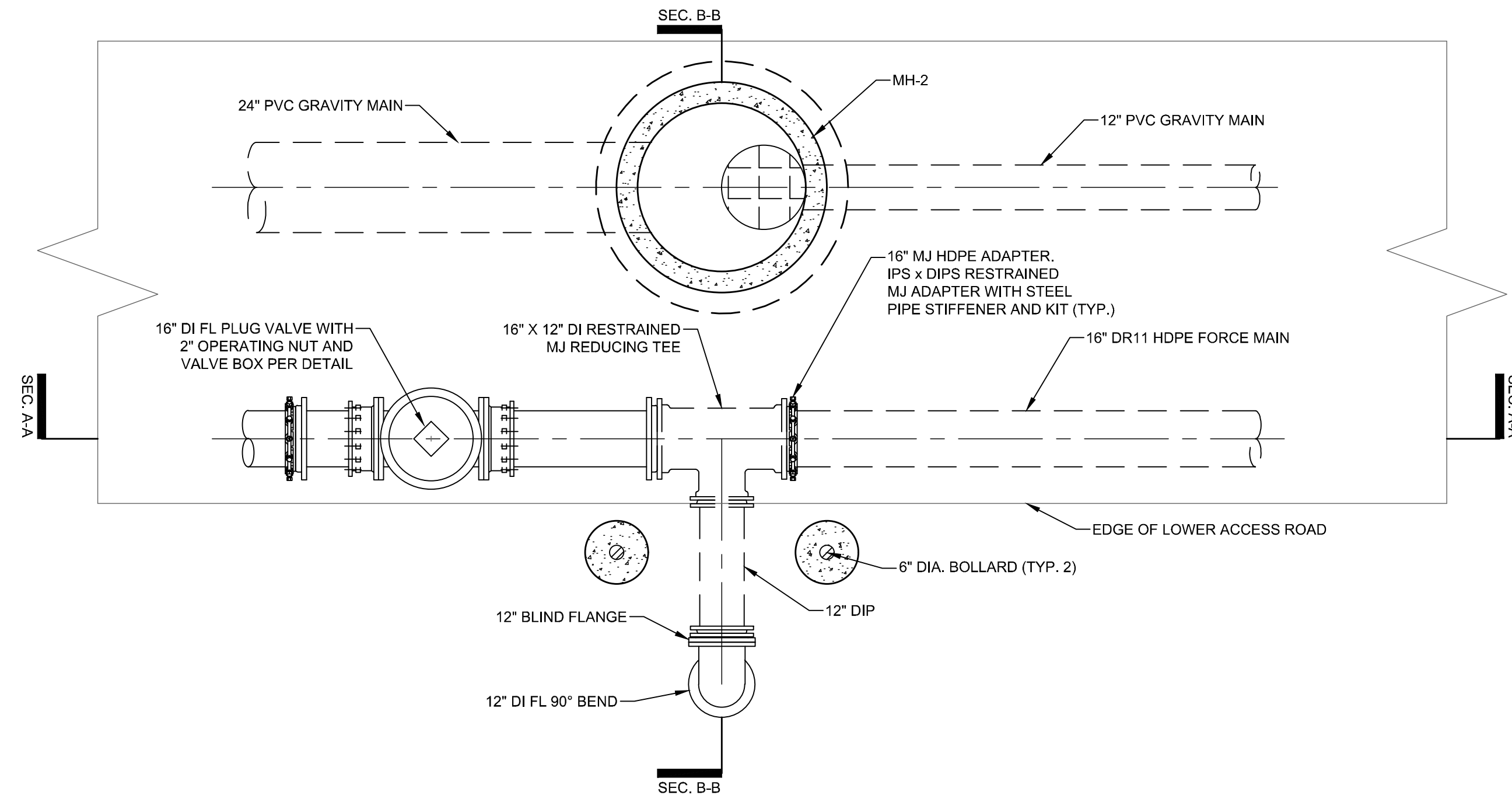


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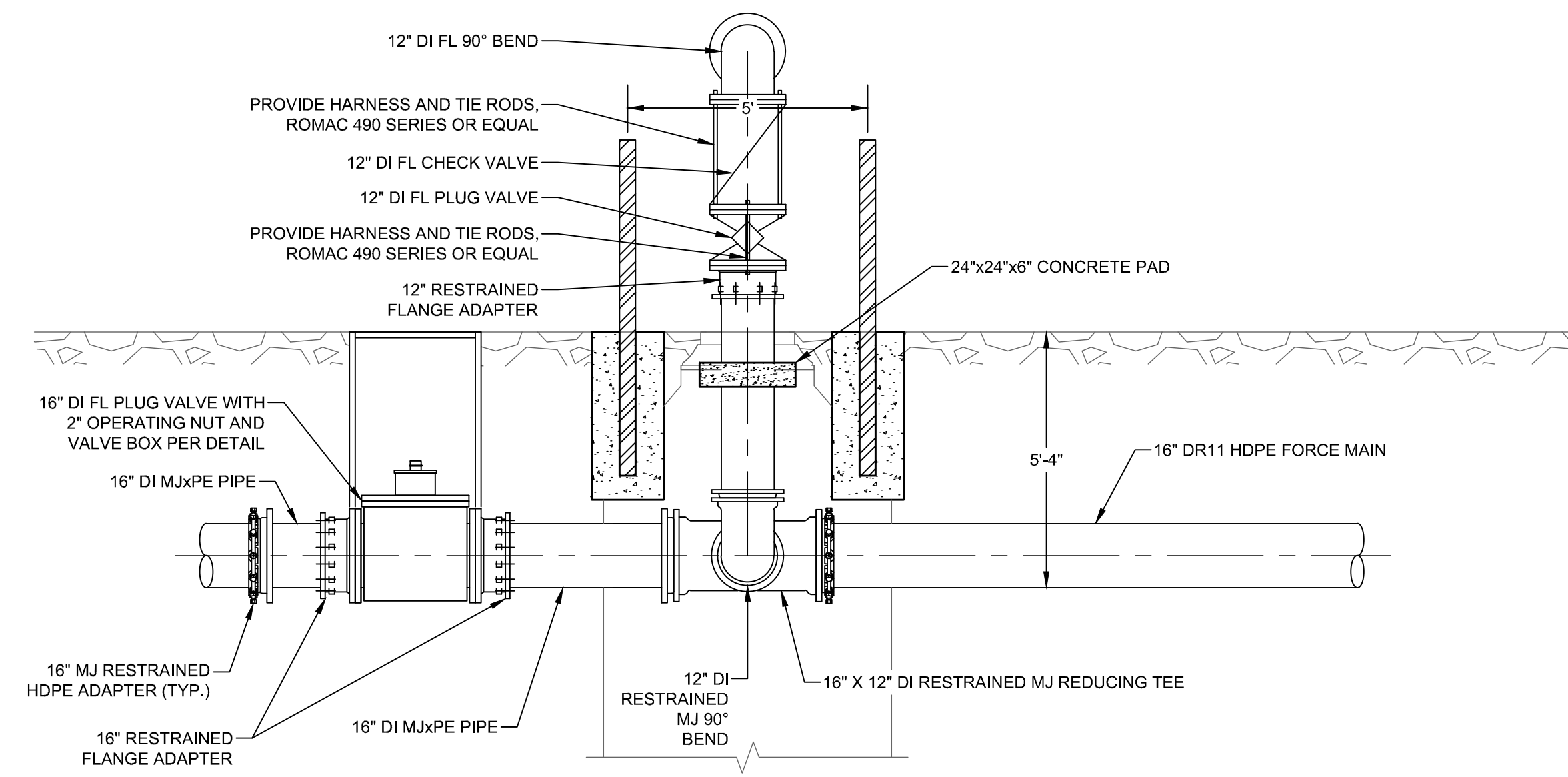
METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
MECHANICAL
PUMP STATION SECTION

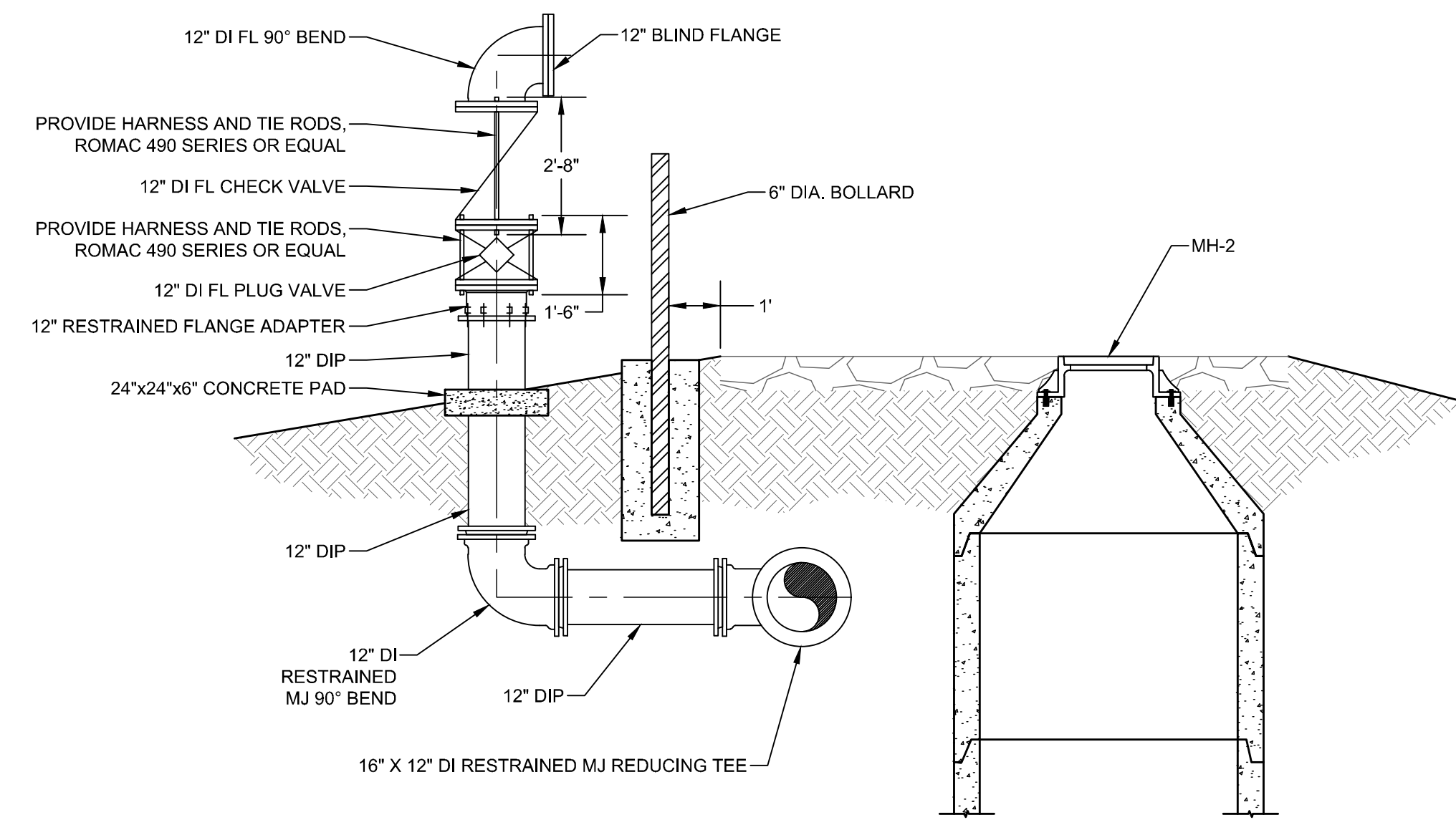
PROJ. START DATE: 2024 MAR	SCALE: M01.2
DESIGNED: MC	HORIZONTAL: AS NOTED
CHECKED: MC	VERTICAL: N/A
PROJ. MGR: MC	REVISION: 0
ISSUED FOR BID NOT RELEASED FOR CONSTRUCTION	



PUMP STATION BYPASS CONNECTION
 HORIZ. SCALE: 3/8" = 1'-0"



PUMP STATION BYPASS CONNECTION SECTION A-A
 HORIZ. SCALE: 3/8" = 1'-0"

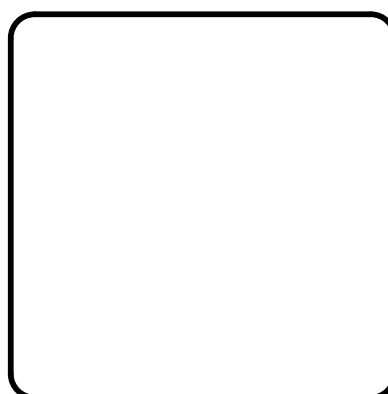
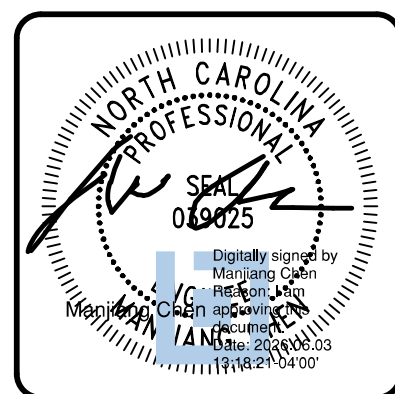


PUMP STATION BYPASS CONNECTION SECTION B-B
 HORIZ. SCALE: 3/8" = 1'-0"

NOTES

- 1. DUCTILE IRON PIPE SHALL BE CERAMIC EPOXY LINED.

REV. NO.	DESCRIPTION	DATE

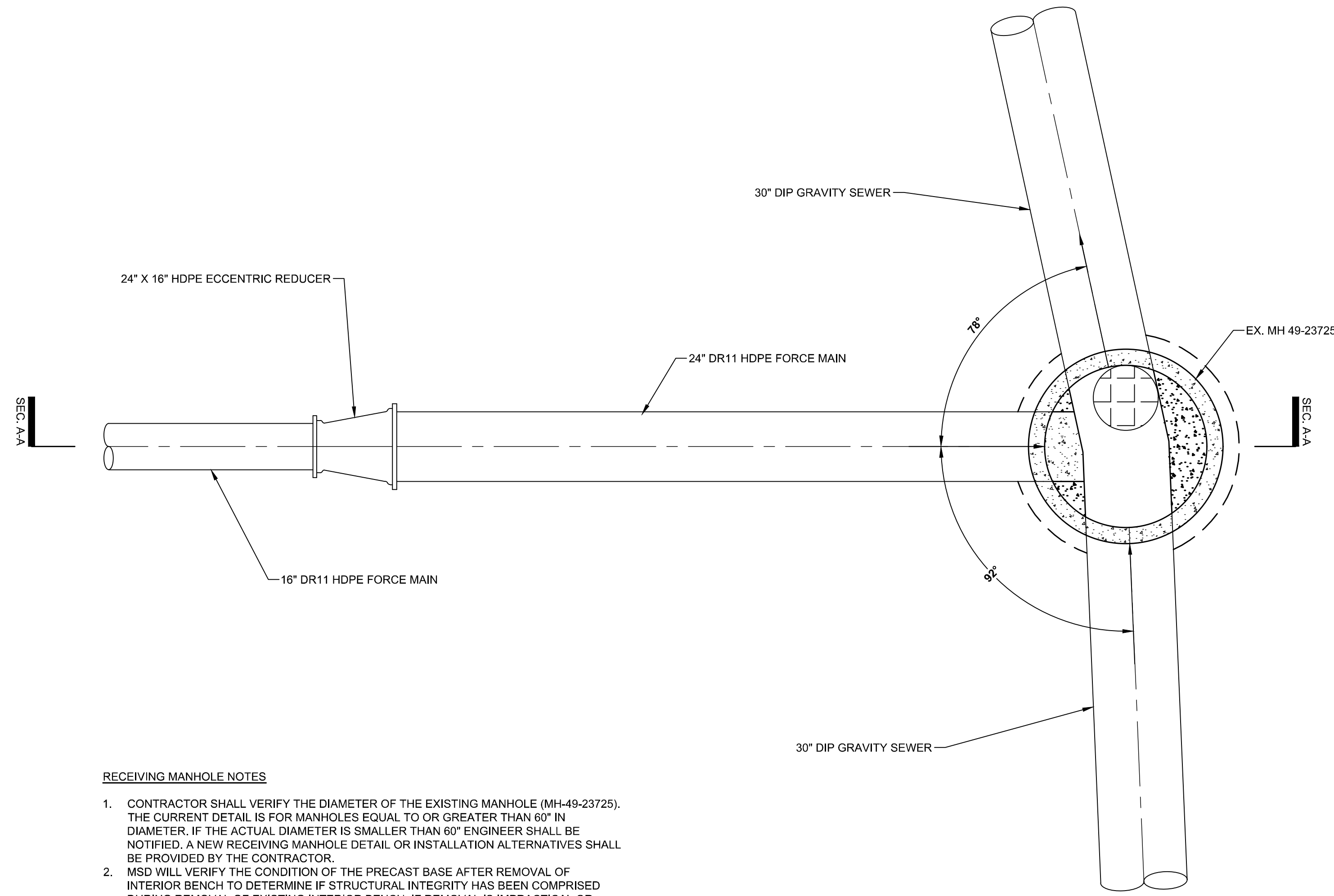


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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
 MECHANICAL
BYPASS CONNECTION DETAIL

PROJ. START DATE: 2024 MAR TIME PROJ. # 00000001 MSB PROJ. # 00000001 DRAWN: AWB DESIGNED: MC CHECKED: MC PROJ. MGR.: MC	SCALE: AS NOTED HORIZONTAL: AS NOTED VERTICAL: N/A	M01.3 DRAWING NUMBER 0 REVISION
STATUS: ISSUED FOR BID NOT RELEASED FOR CONSTRUCTION		ISSUED FOR BID

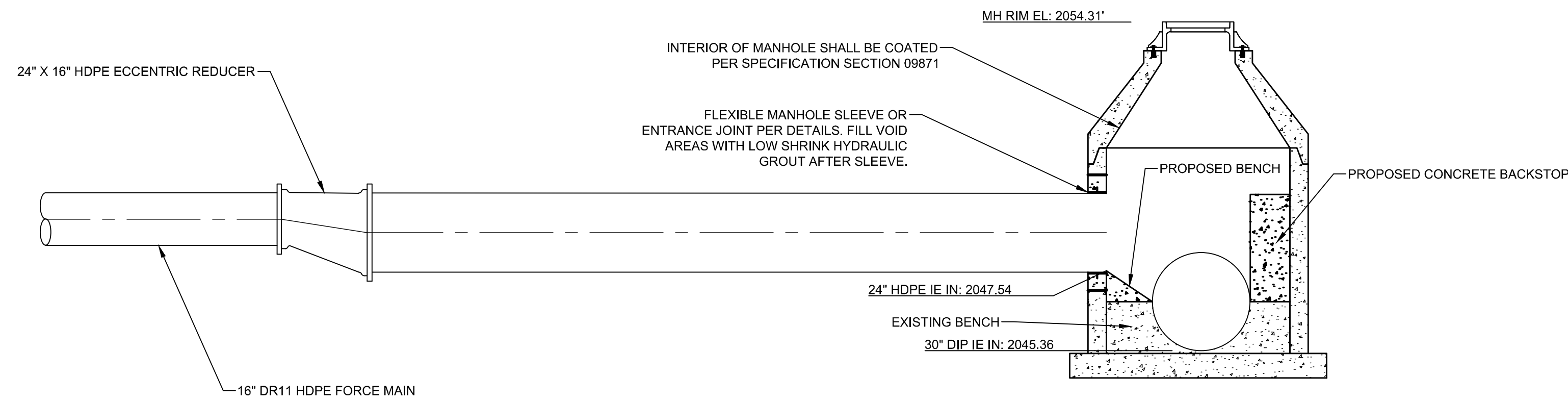


RECEIVING MANHOLE NOTES

- CONTRACTOR SHALL VERIFY THE DIAMETER OF THE EXISTING MANHOLE (MH-49-23725). THE CURRENT DETAIL IS FOR MANHOLES EQUAL TO OR GREATER THAN 60" IN DIAMETER. IF THE ACTUAL DIAMETER IS SMALLER THAN 60" ENGINEER SHALL BE NOTIFIED. A NEW RECEIVING MANHOLE DETAIL OR INSTALLATION ALTERNATIVES SHALL BE PROVIDED BY THE CONTRACTOR.
- MSD WILL VERIFY THE CONDITION OF THE PRECAST BASE AFTER REMOVAL OF INTERIOR BENCH TO DETERMINE IF STRUCTURAL INTEGRITY HAS BEEN COMPROMISED DURING REMOVAL OF EXISTING INTERIOR BENCH. IF REMOVAL IS IMPRACTICAL OR UNSUCCESSFUL, THE ENTIRE BASE SECTION SHALL BE REPLACED.
- BYPASS PUMPING PLAN SHALL BE PROVIDED PRIOR TO THE TIE-IN.

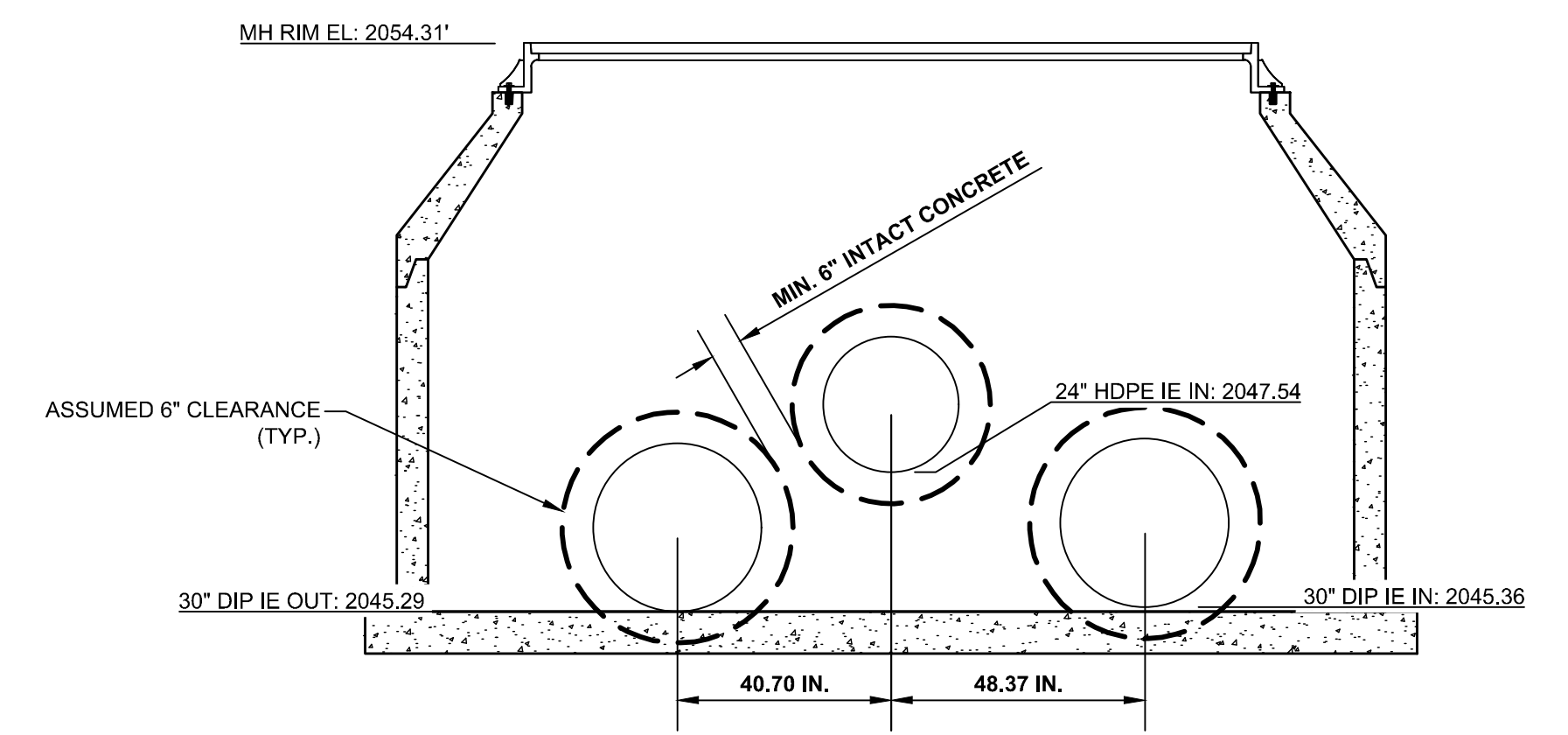
RECEIVING MANHOLE PLAN

HORIZ. SCALE: 3/8" = 1'-0"



RECEIVING MANHOLE SECTION A-A

HORIZ. SCALE: 3/8" = 1'-0"



RECEIVING MANHOLE PIPE PENETRATIONS

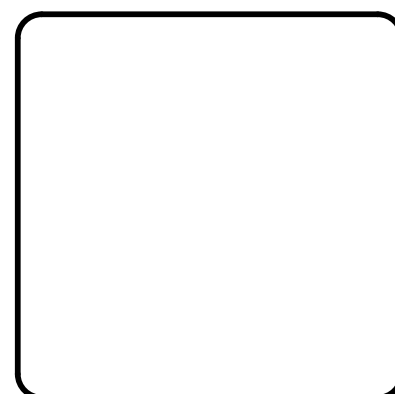
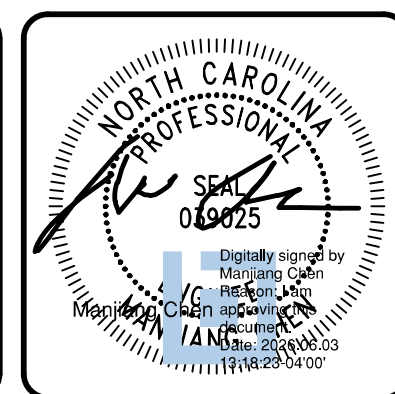
HORIZ. SCALE: 3/8" = 1'-0"

REV. NO.	DESCRIPTION	DATE

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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT

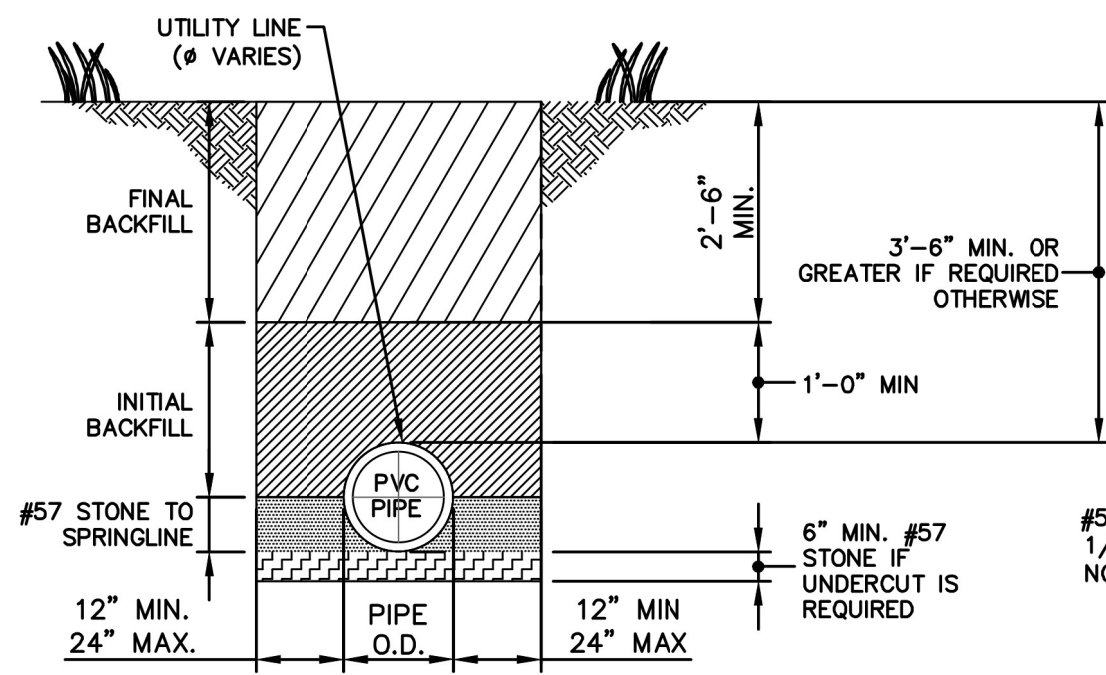
MECHANICAL

RECEIVING MANHOLE DETAIL

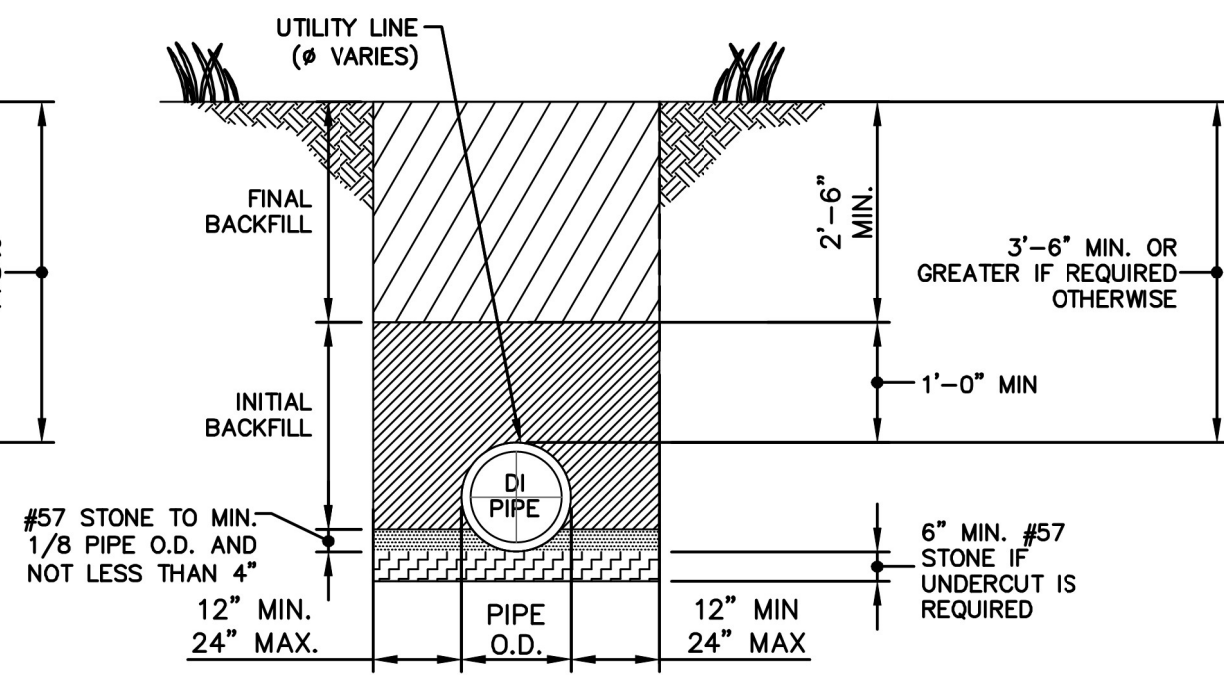
PROJ. START DATE: 2024 MAR	9/9/2024
MSD PROJ. #	20240601
DRAWN	AWB
DESIGNED	MC
CHECKED	MC
PROJ. MGR.	MC

SCALE	M01.4
HORIZONTAL:	AS NOTED
VERTICAL:	N/A
DRAWING NUMBER	0
REVISION	0

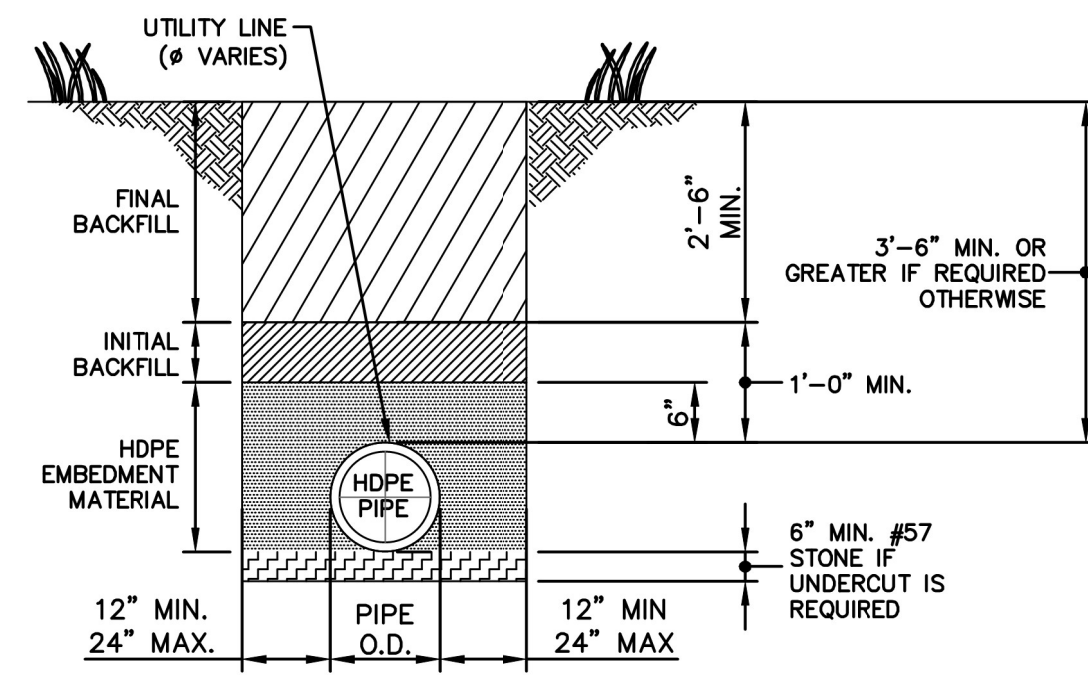
STATUS: **ISSUED FOR BID**
NOT RELEASED FOR CONSTRUCTION



TRENCH DETAIL FOR PVC PIPE
N.T.S.

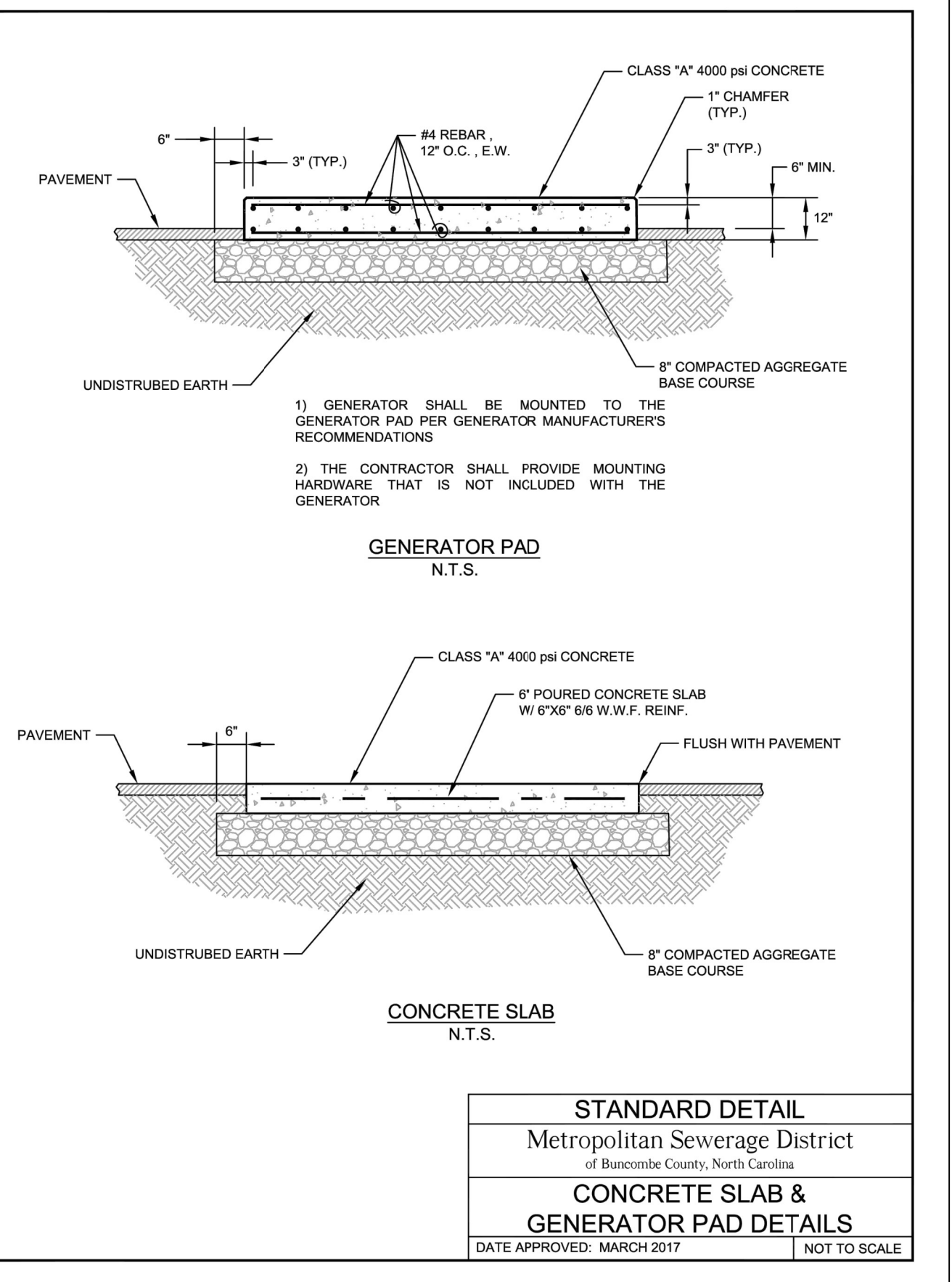


TRENCH DETAIL FOR DUCTILE IRON PIPE
N.T.S.

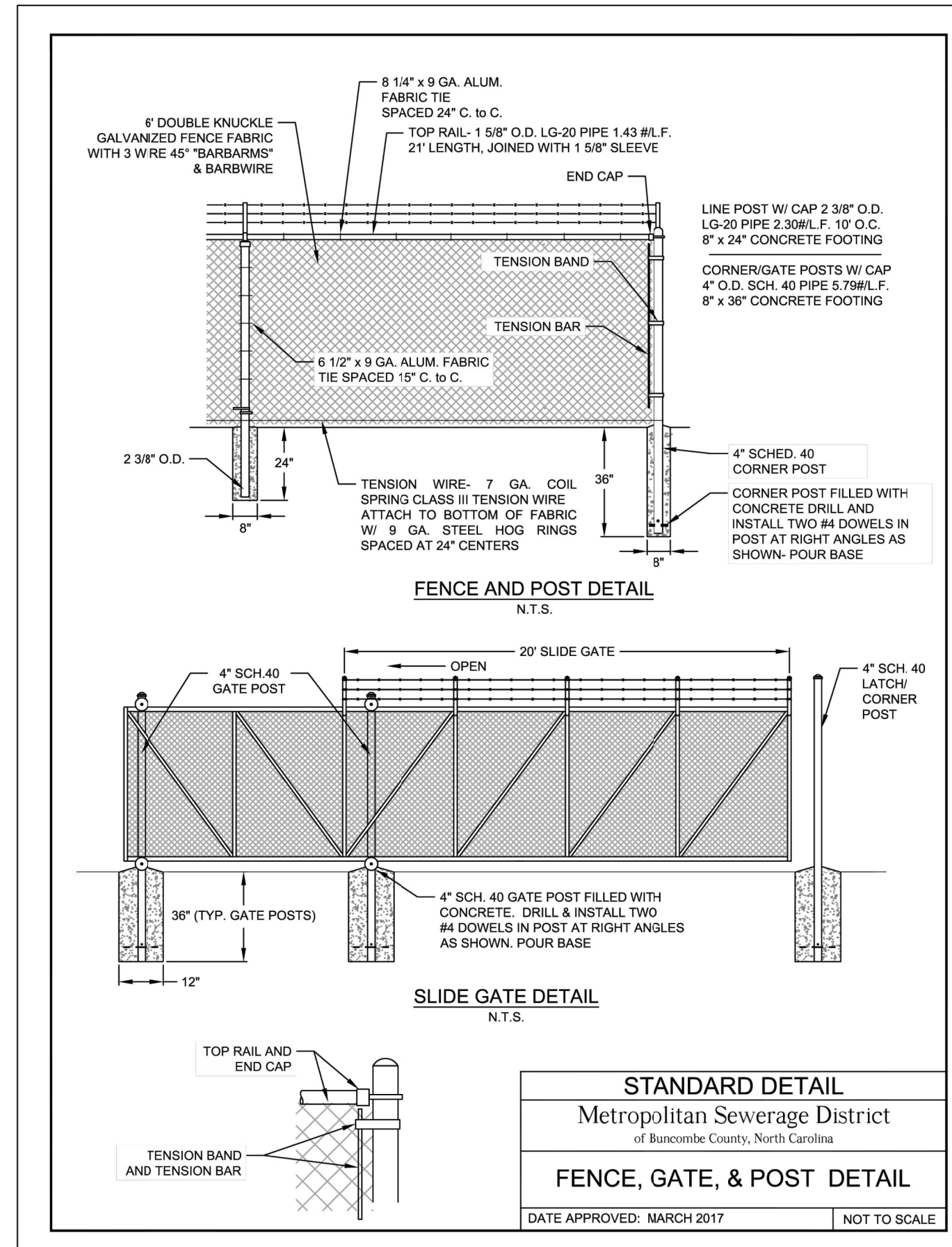


TRENCH DETAIL FOR HIGH-DENSITY
POLYETHYLENE (HDPE) PIPE
N.T.S.

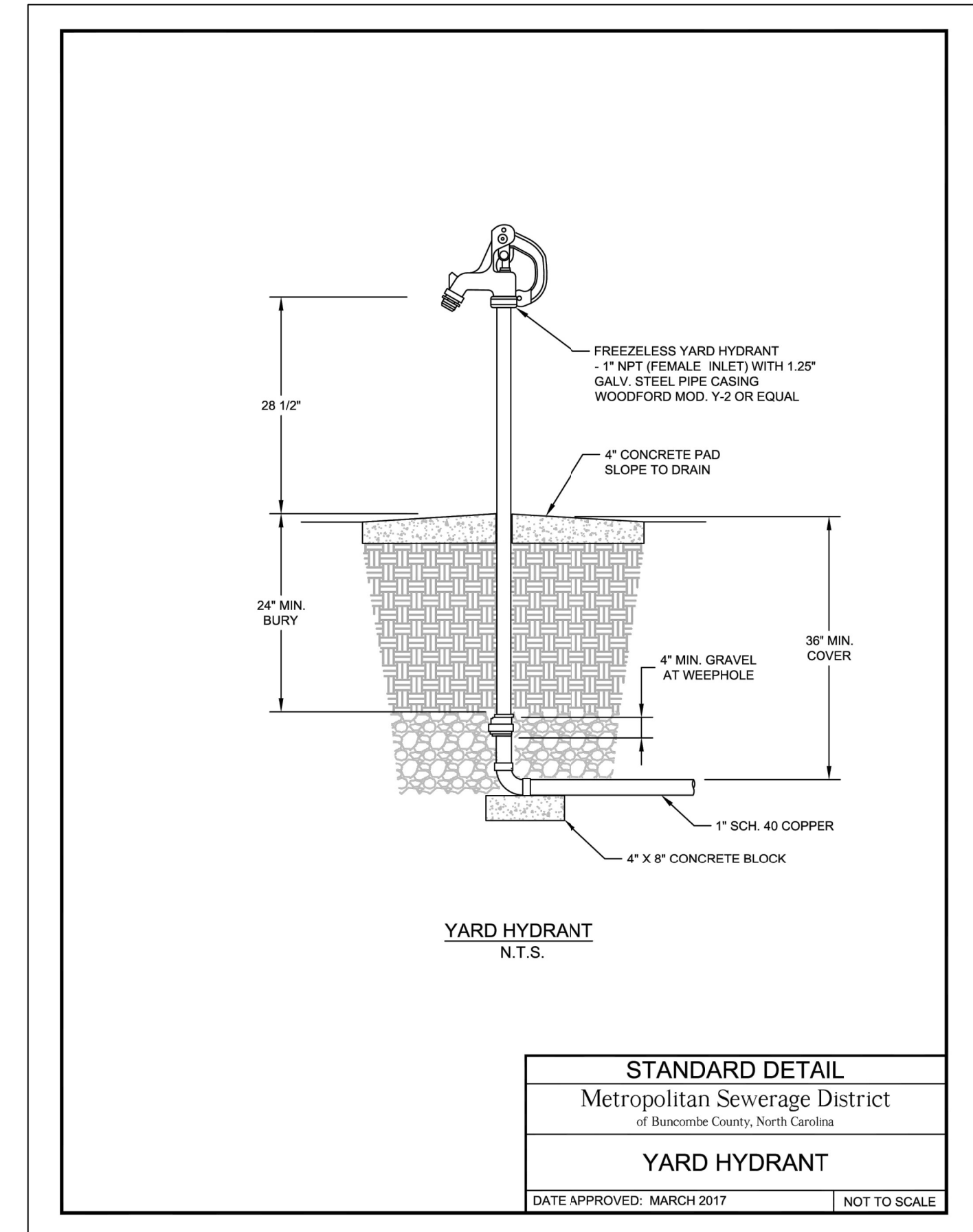
- NOTES:
- FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 - NO ROCKS OR BOULDERS 2" OR LARGER TO BE USED IN TOP 6" OF INITIAL BACKFILL AND NONE 6" OR LARGER IN FINAL BACKFILL.
 - FINAL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 - BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
 - ACHIEVE 95% COMPACTION IN BEDDING, HAUNCHING AND INITIAL BACKFILL.
 - HDPE EMBEDMENT MATERIAL - FINE AGGREGATE ACCORDING TO ASTM C33 TABLE 1.
 - CONTRACTOR SHALL ENSURE PIPE COUPLINGS/JOINTS ARE NOT DEFLECTED WHEN TWO PIPES ARE JOINED.



STANDARD DETAIL
Metropolitan Sewerage District
of Buncombe County, North Carolina
CONCRETE SLAB &
GENERATOR PAD DETAILS
DATE APPROVED: MARCH 2017 NOT TO SCALE

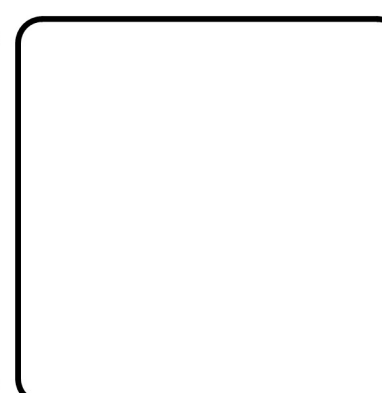
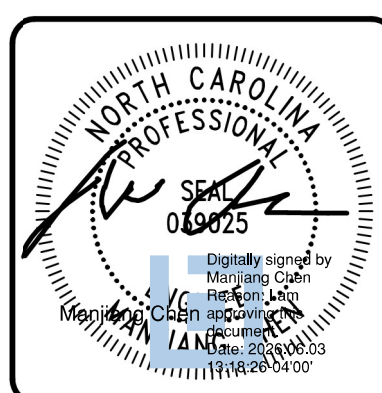


STANDARD DETAIL
Metropolitan Sewerage District
of Buncombe County, North Carolina
FENCE, GATE, & POST DETAIL
DATE APPROVED: MARCH 2017 NOT TO SCALE



STANDARD DETAIL
Metropolitan Sewerage District
of Buncombe County, North Carolina
YARD HYDRANT
DATE APPROVED: MARCH 2017 NOT TO SCALE

REV. NO.	DESCRIPTION	DATE
1	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2020
REVISIONS		

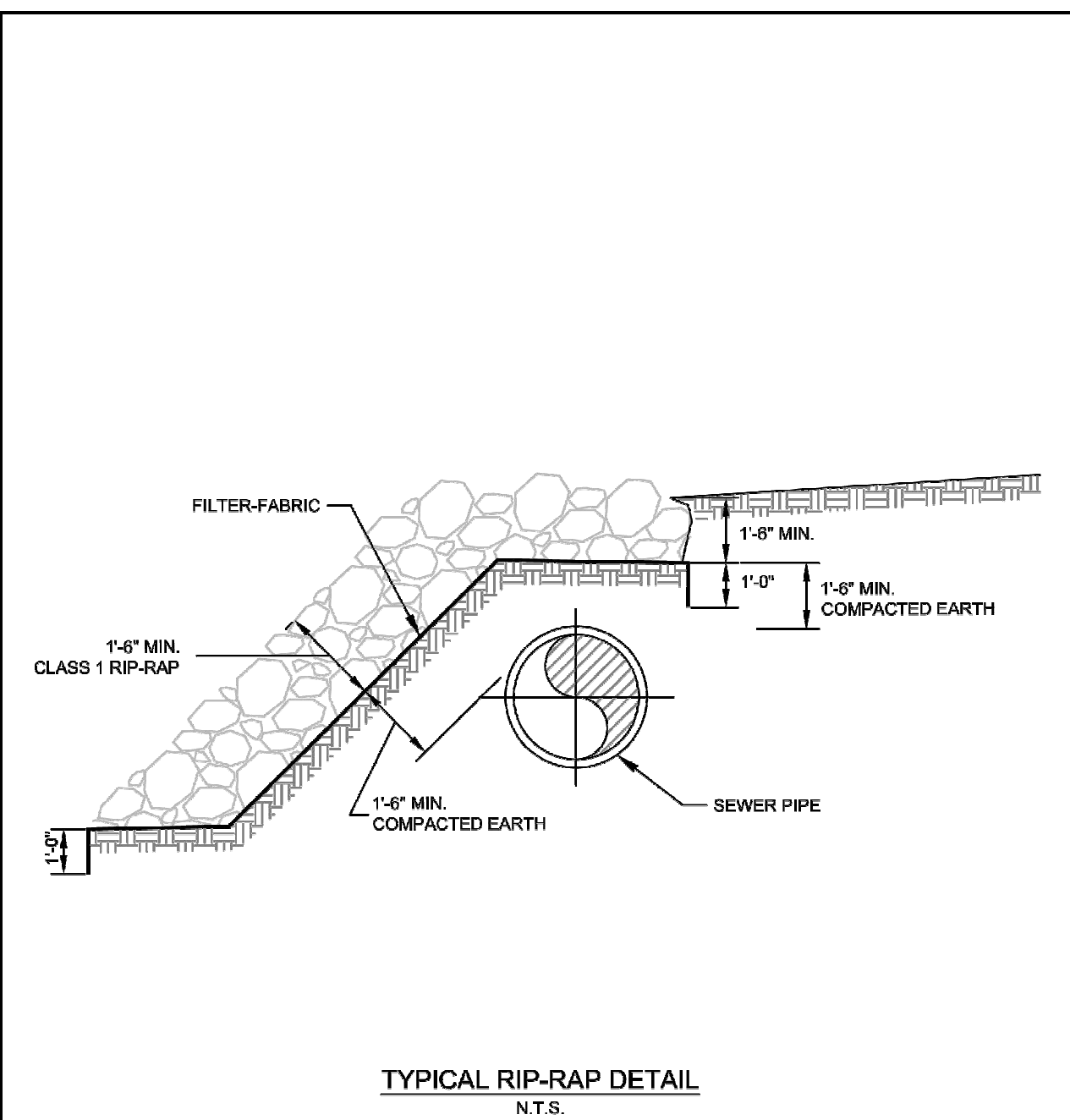


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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

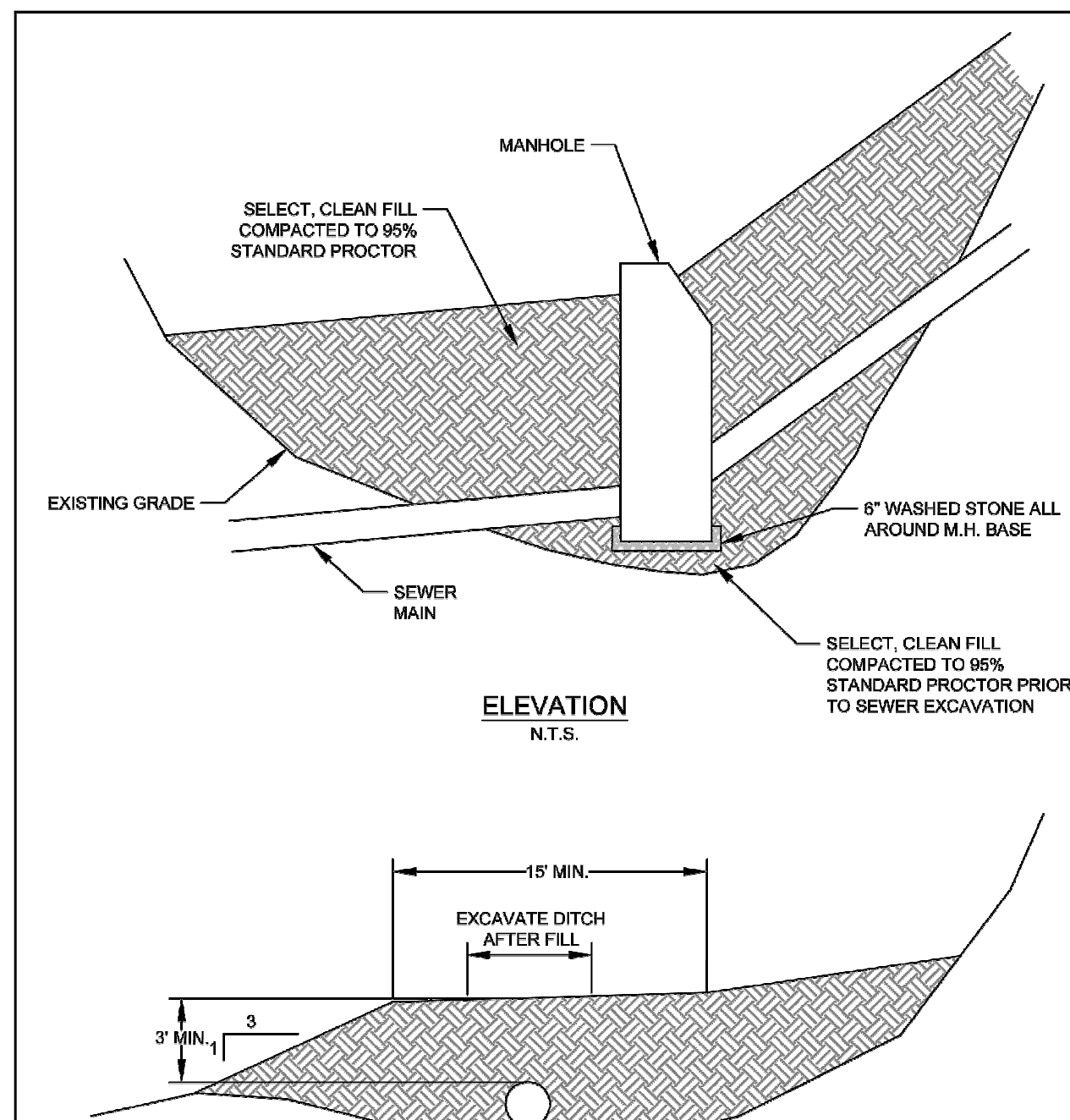
ITT PUMP STATION REPLACEMENT
MECHANICAL
STANDARD DETAILS 1

PROJ. START DATE: 2024 MAR	SCALE	MD01.1 DRAWING NUMBER 0 REVISION
DESIGNED: AWB	HORIZONTAL: N/A	
CHECKED: MC	VERTICAL: N/A	
PROJ. MGR: MC		
STATUS: ISSUED FOR BID	NOT RELEASED FOR CONSTRUCTION	

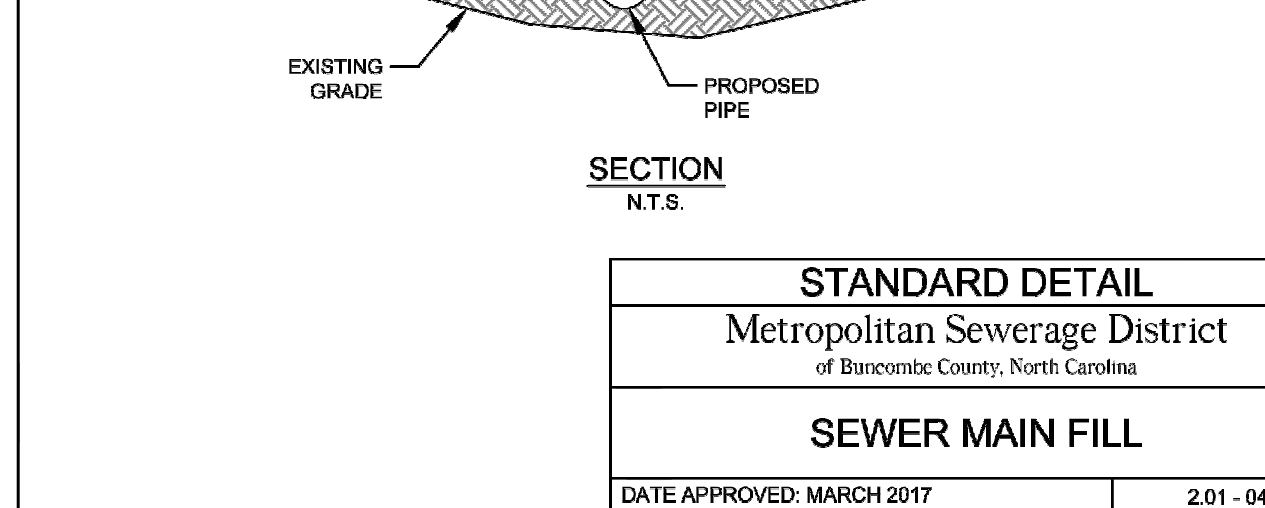


TYPICAL RIP-RAP DETAIL
N.T.S.

STANDARD DETAIL	
Metropolitan Sewerage District of Buncombe County, North Carolina	
STREAMBANK PROTECTION I (PARALLEL PIPE)	
DATE APPROVED: MARCH 2017	1.18 - 01

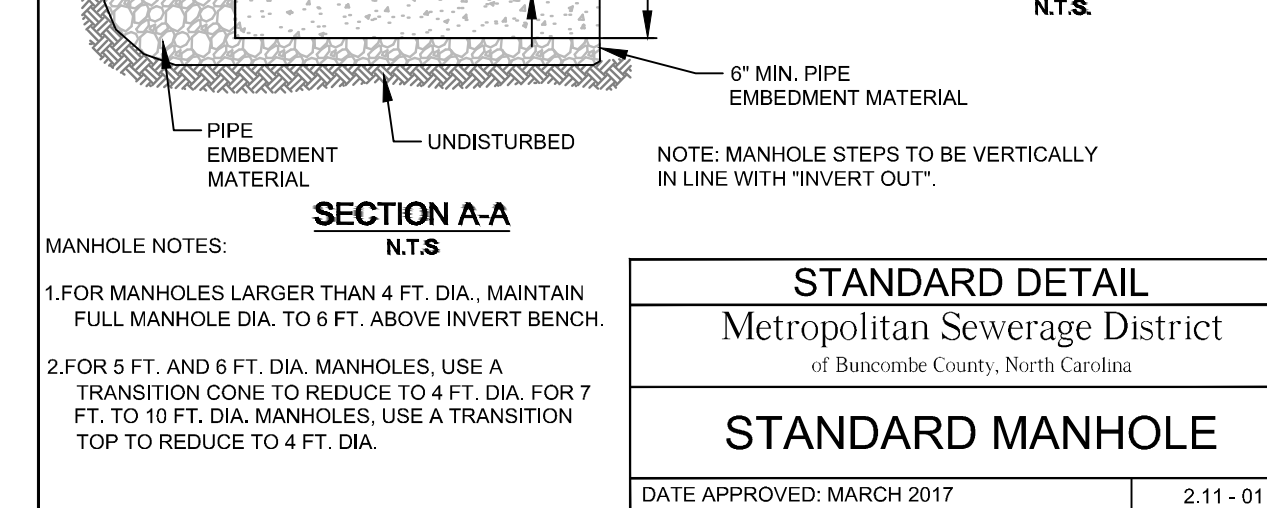
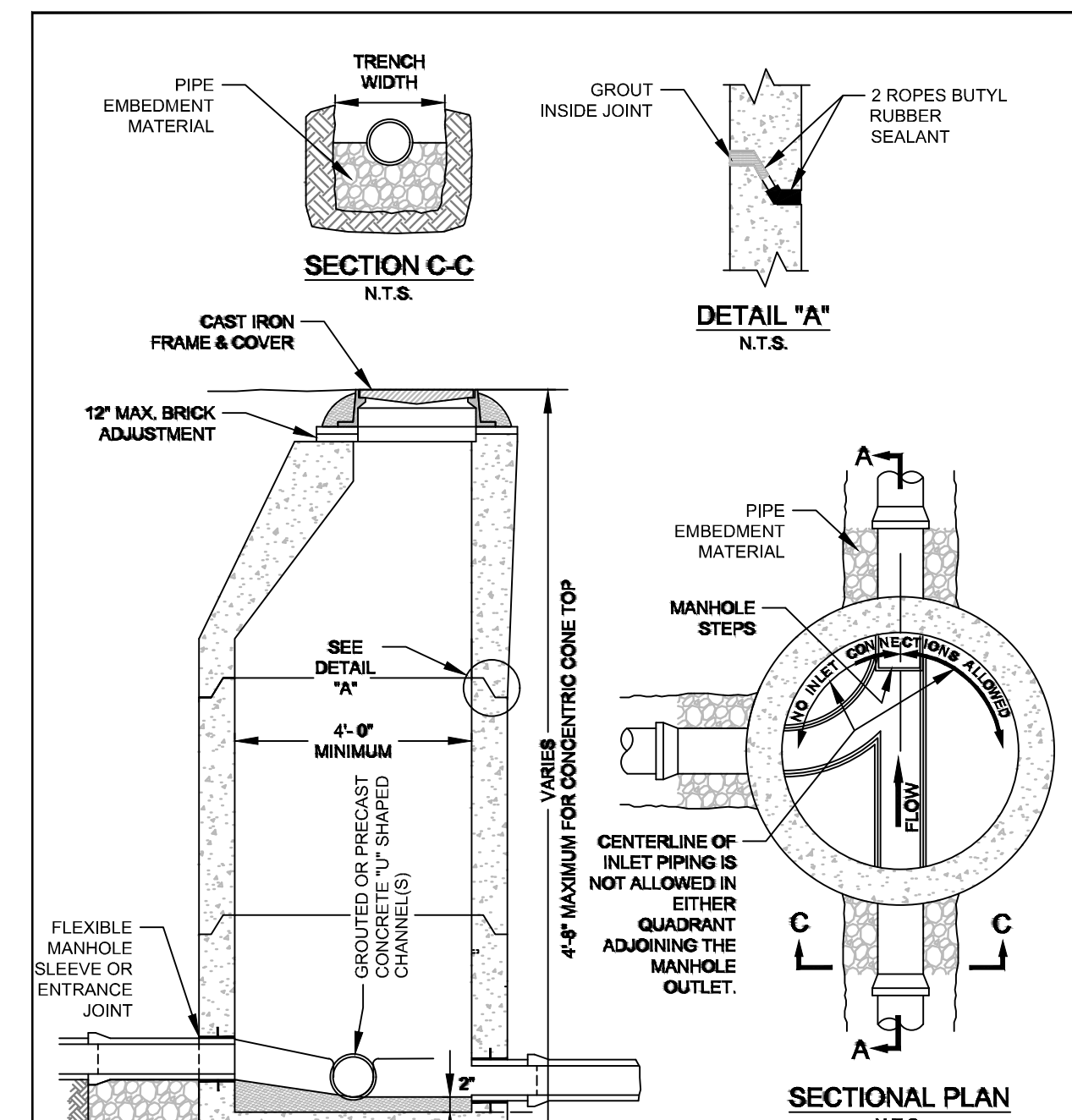


ELEVATION
N.T.S.

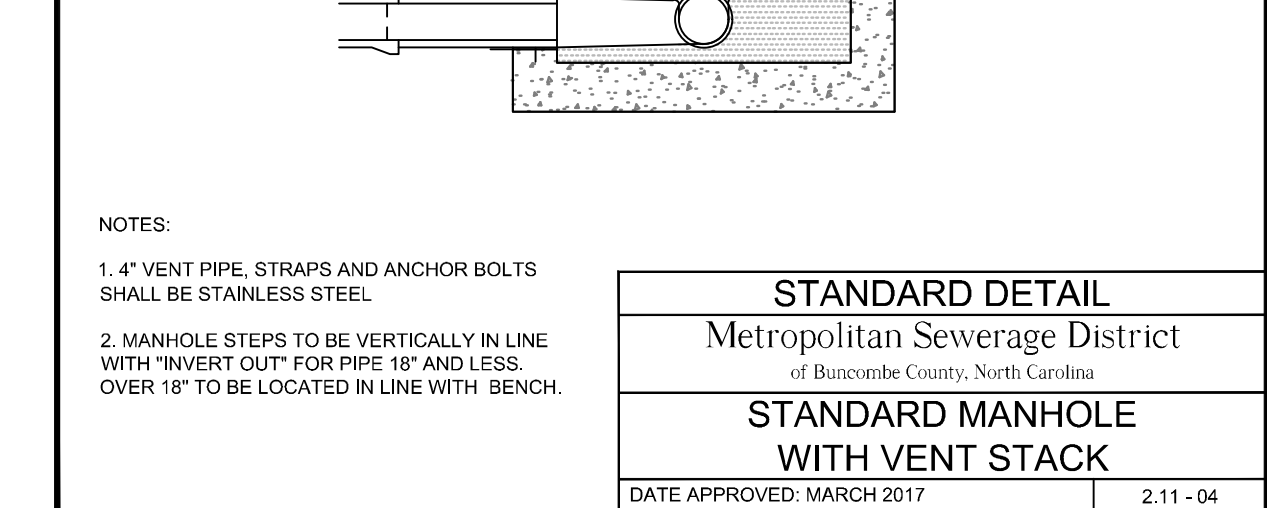
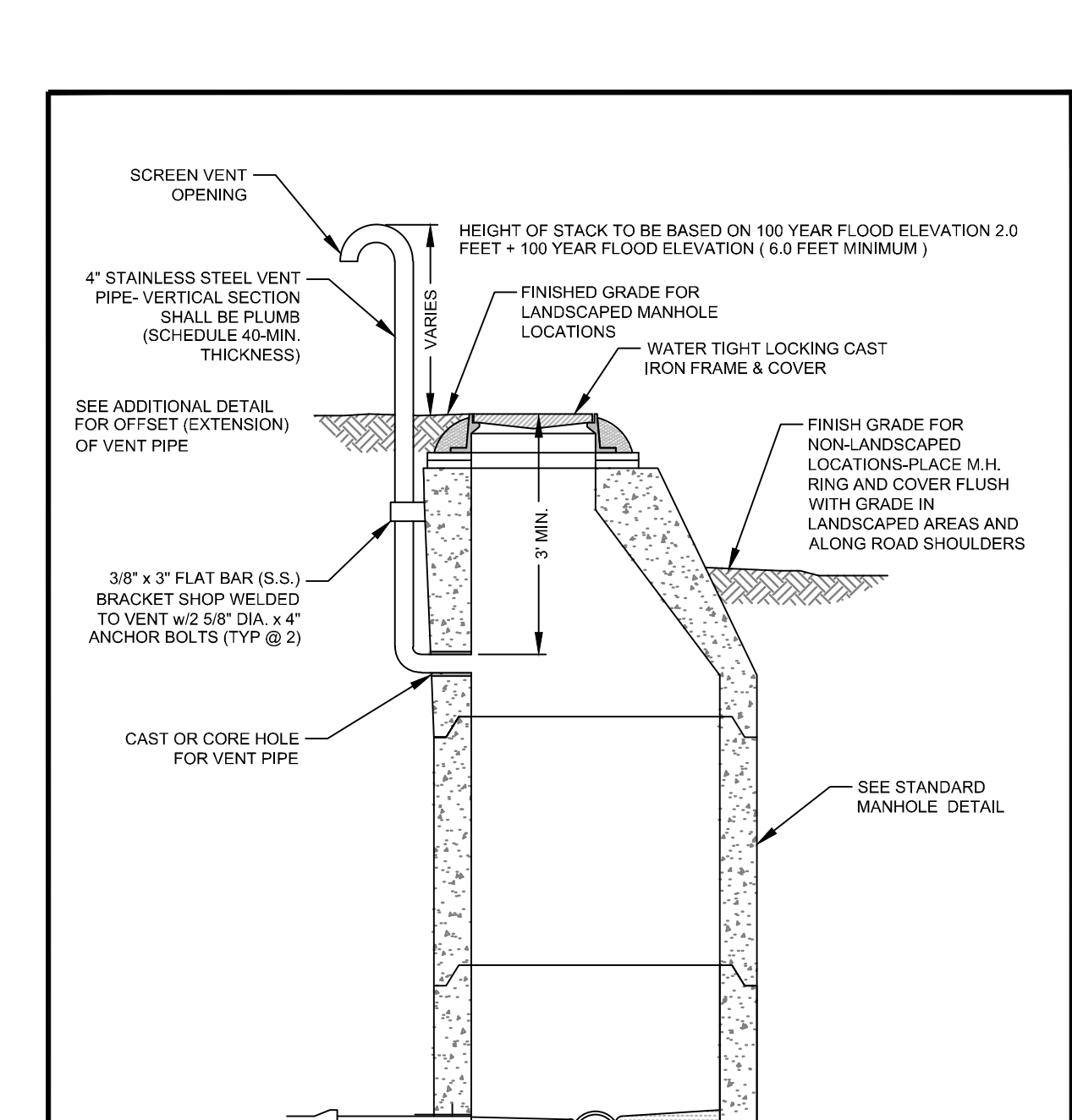


SECTION
N.T.S.

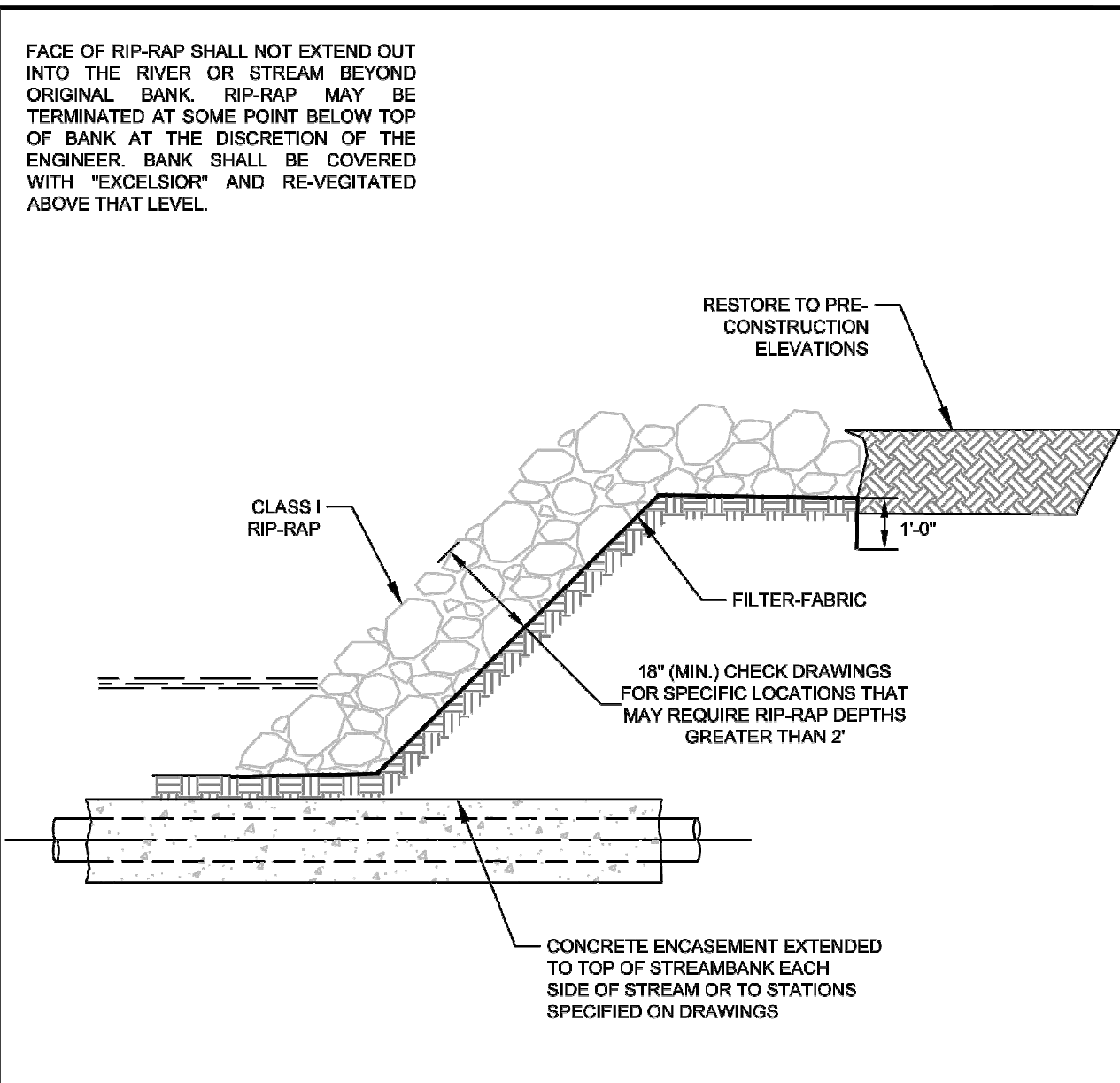
STANDARD DETAIL	
Metropolitan Sewerage District of Buncombe County, North Carolina	
SEWER MAIN FILL	
DATE APPROVED: MARCH 2017	2.01 - 04



STANDARD DETAIL	
Metropolitan Sewerage District of Buncombe County, North Carolina	
STANDARD MANHOLE	
DATE APPROVED: MARCH 2017	2.11 - 01

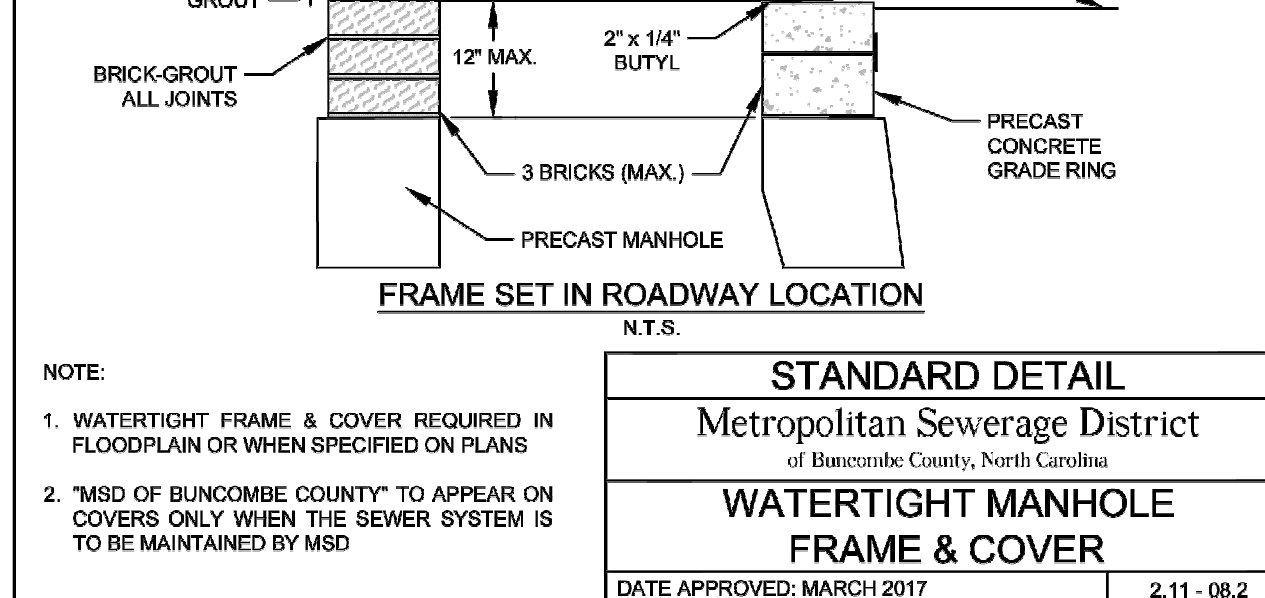
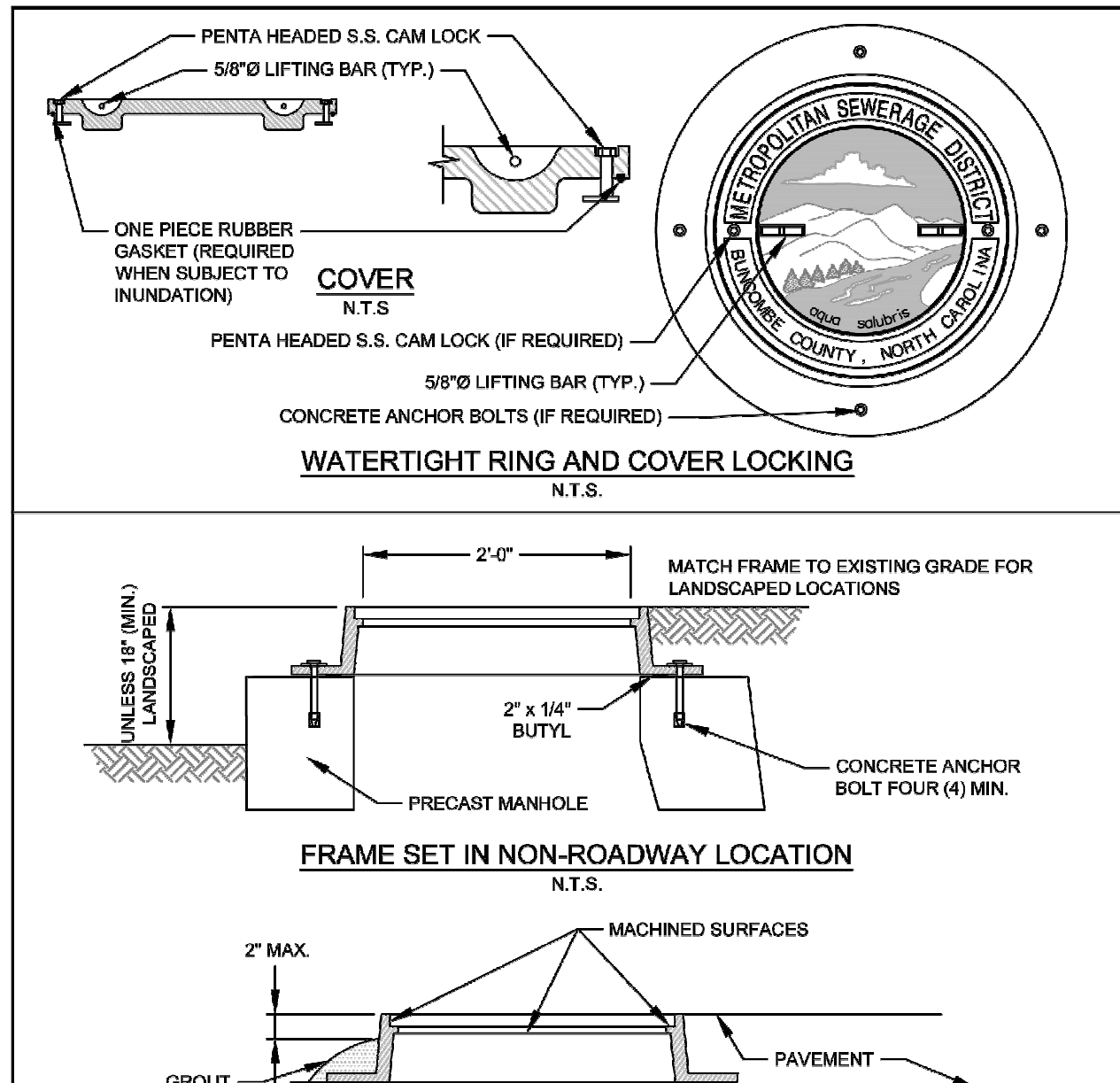


STANDARD DETAIL	
Metropolitan Sewerage District of Buncombe County, North Carolina	
STANDARD MANHOLE WITH VENT STACK	
DATE APPROVED: MARCH 2017	2.11 - 04

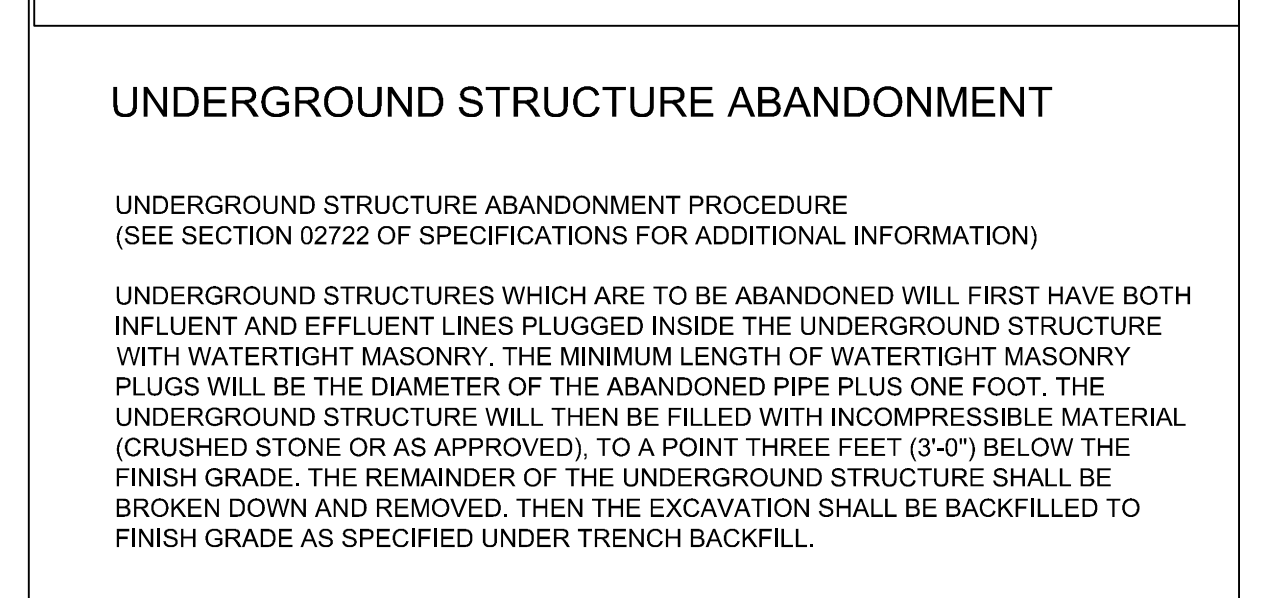
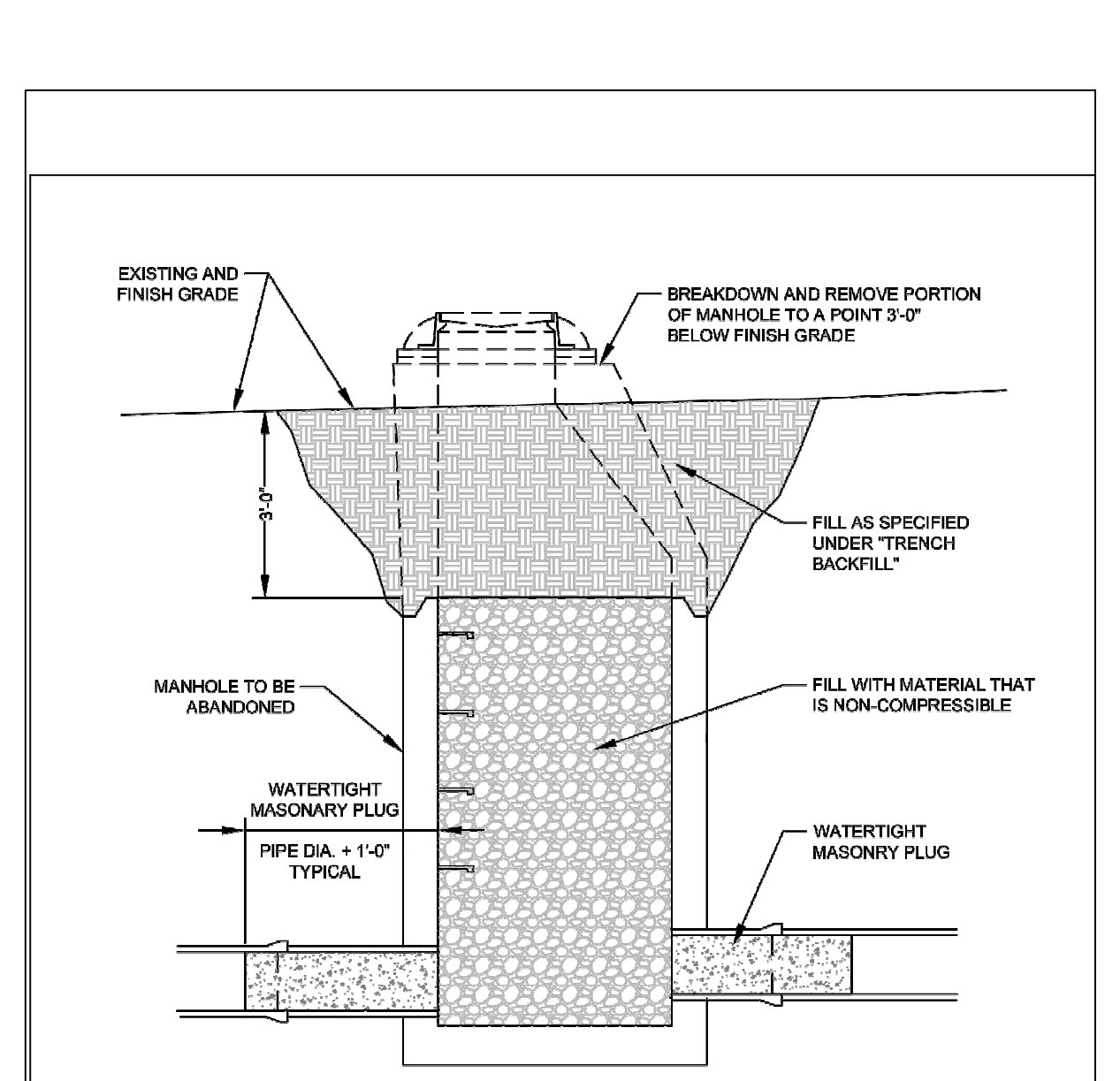


BANK PROTECTION AT STREAM/RIVER CROSSINGS
N.T.S.

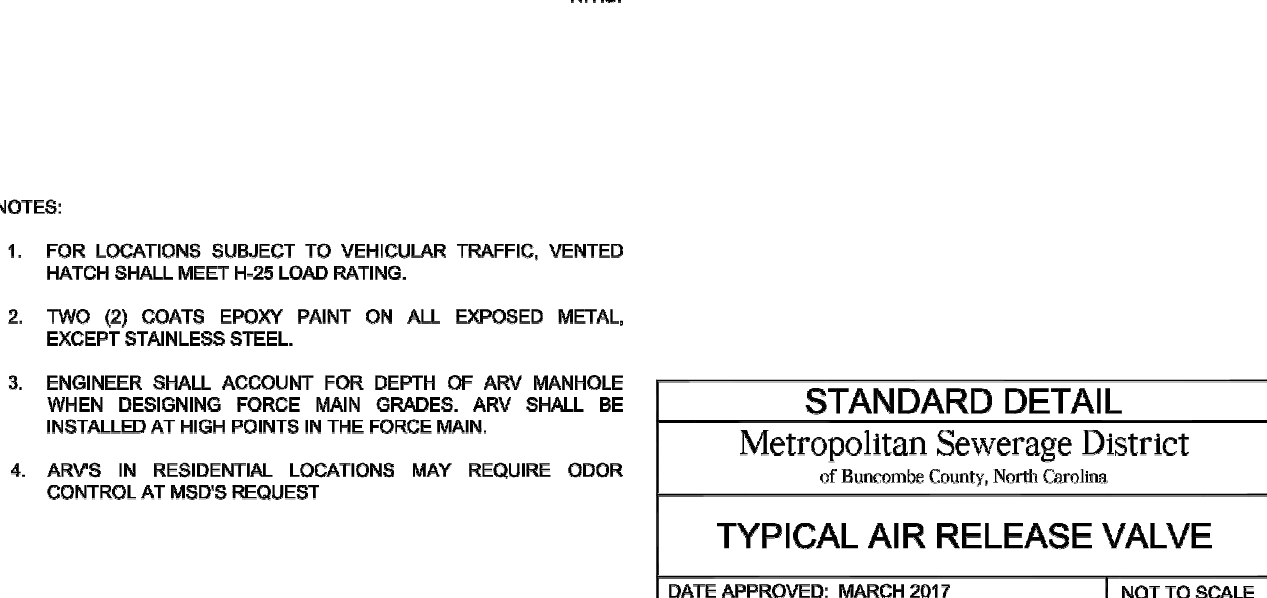
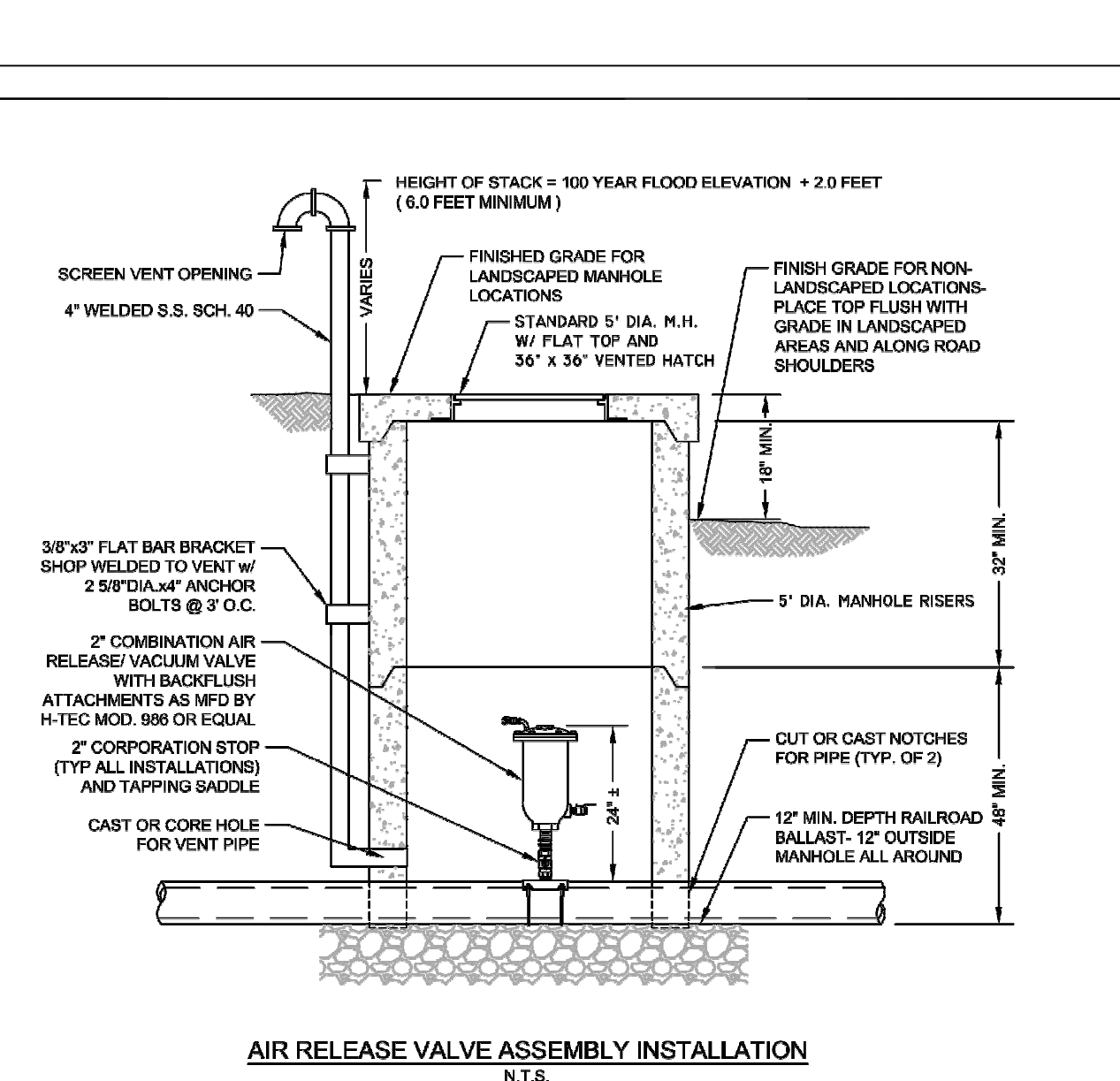
STANDARD DETAIL	
Metropolitan Sewerage District of Buncombe County, North Carolina	
STREAMBANK PROTECTION II	
DATE APPROVED: MARCH 2017	1.18 - 02



STANDARD DETAIL	
Metropolitan Sewerage District of Buncombe County, North Carolina	
WATERTIGHT MANHOLE FRAME & COVER	
DATE APPROVED: MARCH 2017	2.11 - 08.2



STANDARD DETAIL	
Metropolitan Sewerage District of Buncombe County, North Carolina	
UNDERGROUND STRUCTURE FRAME & COVER	
DATE APPROVED: MARCH 2017	2.11 - 08.2



STANDARD DETAIL	
Metropolitan Sewerage District of Buncombe County, North Carolina	
TYPICAL AIR RELEASE VALVE	
DATE APPROVED: MARCH 2017	NOT TO SCALE

REV. NO.	DESCRIPTION	DATE
6	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026

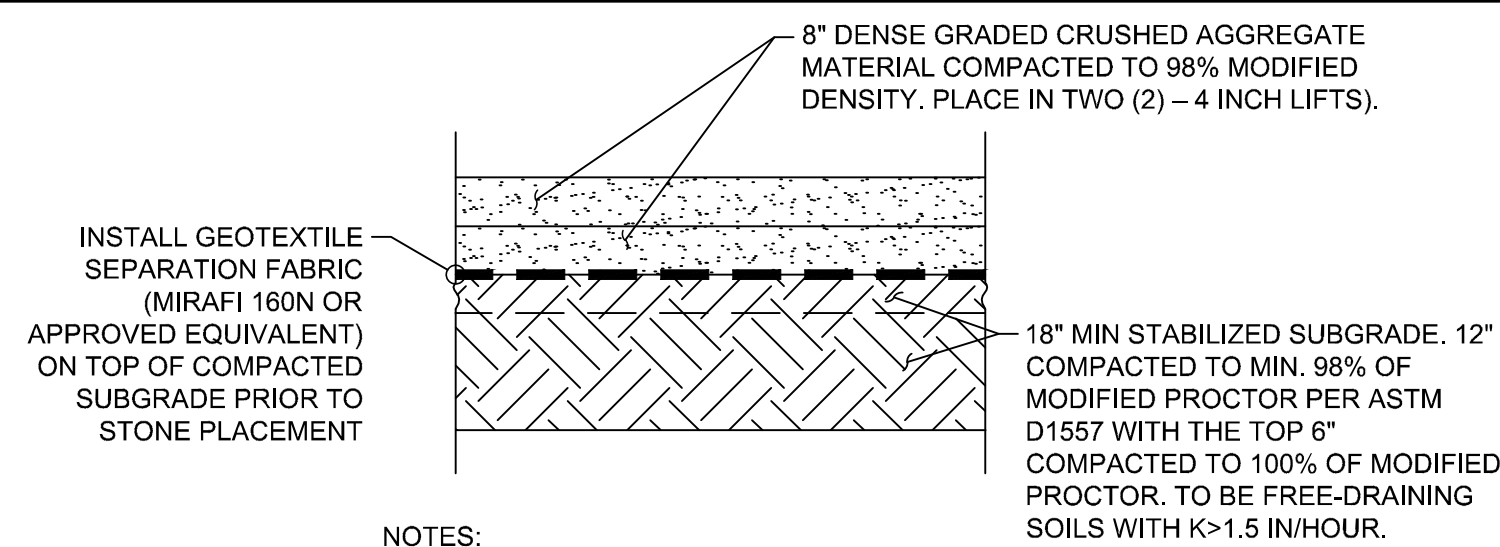


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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
MECHANICAL
STANDARD DETAILS 2

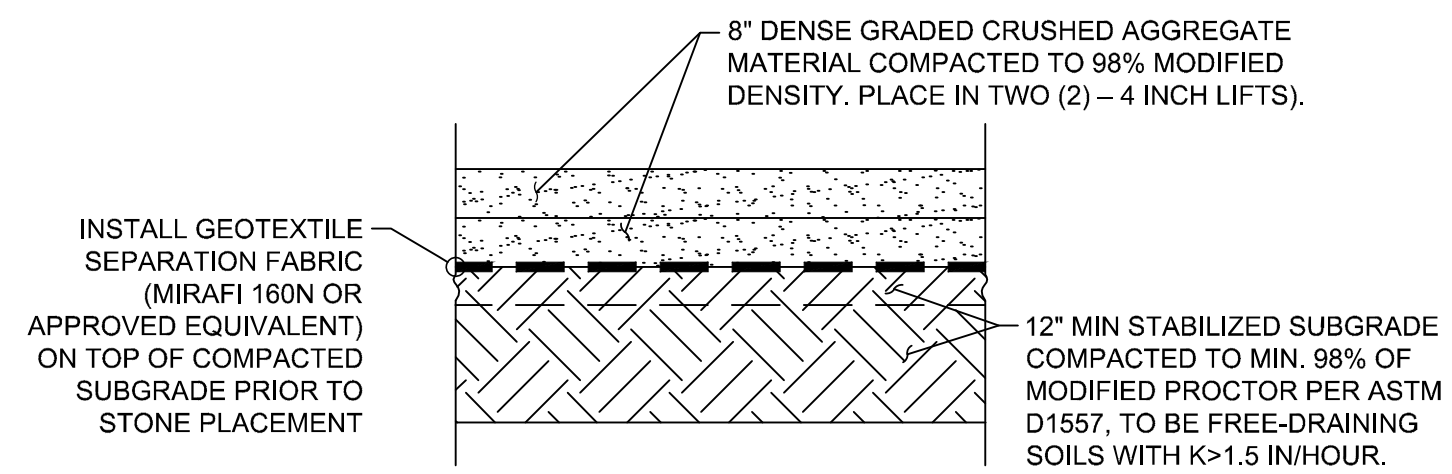
PROJ. START DATE: 2024 MAR	SCALE: HORIZONTAL: N/A	DRAWING NUMBER: MD01.2
MSD PROJ. # 20200601	VERTICAL: N/A	
DRAWN: AWB		REVISION: 0
DESIGNED: MC		
CHECKED: MC		
PROJ. MGR: MC		
STATUS: NOT RELEASED FOR CONSTRUCTION		ISSUED FOR BID



NOTES:
1. ENGINEERING FABRIC INSTALLATION TO BE PER SUPPLIER SPECIFICATIONS.

GRAVEL - ACCESS ROAD DETAIL

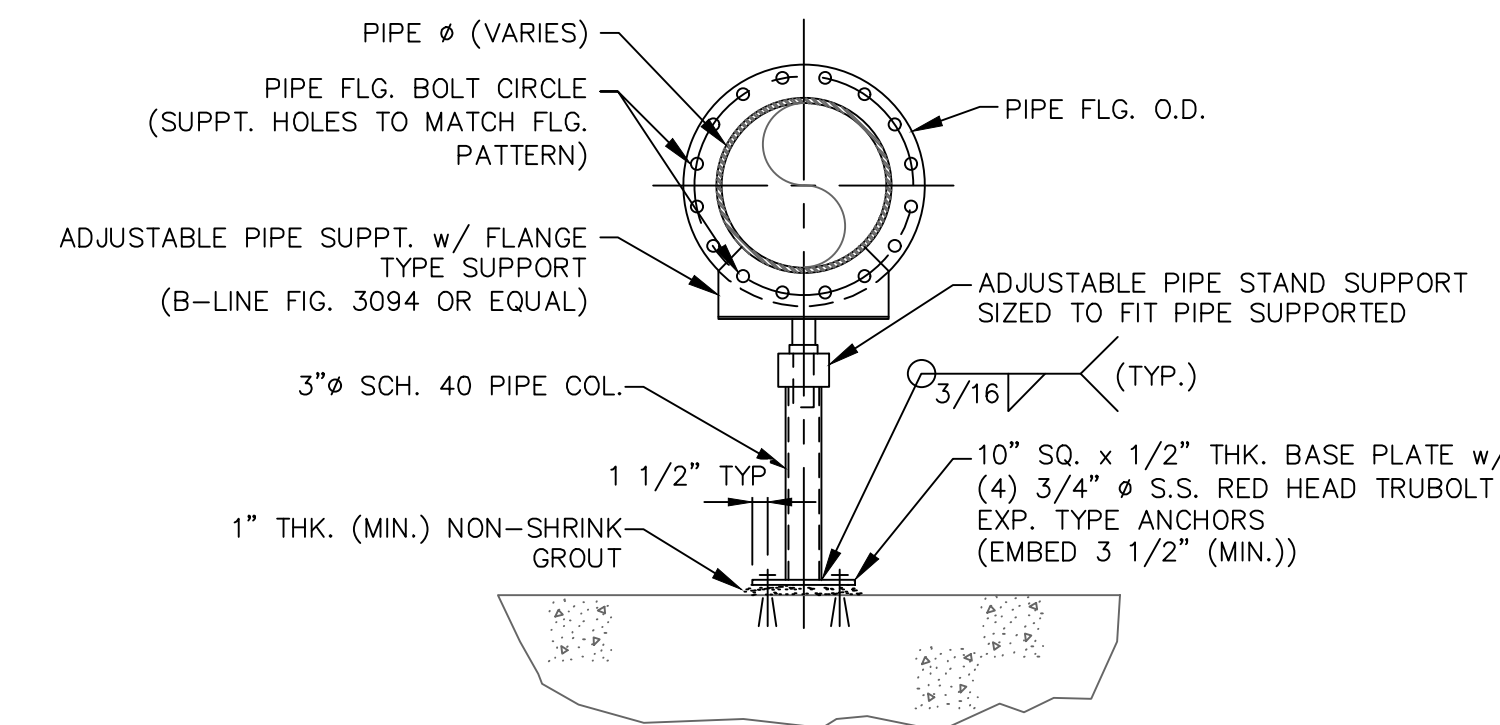
NOT TO SCALE



NOTES:
1. ENGINEERING FABRIC INSTALLATION TO BE PER SUPPLIER SPECIFICATIONS.

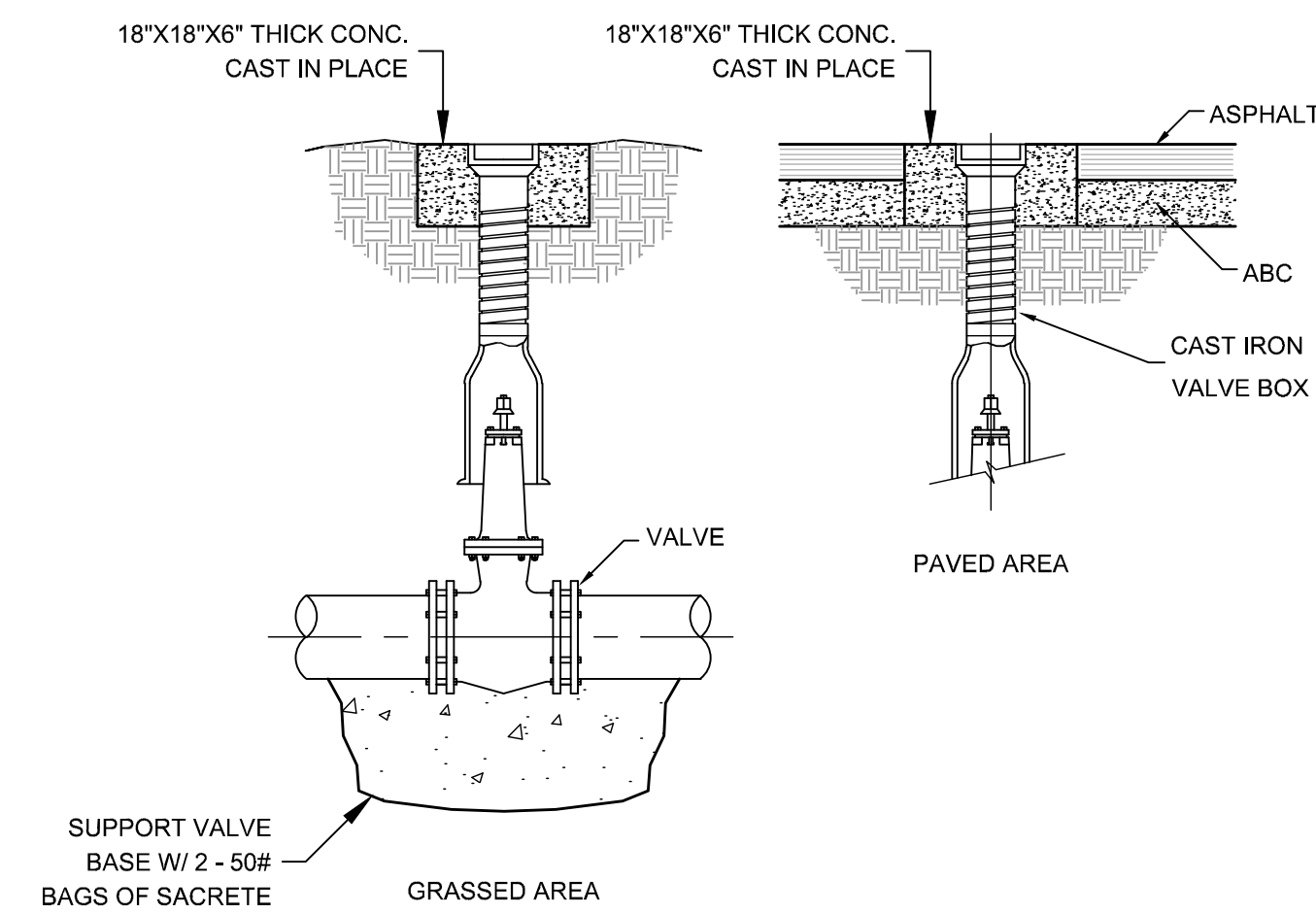
GRAVEL - SITE DETAIL

NOT TO SCALE



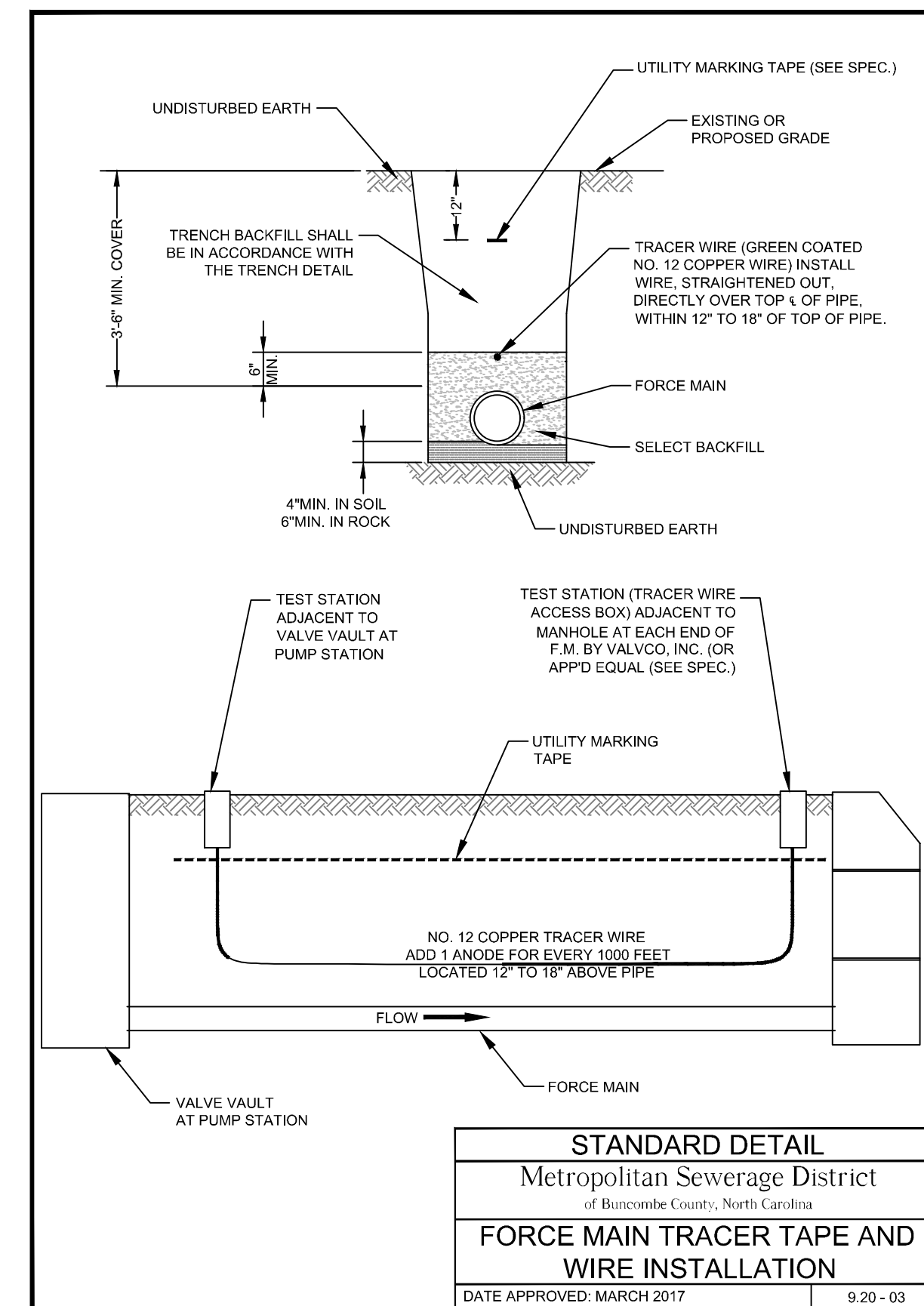
PIPE SUPPORT TYPE 6A (UP TO 16" PIPE)

NOT TO SCALE



VALVE BOX DETAILS

HORIZ. SCALE: N.T.S.



STANDARD DETAIL	
Metropolitan Sewerage District of Buncombe County, North Carolina	
FORCE MAIN TRACER TAPE AND WIRE INSTALLATION	
DATE APPROVED: MARCH 2017	9.20 - 03

NO TRESPASSING

MSD PUMP STATION

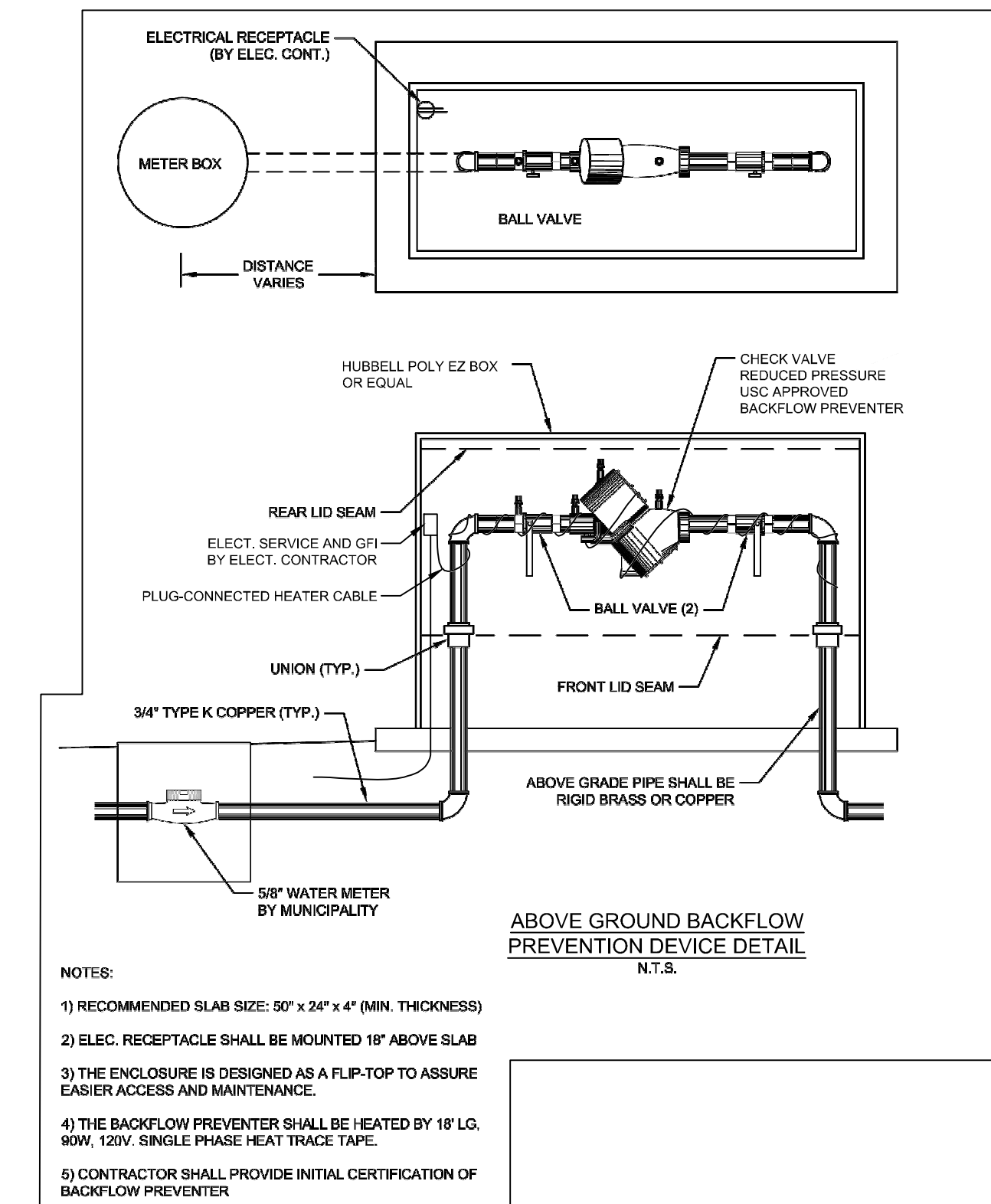
(NAME)

In case of Emergency

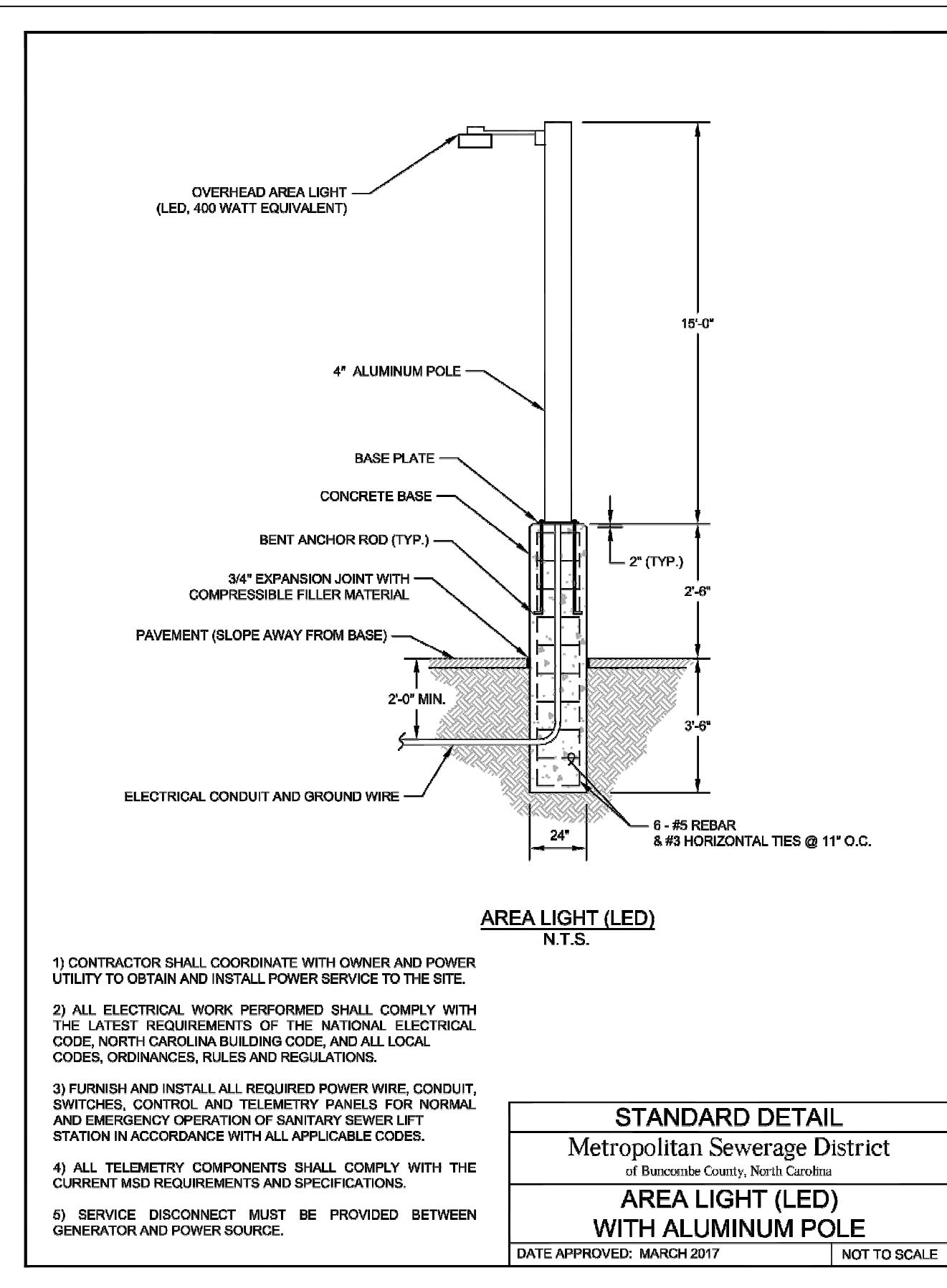
Call (828) 255-0061

SIGN SHALL BE 12" H x 18" W WITH REFLECTIVE LETTERING IN 16 GA. ALUMINUM

STANDARD DETAIL	
Metropolitan Sewerage District of Buncombe County, North Carolina	
SIGN DETAIL	
DATE APPROVED: MARCH 2017	NOT TO SCALE

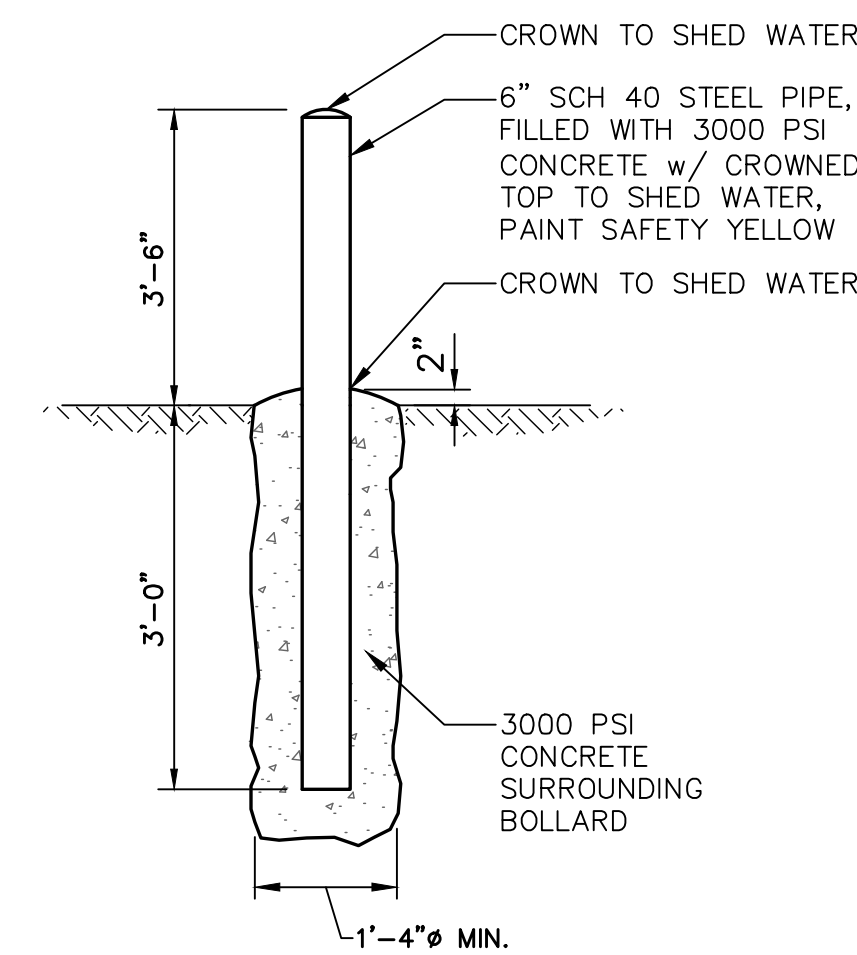


NOTES:
1) RECOMMENDED SLAB SIZE: 50" x 24" x 4" (MIN. THICKNESS)
2) ELEC. RECEPTACLE SHALL BE MOUNTED 18" ABOVE SLAB
3) THE ENCLOSURE IS DESIGNED AS A FLIP-TOP TO ASSURE EASIER ACCESS AND MAINTENANCE.
4) THE BACKFLOW PREVENTER SHALL BE HEATED BY 1Ø LG. 90W, 120V. SINGLE PHASE HEAT TRACE TAPE.
5) CONTRACTOR SHALL PROVIDE INITIAL CERTIFICATION OF BACKFLOW PREVENTER



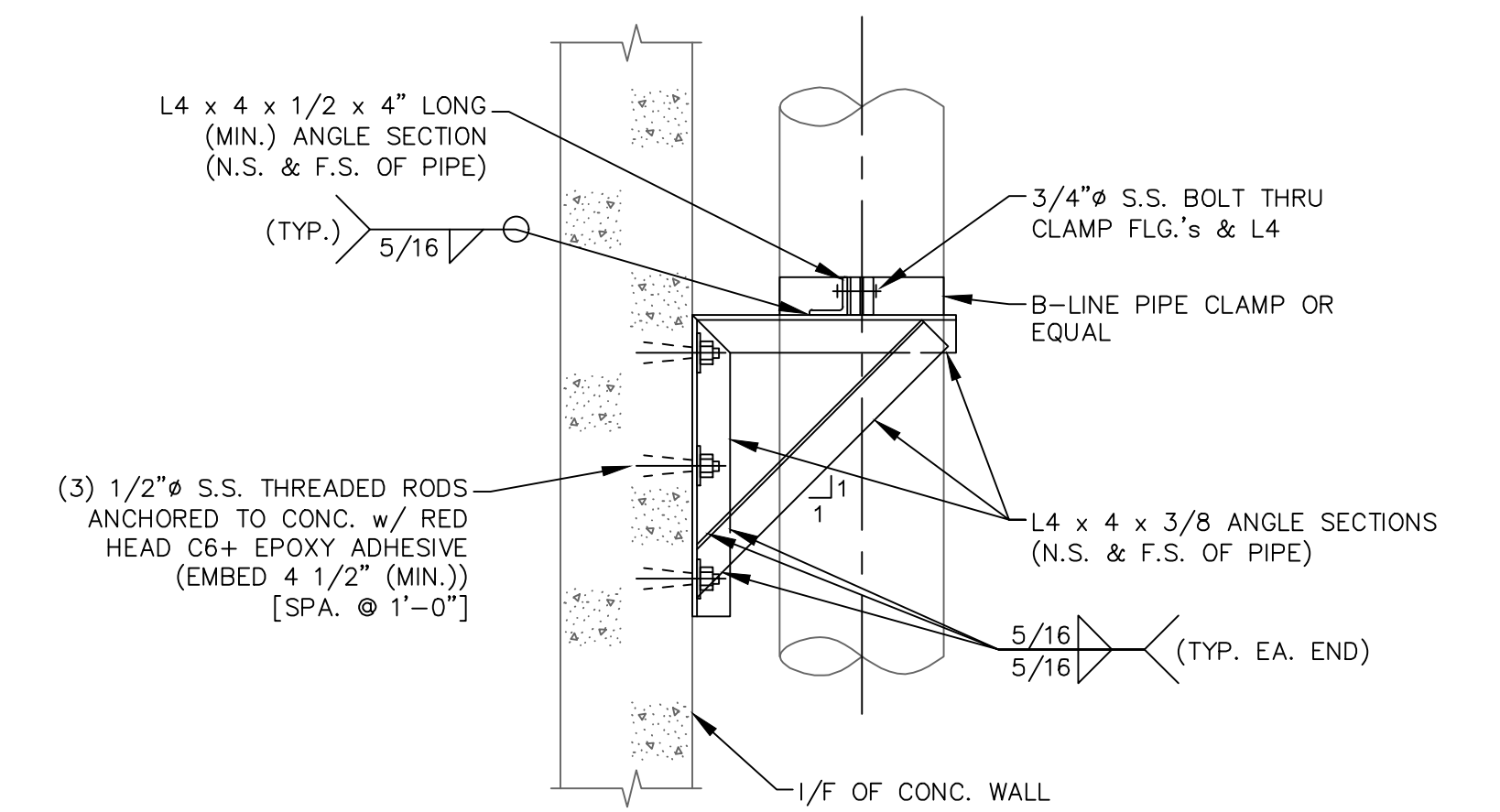
1) CONTRACTOR SHALL COORDINATE WITH OWNER AND POWER UTILITY TO OBTAIN AND INSTALL POWER SERVICE TO THE SITE.
2) ALL ELECTRICAL WORK PERFORMED SHALL COMPLY WITH THE LATEST REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, NORTH CAROLINA BUILDING CODE, AND ALL LOCAL CODES, ORDINANCES, RULES AND REGULATIONS.
3) FURNISH AND INSTALL ALL REQUIRED POWER WIRE, CONDUIT, SWITCHES, CONTROL, AND TELEMETRY PANELS FOR NORMAL AND EMERGENCY OPERATION OF SANITARY SEWER LIFT STATION IN ACCORDANCE WITH ALL APPLICABLE CODES.
4) ALL TELEMETRY COMPONENTS SHALL COMPLY WITH THE CURRENT MSD REQUIREMENTS AND SPECIFICATIONS.
5) SERVICE DISCONNECT MUST BE PROVIDED BETWEEN GENERATOR AND POWER SOURCE.

STANDARD DETAIL	
Metropolitan Sewerage District of Buncombe County, North Carolina	
AREA LIGHT (LED) WITH ALUMINUM POLE	
DATE APPROVED: MARCH 2017	NOT TO SCALE



YARD BOLLARD DETAIL

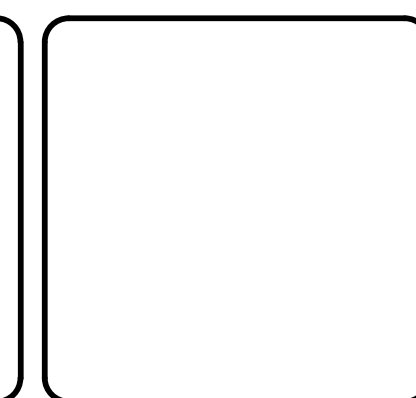
NOT TO SCALE



PIPE SUPPORT TYPE 7

NOT TO SCALE

REV. NO.	DESCRIPTION	DATE
1	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026
REVISIONS		



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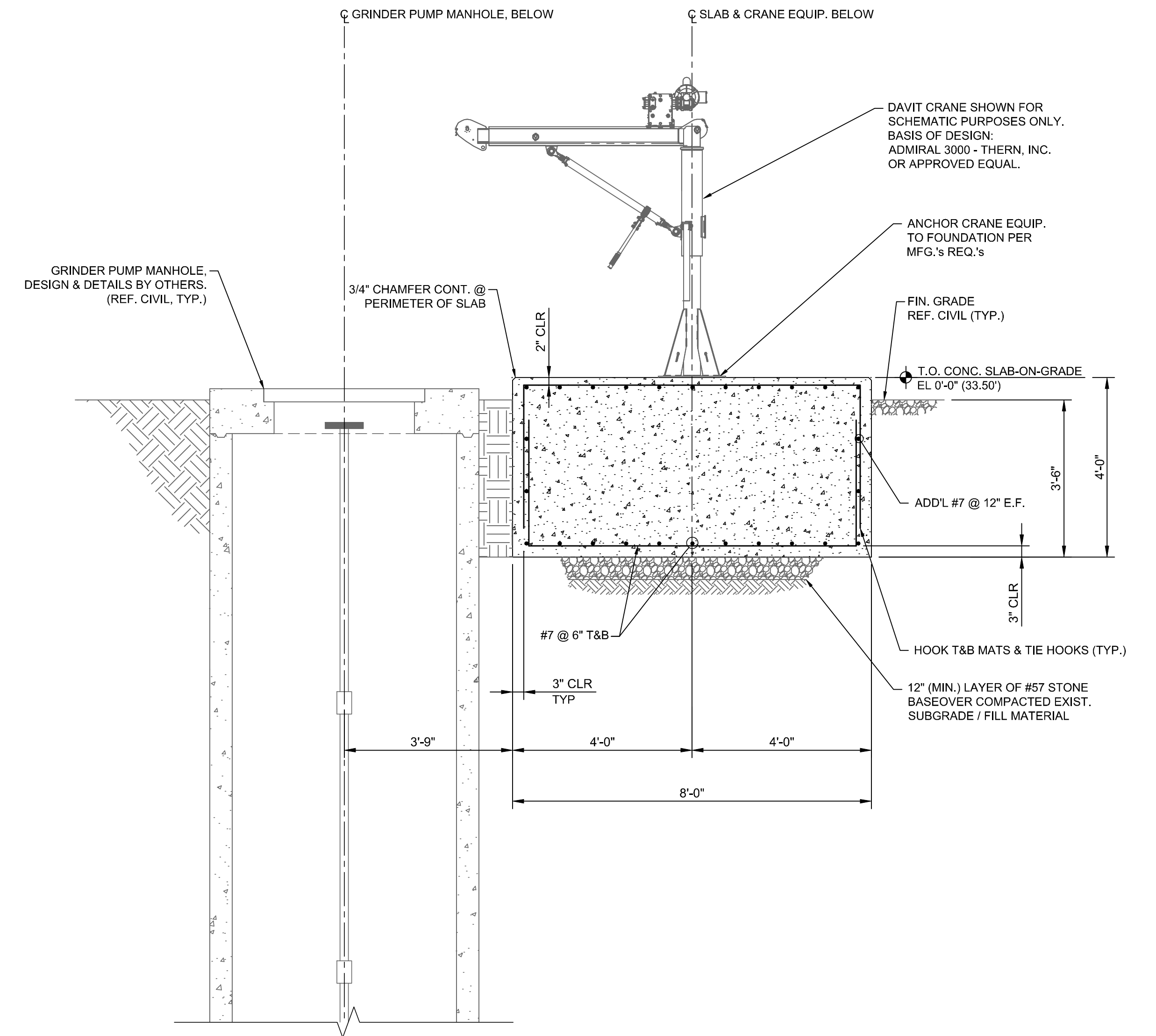
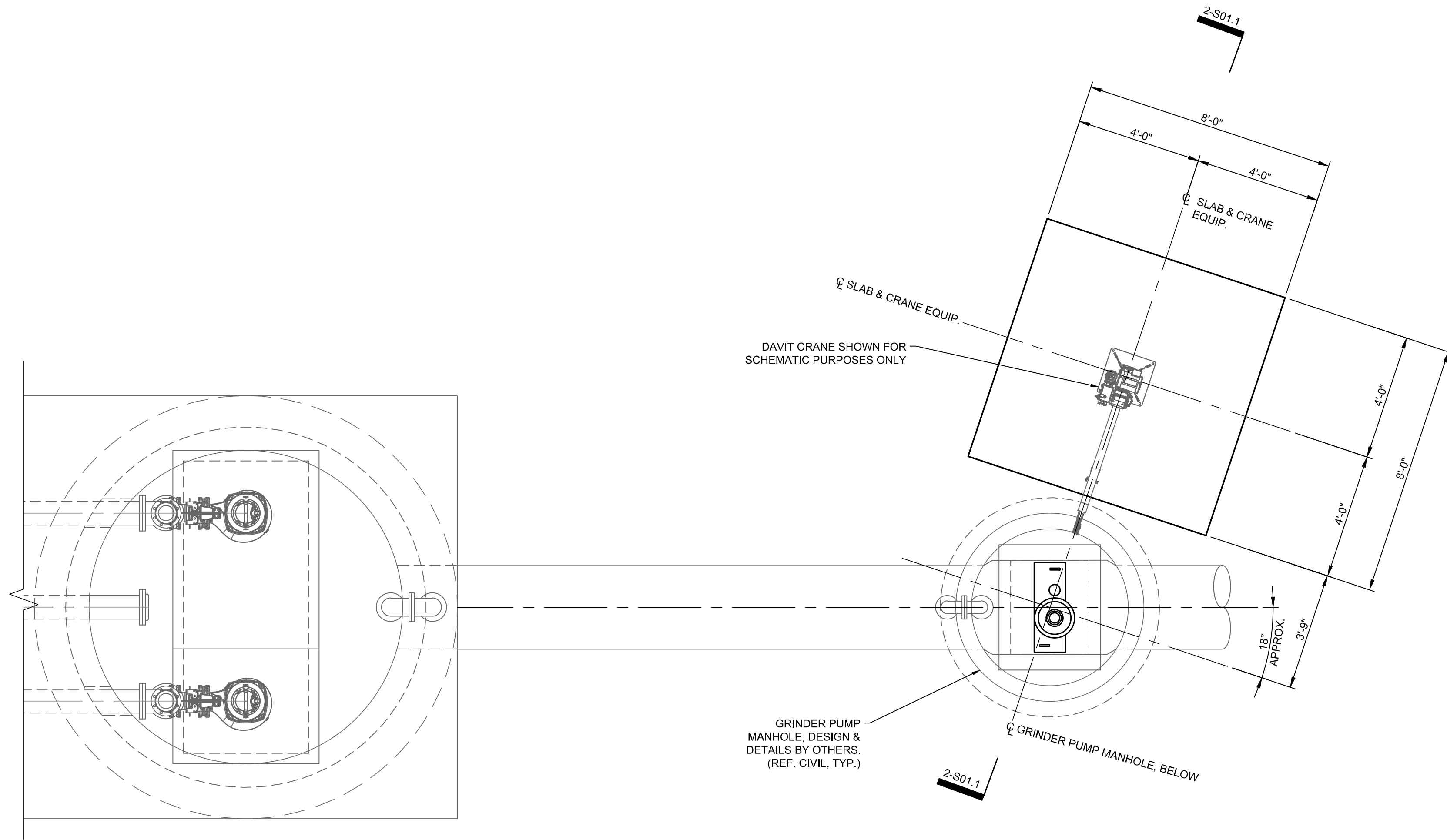
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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT

MECHANICAL
STANDARD DETAILS 3

PROJ. START DATE: 2024 MAR	SCALE	HORIZONTAL: N/A	DRAWING NUMBER: MD01.3
MSD PROJ. # 0000001	N/A		
DRAWN: AWB	VERTICAL: N/A	REVISION: 0	
DESIGNED: MC			
CHECKED: MC			
PROJ. MGR: MC			
STATUS: NOT RELEASED FOR CONSTRUCTION		ISSUED FOR BID	



1 - PLAN - CRANE SLAB FOUNDATION
SCALE: 3/8" = 1'-0"

2 - SECTION - CRANE SLAB FOUNDATION
SCALE: 1/2" = 1'-0"

PLAN NOTES:

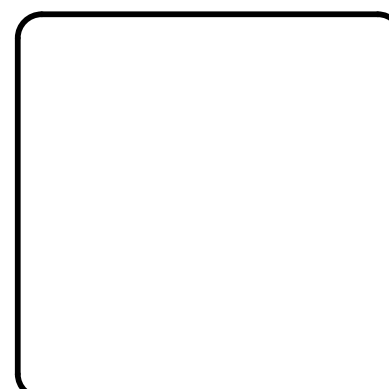
1. DAVIT CRANE, BASEPLATE, AND ANCHORAGE SHALL BE DESIGNED AND SUPPLIED BY THE MANUFACTURER FOR THE SPECIFIED RATED CAPACITY.
 2. PROVIDE AND INSTALL DAVIT CRANE AND BASE ASSEMBLY IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND SPECIFICATIONS.
 3. VERIFY ALL DIMENSIONS AND CLEARANCES PRIOR TO INSTALLATION.
 4. FOUNDATIONS HAVE BEEN DESIGNED FOR THE FOLLOWING SERVICE-LEVEL REACTIONS AT BASE OF CRANE:
 VERTICAL: = 4.5 KIPS
 LATERAL: = 0.7 KIPS
 MOMENT: = 35 KIP-FT
- SUBSTITUTIONS SHALL NOT INCREASE THE ABOVE REACTIONS WITHOUT REVIEW BY ENGINEER OF RECORD.

REV. NO.	DESCRIPTION	DATE

ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION

REVISIONS

JUNE 2024



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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT

STRUCTURAL
**PUMP STATION PUMP CRANE
 PLAN & SECTION**

PROJ. START DATE: 2024 MAR	SCALE
MSD PROJ. # 09596-001	HORIZONTAL: AS NOTED
DRAWN: JZM	VERTICAL: NA
DESIGNED: MSF	
CHECKED: ICD	
PROJ. MGR: MC	

S01.1
 DRAWING NUMBER

0
 REVISION

**ISSUED FOR BID
 NOT RELEASED FOR CONSTRUCTION**

1 GENERAL ELECTRICAL SYMBOLS

	LIGHTING, INSTRUMENT OR RECEPTACLE PANELBOARD
	POWER PANELBOARD
	CONTROL PANEL
	MOTOR CONTROL CENTER
	POWER MONITOR
	AMMETER
	AMMETER SWITCH
	VOLTMETER
	VOLTMETER SWITCH
	FLOAT/FLOW SWITCH
	LIMIT SWITCH
	PRESSURE SWITCH
	THERMOSTAT
	JUNCTION BOX, SIZE PER NEC
	ELECTRICAL EQUIPMENT CONNECTION
	ELECTRICAL MANHOLE / HANDHOLE AND THE LETTERS INDICATE THE TYPE OF THE HOLE
	RACEWAY SYSTEM CALL-OUTS: CT - CABLE TRAY BD - BUS DUCT DB - DUCTBANK EC - EXPOSED CONDUIT WW - WIRE WAY/TROUGH
	RACEWAY AND/OR CABLE ID NUMBER
	RACEWAY HOMERUN TO EQUIPMENT ID TAG AS SHOWN. LINE TYPE DESIGNATES CONCEALED, EXPOSED, ETC. NUMBERS/TEXT DESIGNATE HOMERUN EQUIPMENT (I.E. PANEL BOARD CIRCUIT NUMBER).
	CONDUCTOR/CABLE CALL-OUT WITHIN RACEWAY
	CONCEALED RACEWAY(S) IN FLOOR SLAB, UNDERGROUND, ETC.
	EXISTING RACEWAY(S) AND/OR CABLES
	RACEWAY TURNED DOWN
	RACEWAY TURNED UP
	RACEWAY TERMINATED / CAPPED OFF
	RACEWAY REMOVED / ABANDONED
	NEW ELECTRICAL RACEWAY(S)
	EXISTING ELECTRICAL RACEWAY(S)
	NEW TELEPHONE LINE(S)
	EXISTING TELEPHONE LINE(S)
	OVERHEAD ELECTRICAL UTILITY
	OVERHEAD TELEPHONE UTILITY
	UNDERGROUND ELECTRICAL UTILITY
	UNDERGROUND TELEPHONE UTILITY
	NEW GROUNDING / BONDING
	EXISTING GROUNDING / BONDING
	NEW LIGHTNING PROTECTION CONDUCTOR

2 TYPICAL POWER SYMBOLS

	CLASS 1/2 DIVISION III CONDUIT SEAL-OFF FITTING		TRANSFORMER, POWER TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCAL CONTROL STATION WITH THREE OR MORE SELECTOR/PUSH SWITCHES LOWER-RIGHT SYMBOL INDICATES MOUNTING LOCATION		TRANSFORMER, SHIELDED ISOLATION TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCAL CONTROL STATION WITH TWO SELECTOR/PUSH SWITCHES LOWER-RIGHT SYMBOL INDICATES MOUNTING LOCATION		TRANSFORMER, CURRENT 'CT' TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCAL CONTROL STATION WITH ONE SELECTOR/PUSH SWITCH LOWER-RIGHT SYMBOL INDICATES MOUNTING LOCATION		TRANSFORMER, POTENTIAL 'PT' OR 'VT' TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCATED AT FIELD DEVICE		AUTOMATIC OR MANUAL TRANSFER SWITCH, STAND-ALONE TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCATED AT MAIN CONTROL PANEL		SAFETY / DISCONNECT SWITCH TOP NUMBER DENOTES FUSE SIZE (NF=NON-FUSED) BOTTOM NUMBER DENOTES FRAME SIZE RIGHT NUMBER DENOTES NEMA ENCLOSURE RATING
	LOCATED AT LOCAL CONTROL PANEL		MOTOR CONTROLLER, STAND-ALONE WITH EXTERNAL DISCONNECT: UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE UPPER RIGHT NUMBER DENOTES AMPERE AND FRAME RATINGS CENTER RIGHT NUMBER DENOTES NEMA ENCLOSURE RATING LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: FVNR FULL VOLTAGE NON-REVERSE FVR FULL VOLTAGE REVERSIBLE TS1W TWO SPEED - SINGLE WINDING TS2W TWO SPEED - DUAL WINDING RVSS REDUCED VOLTAGE SOFT STARTER RVAT REDUCED VOLTAGE AUTO TRANSFORMER VFD VARIABLE FREQUENCY DRIVE
	MOUNTED ON DOOR		MOTOR CONTROLLER, FULL-VOLTAGE MCC UNIT: UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: FVNR FULL VOLTAGE NON-REVERSE FVR FULL VOLTAGE REVERSIBLE
	DRAW-OUT POWER CIRCUIT BREAKER WITH PROGRAMMABLE SOLID STATE RELAY 'EO' DENOTES ELECTRICALLY OPERATED		MOTOR CONTROLLER, PART-WINDING MCC UNIT: UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: TS1W TWO SPEED - SINGLE WINDING TS2W TWO SPEED - DUAL WINDING
	FIXED-MOUNT POWER CIRCUIT BREAKER WITH ADJUSTABLE SOLID STATE RELAY		MOTOR CONTROLLER, REDUCED-VOLTAGE MCC UNIT: UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: RVSS REDUCED VOLTAGE SOFT STARTER RVAT REDUCED VOLTAGE AUTO TRANSFORMER
	CIRCUIT BREAKER, GENERIC FIXED-MOUNT 'TMTU' THERMAL-MAGNETIC TRIP UNIT 'ELTU' ELECTRONIC TRIP UNIT		MOTOR CONTROLLER, VARIABLE FREQUENCY DRIVE, MCC UNIT: UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: VFD VARIABLE FREQUENCY DRIVE
	CIRCUIT BREAKER, GENERIC		LINE OR LOAD REACTOR CENTER RIGHT NUMBER DENOTES PERCENT IMPEDANCE
	CIRCUIT BREAKER, THERMAL		MOTOR PROTECTION FILTER
	CIRCUIT BREAKER, MOTOR CIRCUIT PROTECTOR		AC MOTOR SINGLE OR THREE PHASE AS NOTED
	CIRCUIT BREAKER, THERMAL ENCLOSED TOP NUMBER DENOTES TRIP BOTTOM NUMBER DENOTES FRAME SIZE UPPER LEFT NUMBER DENOTES NEMA ENCLOSURE RATING		CABLE-TRAY TYPE AS NOTED ON THE DRAWINGS
	FUSE, GENERIC		
	FUSE, GENERIC TOP NUMBER DENOTES TRIP BOTTOM NUMBER DENOTES VOLTAGE CLASS MIDDLE NUMBER DENOTES TYPE		
	WIRING DEVICE, POWER RECEPTACLE WITH INTEGRAL DISCONNECT / LOAD BREAK NEMA CONFIGURATION SHOWN LOWER RIGHT		
	WIRING DEVICE, POWER RECEPTACLE NEMA CONFIGURATION SHOWN LOWER RIGHT		

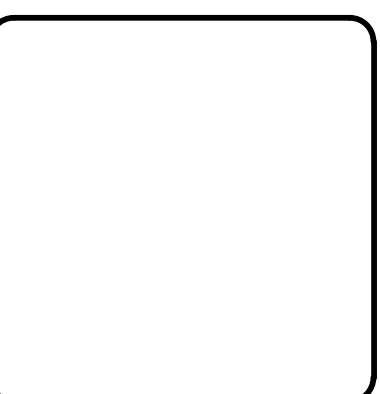
NOTES:
ALL SYMBOLS MAY NOT BE UTILIZED FOR THIS PROJECT.
ADDITIONAL SYMBOLS NOT SHOWN ON THIS DRAWING MAY BE SHOWN ELSEWHERE ON THE ELECTRICAL DRAWINGS. IF REQUIRED, IEC RATINGS WILL INCLUDE THE "IEC" AND "IP" PREFIX.

3 TYPICAL CONTROL AND SCHEMATIC SYMBOLS

	MOMENTARY PUSH BUTTON NORMALLY OPENED		CONTROL RELAY, GENERIC DESIGNATIONS: CR CONTROL RELAY MX AUXILIARY RELAY TR TIMING RELAY AR ALARM RELAY RR READY RELAY
	MOMENTARY PUSH BUTTON NORMALLY CLOSED		CONTROL RELAY, LATCHING
	MUSHROOM PUSH BUTTON NORMALLY OPENED		CONTACT, NORMALLY OPENED TOP ID TAG DENOTES PARENT RELAY
	MUSHROOM PUSH BUTTON NORMALLY CLOSED		CONTACT, NORMALLY CLOSED TOP ID TAG DENOTES PARENT RELAY
	TOGGLE SWITCH NORMALLY OPENED		SOLENOID, GENERIC
	TOGGLE SWITCH NORMALLY CLOSED		HEATING ELEMENT, GENERIC
	TWO-POSITION SWITCH NORMALLY OPENED		ELAPSED TIME METER, ELECTRONIC
	THREE-POSITION BUTTON NORMALLY OPENED		HORN, ALARM
	LIMIT SWITCH NORMALLY OPENED		HORN, ALARM AUDIO AND VISUAL ANNUNCIATION
	LIMIT SWITCH NORMALLY CLOSED		TRANSFORMER, CONTROL POWER RATINGS AS NOTED ON THE DRAWINGS
	LIMIT SWITCH HELD OPENED		BATTERY OR DC POWER SOURCE
	LIMIT SWITCH HELD CLOSED		MOTOR ACTUATED VALVE MODULATING O/C OPEN/CLOSE
	TEMPERATURE SWITCH NORMALLY OPENED		MOTOR ACTUATED VALVE MODULATING O/C OPEN/CLOSE
	TEMPERATURE SWITCH NORMALLY CLOSED		
	FLOAT SWITCH NORMALLY OPENED		
	FLOAT SWITCH NORMALLY CLOSED		
	FLOW SWITCH NORMALLY OPENED		
	FLOW SWITCH NORMALLY CLOSED		
	PRESSURE SWITCH NORMALLY OPENED		
	PRESSURE SWITCH NORMALLY CLOSED		
	ON DELAY TIME RELAY NORMALLY OPENED TIMED CLOSED NOTC		
	ON DELAY TIME RELAY NORMALLY CLOSED TIMED OPENED NCTO		
	OFF DELAY TIME RELAY NORMALLY OPENED TIMED OPENED NOTO		
	OFF DELAY TIME RELAY NORMALLY CLOSED TIMED CLOSED NCTC		
	INDICATION LIGHT W - WHITE G - GREEN A - AMBER R - RED B - BLUE C - CLEAR		
	INDICATION LIGHT, PUSH-TO-TEST W - WHITE G - GREEN A - AMBER R - RED B - BLUE C - CLEAR		

NOTES:
ALL SYMBOLS MAY NOT BE UTILIZED FOR THIS PROJECT.
ADDITIONAL SYMBOLS NOT SHOWN ON THIS DRAWING MAY BE SHOWN ELSEWHERE ON THE ELECTRICAL DRAWINGS. IF REQUIRED, IEC RATINGS WILL INCLUDE THE "IEC" AND "IP" PREFIX.

REV. NO.	DESCRIPTION	DATE



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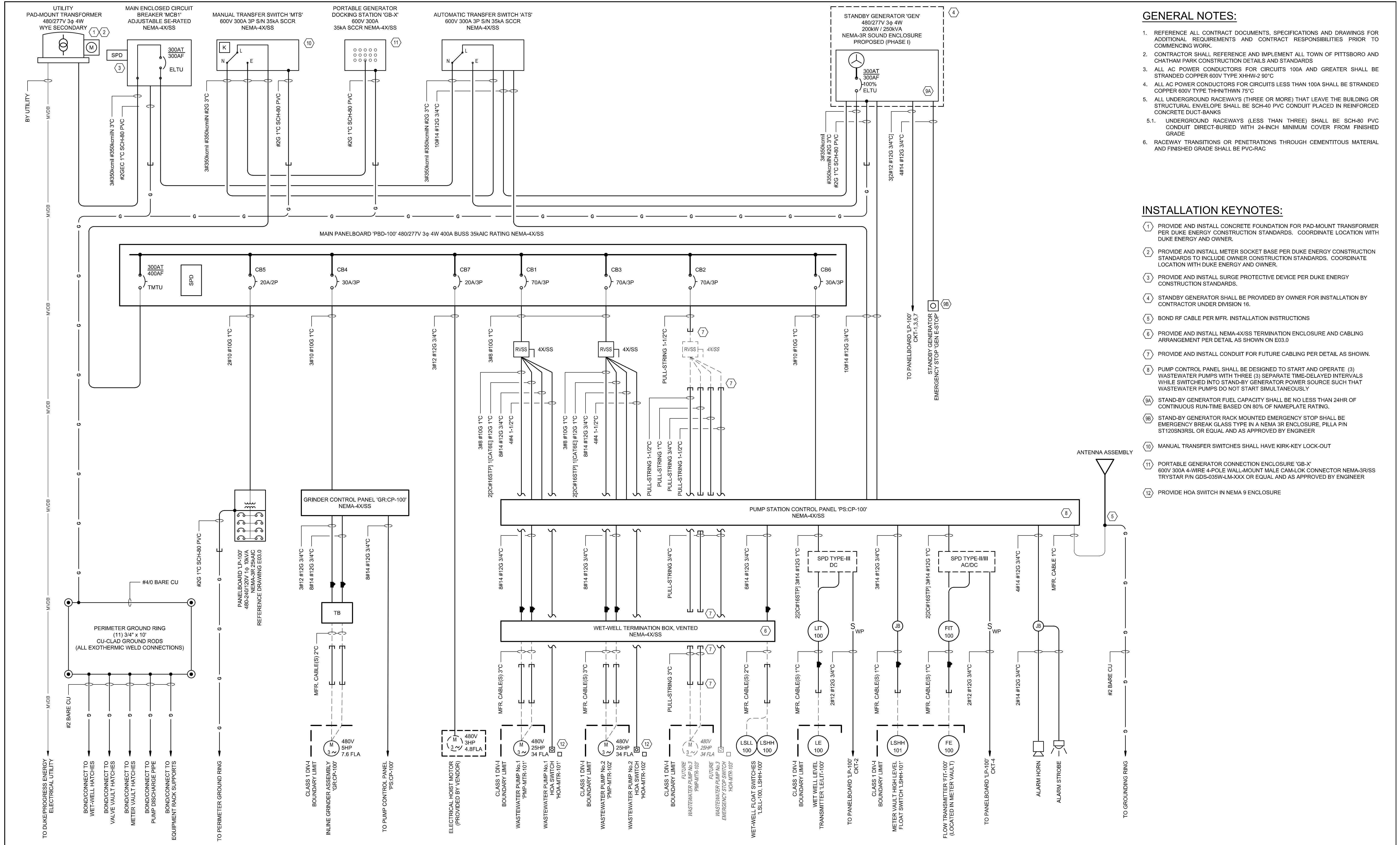
METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT

ELECTRICAL

TYPICAL POWER AND CONTROL SYMBOLS

PROJ. START DATE: 2024 MAR	SCALE	E00.1
DRAWN: LG	HORIZONTAL:	
CHECKED: NF	VERTICAL:	DRAWING NUMBER
PROJ. MGR: MC	N/A	0
STATUS:	ISSUED FOR BID	REVISION
	NOT RELEASED FOR CONSTRUCTION	



GENERAL NOTES:

1. REFERENCE ALL CONTRACT DOCUMENTS, SPECIFICATIONS AND DRAWINGS FOR ADDITIONAL REQUIREMENTS AND CONTRACT RESPONSIBILITIES PRIOR TO COMMENCING WORK.
2. CONTRACTOR SHALL REFERENCE AND IMPLEMENT ALL TOWN OF PITTSBORO AND CHATHAM PARK CONSTRUCTION DETAILS AND STANDARDS
3. ALL AC POWER CONDUCTORS FOR CIRCUITS 100A AND GREATER SHALL BE STRANDED COPPER 600V TYPE XHHW-2 90°C
4. ALL AC POWER CONDUCTORS FOR CIRCUITS LESS THAN 100A SHALL BE STRANDED COPPER 600V TYPE THHN/THWN 75°C
5. ALL UNDERGROUND RACEWAYS (THREE OR MORE) THAT LEAVE THE BUILDING OR STRUCTURAL ENVELOPE SHALL BE SCH-40 PVC CONDUIT PLACED IN REINFORCED CONCRETE DUCT-BANKS
- 5.1. UNDERGROUND RACEWAYS (LESS THAN THREE) SHALL BE SCH-80 PVC CONDUIT DIRECT-BURIED WITH 24-INCH MINIMUM COVER FROM FINISHED GRADE.
6. RACEWAY TRANSITIONS OR PENETRATIONS THROUGH CEMENTITIOUS MATERIAL AND FINISHED GRADE SHALL BE PVC-RAC

INSTALLATION KEYNOTES:

- 1 PROVIDE AND INSTALL CONCRETE FOUNDATION FOR PAD-MOUNT TRANSFORMER PER DUKE ENERGY CONSTRUCTION STANDARDS. COORDINATE LOCATION WITH DUKE ENERGY AND OWNER.
- 2 PROVIDE AND INSTALL METER SOCKET BASE PER DUKE ENERGY CONSTRUCTION STANDARDS TO INCLUDE OWNER CONSTRUCTION STANDARDS. COORDINATE LOCATION WITH DUKE ENERGY AND OWNER.
- 3 PROVIDE AND INSTALL SURGE PROTECTIVE DEVICE PER DUKE ENERGY CONSTRUCTION STANDARDS.
- 4 STANDBY GENERATOR SHALL BE PROVIDED BY OWNER FOR INSTALLATION BY CONTRACTOR UNDER DIVISION 16.
- 5 BOND RF CABLE PER MFR. INSTALLATION INSTRUCTIONS
- 6 PROVIDE AND INSTALL NEMA-4X/SS TERMINATION ENCLOSURE AND CABLING ARRANGEMENT PER DETAIL AS SHOWN ON E03.0
- 7 PROVIDE AND INSTALL CONDUIT FOR FUTURE CABLING PER DETAIL AS SHOWN.
- 8 PUMP CONTROL PANEL SHALL BE DESIGNED TO START AND OPERATE (3) WASTEWATER PUMPS WITH THREE (3) SEPARATE TIME-DELAYED INTERVALS WHILE SWITCHED INTO STAND-BY GENERATOR POWER SOURCE SUCH THAT WASTEWATER PUMPS DO NOT START SIMULTANEOUSLY
- 9A STAND-BY GENERATOR FUEL CAPACITY SHALL BE NO LESS THAN 24HR OF CONTINUOUS RUN-TIME BASED ON 80% OF NAMEPLATE RATING.
- 9B STAND-BY GENERATOR RACK MOUNTED EMERGENCY STOP SHALL BE EMERGENCY BREAK GLASS TYPE IN A NEMA 3R ENCLOSURE, PULLA P/N ST120SN3RSL OR EQUAL AND AS APPROVED BY ENGINEER
- 10 MANUAL TRANSFER SWITCHES SHALL HAVE KIRK-KEY LOCK-OUT
- 11 PORTABLE GENERATOR CONNECTION ENCLOSURE 'GB-X' 600V 300A 4-WIRE 4-POLE WALL-MOUNT MALE CAM-LOK CONNECTOR NEMA-3R/SS TRYSTAR P/N GDS-035W-LM-XXX OR EQUAL AND AS APPROVED BY ENGINEER
- 12 PROVIDE HOA SWITCH IN NEMA 9 ENCLOSURE

REV. NO.	DESCRIPTION	DATE
1	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026



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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
 ELECTRICAL
PUMP STATION POWER AND CONTROL DIAGRAM

PROJ. START DATE: 2024 MAR NCE PROJ. #: 0999-0001 DESIGNED: LG CHECKED: NF PROJ. MGR.: MC	SCALE: HORIZONTAL: E01.0 VERTICAL: N/A DRAWING NUMBER: 0 REVISION:
STATUS: ISSUED FOR BID	NOT RELEASED FOR CONSTRUCTION

ELECTRICAL PANEL: PBD-100			ENCLOSURE: NEMA-4X/SS MOUNTING: SURFACE						MAIN: 300AT / 300AF MCB								
LOCATION: EQUIPMENT RACK			VOLTS: 480/270V 3 PHASE / 4 WIRE						NEUTRAL: 100%								
			BRACING: 35KAIC FULLY RATED						FEED: 3#350kcmil #350kcmilN #2G 3"C								
LOAD SERVED	LOAD (KVA)			BREAKER		FEEDER CIRCUIT CONDUIT & WIRING	CKT	PHASE	CKT	FEEDER CIRCUIT CONDUIT & WIRING	BREAKER	POLE	AMP	LOAD (KVA)			LOAD SERVED
	A	B	C	AMP	POLE									C	B	A	
WASTEWATER PUMP No.1 'PMP-MTR-101'	9.42	9.42	9.42	70	3	3#8 #10G 1"C	1	A	2	PULL-STRING 1-1/2"C	3	70		9.42		9.42	WASTEWATER PUMP No.3 'PMP-MTR-103' (FUTURE)
WASTEWATER PUMP No.2 'PMP-MTR-102'	9.42	9.42	9.42	70	3	3#8 #10G 1"C	3	B	4	3#10 #10G 1"C	3	30		9.42		9.42	GRINDER UNIT CONTROL PANEL 'GR-CP-100'
UNIT SUBSTATION 'LP-100'	1.860	2.050	0.000	20	2	2#10 #10G 1"C	7	A	8	3#10 #10G 1"C	3	30		3.917		3.917	PUMP STATION CONTROL PANEL
SPACE							9	B	10					0.333		0.333	
ELECTRIC HOIST MOTOR	1.330	1.330	1.330	20	3	3#12 #12G 3/4"C	11	C	12					0.000		0.000	SPARE BREAKER
SPACE	0.000	0.000	0.000				13	A	14					0.000		0.000	SPARE BREAKER
							15	B	16					0.000		0.000	
							17	C	18					0.000		0.000	
							19	A	20					0.000		0.000	
							21	B	22					0.000		0.000	
							23	C	24					0.000		0.000	
							25	A	26					0.000		0.000	
							27	B	28					0.000		0.000	
							29	C	30					0.000		0.000	
TOTAL(S):	20.170	20.170	20.170											13.670	13.670	13.670	
TOTAL CONNECTED KVA:			101.520			TOTAL BUS A LOAD:			33.840			KVA					
TOTAL CONNECTED AMPS:			122.113			TOTAL BUS B LOAD:			33.840			KVA					
						TOTAL BUS C LOAD:			33.840			KVA					

GENERAL NOTES:

1. REFERENCE ALL CONTRACT DOCUMENTS, SPECIFICATIONS AND DRAWINGS FOR ADDITIONAL REQUIREMENTS AND CONTRACT RESPONSIBILITIES PRIOR TO COMMENCING WORK.
2. CONTRACTOR SHALL REFERENCE AND IMPLEMENT ALL METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY CONSTRUCTION DETAILS AND STANDARDS
3. ALL AC POWER CONDUCTORS FOR CIRCUITS 100A AND GREATER SHALL BE STRANDED COPPER 600V TYPE XHHW-2 90°C
4. ALL AC POWER CONDUCTORS FOR CIRCUITS LESS THAN 100A SHALL BE STRANDED COPPER 600V TYPE THHN/THWN 75°C

ELECTRICAL PANEL: LP-100			ENCLOSURE: NEMA-3R/SS						PANEL IN MINI POWER ZONE								
LOCATION: EQUIPMENT RACK			VOLTS: 240/120V 1 PHASE / 3 WIRE / 10KVA POWER UNIT														
			BRACING: 10,000A FULLY RATED														
LOAD SERVED	LOAD (KVA)			BREAKER		BRANCH CIRCUIT CONDUIT & WIRING	CKT	PH	CKT	BRANCH CIRCUIT CONDUIT & WIRING	BREAKER			LOAD SERVED			
	A	B	C	AMP	POLE						POLE	AMP	B		A		
GENERATOR BLOCK HEATER	1.000	1.000	0.050	20G	2	2#10 #10G 3/4"C	1	A	2	2#12 #12G 3/4"C	1	20	0.050	0.050	WET WELL LEVEL TRANSMITTER 'LIT-100'		
GENERATOR BATTERY CHARGER	0.250	0.250	0.000	20G	1	2#12 #12G 3/4"C	3	B	4	2#12 #12G 3/4"C	1	20	0.050	0.000	FLOW TRANSMITTER 'FIT-100'		
GENERATOR SHORE POWER	0.500	0.500	0.000	20G	1	2#12 #12G 3/4"C	5	A	6		1	20	0.000	0.000	SPARE BREAKER		
E-RACK RECEPTACLES	0.360	0.360	0.000	20	1	2#12 #12G 3/4"C	7	B	8		1	20	0.000	0.000	SPARE BREAKER		
E-RACK LIGHTING	0.300	0.300	0.000	20	1	2#12 #12G 3/4"C	9	A	10		1	20	0.000	0.000	SPARE BREAKER		
SITE LIGHTING	0.200	0.200	0.000	20	1	2#12 #12G 3/4"C	11	B	12				0.000	0.000	SPACE		
RPZ HOT BOX	0.200	0.200	0.000	20G	1	2#12 #12G 3/4"C	13	A	14				0.000	0.000	SPACE		
SPARE BREAKER	0.000	0.000	0.000	20	1	2#12 #12G 3/4"C	15	B	16				0.000	0.000	SPACE		
							17	A	18				0.000	0.000	SPACE		
TOTAL(S):	1.810	2.000											0.050	0.050			
TOTAL CONNECTED KVA:			3.910			TOTAL BUS A LOAD:			1.860			KVA					
TOTAL CONNECTED AMPS:			18.798			TOTAL BUS B LOAD:			2.050			KVA					

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026
REVISIONS		



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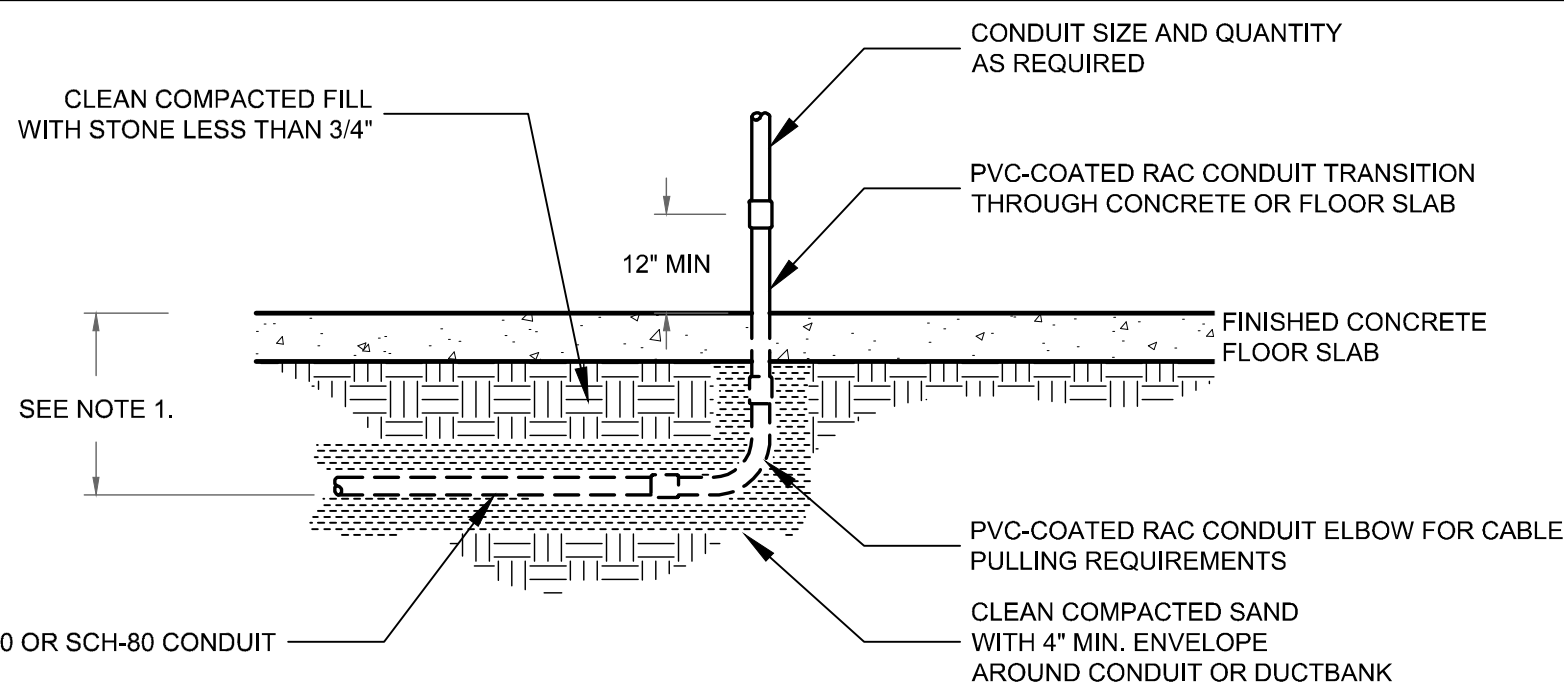
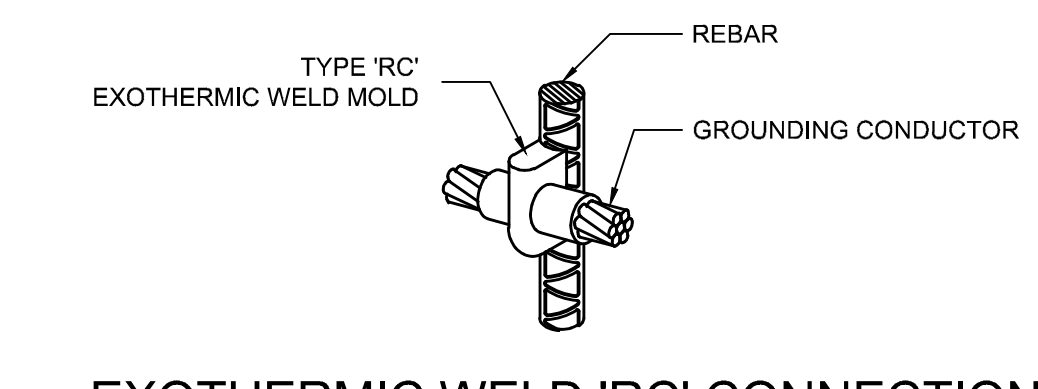
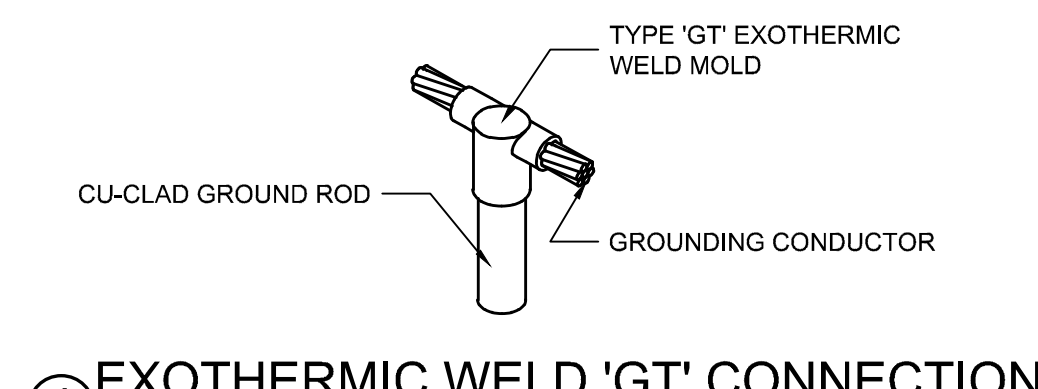
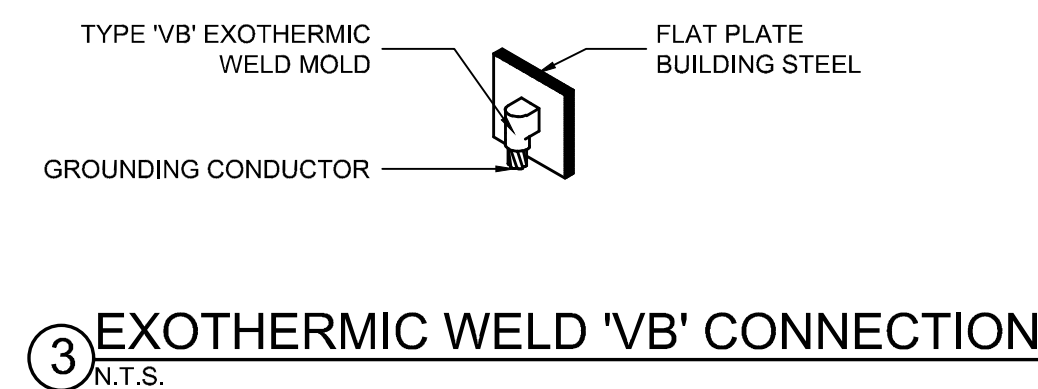
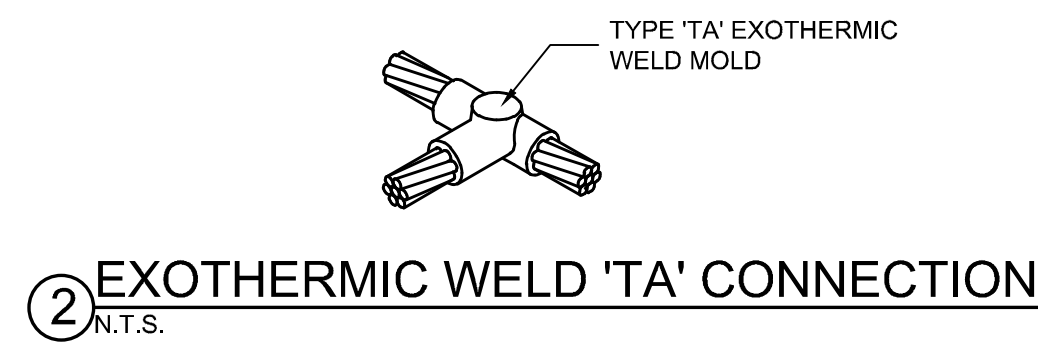
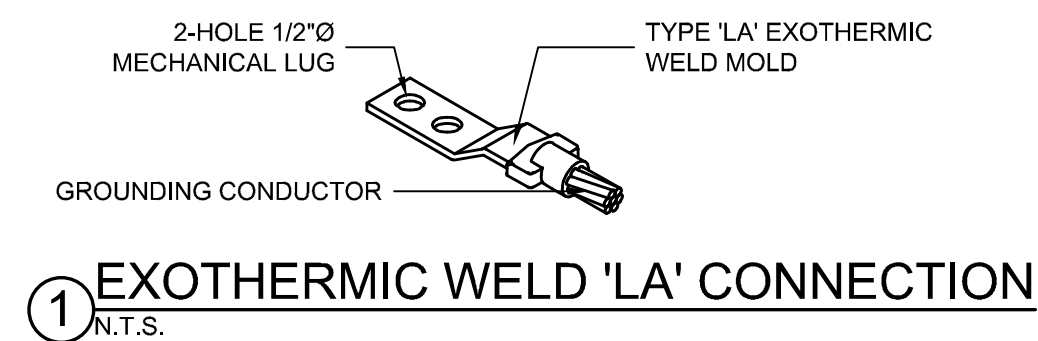
METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
 ELECTRICAL
PANELBOARD SCHEDULE AND LOAD TABLE

PROJ. START DATE: 2024 MAR
 NCE PROJ. #: 08996-0001
 NCE PROJ. #: 2020001
 DRAWN: LG
 DESIGNED: LG
 CHECKED: NF
 PROJ. MGR.: MC

SCALE: HORIZONTAL: E02.0
 VERTICAL: N/A
 DRAWING NUMBER: 0
 REVISION: 0

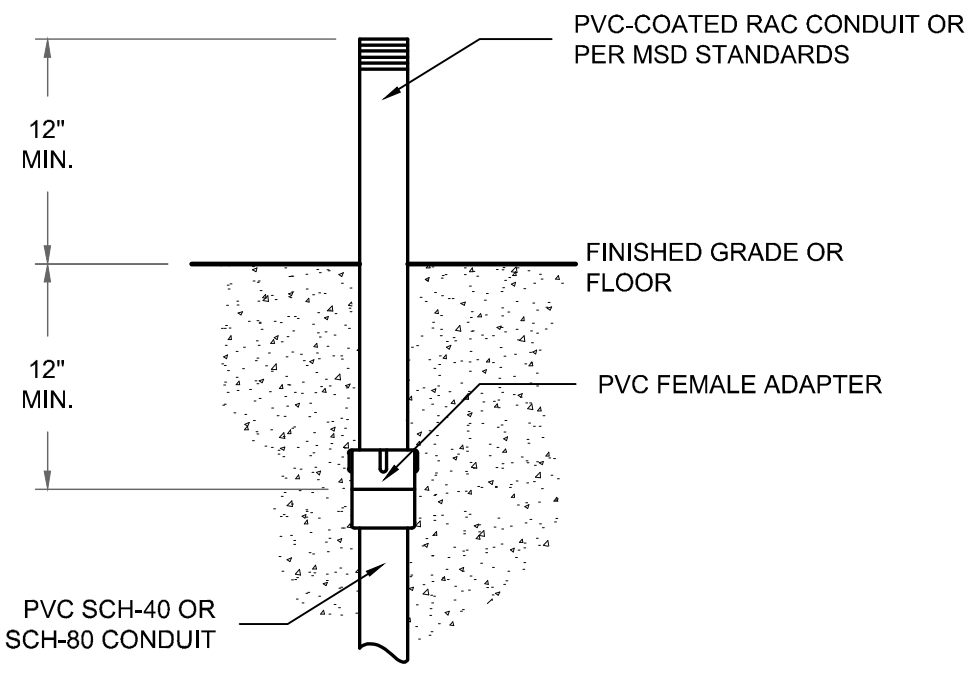
STATUS: ISSUED FOR BID
 NOT RELEASED FOR CONSTRUCTION



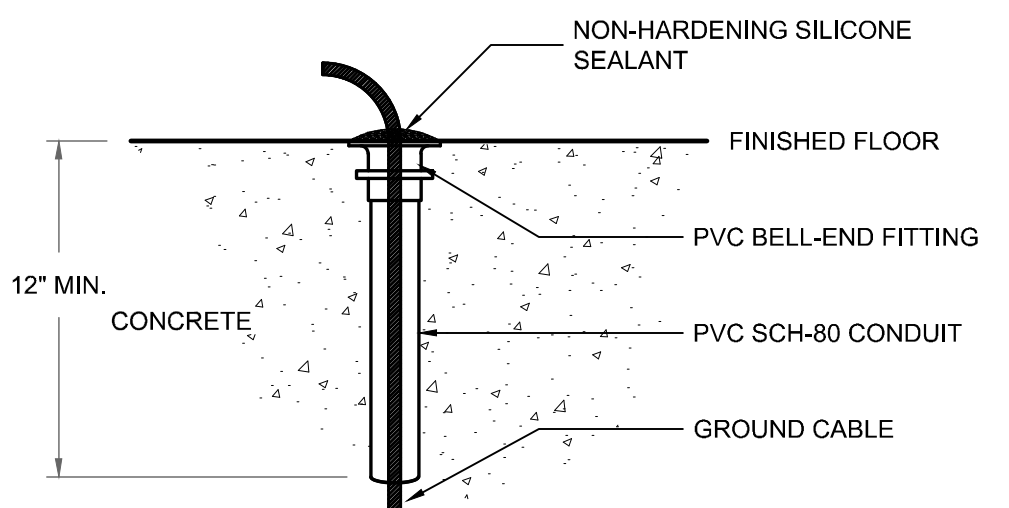
DETAIL NOTES:

- BURIAL DEPTH OF CONDUIT OR DUCTBANK SHALL BE BASED ON THE LARGEST CONDUIT RADII SUCH THAT THE THREADED CONNECTION TO THE PVC-COATED RAC CONDUIT TRANSITION IS 6" MINIMUM BELOW BOTTOM OF CONCRETE FLOOR SLAB

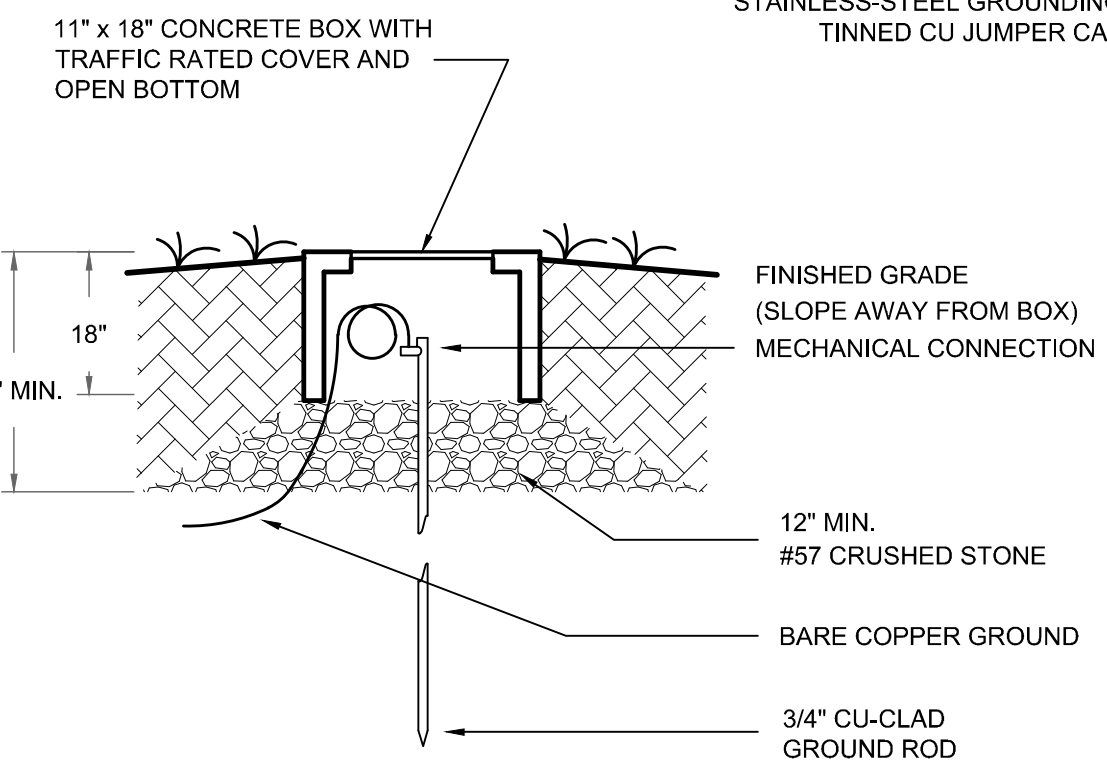
7 TYPICAL UNDERSLAB CONDUIT STUB-UP INSTALLATION
N.T.S.



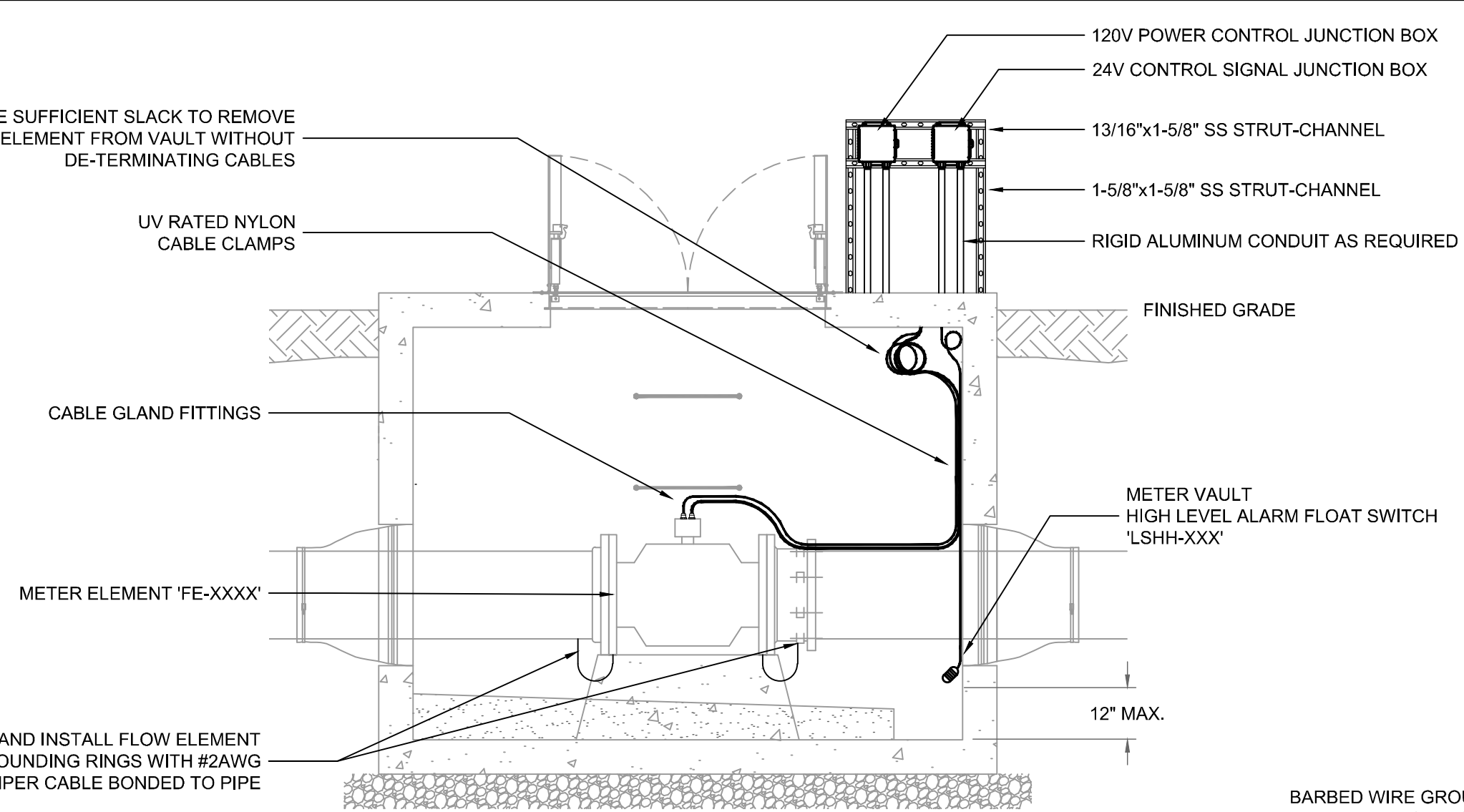
8 TYPICAL CONDUIT STUB-UP DETAIL
N.T.S.



9 GROUND CABLE SLEEVE DETAIL
N.T.S.



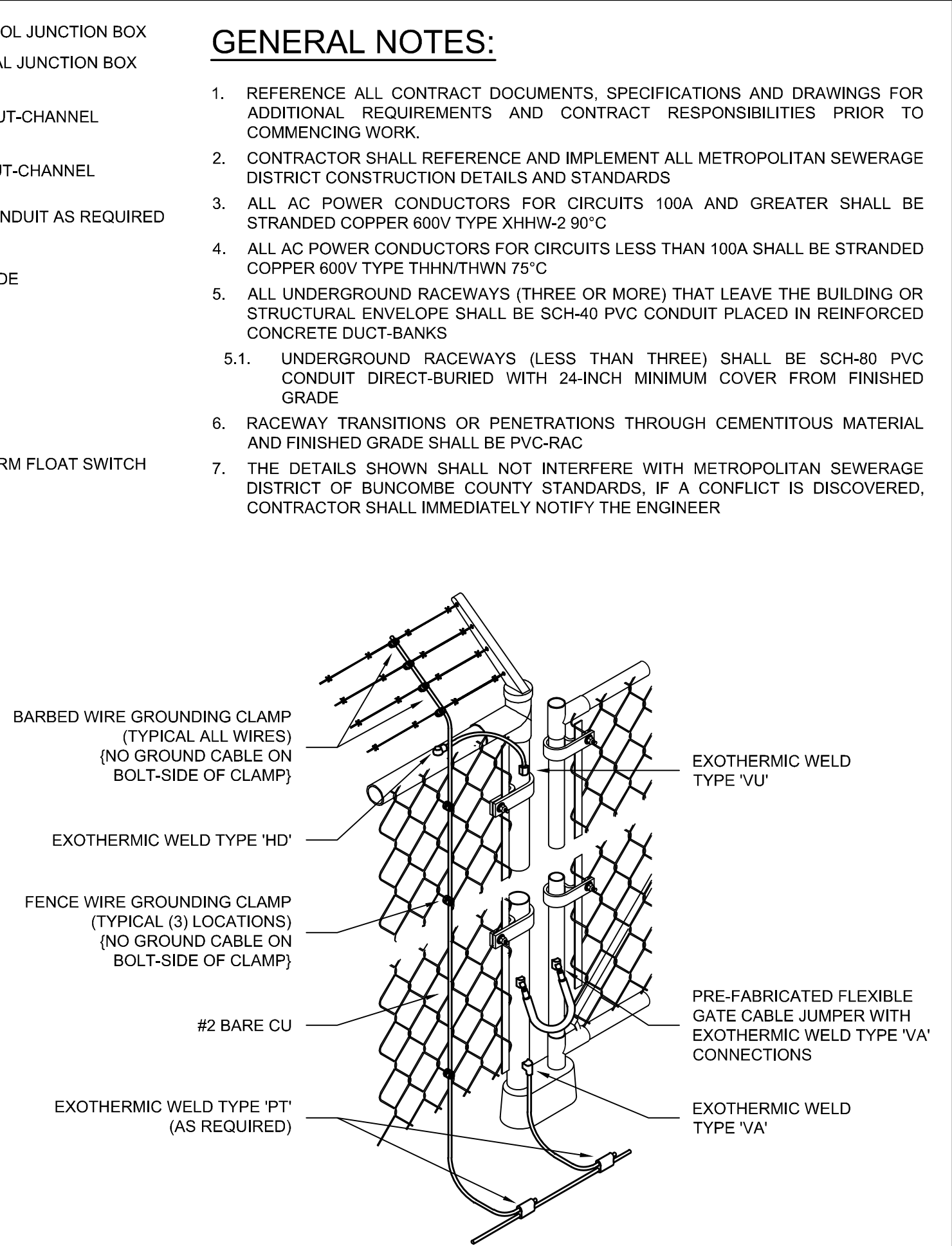
10 GROUND ROD TEST WELL
N.T.S.



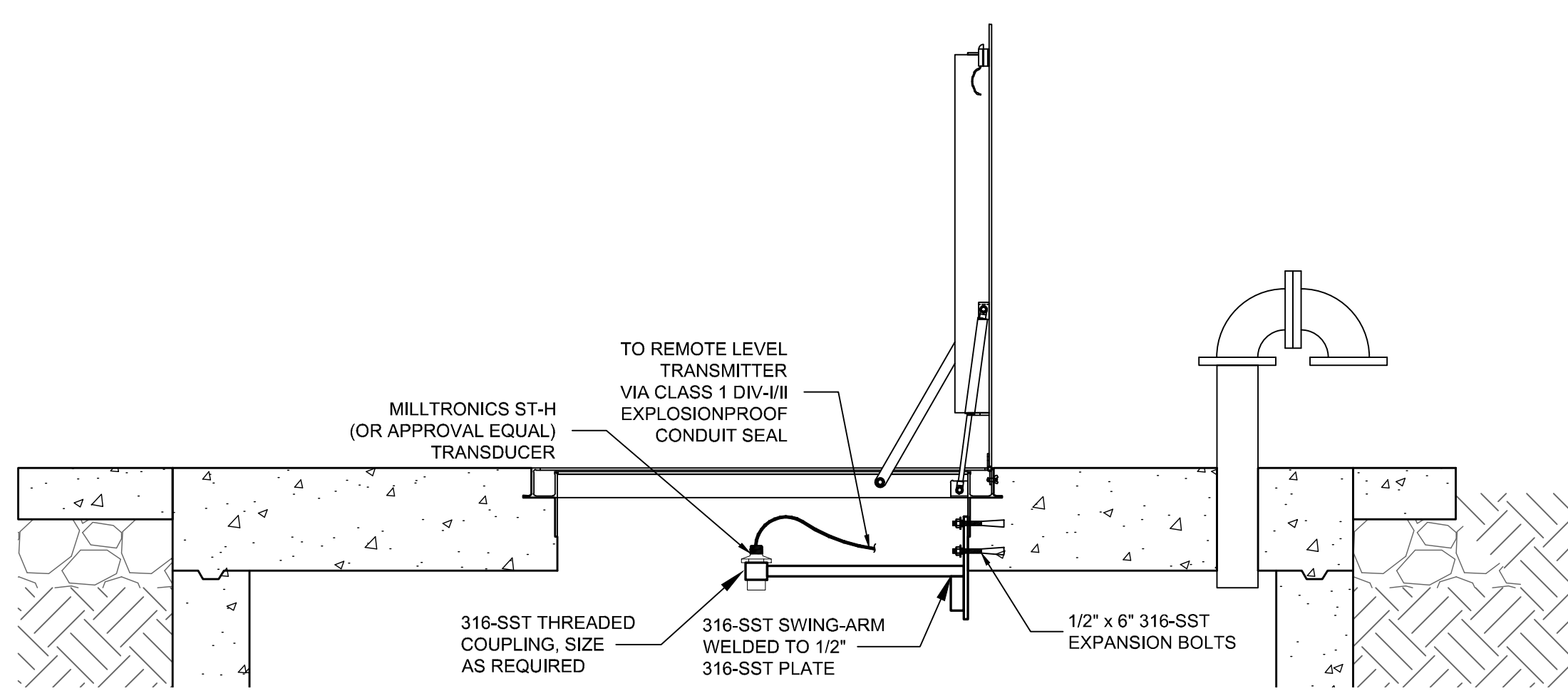
DETAIL NOTES:

- CONTRACTOR SHALL REFERENCE MSD METER VAULT STANDARD INSTALLATION DETAILS.
- THE INSTALLATION REQUIREMENTS IN THIS DETAIL SHALL COMPLIMENT THE METROPOLITAN SEWERAGE DISTRICT STANDARD INSTALLATION DETAILS AND IF THERE ARE ANY CONFLICTS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.
- ALL CABLE AND CONDUIT IS SHOWN REPRESENTATIVE TO CONVEY DESIGN INTENT ONLY
- FLOWMETER VAULT DIMENSIONS AND DETAILS SHOWN APPROXIMATE, REFERENCE APPROVED SHOP DRAWINGS AND ACTUAL INSTALLATION PRIOR TO COMMENCING WORK
- PROVIDE SUFFICIENT CABLE SLACK TO REMOVE FLOW ELEMENT FROM VAULT WITHOUT DE-TERMINATING CABLES
- SECURE CABLE SLACK IN NEAT COILS AND FASTEN WITH UV-RESISTANT CABLE-TIES
- ALL CABLE FITTINGS SHALL BE NICKEL-PLATED BRASS AND IP66, IP67, IP68 AND DTS01-91 COMPLIANT FOR PROLONGED SUBMERSIBLE LOCATIONS
- USE 316-SST FASTENERS AND HARDWARE UNLESS OTHERWISE NOTED.
- ALL EXTERIOR RACEWAY TRANSITIONS SHALL BE MOUNTED MINIMUM OF 18 INCHES ABOVE VAULT EXTERIOR
- POWER AND CONTROL JUNCTION BOXES SHALL BE 6IN x 6IN MINIMUM NEMA-4X/SS HINGED
- HOFFMAN P/N: A606CHNFSS6 OR APPROVED EQUAL
- VAULT HIGH LEVEL ALARM FLOAT SHALL BE ROUTED THROUGH 24V CONTROL SIGNAL JUNCTION BOX
- 316-SST STRUT-CHANNEL SHALL BE MOUNTED TO SIDE OF VAULT WITH 12IN MINIMUM LAP AND A MINIMUM OF TWO (2) CONCRETE EXPANSION ANCHORS PER STRUT-CHANNEL.

11 TYPICAL METER VAULT ELECTRICAL INSTALLATION DETAIL
N.T.S.



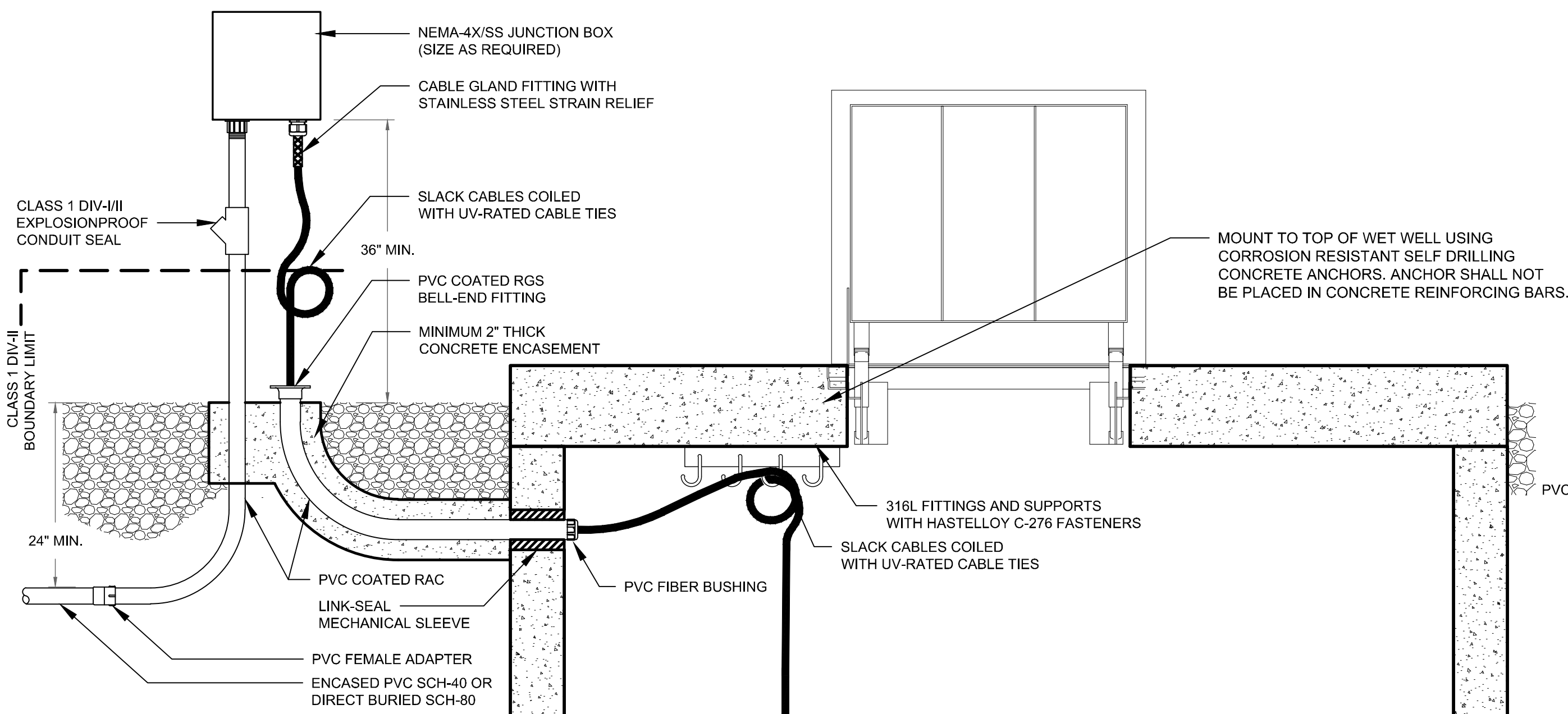
13 FENCE & GATE GROUNDING DETAIL
N.T.S.



DETAIL NOTES:

- REFERENCE NFPA-70 ARTICLE 500 FOR HAZARDOUS WIRING REQUIREMENTS PRIOR TO COMMENCING WORK.
- REFERENCE DRAWING E01.0 AND WET WELL HAZARDOUS INSTALLATION DETAIL FOR INSTALLATION REQUIREMENTS.
- PROVIDE SUFFICIENT SLACK IN CABLING TO REMOVE CONTROL DEVICES WITHOUT DISCONNECTING CABLES AND CONDUCTORS FROM WITHIN JUNCTION BOX.
- USE 316-SST FASTENERS AND HARDWARE UNLESS OTHERWISE NOTED.

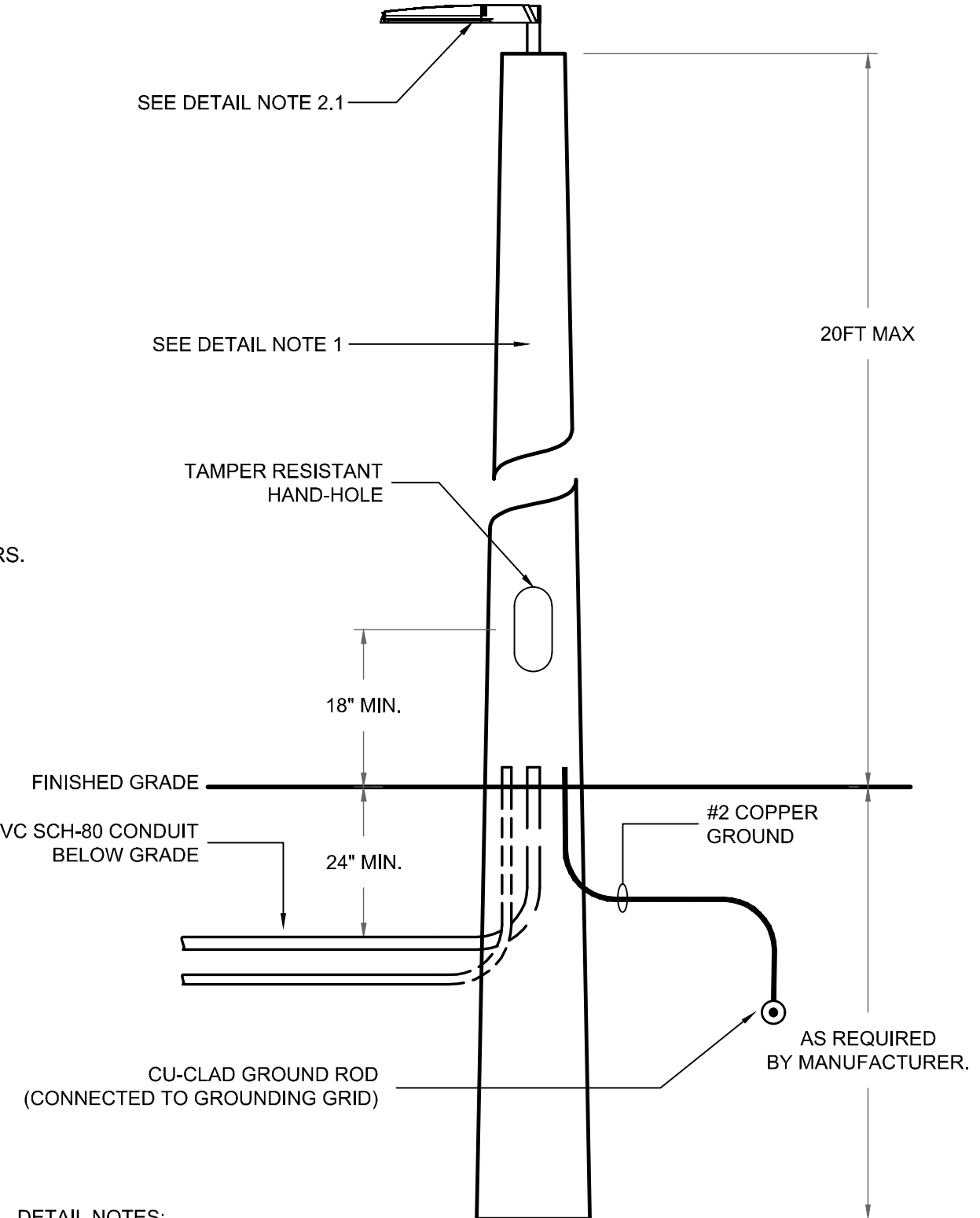
6 ULTRASONIC LEVEL TRANSMITTER
N.T.S.



DETAIL NOTES:

- REFERENCE NFPA-70 ARTICLE 500 FOR HAZARDOUS WIRING REQUIREMENTS PRIOR TO COMMENCING WORK.
- JUNCTION BOX SHALL BE RATED NEMA-4X STAINLESS STEEL WITH MILD-STEEL MOUNTING PANEL COATED WITH WHITE ENAMEL EPOXY FITTED WITH 600V RATED PARTITIONED, STAINLESS-STEEL SCREW-CAGE TERMINAL BLOCKS SIZED GREATER THAN CONDUCTORS UTILIZED.
- JUNCTION BOX SHALL BE SIZED TO ACCOMMODATE ALL PUMP MOTOR CABLING, PUMP CONTROL CABLING, AND INSTRUMENT CABLING AS REQUIRED.
- PROVIDE SUFFICIENT SLACK IN CABLING TO REMOVE PUMP MOTORS AND CONTROL DEVICES WITHOUT DISCONNECTING CABLES AND CONDUCTORS FROM WITHIN JUNCTION BOX.
- INSTALL NON-HARDENING DUCT SEALANT IN AND AROUND CABLES ENTERING PVC-BELL-END FITTINGS TO SUFFICIENTLY PROVIDE MOISTURE AND LIQUID BARRIER.
- USE 316-SST FASTENERS AND HARDWARE UNLESS OTHERWISE NOTED.

12 WET WELL HAZARDOUS INSTALLATION
N.T.S.



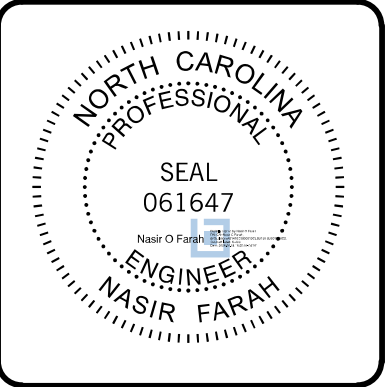
DETAIL NOTES:

- DIRECT BURIED FIBERGLASS LIGHT POLE WITH ABOVE FINISHED GRADE HEIGHT AS SHOWN
 - LITHONIA DESIGN P/N RTFDB-XX-8X-DM28-EHH-DOBXD OR APPROVED BY OWNER
 - LED AREA LIGHT WITH FULL CUT-OFF UPPER VISOR AND SWITCH LOCATED ON ELECTRICAL EQUIPMENT RACK:
 - RAB DESIGN P/N AL-1-LED120-A-4K-2-BR2-DIM-R12 OR APPROVED BY OWNER

14 AREA LIGHT FIBERGLASS POLE ASSEMBLY DETAIL
N.T.S.

REV. NO.	DESCRIPTION	DATE

ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION

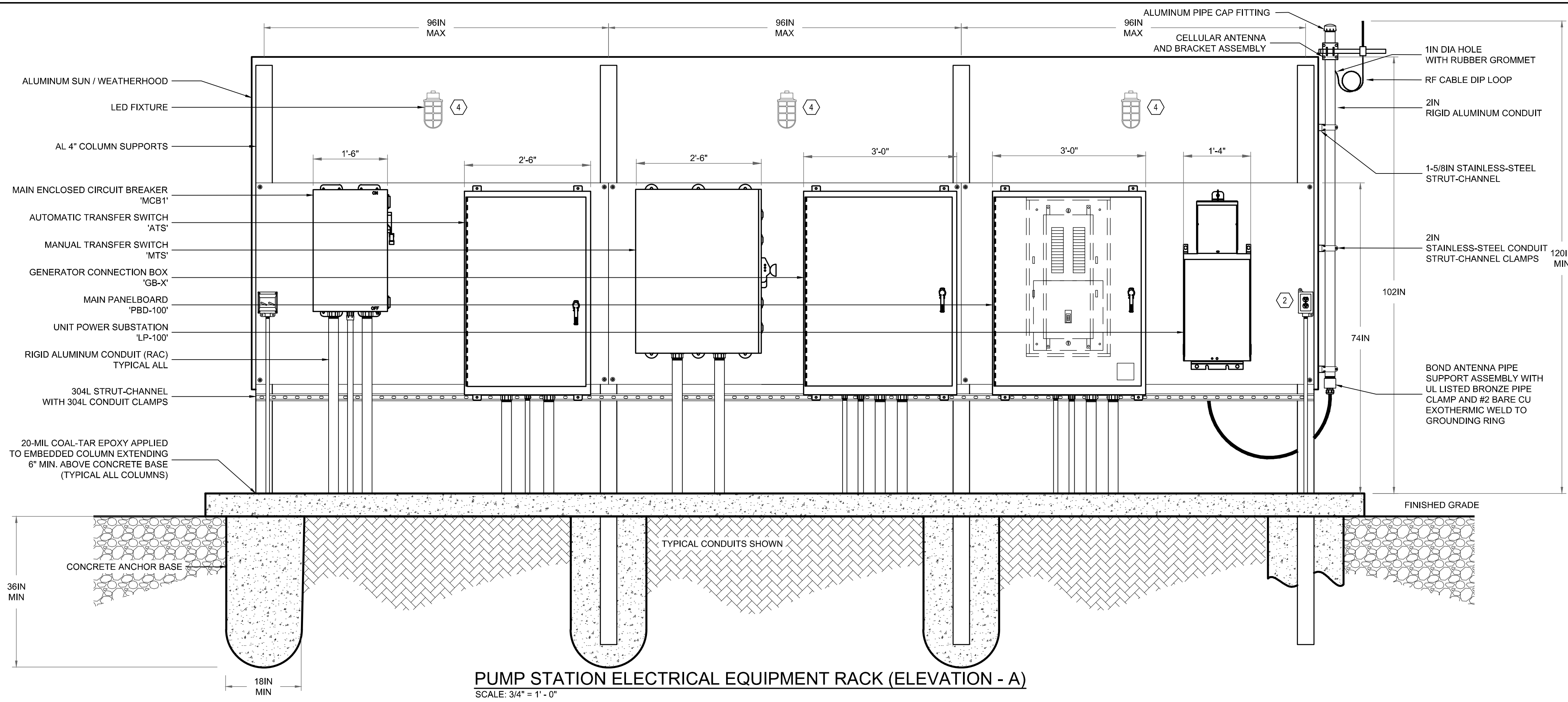


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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
ELECTRICAL
TYPICAL INSTALLATION DETAILS

PROJ. START DATE: 2024 MAR
SCALE: E03.0
DRAWN: LG
DESIGNED: LG
CHECKED: NF
PROJ. MGR.: MC
HORIZONTAL: N/A
VERTICAL: N/A
DRAWING NUMBER: 0
REVISION: 0
STATUS: ISSUED FOR BID
NOT RELEASED FOR CONSTRUCTION



PUMP STATION ELECTRICAL EQUIPMENT RACK (ELEVATION - A)
SCALE: 3/4" = 1' - 0"

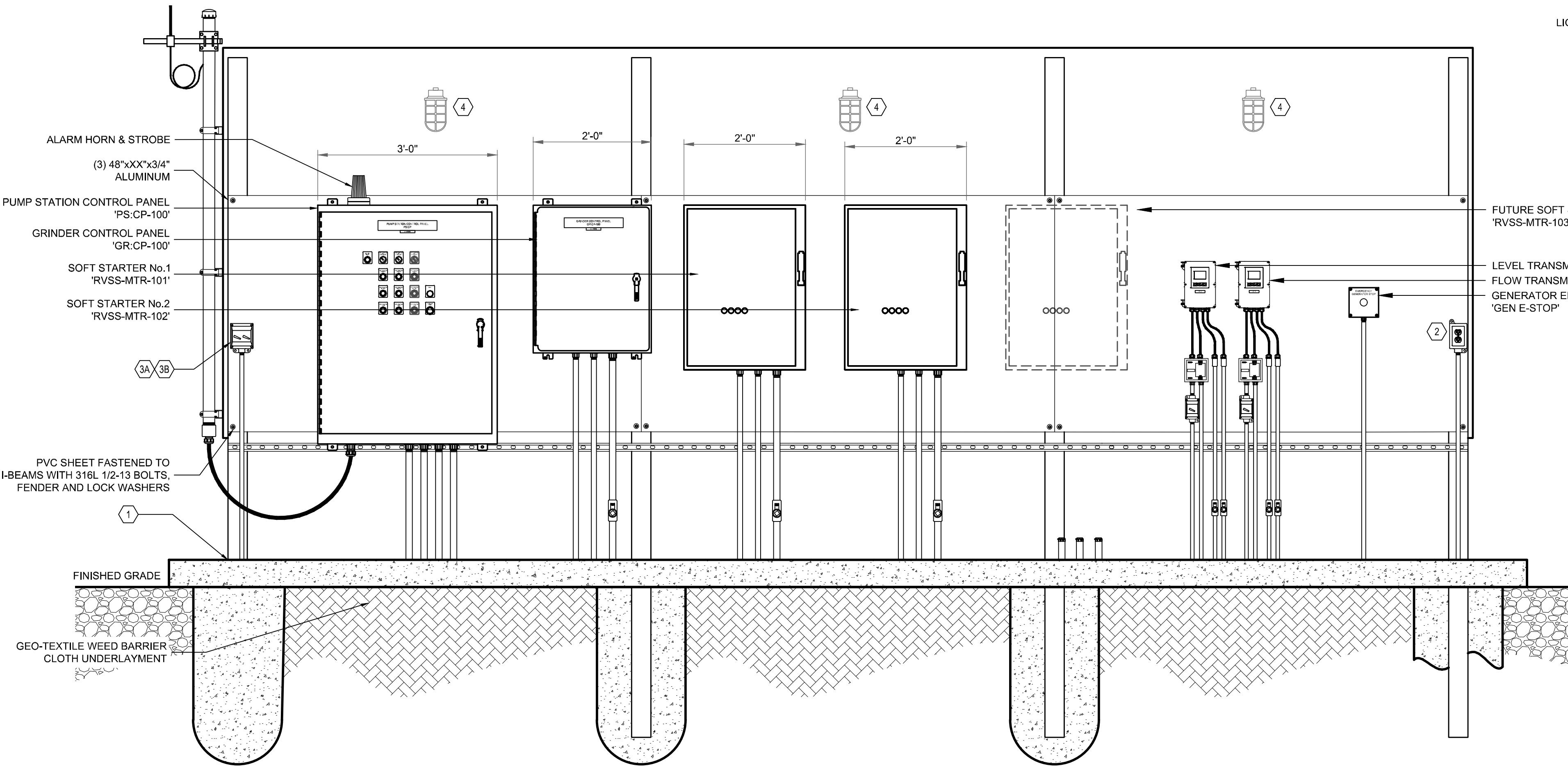


- DETAIL NOTES:
1. THE RENDERING SHOWN DEPICTS THE OVERALL DESIGN INTENT AND MAY NOT INCLUDE ACTUAL ENCLOSURES, COMPONENTS, MATERIALS AND/OR ARRANGEMENTS REQUIRED FOR THIS PROJECT.
 2. ELECTRICAL SUB-CONTRACTOR SHALL COMPLY WITH THE CONTRACT DOCUMENTS, SPECIFICATIONS AND DRAWINGS TO PROCURE FABRICATE AND INSTALL ELECTRICAL EQUIPMENT RACKS AS REQUIRED FOR THIS PROJECT.
 3. ELECTRICAL SUB-CONTRACTOR SHALL SUBMIT ALL INFORMATION AND DATA REQUIRED TO FABRICATE ALL ELECTRICAL EQUIPMENT RACKS FOR ENGINEER REVIEW PRIOR TO ASSEMBLY AND SITE INSTALLATION.

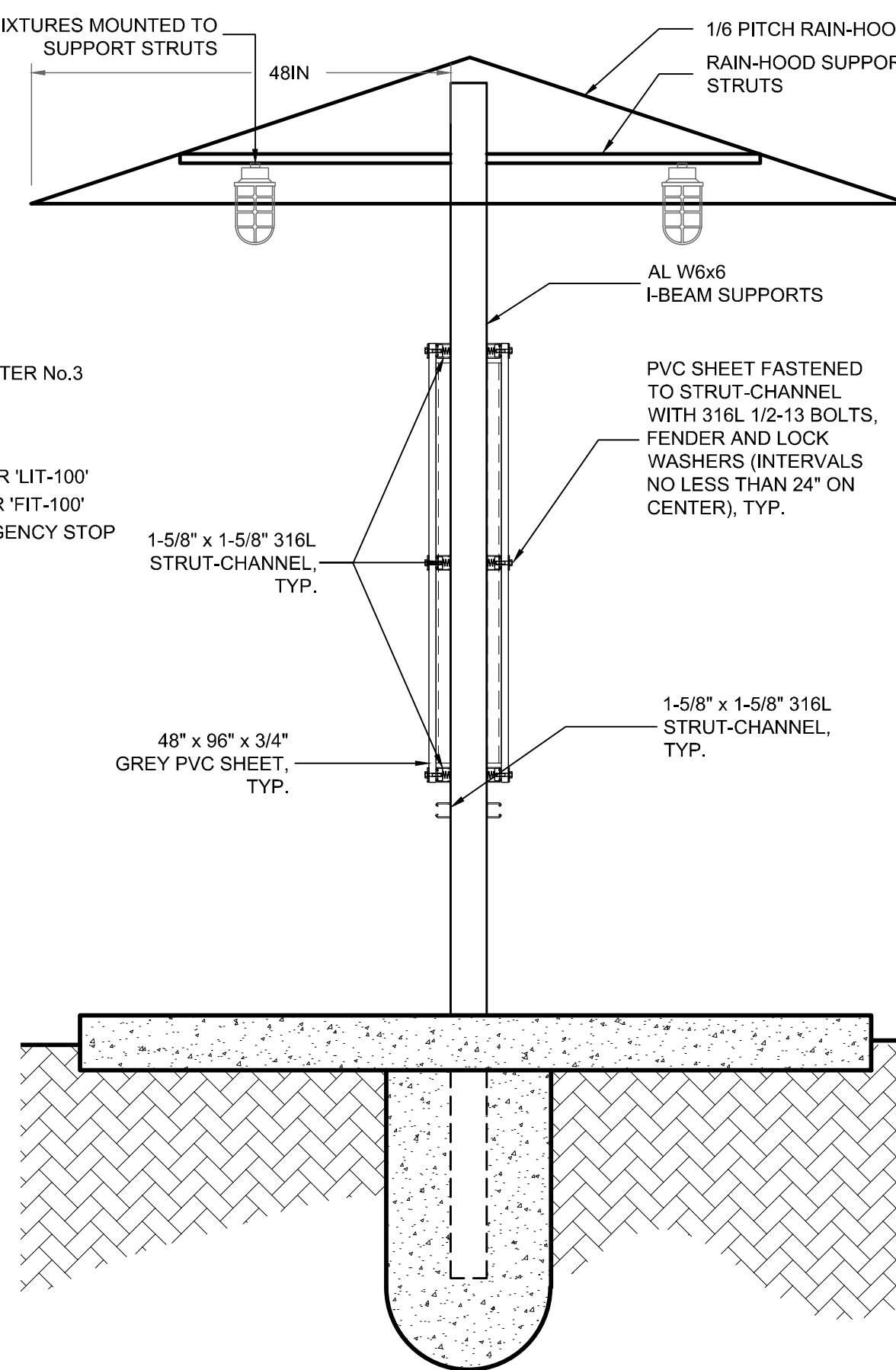
ELECTRICAL EQUIPMENT RACK CONCEPTUAL DETAIL
SCALE: N.T.S.

ELECTRICAL RACK INSTALLATION NOTES:

1. REFERENCE ELECTRICAL EQUIPMENT RACK CONCEPTUAL DETAIL SHOWN ON THIS SHEET AND EQUIPMENT RACK SIDE VIEW DETAIL ON SHEET E03.1 FOR DESIGN INTENT OF FINAL INSTALLATION.
2. CONDUIT(S) DEPICTED ON FRONT ELEVATIONS ARE SHOWN TO CONVEY DESIGN INTENT AND DO NOT DEPICT ACTUAL SIZES. CONTRACTOR SHALL REFERENCE SHEETS E01.0 AND E02.0 FOR MINIMUM CONDUIT AND CONDUCTOR REQUIREMENTS.
3. REFERENCE SHEET E00.0 GENERAL NOTES FOR SCOPE OF WORK REQUIREMENTS AND PROJECT RESPONSIBILITIES PRIOR TO COMMENCING WORK.
4. REFERENCE SHEET E00.0 SECTION 3 FOR RACEWAY MATERIALS AND INSTALLATION REQUIREMENTS.
5. REFERENCE SHEET E00.0 SECTION 7 FOR POWER AND CONTROL CONDUCTORS AND WIRING MATERIALS AND INSTALLATION REQUIREMENTS.
6. REFERENCE SHEET E00.0 SECTION 8 FOR GROUNDING AND BONDING MATERIALS AND INSTALLATION REQUIREMENTS.
7. REFERENCE SHEET E00.0 SECTION 11 HARDWARE AND FASTENER MATERIALS AND INSTALLATION REQUIREMENTS.
8. ALL CONDUIT(S) SHALL ENTER THE BOTTOM OF ALL ENCLOSURES WITH DIE-CAST ALUMINUM CONDUIT HUBS - CHASE/CLOSE CONDUIT NIPPLES NOT ACCEPTABLE.
9. ALL CONDUIT ENTRIES SHALL HAVE MOISTURE SEALANT APPLIED AFTER ACCEPTED START-UP AND COMMISSIONING WITH IDEAL INDUSTRIES DUCT-SEAL OR APPROVED EQUAL.
10. UNDERGROUND CONDUIT SHALL BE DIRECT-BURIED SCH-80 PVC.
 - 10.1. ALL DIRECT-BURIED CONDUIT(S) SHALL HAVE 24" MINIMUM COVER.
11. ENTIRE ELECTRICAL SERVICE LATERAL (UTILITY SECONDARY) SHALL BE CONCRETE ENCASED SCH-40 PVC CONDUIT.
12. ALL CONDUIT SUPPORTS, CLAMPS, HANGERS, ETC. SHALL BE STAINLESS STEEL.
13. ALL STRUT-CHANNEL SHALL BE STAINLESS-STEEL.
14. STRUT-CHANNEL SHALL NOT BE BENT, DRILLED, CUT OR OTHERWISE MODIFIED TO PRODUCE FITTINGS, BRACES OR BRACKETS FOR CONDUIT AND EQUIPMENT SUPPORTS.
15. MANUFACTURED STRUT-CHANNEL BRACES, BRACKETS, FITTINGS OR POST BASES SHALL BE PROVIDED AND INSTALLED WITH ASSOCIATED HARDWARE AND FASTENERS FOR CONDUIT AND EQUIPMENT SUPPORTS.
16. ALL FASTENERS, BOLTS, NUTS, SCREWS, WASHERS, ETC. SHALL BE STAINLESS STEEL.
17. ALL THROUGH-BOLT FASTENINGS SHALL HAVE SST, FENDER AND LOCK WASHERS.
18. I-BEAM SUPPORT POSTS SHALL BE ALUMINUM W6x6 120" MIN.
- 18.1. ALL DRILLED HOLES SHALL BE DE-BURRED, FILED SMOOTH, CLEANED, DE-GREASED AND OIL FREE PRIOR TO APPLYING ZINC RICH AEROSOL SPRAY.
- 18.2. ALL HOLES, CHIPS, SCRATCHES, NICKS, ETC. INCLUDING EXOTHERMIC WELDS SHALL BE COATED WITH (2) MIN. COATS OF ZINC RICH AEROSOL SPRAY, RUST-OLEUM P/N V217838 OR APPROVED EQUAL.
- 18.3. I-BEAM SUPPORT POSTS SHALL HAVE 20-MIL CURED COAL-TAR EPOXY COATING PRIOR TO EMBEDMENT INTO CONCRETE ANCHOR BASE. BITUMASTIC 50 OR APPROVED EQUAL.
- 18.4. ALL I-BEAM SUPPORT POSTS SHALL BE CONNECTED TO 'GROUNDING TRIODE' WITH TYPE 'VB' EXOTHERMIC WELDS.



PUMP STATION ELECTRICAL EQUIPMENT RACK (ELEVATION - B)
SCALE: 3/4" = 1' - 0"

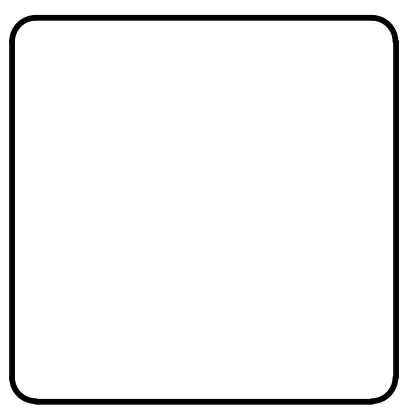


EQUIPMENT RACK (SIDE VIEW)
SCALE: 3/4" = 1' - 0"

INSTALLATION KEYNOTES:

- (1) PROVIDE AND INSTALL CONCRETE PERSONNEL PAD AS SHOWN ON DRAWING E10.0
- (2) INDUSTRIAL GRADE 125V/20A GFCI OUTLET ASSEMBLY:
 - PASS & SEYMOUR P/N 209STRWR OR APPROVED EQUAL
 - CAST ALUMINUM SINGLE-GANG DEEP DEVICE BOX AND COVER:
 - CROUSE-HINDS P/N FDD2 OR APPROVED EQUAL
 - BRYANT WPB26E OR APPROVED EQUAL
- (3A) INDUSTRIAL GRADE 277V/20A TWO-POSITION, SINGLE-POLE, TOGGLE LIGHT SWITCH:
 - HUBBELL P/N HBL12211 OR APPROVED EQUAL
- (3B) CAST ALUMINUM TWO-GANG SWITCH BOX AND COVER ASSEMBLY:
 - CROUSE-HINDS P/N FSD212 OR APPROVED EQUAL
 - APPLINGTON P/N FSK-2TS-A OR APPROVED EQUAL
- (4) INDUSTRIAL VAPOR-TIGHT LED CYLINDRICAL FIXTURE, SURFACE MOUNT:
 - HUBBELL P/N VX-152 WITH VCG-15 GUARD AND 100W LED BULB OR APPROVED EQUAL [TYPICAL OF SIX (6)]

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026
REVISIONS		

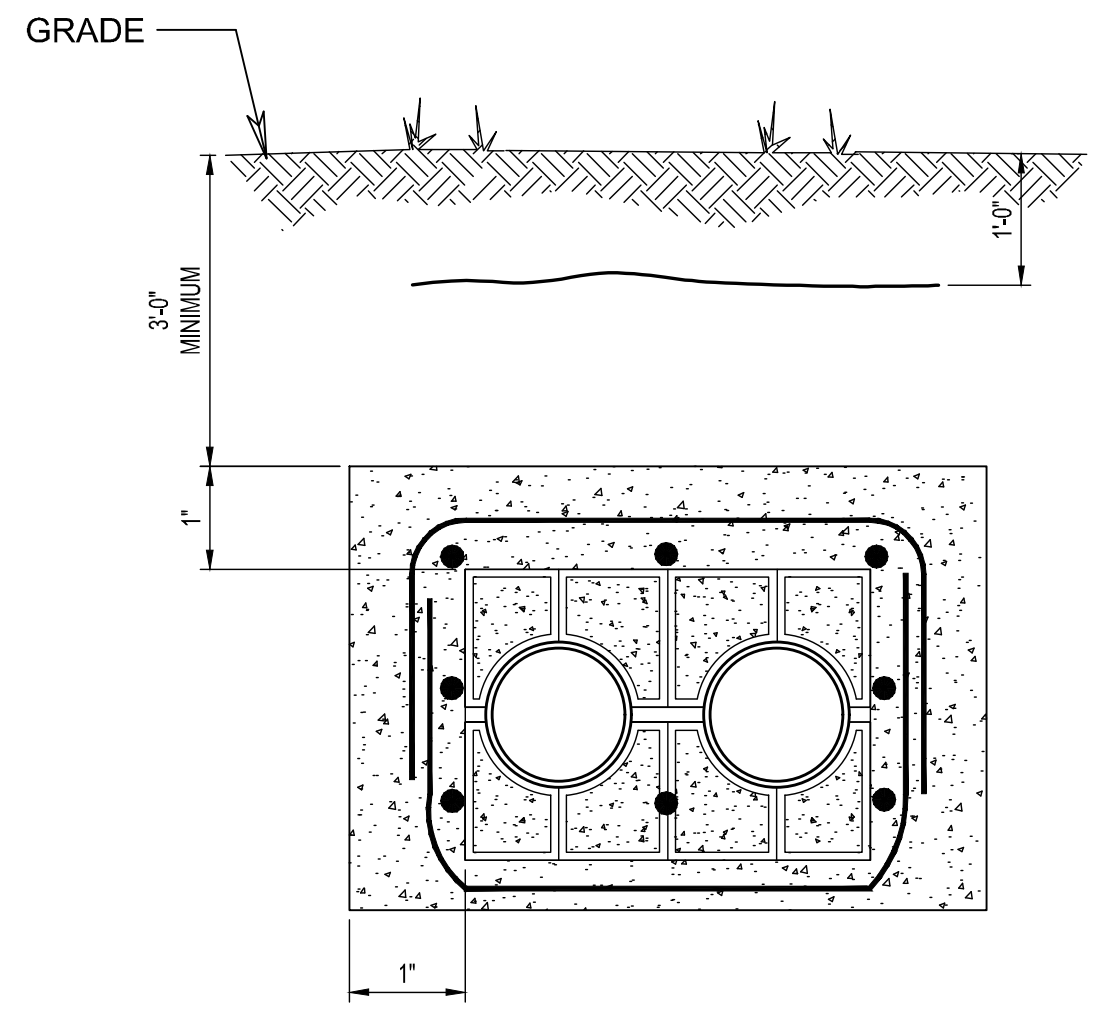
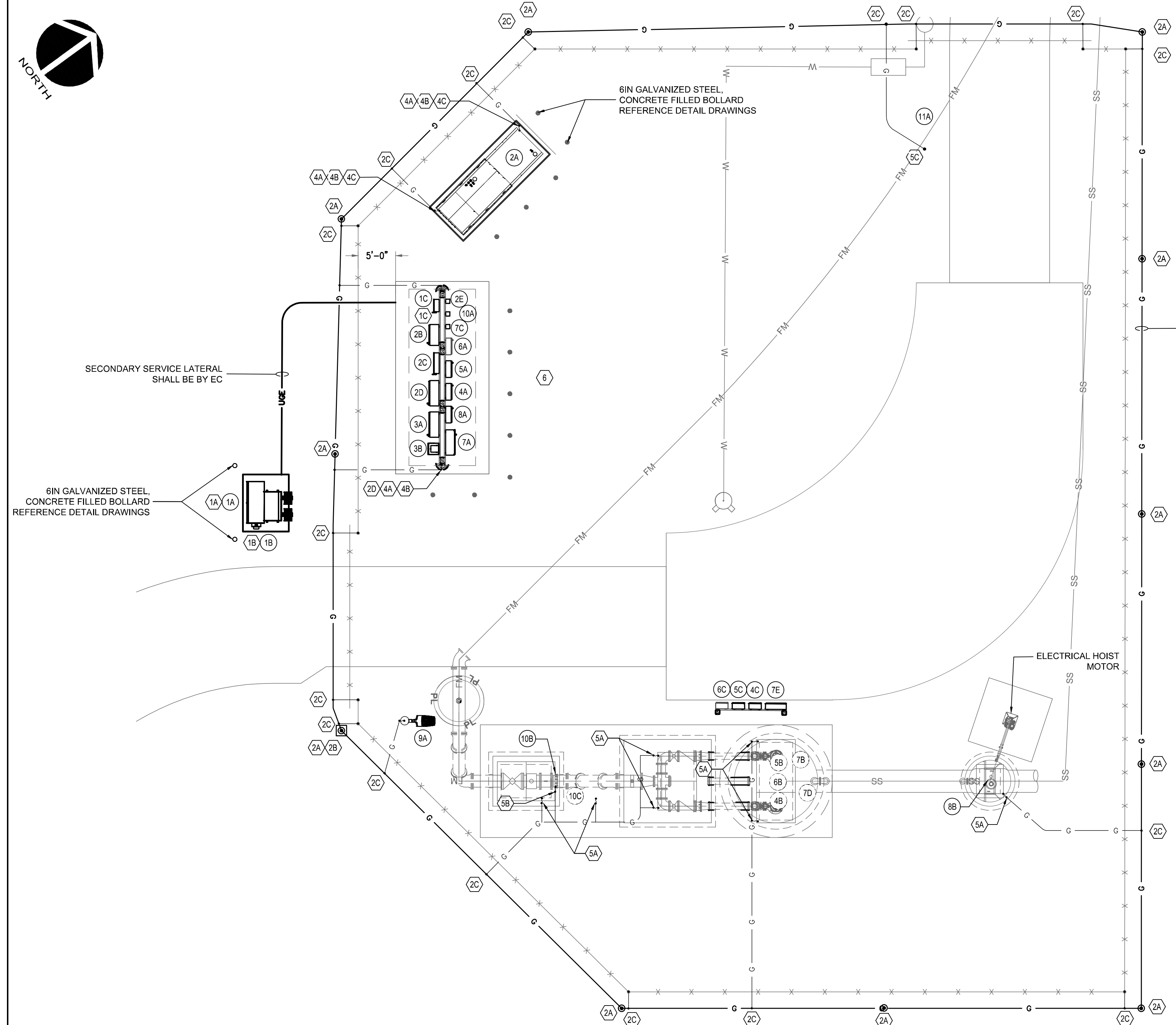


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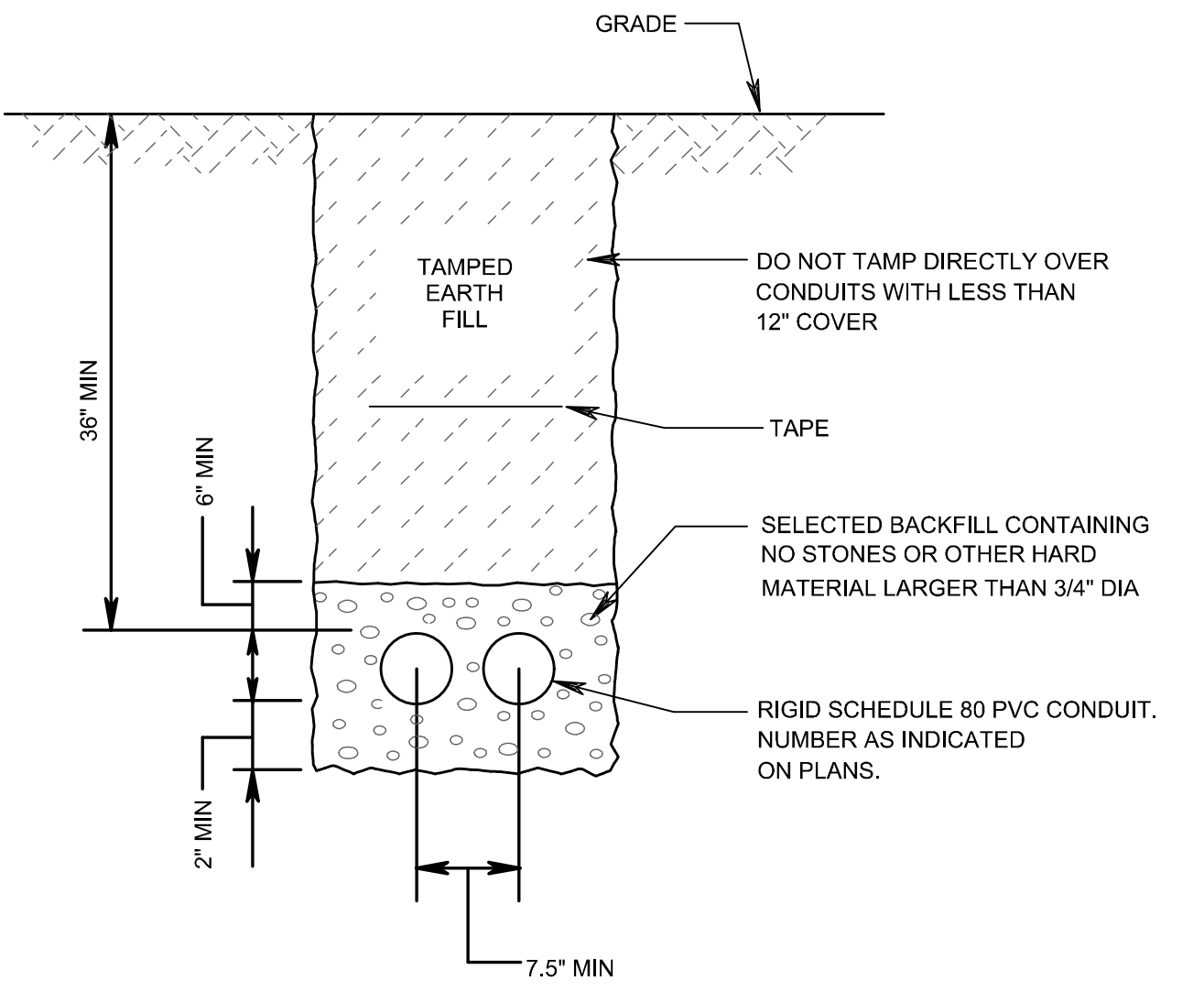
METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
ELECTRICAL
EQUIPMENT RACK INSTALLATION DETAIL

PROJ. START DATE: 2024 MAR	SCALE: HORIZONTAL: N/A	E03.1
ISSUE PROJ. # 20240001	DRAWN: LG	
DESIGNED: LG	CHECKED: NF	REVISION: 0
PROJ. MGR: MC	STATUS: ISSUED FOR BID	NOT RELEASED FOR CONSTRUCTION



2 TYPICAL DUCTBANK DETAIL
N.T.S.



3 DIRECT BURIAL DETAIL
N.T.S.

INSTALLATION KEYNOTES:

- 1A PROVIDE AND INSTALL CONCRETE FOUNDATION FOR PAD-MOUNT TRANSFORMER PER DUKE/PROGRESS ENERGY CONSTRUCTION STANDARDS. COORDINATE LOCATION WITH DUKE/PROGRESS ENERGY AND OWNER.
- 1B PROVIDE AND INSTALL METERING CABINET AND METER SOCKET BASE PER DUKE/PROGRESS ENERGY CONSTRUCTION STANDARDS TO INCLUDE OWNER CONSTRUCTION STANDARDS. COORDINATE LOCATION WITH DUKE/PROGRESS ENERGY AND OWNER.
- 1C INSTALL GROUNDING ELECTRODE CONDUCTOR TO MAIN CIRCUIT BREAKER AND BOND TO NEUTRAL PER APPLICABLE NEC ARTICLES
- 2A PROVIDE AND INSTALL 3/4" x 120" CU-CLAD GROUND ROD GT-TYPE EXOTHERMIC WELDED TO #2AWG BARE COPPER TO FORM PERIMETER GROUND RING: HARGER P/N 3410C OR APPROVED EQUAL
- 2B PROVIDE AND INSTALL CONCRETE GROUND WELL TEST BOX. REFERENCE DETAIL ON SHEET E03.0
- 2C PROVIDE AND INSTALL EXOTHERMIC WELD 'TA' TYPE CONNECTIONS FOR BONDING CABLE TO GROUND RING
- 2D GROUND/BOND SCADA ANTENNA POLE ASSEMBLY (REFERENCE DETAIL ON SHEET E03.0)
- 3A PROVIDE AND INSTALL (TYPICAL ALL) BONDING CONNECTIONS FROM FENCE POSTS TO PERIMETER GROUNDING RINGS WITH UL LISTED FENCE POST CLAMP: HARGER P/N CPC1.5/2TP OR APPROVED EQUAL
- 3B PROVIDE AND INSTALL (TYPICAL ALL) FLEXIBLE BONDING CONNECTIONS FROM FENCE POSTS TO FENCE GATES WITH UL LISTED CLAMPS AND FLEXIBLE BRAIDED CONDUCTORS: HARGER P/N CPC1.5/2TP OR APPROVED EQUAL
- 4A BOND ELECTRICAL EQUIPMENT AND/OR FRAMING SUPPORTS WITH BARE #2AWG BARE CU WIRE WITH HIGH-PRESS MECHANICAL LUG CONNECTIONS USING STAINLESS-STEEL ANTI-VIBRATION FASTENERS
- 4B PROVIDE GROUND CABLE SLEEVE PER DETAIL SHOWN ON DRAWING E04.0
- 4C PROVIDE 24IN MINIMUM GROUND CABLE FOR FUTURE CONNECTION
- 5A BOND MAN-WAY HATCH COVERS WITH UL-LISTED MECHANICAL LUG CONNECTION (TYPICAL ONE (1) PER HATCH)
- 5B BOND DISCHARGE PIPING WITH UL-LISTED MECHANICAL LUG CONNECTION
- 5C BOND POTABLE WATER PIPE WITH HEAVY-DUTY GROUNDING CLAMP THOMAS & BETTS P/N 3902 OR APPROVED EQUAL
- 6 DUCTBANK TO CROSS ACCESS ROADS. ALL OTHER AREAS SHALL BE DIRECT BURIED. SEE DETAILS 2 & 3 ON E10.0 FOR DUCTBANK AND DIRECT BURIAL DETAIL. CONDUIT ROUTING TO BE FIELD ROUTED BY EC.

EQUIPMENT DESCRIPTION AND IDENTIFIER:

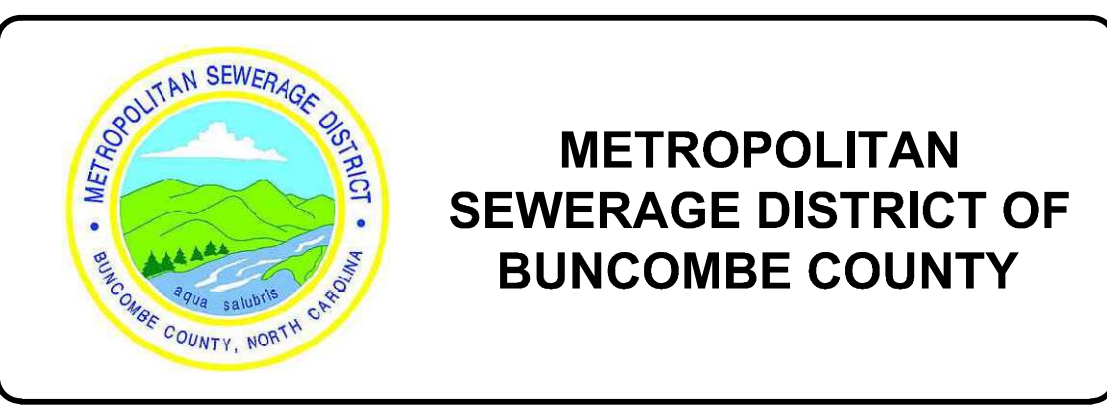
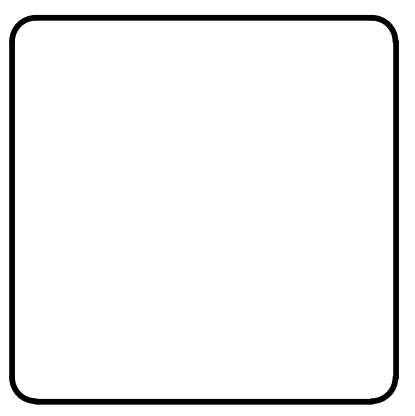
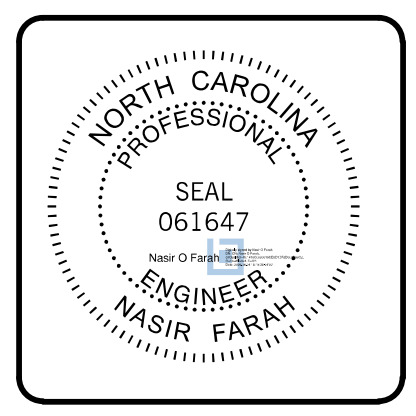
- 1A UTILITY PAD-MOUNT TRANSFORMER 480/277V 3φ 4W
- 1B UTILITY METER BASE
- 1C MAIN ENCLOSED CIRCUIT BREAKER 'MCB1'
- 2A STANDBY GENERATOR 'GEN' WITH ENCLOSURE AND SUB-BASE FUEL TANK
- 2B AUTOMATIC TRANSFER SWITCH 'ATS'
- 2C MANUAL TRANSFER SWITCH 'MTS'
- 2D PORTABLE GENERATOR CONNECTION BOX 'GB-X'
- 2E STANDBY GENERATOR EMERGENCY STOP BUTTON 'GEN E-STOP'
- 3A MAIN PANELBOARD 'PBD-100'
- 3B UNIT POWER SUBSTATION 'LP-100' (REFERENCE DRAWING E03.0)
- 4A WASTEWATER PUMP MOTOR SOFT STARTER No.1 'RVSS-MTR-101'
- 4B WASTEWATER PUMP MOTOR No.1 'PMP-MTR-101'
- 4C FUTURE WASTEWATER PUMP MOTOR No.1 HOA SWITCH 'HOA-MTR-101'
- 5A WASTEWATER PUMP MOTOR SOFT STARTER No.2 'RVSS-MTR-102'
- 5B WASTEWATER PUMP MOTOR No.2 'PMP-MTR-102'
- 5C FUTURE WASTEWATER PUMP MOTOR No.2 HOA SWITCH 'HOA-MTR-102'
- 6A FUTURE WASTEWATER PUMP MOTOR SOFT STARTER No.3 'RVSS-MTR-103'
- 6B FUTURE WASTEWATER PUMP MOTOR No.3 'PMP-MTR-103'
- 6C FUTURE WASTEWATER PUMP MOTOR No.3 HOA SWITCH 'HOA-MTR-103'
- 7A PUMP STATION CONTROL PANEL 'PS-CP-100'
- 7B WET-WELL FLOAT SWITCHES 'LSHH-100, LSL-100'
- 7C WET-WELL LEVEL TRANSMITTER 'LIT-100'
- 7D WET-WELL LEVEL ELEMENT 'PE-100'
- 7E WET-WELL POWER AND CONTROL TERMINATION ENCLOSURE
- 8A INLINE GRINDER CONTROL PANEL 'GR-CP-100'
- 8B INLINE GRINDER MOTOR ASSEMBLY 'GR-MTR-100'
- 9A AREA LIGHT POLE ASSEMBLY
- 10A FLOW TRANSMITTER 'FIT-100'
- 10B FLOW ELEMENT 'FE-100'
- 10C METER VAULT HIGH LEVEL FLOAT SWITCH 'LSHH-101'
- 11A RPZ HOT BOX

PLAN NOTES:

1. ELECTRICAL EQUIPMENT AND ENCLOSURES ARE SHOWN APPROXIMATE TO INCLUDE RECOMMENDED LOCATIONS. CONTRACTOR SHALL REFERENCE ALL CONTRACT DOCUMENTS, APPROVED EQUIPMENT SUBMITTALS AND MANUFACTURER INSTALLATION INSTRUCTIONS PRIOR TO COMMENCING INSTALLATION.
2. MECHANICAL EQUIPMENT AND ASSOCIATIVE PIPING ARE SHOWN APPROXIMATE AND NOT INCLUSIVE. CONTRACTOR SHALL REFERENCE CIVIL AND MECHANICAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

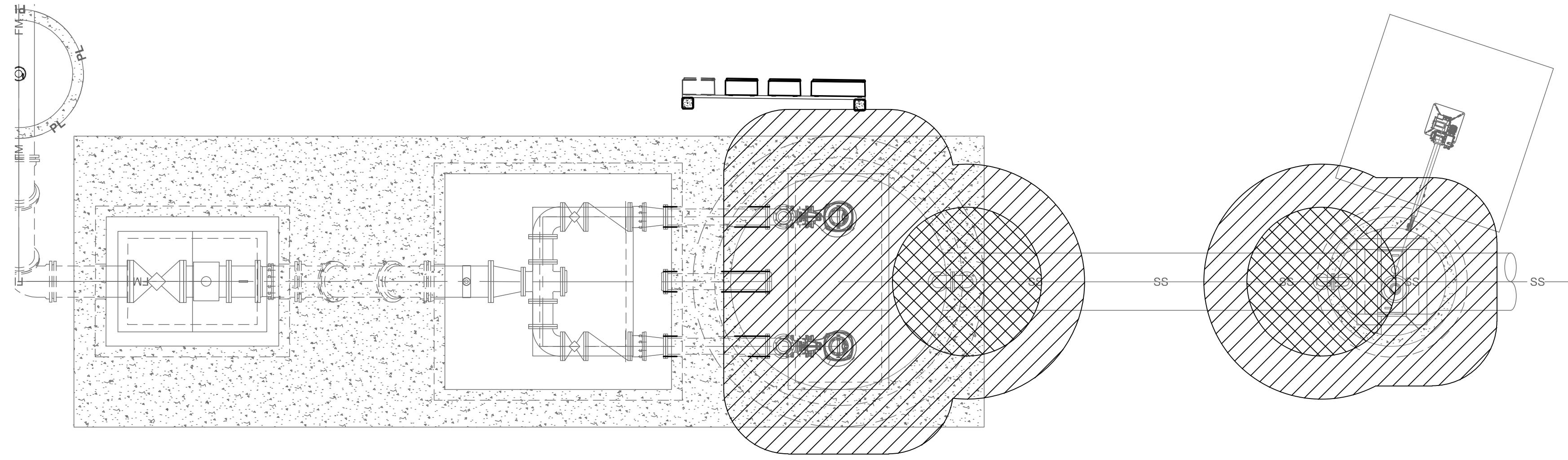
1 PUMP STATION SITE POWER AND GROUNDING PLAN
1" = 8'-0"

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026
REVISIONS		



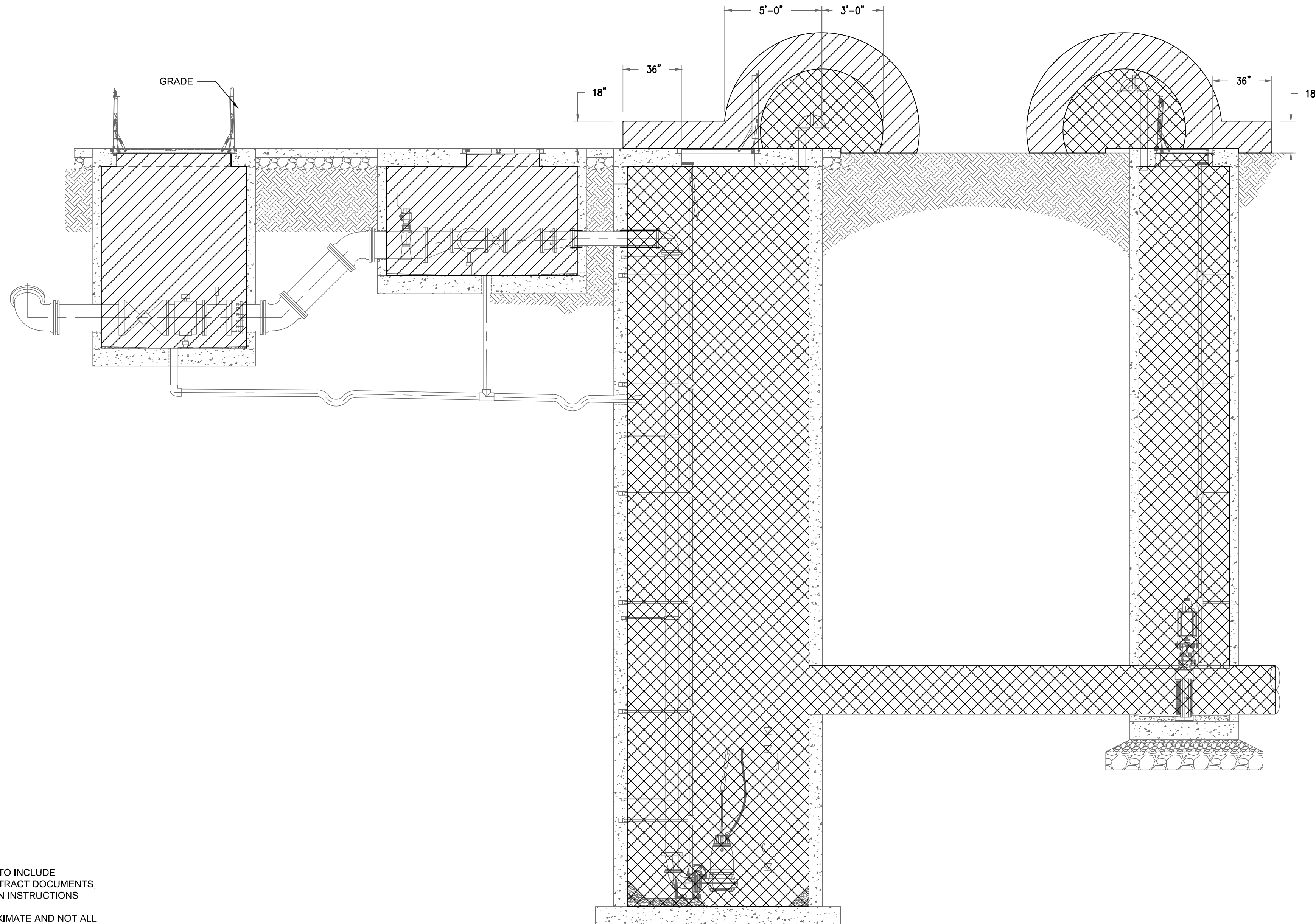
ITT PUMP STATION REPLACEMENT
 ELECTRICAL
PUMP STATION POWER AND GROUNDING PLAN

PROJ. START DATE: 2024 MAR NCE PROJ. #: 0999-0001 MSJ PROJ. #: 202601 DRAWN: LG DESIGNED: LG CHECKED: LG PROJ. MGR: MC	SCALE: HORIZONTAL: AS NOTED VERTICAL: AS NOTED	E10.0 DRAWING NUMBER: 0 REVISION:
STATUS: ISSUED FOR BID		NOT RELEASED FOR CONSTRUCTION



PUMP STATION CLASSIFICATION PLAN

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



PUMP STATION CLASSIFICATION ELEVATION

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

PLAN NOTES:

1. ELECTRICAL EQUIPMENT AND ENCLOSURES ARE SHOWN APPROXIMATE TO INCLUDE RECOMMENDED LOCATIONS. CONTRACTOR SHALL REFERENCE ALL CONTRACT DOCUMENTS, APPROVED EQUIPMENT SUBMITTALS AND MANUFACTURER INSTALLATION INSTRUCTIONS PRIOR TO COMMENCING INSTALLATION.
2. MECHANICAL EQUIPMENT AND ASSOCIATIVE PIPING ARE SHOWN APPROXIMATE AND NOT ALL INCLUSIVE. CONTRACTOR SHALL REFERENCE CIVIL AND MECHANICAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

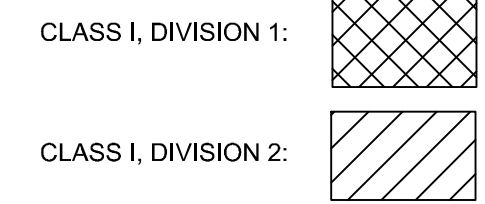
GENERAL NOTES:

1. REFERENCE ALL CONTRACT DOCUMENTS, SPECIFICATIONS AND DRAWINGS FOR ADDITIONAL REQUIREMENTS AND CONTRACT RESPONSIBILITIES PRIOR TO COMMENCING WORK.
2. CONTRACTOR SHALL REFERENCE AND IMPLEMENT ALL CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT CONSTRUCTION DETAILS AND STANDARDS
3. ALL AC POWER CONDUCTORS FOR CIRCUITS 100A AND GREATER SHALL BE STRANDED COPPER 600V TYPE XHHW-2 90°C
4. ALL AC POWER CONDUCTORS FOR CIRCUITS LESS THAN 100A SHALL BE STRANDED COPPER 600V TYPE THHN/THWN 75°C
5. ALL CONTROL CONDUCTORS RATED LESS THAN 120V SHALL BE STRANDED COPPER 600V TYPE THHN/THWN 75°C
6. ALL UNDERGROUND RACEWAYS (THREE OR MORE) THAT LEAVE THE BUILDING OR STRUCTURAL ENVELOPE SHALL BE PVC-RAC PLACED IN REINFORCED CONCRETE DUCT-BANKS
- 6.1. UNDERGROUND RACEWAYS (LESS THAN THREE) SHALL BE ALUMINUM CONDUIT DIRECT-BURIED WITH 24-INCH MINIMUM COVER FROM FINISHED GRADE
7. RACEWAY TRANSITIONS OR PENETRATIONS THROUGH CEMENTITIOUS MATERIAL AND FINISHED GRADE SHALL BE PVC-RAC
8. ALL NON CURRENT CARRYING EQUIPMENT WITHIN THE CLASSIFIED ZONE SHALL BE GROUNDED PER NEC 250.100

CLASSIFICATION NOTES:

1. IN ACCORDANCE WITH THE 2024 EDITION OF NFPA 820, TABLE 4.2.2, ROW 14(c), WASTEWATER PUMPING STATION WET WELLS:
 - 1.1. INTERIOR AND AN ENVELOPE OF 3 FEET (0.9 METER) AROUND VENTS SHALL BE RATED CLASS I DIVISION 1.
 - 1.2. AN ENVELOPE OF 5 FEET (1.5 METER) AROUND VENTS AND AN ENVELOPE 1.5 FEET (0.5 METER) HIGH EXTENDING 3 FEET (0.9 METER) FROM HATCHES SHALL BE RATED CLASS I DIVISION 2.
2. IN ACCORDANCE WITH THE 2024 EDITION OF NFPA 820, TABLE 4.2.2, ROW 29(a), BELOWGRADE VALVE VAULT:
 - 2.1. INTERIOR AND AN ENVELOPE OF 3 FEET (0.9 METER) AROUND VENTS SHALL BE RATED CLASS I DIVISION 2.
3. IN ACCORDANCE WITH THE 2024 EDITION OF NFPA 820, TABLE 4.2.2, ROW 34(a), BELOWGRADE METERING VAULT:
 - 3.1. INTERIOR AND AN ENVELOPE OF 3 FEET (0.9 METER) AROUND VENTS SHALL BE RATED CLASS I DIVISION 2.

CLASSIFICATION LEGEND:



REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026
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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT

ELECTRICAL
CLASSIFICATION PLAN & ELEVATION

PROJ. START DATE: 2024 MAR	SCALE	E10.1
MCE PROJ. # 08996-0001	HORIZONTAL: AS NOTED	
MSEI PROJ. # 20202001	DRAWN LG	
DESIGNED LG	CHECKED NF	
PROJ. MGR. MC	VERTICAL: AS NOTED	
STATUS: ISSUED FOR BID	NOT RELEASED FOR CONSTRUCTION	

1 INSTRUMENT/FUNCTION SYMBOLS

	PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	NORMALLY INACCESSIBLE OR BEHIND THE PANEL DEVICES OR FUNCTIONS
FIELD/PANEL EQUIPMENT	XX 123	XX 123	XX 123	XX 123
SHARED DISPLAY, SHARED CONTROL	XX 123	XX 123	XX 123	XX 123
PROGRAMMABLE LOGIC CONTROLLER	XX 123	XX 123	XX 123	XX 123
SUPERVISORY COMPUTER FUNCTION	XX 123	XX 123	XX 123	XX 123

- SINGLE INSTRUMENT OR OTHER DEVICE HAVING MULTIPLE FUNCTIONS OR SHARING A COMMON HOUSING
- SOFTWARE LOGIC OR CONTROL MODULE XX AND SUB-MODULE YY RESIDENT IN DISTRIBUTED CONTROL SYSTEM (DCS) OR PROGRAMMABLE LOGIC CONTROLLER (PLC) REFER TO CONTRACT DOCUMENTS FOR CONTROL AND MODULE DESCRIPTIONS.
- DESIGNATIONS OF CONTROL FUNCTIONS (ZZ) ASSOCIATED WITH INSTRUMENT OR OTHER DEVICES.

- | | |
|--------------------------|---------------------------|
| AHC - AUTO/HOLD/CLOSE | MOA - MANUAL/OFF/AUTO |
| AM - AUTO/MANUAL | NO3-N- MANUAL/OFF/AUTO |
| AO - AUTOMATIC | OCA - OPEN/CLOSE/AUTO |
| DEV - DEVIATION | ORM - OFF/REMOTE/MANUAL |
| DO - DISSOLVED OXYGEN | P04-P - MANUAL/OFF/AUTO |
| EN - ENABLE | POT - POTENTIOMETER |
| ES - EMERGENCY STOP | REM - REMOTE |
| ETM - ELAPSED TIME METER | RL - RAISE/LOWER |
| FAIL - FAILURE | ROF - REVERSE/OFF/FORWARD |
| FLT - FAULT | RS - RUN/STOP |
| FTC - FAILED TO CLOSE | RSL - RAISE/STOP/LOWER |
| FTO - FAILED TO OPEN | RST - RESET |
| FTS - FAILED TO START | RUN - RUNNING |
| HOA - HAND/OFF/AUTO | SD - SHUTDOWN |
| HOR - HAND/OFF/REMOTE | SEL - SELECT |
| LAH - LEVEL ALARM HIGH | SIL - SILENCE |
| LAH - LEVEL ALARM LOW | SP - SET POINT |
| LCS - LOCKOUT STOP | SR - START/RESET |
| LR - LOCAL/REMOTE | SS - START/STOP |
| LOR - LOCAL/OFF/REMOTE | TURB - TURBIDITY |
| | ZS - ZERO SPEED |

- INSTRUMENT PANEL MOUNTED WITH COMPUTING OR CONVERTING FUNCTION
- CONVERT E - VOLTAGE I - CURRENT P - PNEUMATIC A - ANALOG B - BINARY H - HYDRAULIC O - ELECTROMAGNETIC, SONIC R - RESISTANCE (ELECT.) D - DIGITAL
- COMPUTE SUMMING SUBTRACTOR MULTIPLYING DIVIDING ROOT EXTRACTION PROPORTIONAL DERIVATIVE EXponential AVERAGING RATIO HIGH SELECTING LOW SELECTING INTEGRAL PID

- PANEL MOUNTED PILOT LIGHT
- ANALYZER, XXX = TYPE
- | | |
|--|-------------------------------------|
| ALK - ALKALINITY | O ₃ - OZONE |
| CL ₂ - CHLORINE CONCENTRATION | ORP - OXIDATION/REDUCTION POTENTIAL |
| COND - CONDUCTIVITY | pH - HYDROGEN ION CONCENTRATION |
| DO - DISSOLVED OXYGEN | TH - TOTAL HARDNESS |
| H ₂ S - HYDROGEN SULFIDE | UV - ULTRAVIOLET |
| LEL - LOWER EXPLOSIVE LIMIT | |
| O ₂ - OXYGEN CONCENTRATION | |
- * ASTERISK IDENTIFIES EQUIPMENT FURNISHED BY MBR MEMBRANE EQUIPMENT SUPPLIER
- ** DOUBLE ASTERISK IDENTIFIES EQUIPMENT FURNISHED BY UV SYSTEM SUPPLIER

2 VALVE AND ACTUATOR SYMBOLS

GENERIC VALVE OR GATE VALVE	PLUG VALVE	GLOBE VALVE	BALL VALVE
BALL VALVE (3-WAY)	3-WAY VALVE (GENERAL)	PINCH VALVE	COMBINATION VACUUM/PRESSURE RELIEF VALVE
BUTTERFLY VALVE	SWING CHECK VALVE	BALL CHECK VALVE	DIAPHRAGM VALVE
NEEDLE VALVE	ANGLE VALVE	ROTARY VALVE	THROUGH PLUG VALVE
PRESSURE RELIEF OR SAFETY VALVE	VACUUM RELIEF VALVE	PRESSURE-REDUCING REGULATOR	BACKPRESSURE REGULATOR
BACKFLOW PREVENTER	SLUICE GATE	STOP/SLIDE GATE	STRAINER
BACKFLOW PREVENTER	ELECTRIC ACTUATOR	SOLENOID ACTUATOR	PNEUMATIC ACTUATOR
ELECTROPNEUMATIC ACTUATOR	ELECTROHYDRAULIC ACTUATOR	HAND WHEEL	EDUCTOR

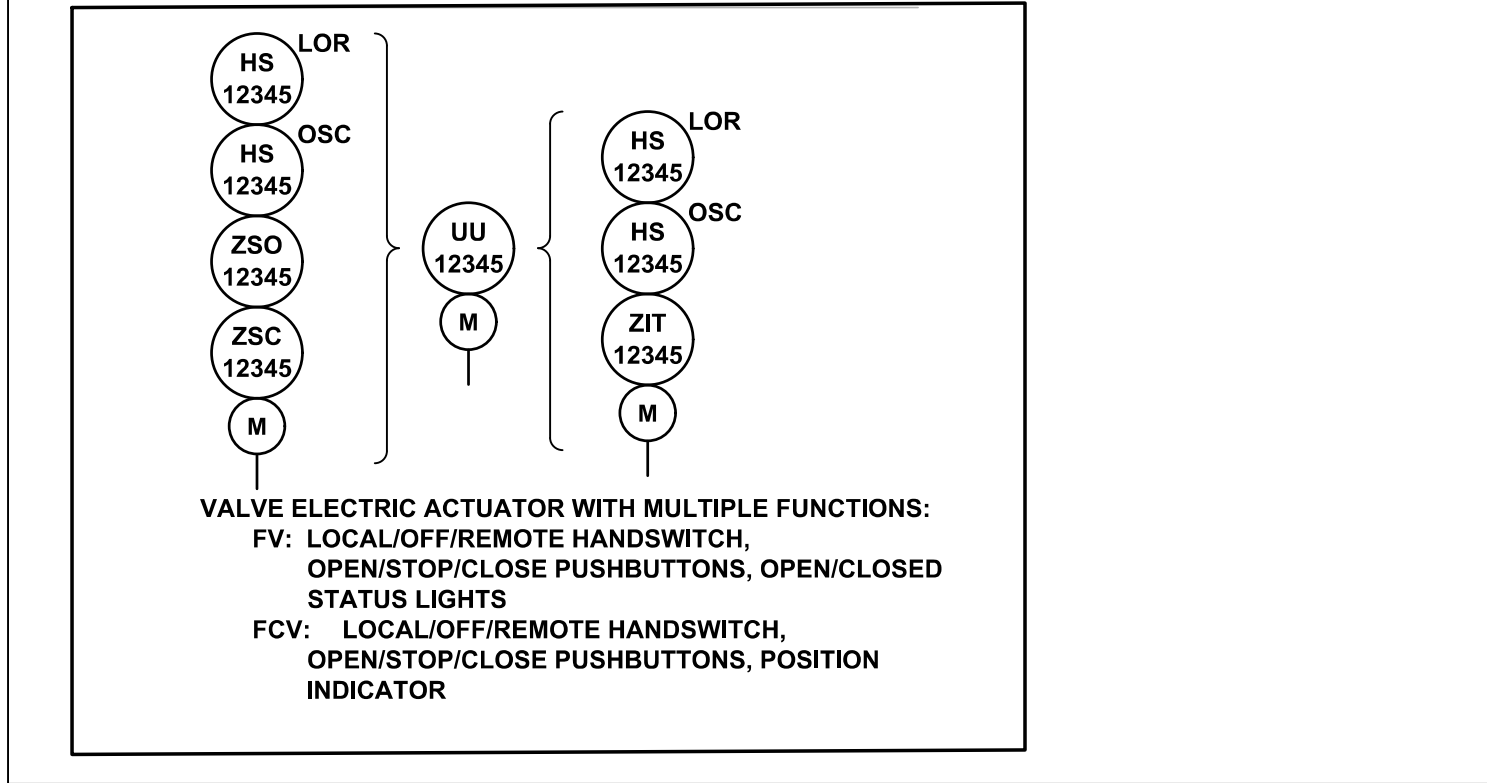
3 INSTRUMENT SYMBOLS

MAGNETIC FLOW METER	VENTURI FLOW TUBE	TURBINE FLOW METER	ROTAMETER	ULTRASONIC FLOW METER	PADDLE WHEEL FLOW METER	VORTEX FLOW METER	POSITIVE DISPLACEMENT FLOW METER
PITOT TUBE	PARSHALL FLUME	THERMAL FLOW METER	ORIFICE PLATE	STRAIGHTENING VANES	ULTRASONIC LEVEL SENSOR	SUBMERSIBLE LEVEL SENSOR	FLOAT TYPE LEVEL SWITCH
TAPPED RING SEAL	DIAPHRAGM SEAL	FULL LINE RING SEAL	VALVED TAP	RTD AND THERMOWELL	RADAR LEVEL SENSOR (UNGUIDED)	RADAR LEVEL SENSOR (GUIDED)	CAPACITANCE LEVEL SENSOR

4 PUMP AND EQUIPMENT SYMBOLS

CENTRIFUGAL PUMP	CENTRIFUGAL WET PIT PUMP (SUBMERSIBLE)	BLOWER (CENTRIFUGAL)	GEAR PUMP (POSITIVE DISPLACEMENT)
PROGRESSIVE CAVITY PUMP	CHEMICAL FEED PUMP	MIXER	BLOWER (POSITIVE DISPLACEMENT)
VERTICAL PUMP	HYDROPNEUMATIC TANK	CLOSED TOP TANK	EMERGENCY SHOWER/EYEWASH
MEMBRANE FILTER	MECHANICAL SCREEN		

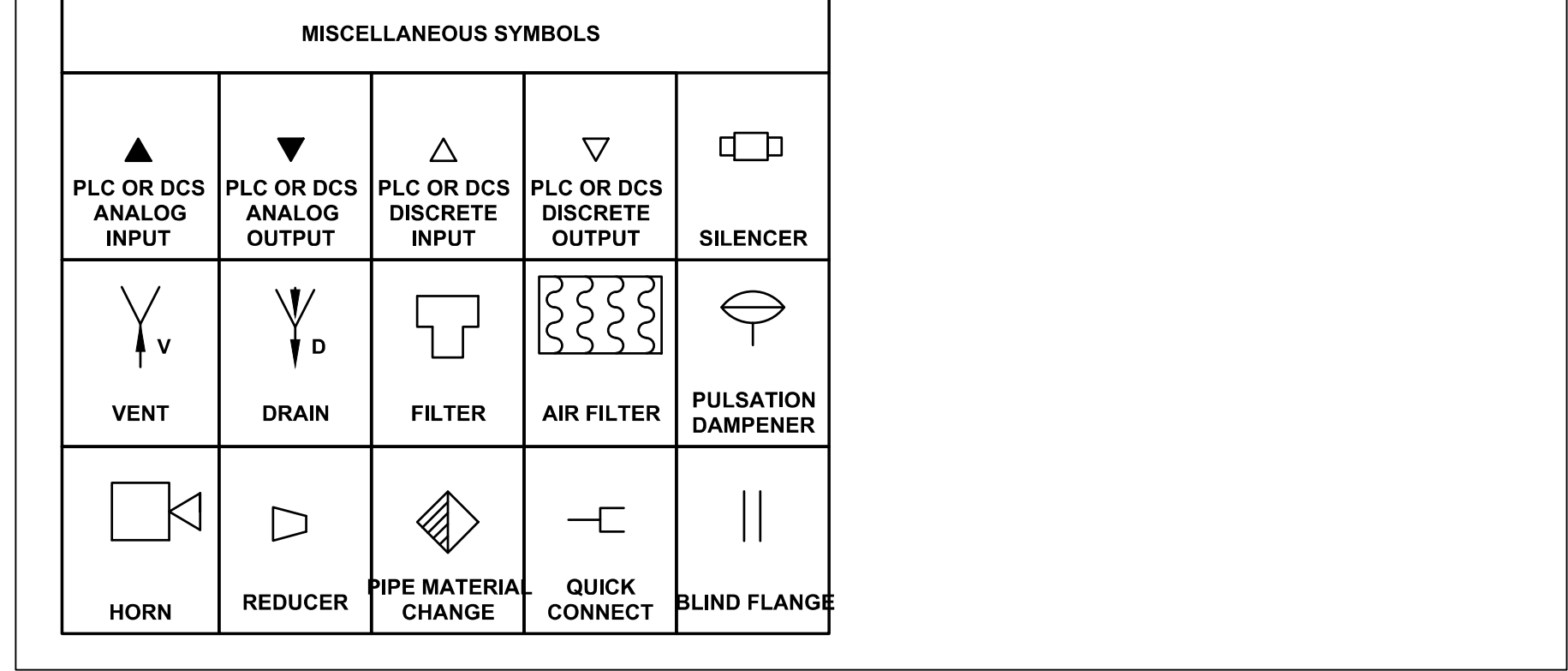
5 VALVE ACTUATOR CONTROLS



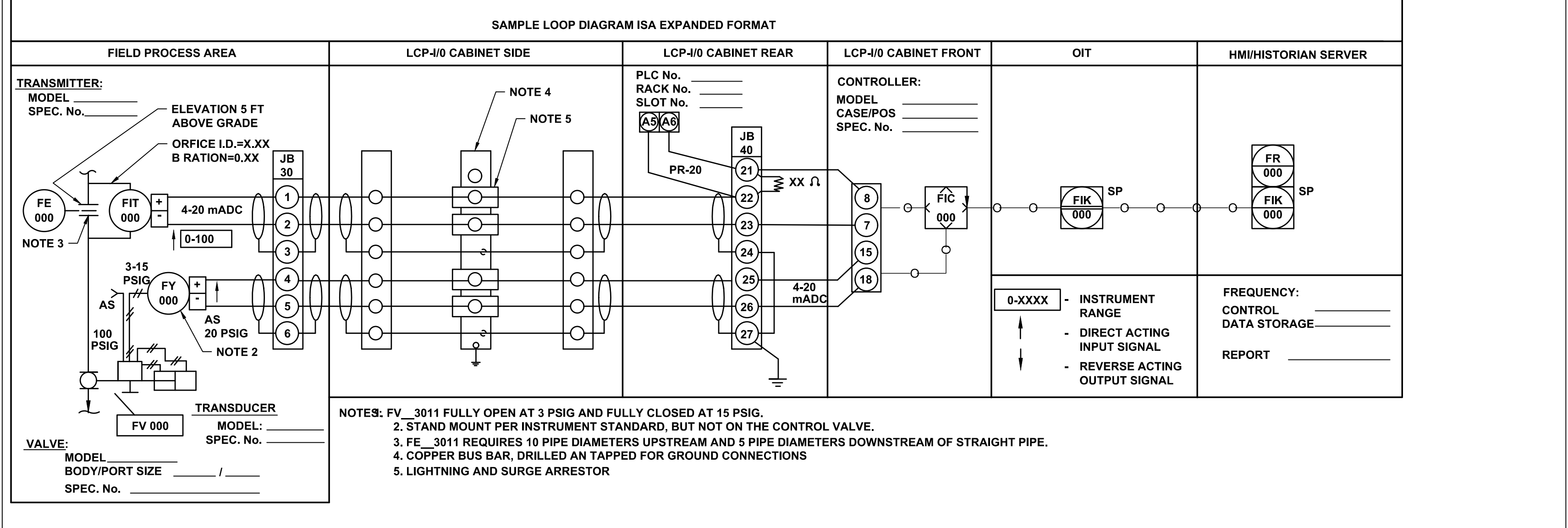
7 INSTRUMENT/DEVICE IDENTIFICATION LETTERS

	FIRST-LETTER		SUCCEEDING-LETTERS	
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION
A	ANALYSIS		ALARM	
B	BURNER, COMBUSTION			
C				CONTROL
D		DIFFERENTIAL		CLOSE/CLOSED
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)	
F	FLOW RATE	RATIO (FRACTION)		
G	GAUGE		GLASS, VIEWING DEVICE	
H	HAND			HIGH
I	CURRENT (ELECTRICAL)		INDICATE	
J	POWER	SCAN		
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION
L	LEVEL		LIGHT	LOW
M		MOMENTARY		MIDDLE, INTERMEDIATE
N	TORQUE			
O			ORIFICE, RESTRICTION	
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION	OPEN/OPENED
Q	QUANTITY	INTEGRATE, TOTALIZE		
R	RUN		RECORD & STORE	REPORT
S	SPEED, FREQUENCY	SAFETY		SWITCH
T	TEMPERATURE			TRANSMIT
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, VOLUME MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER
W	WEIGHT, FORCE		WELL	
X	FAILURE OR TROUBLE PRESENCE	X AXIS		COMPUTE, CONVERT, RELAY
Y	EVENT, STATE OR PRESENCE	Y AXIS		
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT

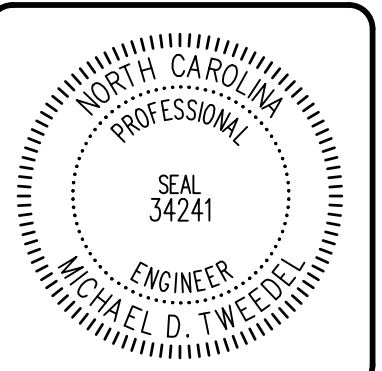
8 MISCELLANEOUS



6 SAMPLE LOOP DIAGRAM



REV. NO.	DESCRIPTION	DATE



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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

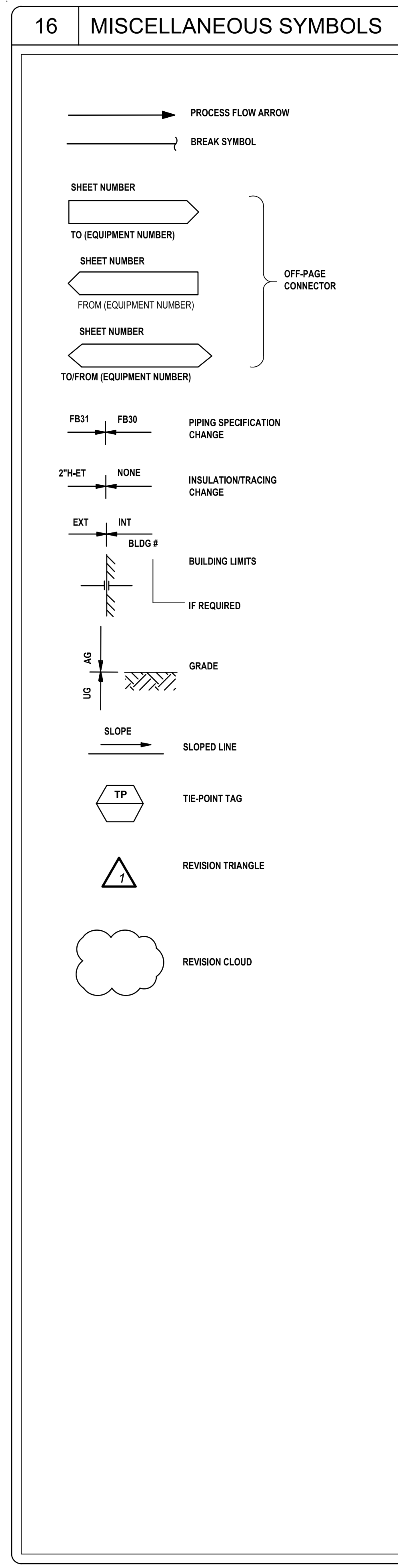
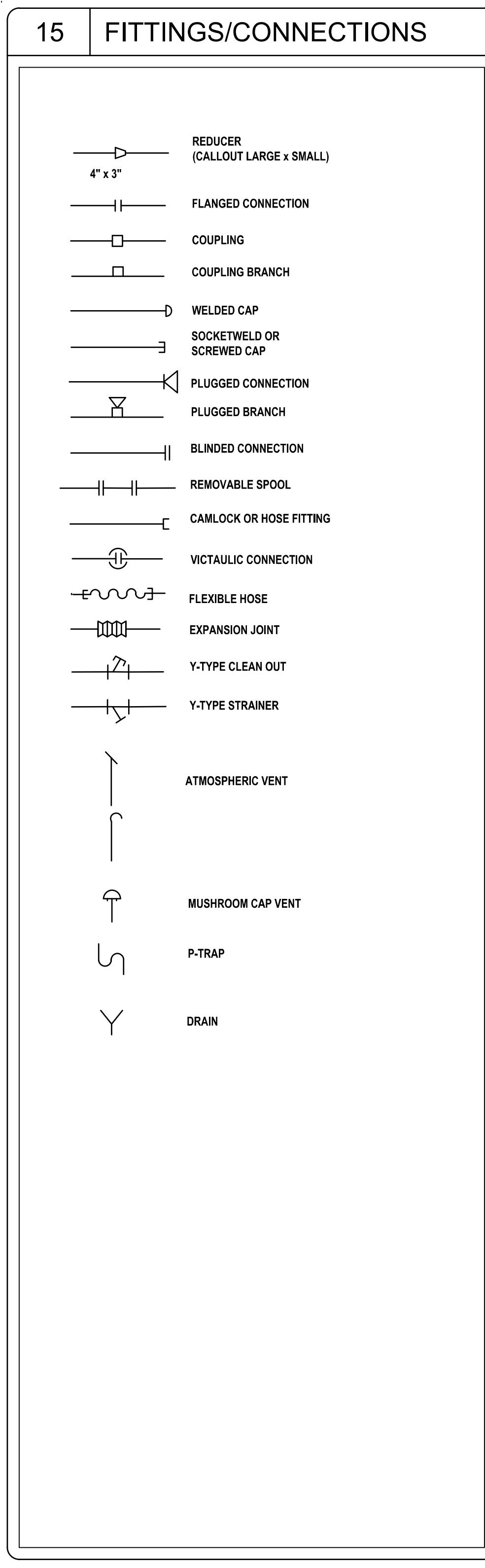
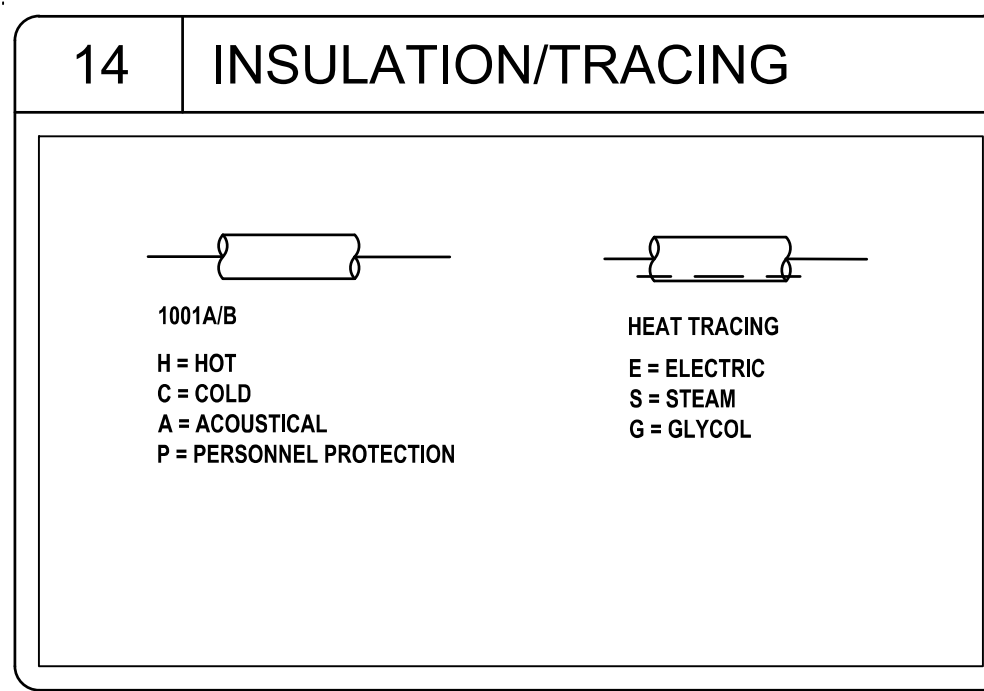
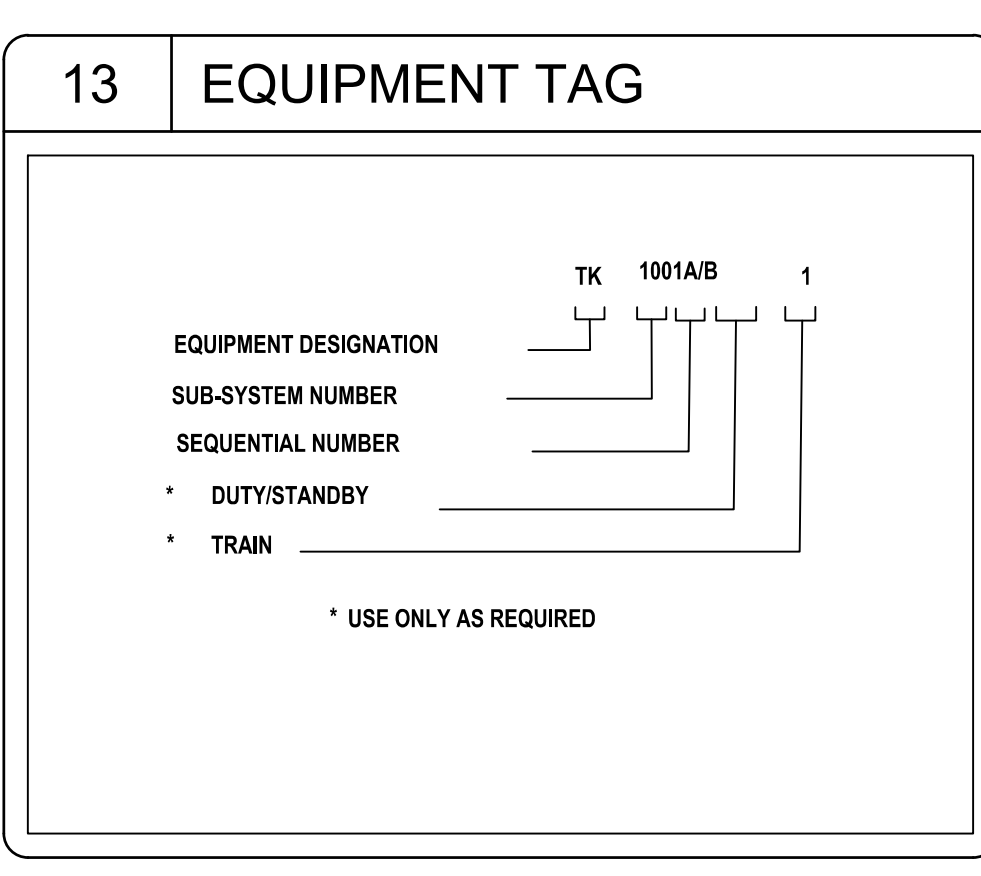
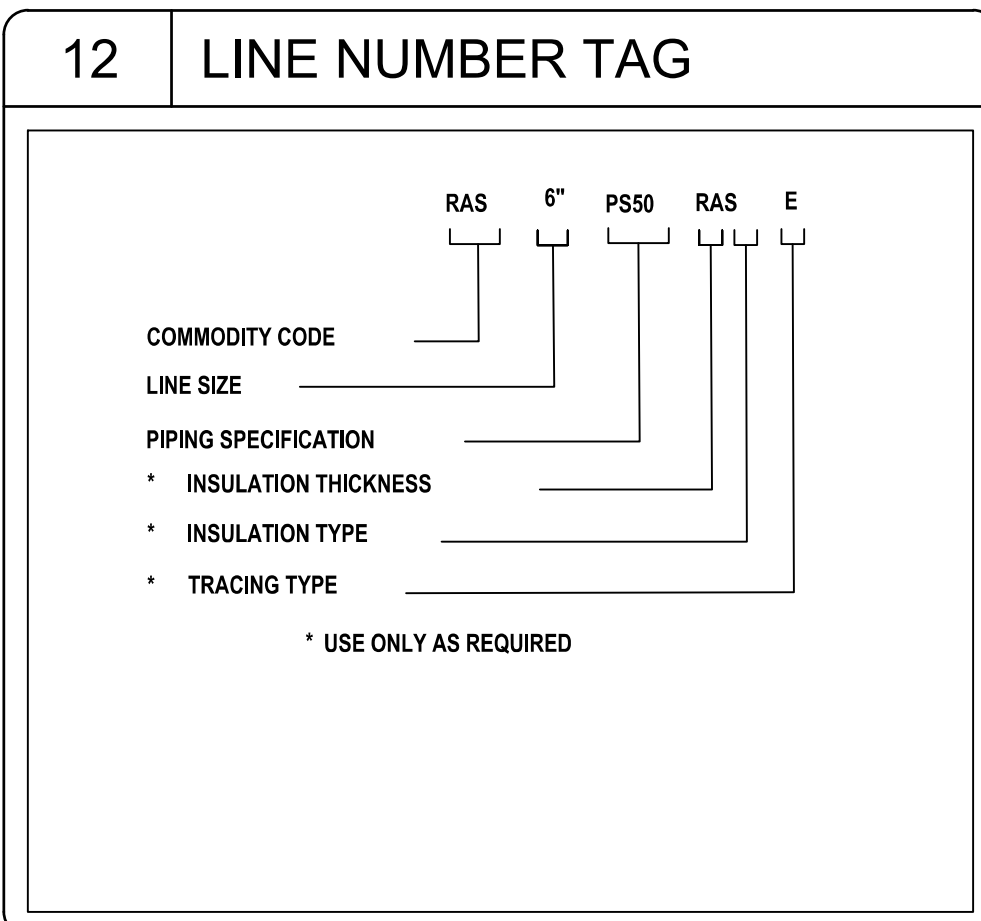
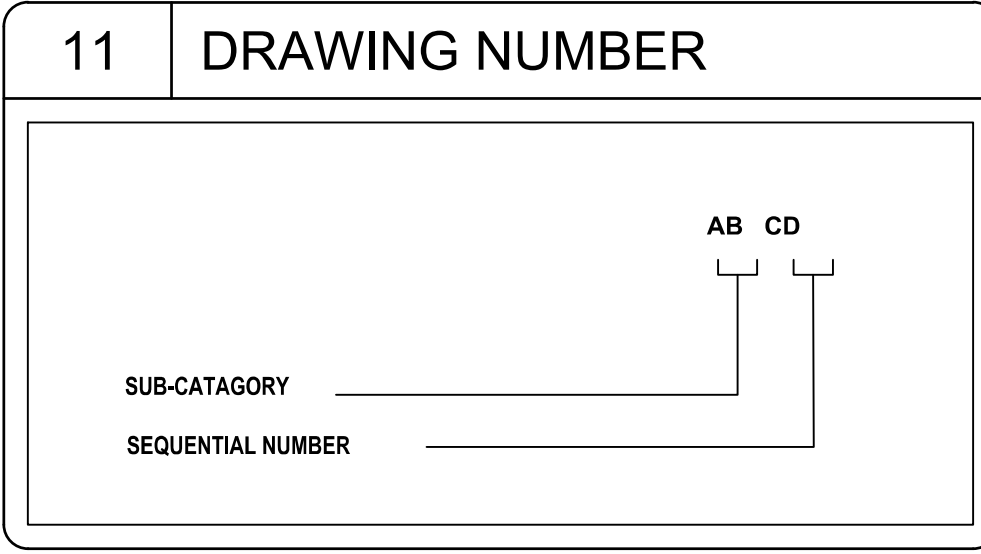
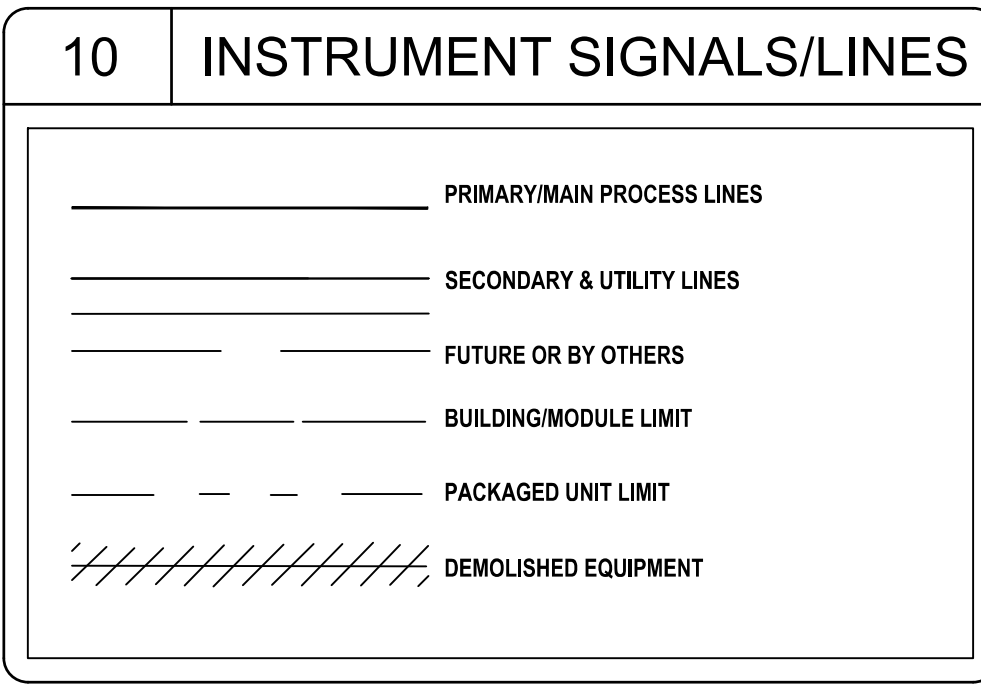
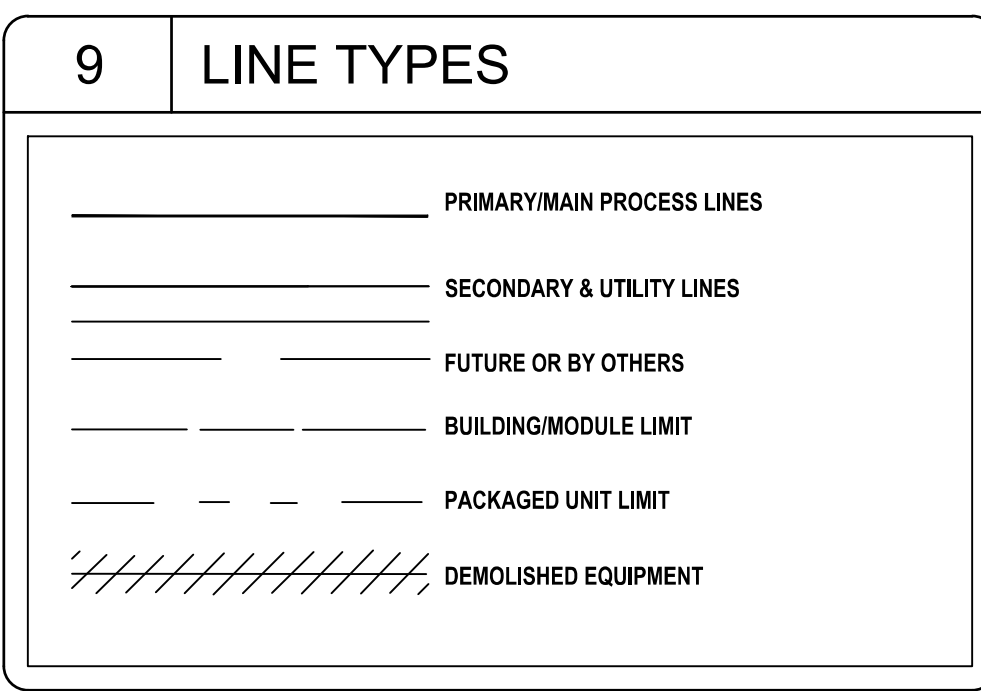
ITT PUMP STATION REPLACEMENT

INSTRUMENTATION
GENERAL NOTES 1 OF 2

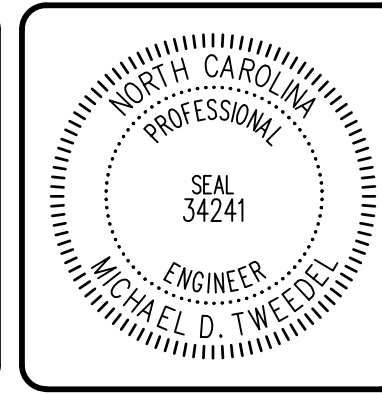
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DRAWN: JER	VERTICAL: N/A
DESIGNED: MDT	REVISION: 0
CHECKED: MC	
PROJ. MGR.: MC	

STATUS: NOT RELEASED FOR CONSTRUCTION

ISSUED FOR BID



REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION	JUNE 2026



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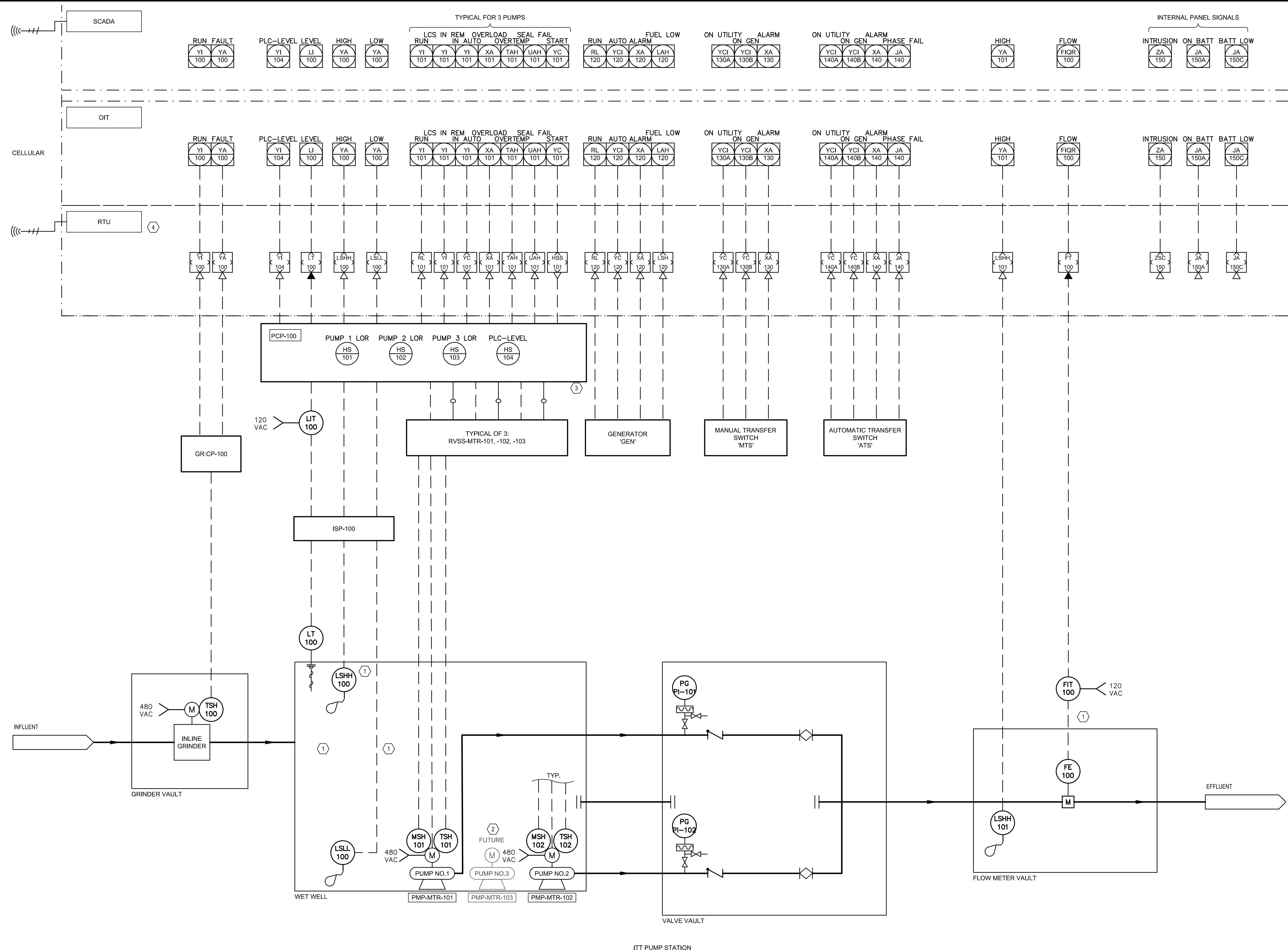
ITT PUMP STATION REPLACEMENT

INSTRUMENTATION

GENERAL NOTES 2 OF 2

PROJ. START DATE: 2024 MAR 09	SCALE
MSD PROJ. # 2020001	HORIZONTAL: 100.1
DRAWN: JER	VERTICAL: N/A
DESIGNED: MDT	REVISION: 0
CHECKED: MC	
PROJ. MGR.: MC	

STATUS: NOT RELEASED FOR CONSTRUCTION



GENERAL NOTES:

1. REFERENCE ALL CONTRACT DOCUMENTS, SPECIFICATIONS AND DRAWINGS FOR ADDITIONAL REQUIREMENTS AND CONTRACT RESPONSIBILITIES PRIOR TO COMMENCING WORK.
2. CONTRACTOR SHALL REFERENCE AND IMPLEMENT ALL OWNER'S CONSTRUCTION DETAILS AND STANDARDS

INSTALLATION KEYNOTES:

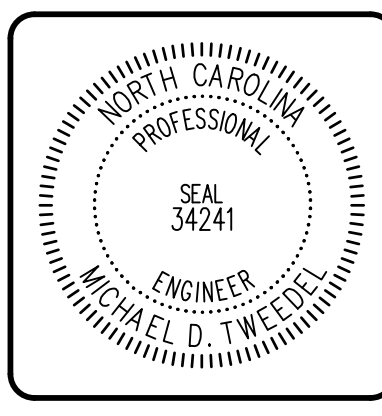
- ① USE MANUFACTURER'S CABLE WITH NO SPLICES.
- ② FUTURE EQUIPMENT
- ③ PLC MODE - OPERATE PUMPS FROM OUTPUTS BASED UPON WET WELL LEVEL AND START/STOP. TIME DELAY SETPOINTS AS ENTERED FROM OIT LEVEL MODE - OPERATE PUMPS USING CONTROL RELAYS AND SETPOINTS AS DEFINED IN THE LEVEL TRANSMITTER
- ④ BACKUP PUMP CONTROL SHALL BE LOCATED IN THE RTU PANEL AND WILL BE ACTIVE AT ALL TIMES. CONTROL WILL BE BASED ON FLOAT SWITCHES WITH ADJUSTABLE TIME DELAYS AND HARDWIRED CONTROLS.
ACTUATION OF THE HIGH LEVEL SWITCH WILL INITIATE THE LEAD PUMP AFTER A TIME DELAY. THE PUMP WILL CONTINUE TO OPERATE UNTIL THE LOW LEVEL SWITCH IS REACHED, AT WHICH TIME THE LEAD PUMP WILL ALTERNATE.
- ⑤ PUMP CONTROL AND PRIMARY MONITORING WILL BE HARDWIRED TO THE SOFT START CONTROLLERS. SECONDARY MONITORING WILL BE OVER A MODBUS TCP COPPER NETWORK CONNECTION
- ⑥ ISP-100 IS A PANEL FOR INTRINSICALLY SAFE TERMINATIONS OF SIGNALS FROM THE WET WELL.

REV. NO.	DESCRIPTION	DATE

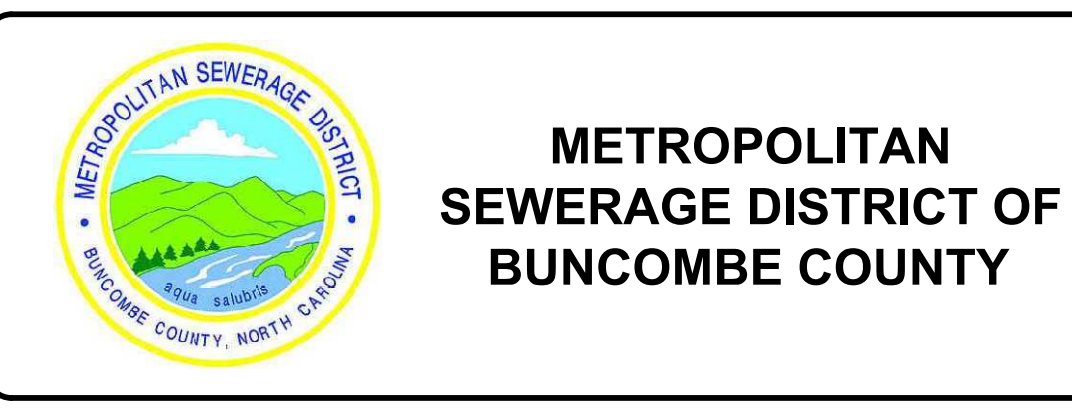
ISSUED FOR BID - NOT RELEASED FOR CONSTRUCTION

REVISIONS

JUNE 2024



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Professional Engineer
 State of North Carolina
 License No. 34241



ITT PUMP STATION REPLACEMENT

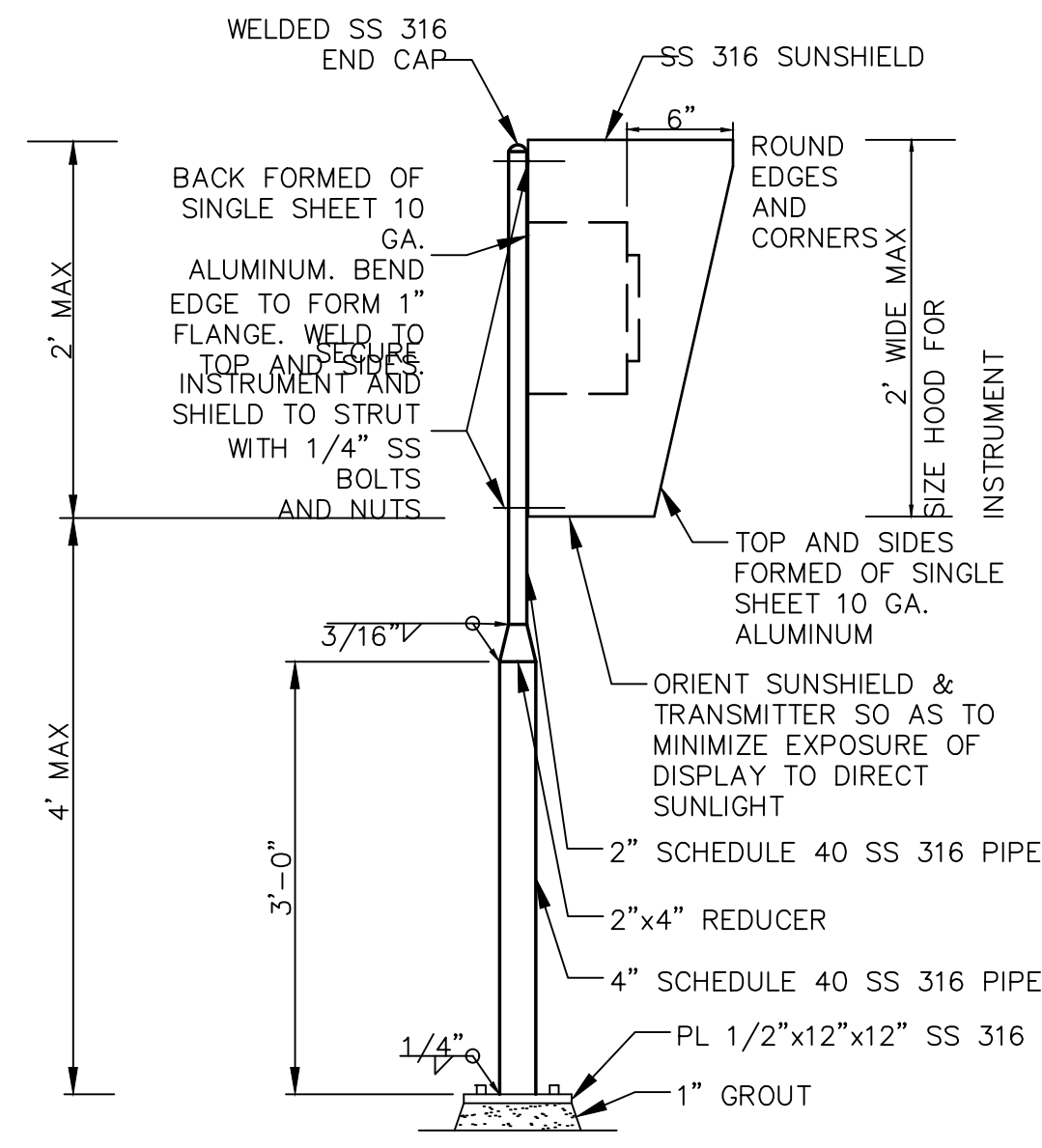
**INSTRUMENTATION
 PROCESS AND INSTRUMENTATION DIAGRAM**

PROJ. START DATE: 2024 MAR 09	SCALE
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DRAWN: JER	VERTICAL: N/A
DESIGNED: MDT	
CHECKED: MC	
PROJ. MGR: MC	

I01.0
 DRAWING NUMBER
 0
 REVISION

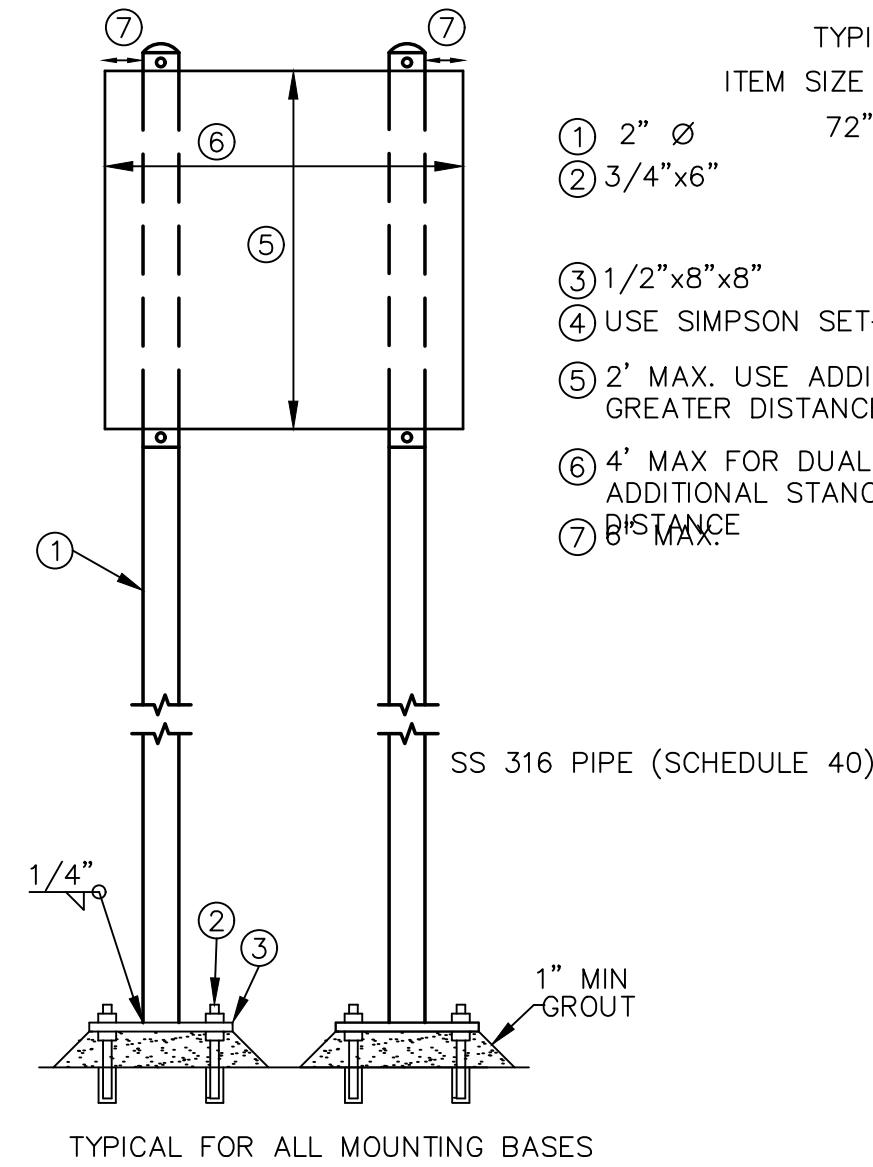
STATUS: **ISSUED FOR BID**
NOT RELEASED FOR CONSTRUCTION

NOTES:
 1. ALL EXPOSED EDGES TO BE GROUND SMOOTH AND BURR FREE.
 2. MOUNT RAIN HOOD BETWEEN INSTRUMENT AND STANCHION. USE STAINLESS STEEL BOLTS AND INSULATING WASHERS AND SLEEVES.



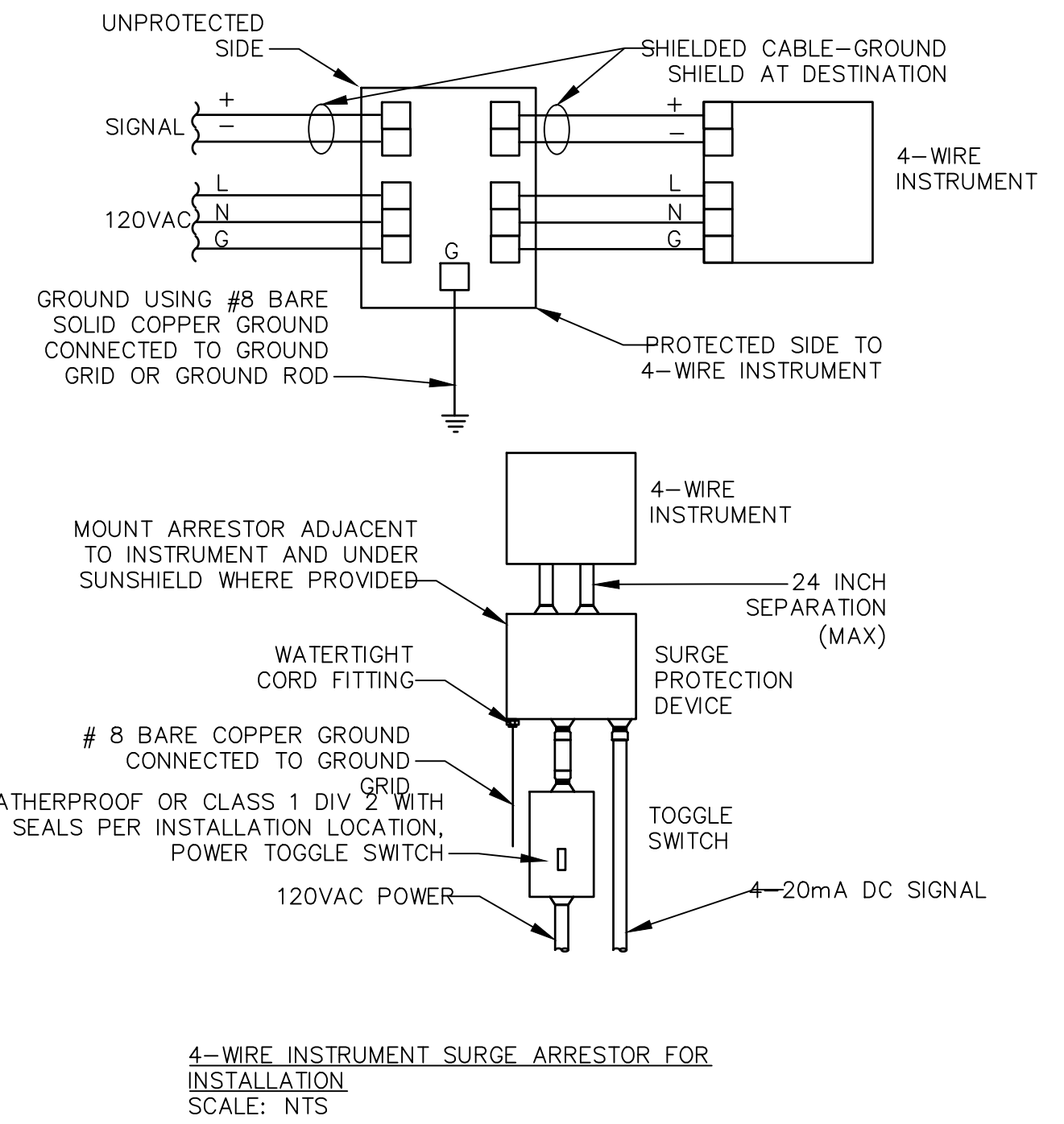
① SECURE TO SLAB WITH (4) 3/4" SS 316 ADHESIVE ANCHOR
 ② USE SIMPSON SET-XP EPOXY ADHESIVE

SINGLE INSTRUMENT STANCHION MOUNT
 DETAIL
 SCALE: NTS

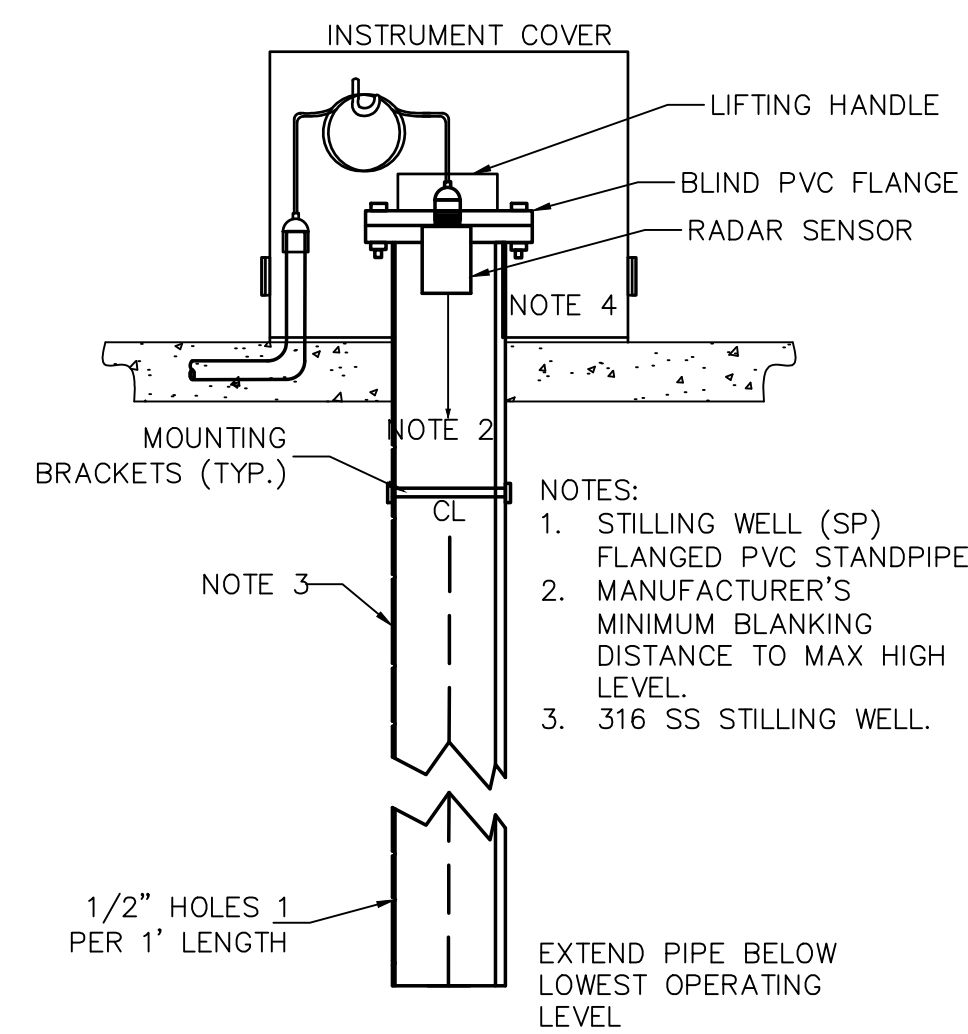


INSTRUMENTATION DUAL STANCHION MOUNT
 SCALE: NTS

TYPICAL ITEM SIZE	QTY	DESCRIPTION
① 2" Ø 72"H		SS 316 SCH40
② 3/4"x6"	4	SS 316 ADHESIVE ANCHOR W/6" EMBED AND NUTS
③ 1/2"x8"x8"	1	SS 316 BASE PLATE
④		USE SIMPSON SET-XP EPOXY ADHESIVE
⑤		2' MAX. USE ADDITIONAL SUPPORT FOR GREATER DISTANCE
⑥		4' MAX FOR DUAL STATION. ADD ADDITIONAL STANCHION FOR GREATER DISTANCE
⑦		8" MAX



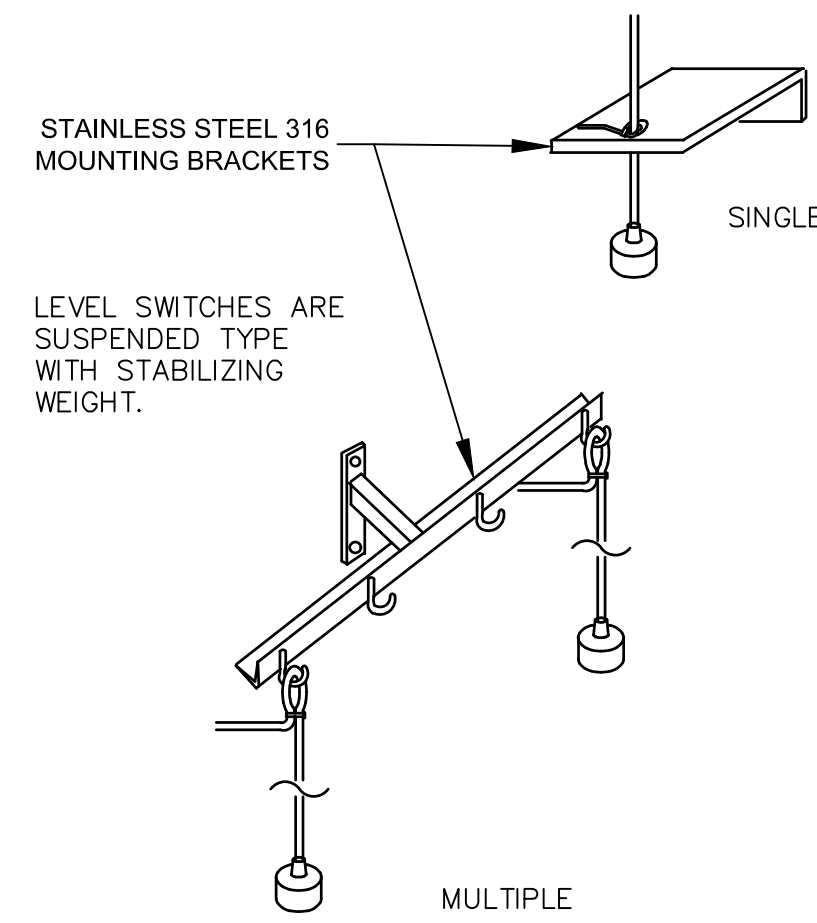
4-WIRE INSTRUMENT SURGE ARRESTOR FOR INSTALLATION
 SCALE: NTS



RADAR SENSOR MOUNTING WELL
 INSTALLATION
 SCALE: NTS

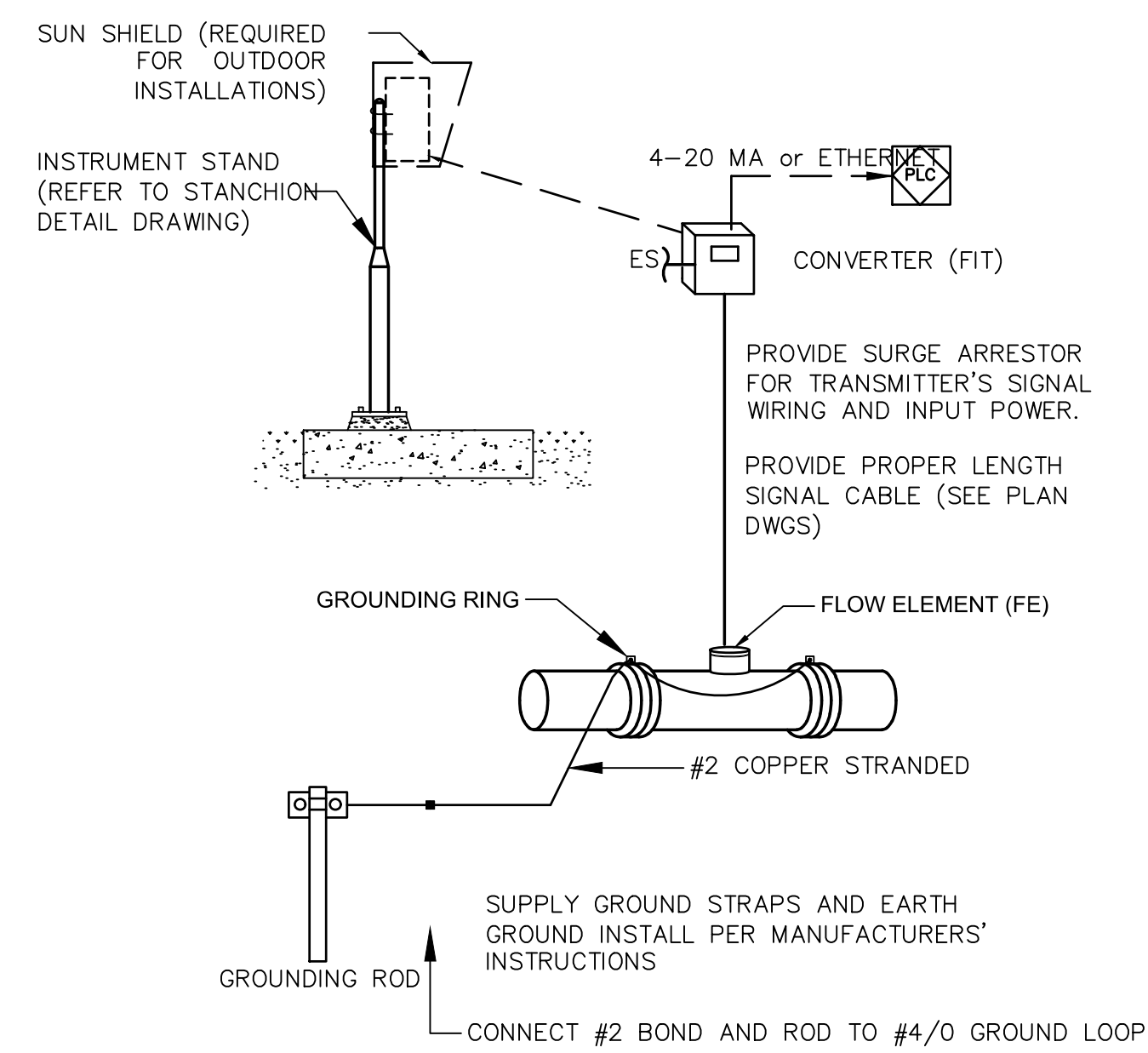
NOTES:
 1. STILLING WELL (SP) FLANGED PVC STANDPIPE.
 2. MANUFACTURER'S MINIMUM BLANKING DISTANCE TO MAX HIGH LEVEL.
 3. 316 SS STILLING WELL.

EXTEND PIPE BELOW LOWEST OPERATING LEVEL



TYPICAL LEVEL SWITCH MOUNTING DETAIL
 SCALE: NTS

LEVEL SWITCHES ARE SUSPENDED TYPE WITH STABILIZING WEIGHT.



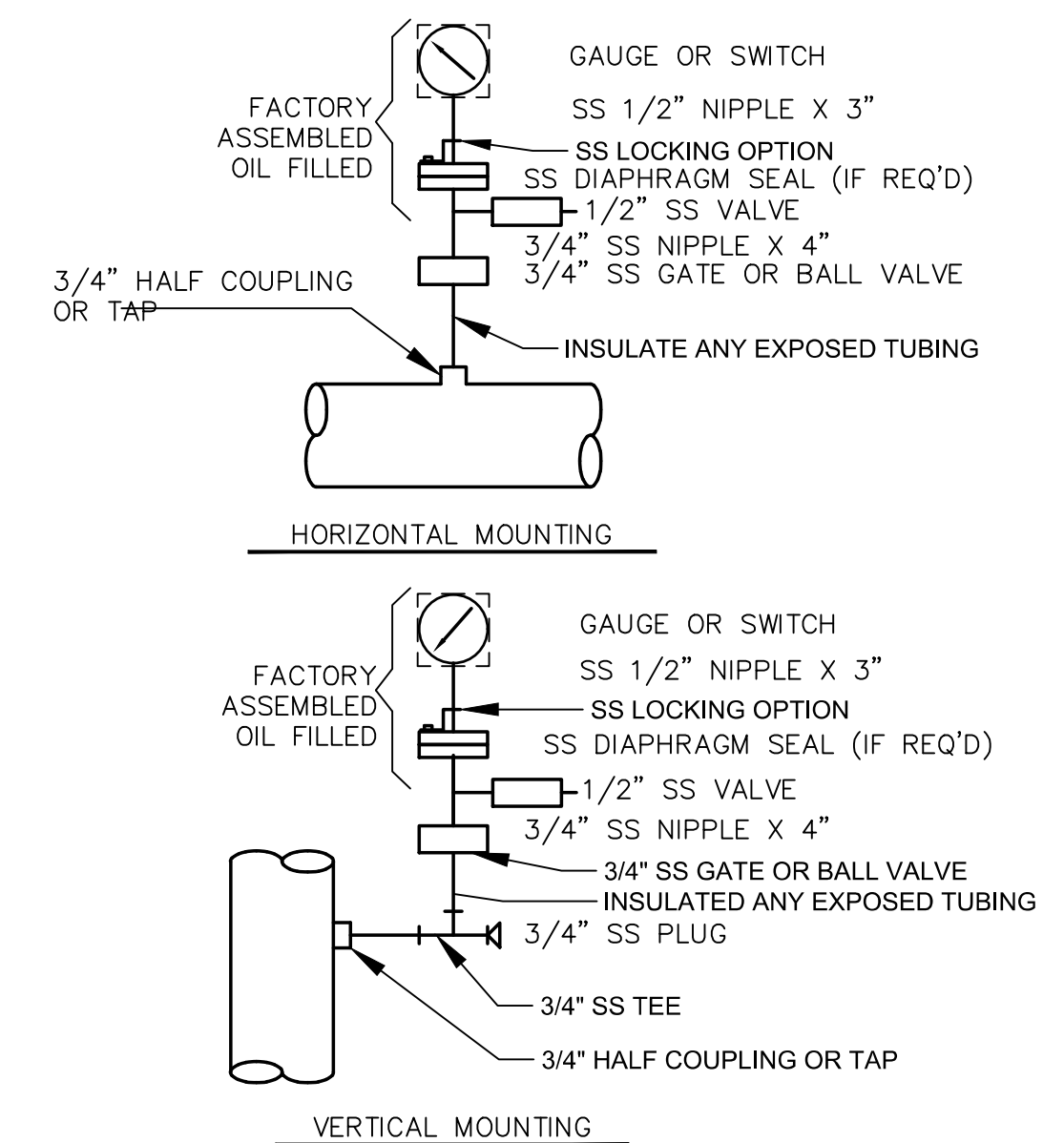
TYPICAL MAGNETIC FLOWMETER INSTALLATION
 SCALE: NTS

PROVIDE SURGE ARRESTOR FOR TRANSMITTER'S SIGNAL WIRING AND INPUT POWER.

PROVIDE PROPER LENGTH SIGNAL CABLE (SEE PLAN DWGS)

SUPPLY GROUND STRAPS AND EARTH GROUND INSTALL PER MANUFACTURERS' INSTRUCTIONS

CONNECT #2 BOND AND ROD TO #4/0 GROUND LOOP



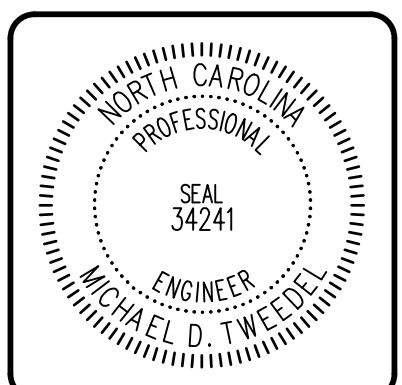
TYPICAL INSULATED PRESSURE INDICATOR/SWITCH
 DETAIL
 SCALE: NTS

REV. NO.	DESCRIPTION	DATE

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JUNE 2024



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METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY

ITT PUMP STATION REPLACEMENT
 INSTRUMENTATION
INSTRUMENT MOUNTING DETAIL I

PROJ. START DATE: 2024 MAR	SCALE
DESIGNED BY: JER	HORIZONTAL: N/A
CHECKED BY: MC	VERTICAL: N/A
PROJ. MGR: MC	REVISION

I03.1
0

STATUS: **ISSUED FOR BID**
NOT RELEASED FOR CONSTRUCTION