

5/14/19

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2012.

2. THE EXISTING UTILITIES BELONG TO AQUA NC, CONTACT PERSON IS MICHAEL MELTON (704) 483-8126.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

1. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.

2. IF HDPE PIPE IS INSTALLED BY DIRECTIONAL DRILL. IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTINGS FOR ONE WEEK FROM THE TIME OF INSTALLATION.

LIST OF STANDARD DRAWINGS

- 1515.01 WATER METER
- 1515.02 FIRE HYDRANT
- 1520.01 SEWER CLEAN OUT
- 1525.06 PRECAST CONCRETE SANITARY SEWER MANHOLE WITH CAST-IN-PLACE BOTTOM

PROJECT REFERENCE NO.	SHEET NO.
R-3825B	UC-3Q
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

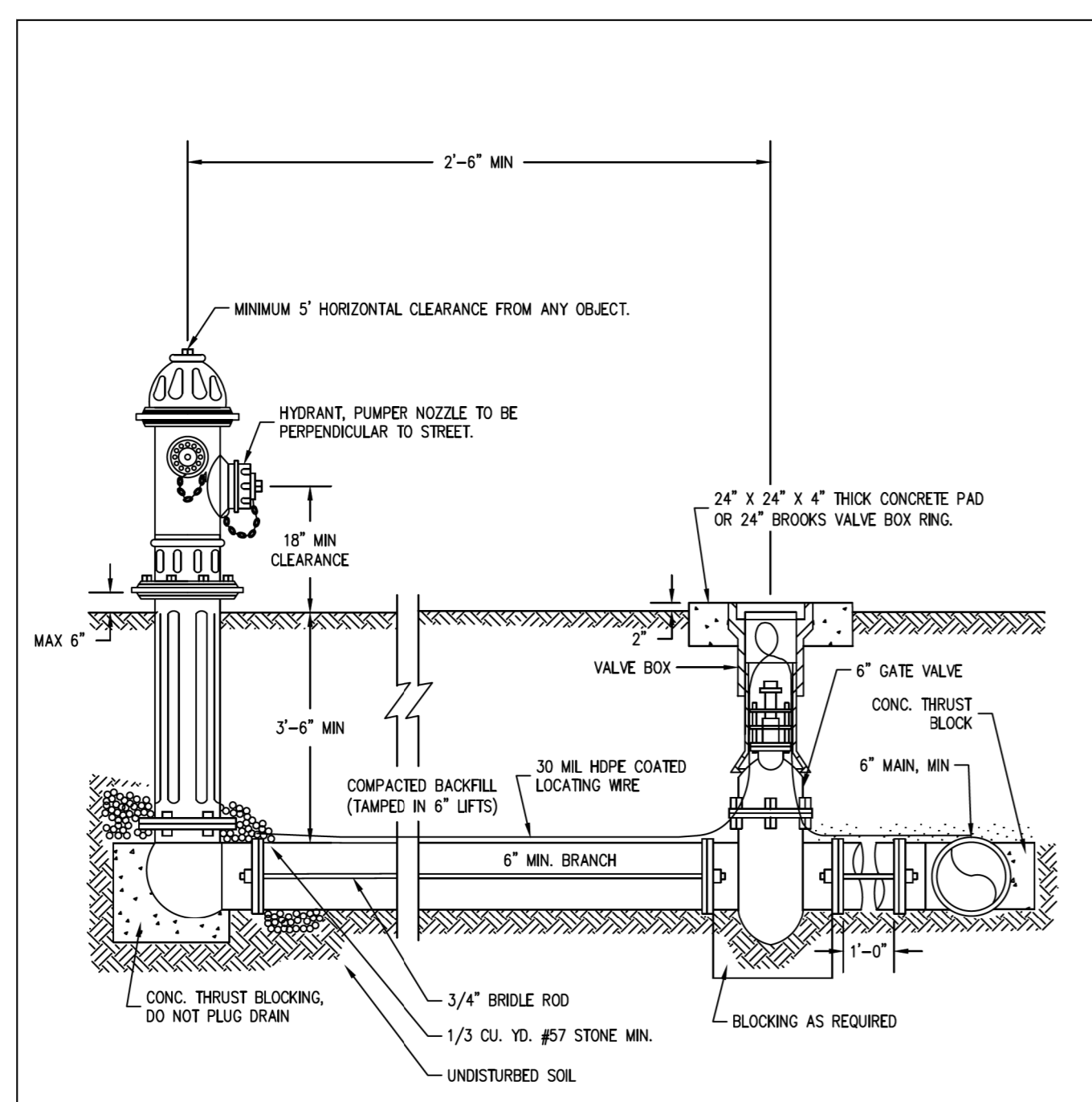
UTILITY CONSTRUCTION

5/14/19

PROJECT TYPICAL DETAILS



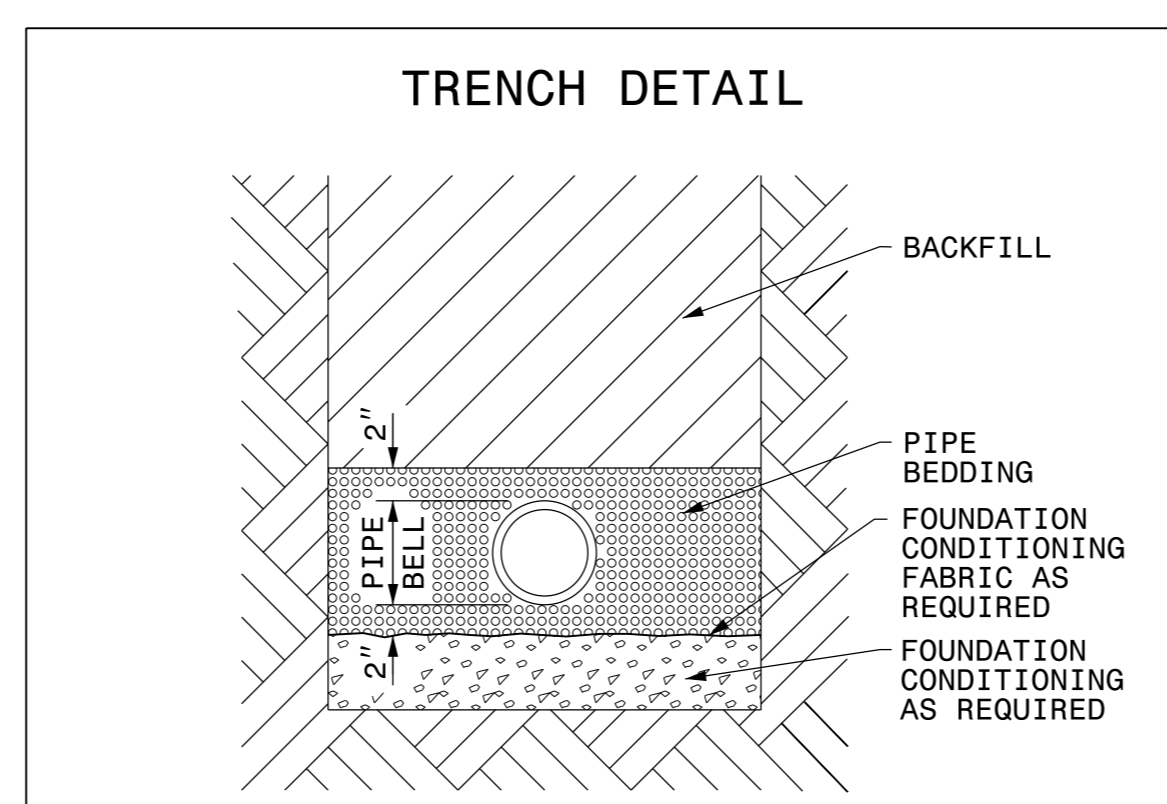
PROJECT REFERENCE NO.	SHEET NO.
R-3825B	UC-3A0
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SECTION PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY 8/9/2018	



- NOTES:**
1. ALL HYDRANTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AWWA STANDARD C503-82.
 2. HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITIONS.
 3. ALL BENDS, TEES, VALVES AND BLOW-OFFS SHALL BE BLOCKED IN ACCORDANCE WITH AWWA STANDARDS.
 4. HYDRANTS SHALL HAVE NATIONAL STANDARD THREADS.

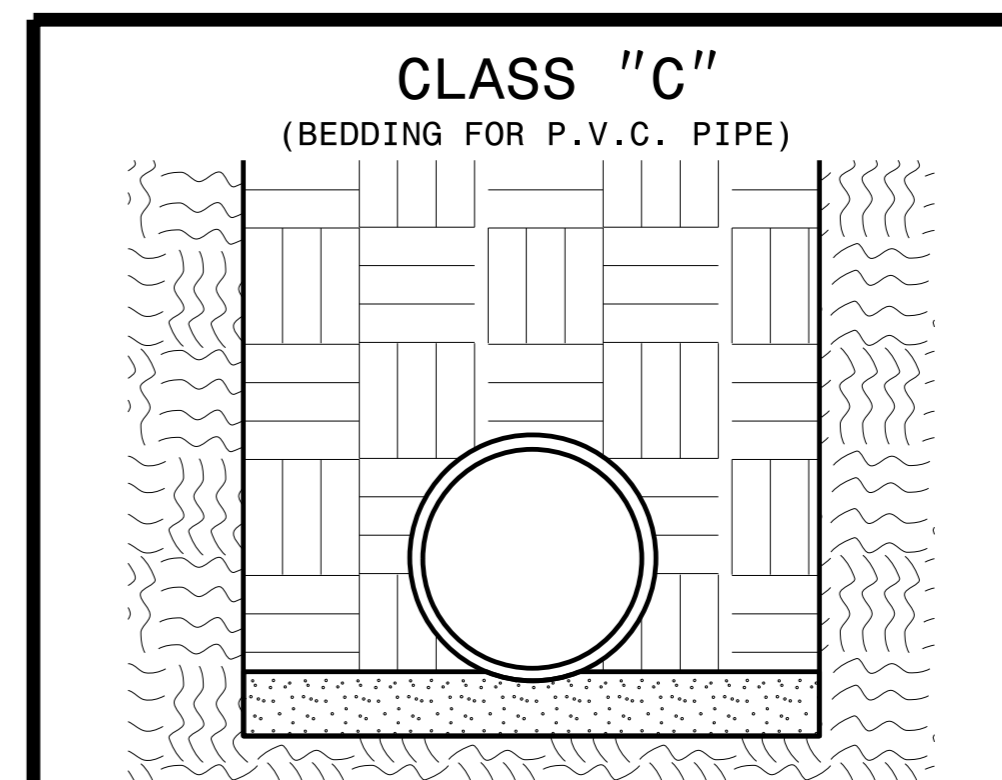
DRAWING NO.	HYDRANT DETAIL	AQUA
REVISION DATE	01/2017	Aqua North Carolina, Inc.

WATER



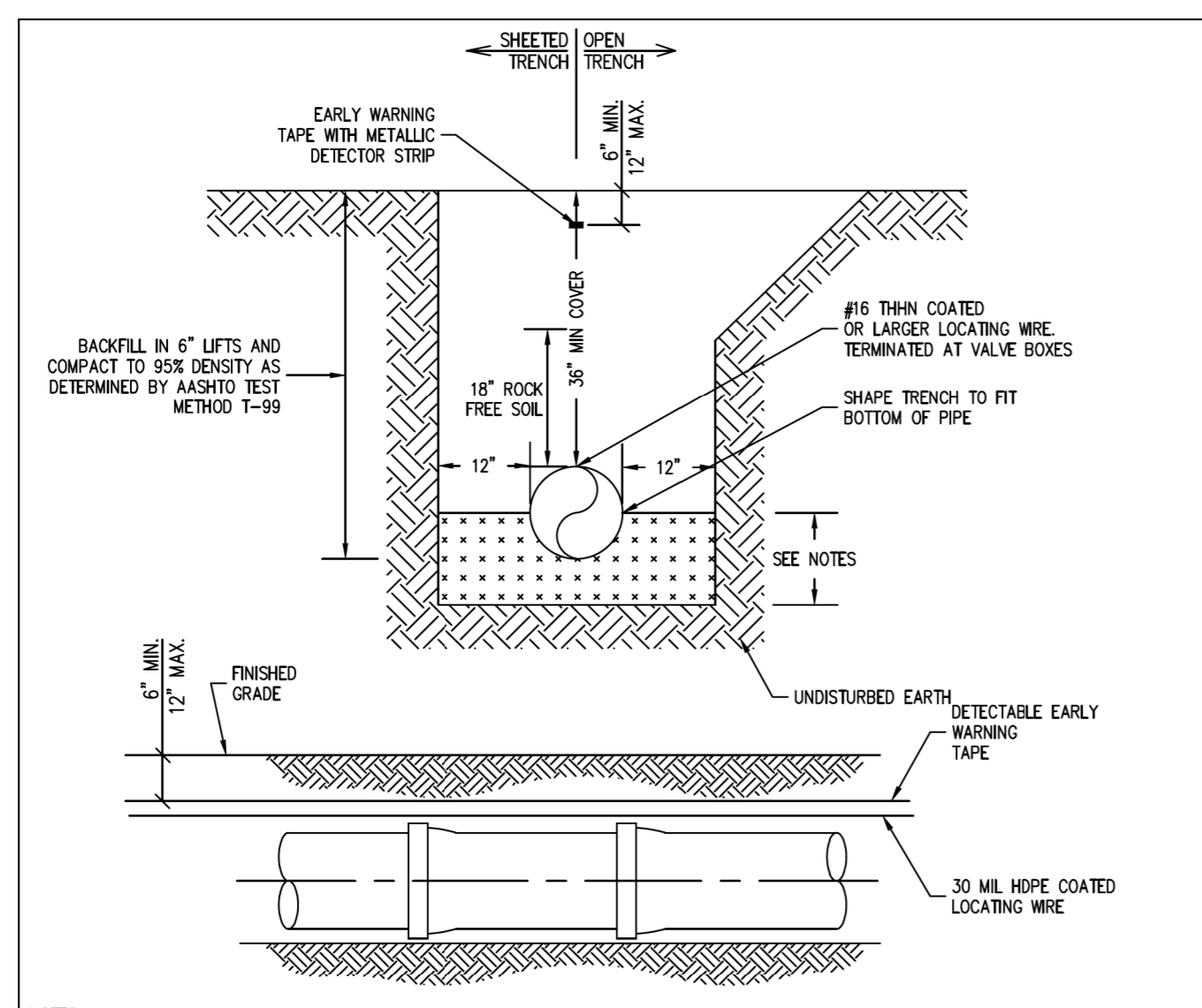
PLACE FOUNDATION CONDITIONING MATERIAL BELOW BEDDING IF REQUIRED, AS DIRECTED BY ENGINEER. PIPE BEDDED IN SELECT MATERIAL, CLASS II (TYPE 1) OR CLASS III. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROXIMATELY 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

WATER & SEWER



PIPE BEDDED IN LOOSE MATERIAL, LIGHTLY TAMPED WITH A MINIMUM OF 6" UNDER PIPE. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL, IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROX. 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

WATER & SEWER



- NOTES:**
1. WHERE ROCK OR NON-CUSHIONING MATERIAL IS ENCOUNTERED IN TRENCH, USE #5 STONE FOR A DEPTH OF 8" UNDER PIPE.
 2. WHERE UNSUITABLE SOIL OR MUCK IS ENCOUNTERED, EXCAVATE THE SOIL AND BACKFILL WITH #5 STONE TO FORM A PIPE BED.
 3. PVC AND DUCTILE IRON MAINS SHALL MEET ALL STANDARDS AS CALLED OUT IN THE SPECIFICATIONS (DIVISION 5, SECTION 1.3.3).
 4. ALL WATER MAINS SHALL HAVE A DETECTABLE "EARLY WARNING" PROTECTION TAPE AND HDPE LOCATING WIRE INSTALLED CONTINUOUSLY ALONG THE ALIGNMENT. THE PROTECTION TAPE AND WIRE SHALL BE INSTALLED DURING BACKFILL 6"-12" INCHES BELOW FINISHED GRADE DIRECTLY OVER THE PIPE AND BE CONTINUOUSLY MARKED "CAUTION, WATER MAIN BURIED BELOW." THE TAPE SHALL HAVE A METALLIC DETECTABLE STRIP INCLUDED AND BE GREEN IN COLOR. ALL PROTECTION TAPE SHALL BE AS TERRA-TAPE OR EQUAL.
 5. ALL P.V.C. WATER MAINS SHALL BE EITHER A SOLID BLUE COLOR OR WHITE BLUE LETTERING. ALL LETTERING SHALL APPEAR ON THREE SIDES OF THE PIPE AND SHALL RUN THE ENTIRE LENGTH OF THE PIPE AND SHALL BE A MINIMUM 3/4 INCH IN HEIGHT WITH THE APPROPRIATE WORDING APPEARING ONE OR MORE TIMES EVERY 21 INCHES ALONG THE LENGTH OF THE PIPE. THE LETTERING MUST BE PERMANENTLY STENCILED TO THE PIPE SURFACE. LETTERING SHALL READ AS IS ACCEPTABLE FOR THE INTENDED USE. ALL LETTERING SHALL BE APPLIED BY THE PIPE MANUFACTURER DURING PRODUCTION.
 6. ALL DUCTILE IRON WATER MAINS SHALL BE MARKED WITH A CONTINUOUS STRIPE LOCATED WITHIN THE 90° OF THE PIPE. SAID STRIPE SHALL BE A MINIMUM 2-INCHES IN WIDTH AND SHALL BE BLUE IN COLOR. BACKFILL SHALL NOT BE PLACED FOR 30 MINUTES FOLLOWING PAINT APPLICATION.
 7. ALL P.V.C. PIPE SHALL BEAR THE NATIONAL SANITATION FOUNDATION (NSF) SEAL OF APPROVAL FOR POTABLE WATER PIPE.

DRAWING NO.	TRENCH DETAIL	AQUA
REVISION DATE	01/2017	Aqua North Carolina, Inc.

WATER

ENGLISH STANDARD DRAWING FOR PAVEMENT REPAIRS FOR SUPERPAVE MIX TYPES	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.																											
<table border="1"> <thead> <tr> <th>D</th> <th>X</th> <th>W</th> </tr> </thead> <tbody> <tr> <td>12"</td> <td>1'-4"</td> <td>7'-4"</td> </tr> <tr> <td>15"</td> <td>1'-7"</td> <td>7'-7"</td> </tr> <tr> <td>18"</td> <td>1'-10"</td> <td>7'-10"</td> </tr> <tr> <td>24"</td> <td>2'-6"</td> <td>8'-6"</td> </tr> <tr> <td>30"</td> <td>3'-1"</td> <td>9'-1"</td> </tr> <tr> <td>36"</td> <td>3'-8"</td> <td>9'-8"</td> </tr> <tr> <td>42"</td> <td>4'-5"</td> <td>10'-5"</td> </tr> <tr> <td>48"</td> <td>5'-0"</td> <td>11'-0"</td> </tr> </tbody> </table>	D	X	W	12"	1'-4"	7'-4"	15"	1'-7"	7'-7"	18"	1'-10"	7'-10"	24"	2'-6"	8'-6"	30"	3'-1"	9'-1"	36"	3'-8"	9'-8"	42"	4'-5"	10'-5"	48"	5'-0"	11'-0"	
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WATER & SEWER

5/14/2018

PROJECT TYPICAL DETAILS



STATE A10
REGISTERED PROFESSIONAL ENGINEER
PHONE: 919.881.9939
NC CDA No. F-0209

PROJECT REFERENCE NO. **R-3825B** SHEET NO. **UC-300**

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SECTION
PHONE: (919) 707-6690
FAX: (919) 250-4151

8/14/2018 1:43:20 PM EDT
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

WATER & SEWER

AQUA

Aqua North Carolina, Inc.

DRWING NO. 10
REVISION DATE 05/2012

TYPICAL CONFLICT RESOLUTION DETAIL BY DEFLECTION

WATER & SEWER

AQUA

Aqua North Carolina, Inc.

DRWING NO. 11
REVISION DATE 08/2018

RESTRAINED JOINT DETAIL

LENGTH IN FEET REQUIRED FOR 90° BEND JOINTS		LENGTH IN FEET REQUIRED FOR 45° BEND JOINTS		LENGTH IN FEET REQUIRED FOR 22 1/2° BEND JOINTS		LENGTH IN FEET REQUIRED FOR 11 1/4° BEND JOINTS	
SIZE	END	SIZE	END	SIZE	END	SIZE	END
4"	37 (35)	4"	37 (35)	4"	37 (35)	4"	37 (35)
6"	52 (50)	6"	52 (50)	6"	52 (50)	6"	52 (50)
8"	67 (65)	8"	67 (65)	8"	67 (65)	8"	67 (65)
10"	82 (80)	10"	82 (80)	10"	82 (80)	10"	82 (80)
12"	97 (95)	12"	97 (95)	12"	97 (95)	12"	97 (95)
14"	112 (110)	14"	112 (110)	14"	112 (110)	14"	112 (110)
16"	127 (125)	16"	127 (125)	16"	127 (125)	16"	127 (125)
18"	142 (140)	18"	142 (140)	18"	142 (140)	18"	142 (140)
20"	157 (155)	20"	157 (155)	20"	157 (155)	20"	157 (155)

WATER & SEWER

AQUA

Aqua North Carolina, Inc.

DRWING NO. 12
REVISION DATE 08/2018

TYPICAL THRUST BLOCK

PIPE SIZE	TEES & DEAD ENDS	90° ELBOWS	45° ELBOW & CROSSES	22-1/2° ELBOWS
6"	4	6	3	2
8"	7	10	5	3
12"	15	21	11	6

WATER & SEWER

AQUA

Aqua North Carolina, Inc.

DRWING NO. 13
REVISION DATE 05/2012

GATE VALVE AND EXTENSION

SEWER

AQUA

Aqua North Carolina, Inc.

DRWING NO. 14
REVISION DATE 08/2018

AIR RELEASE VALVE DETAIL

SEWER

AQUA

Aqua North Carolina, Inc.

DRWING NO. 16
REVISION DATE 05/2012

STANDARD MANHOLE DETAIL

MH DEPTH	A	B	C	D	E	F
UP TO 12"	48"	8"	24.5"	15"	AS REQ'D	8"
12" TO 18"	60"	8"	24.5"	15"	AS REQ'D	10"
18" AND DEEPER	72"	8"	24.5"	15"	AS REQ'D	14"

5/14/19

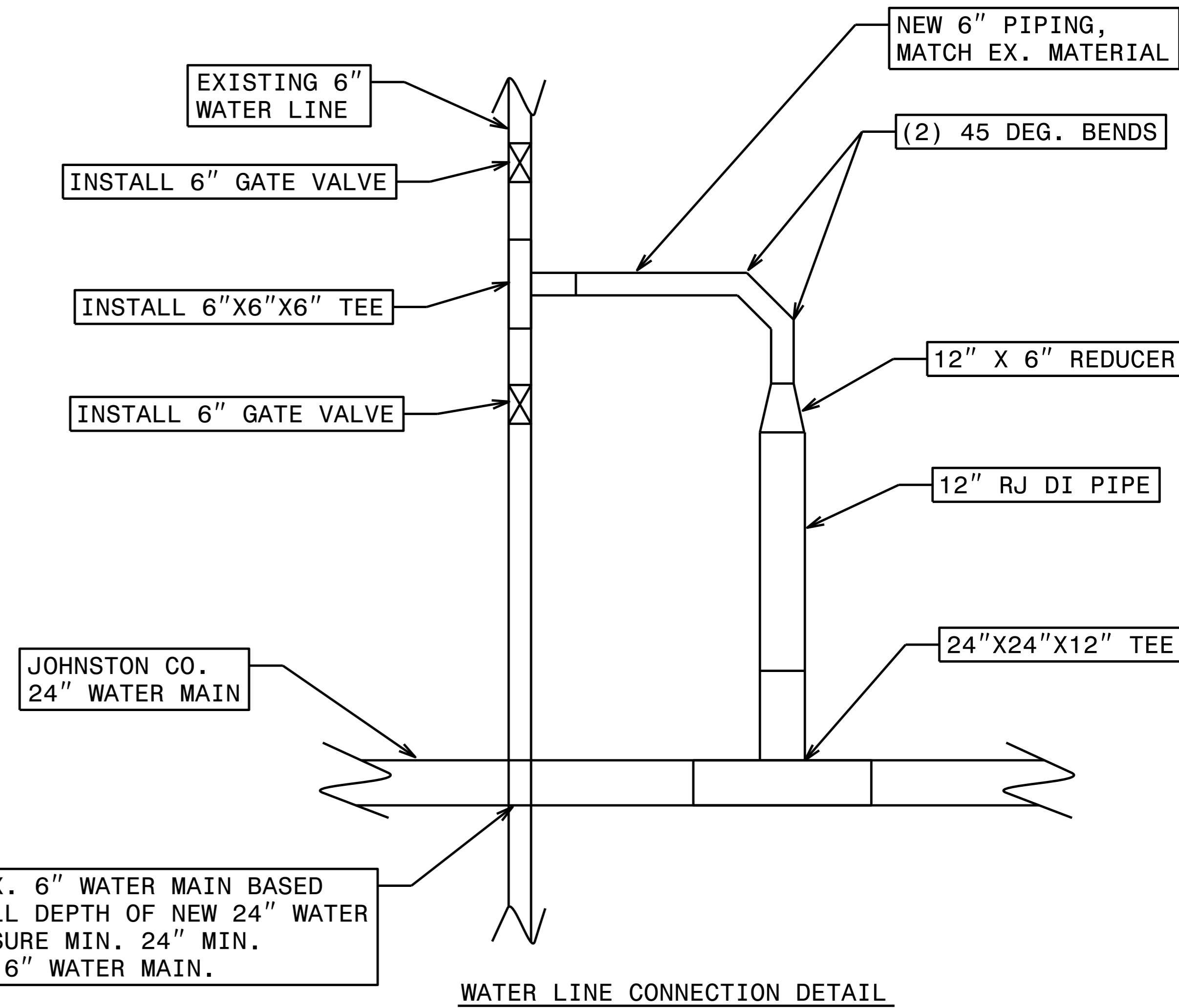
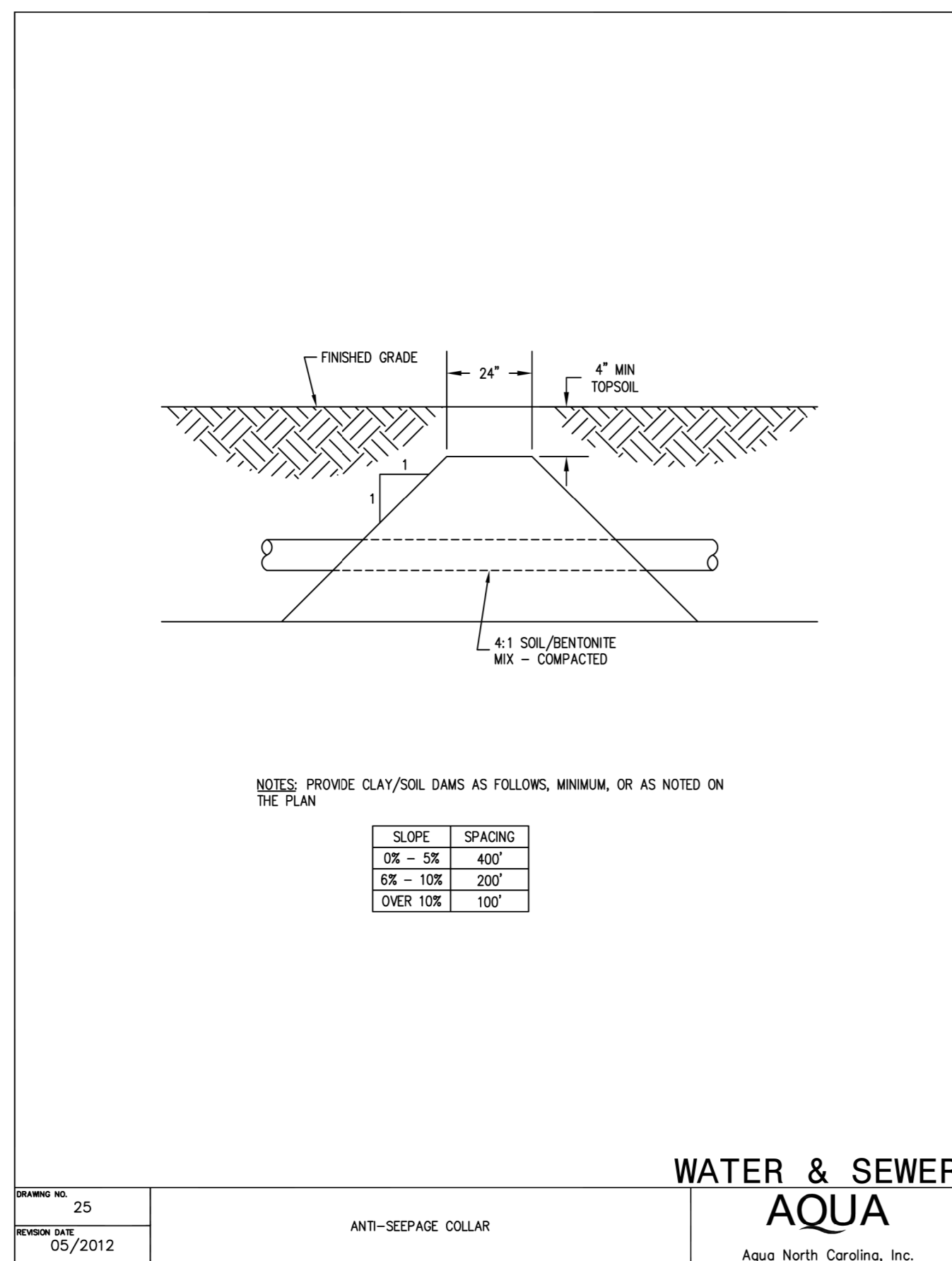
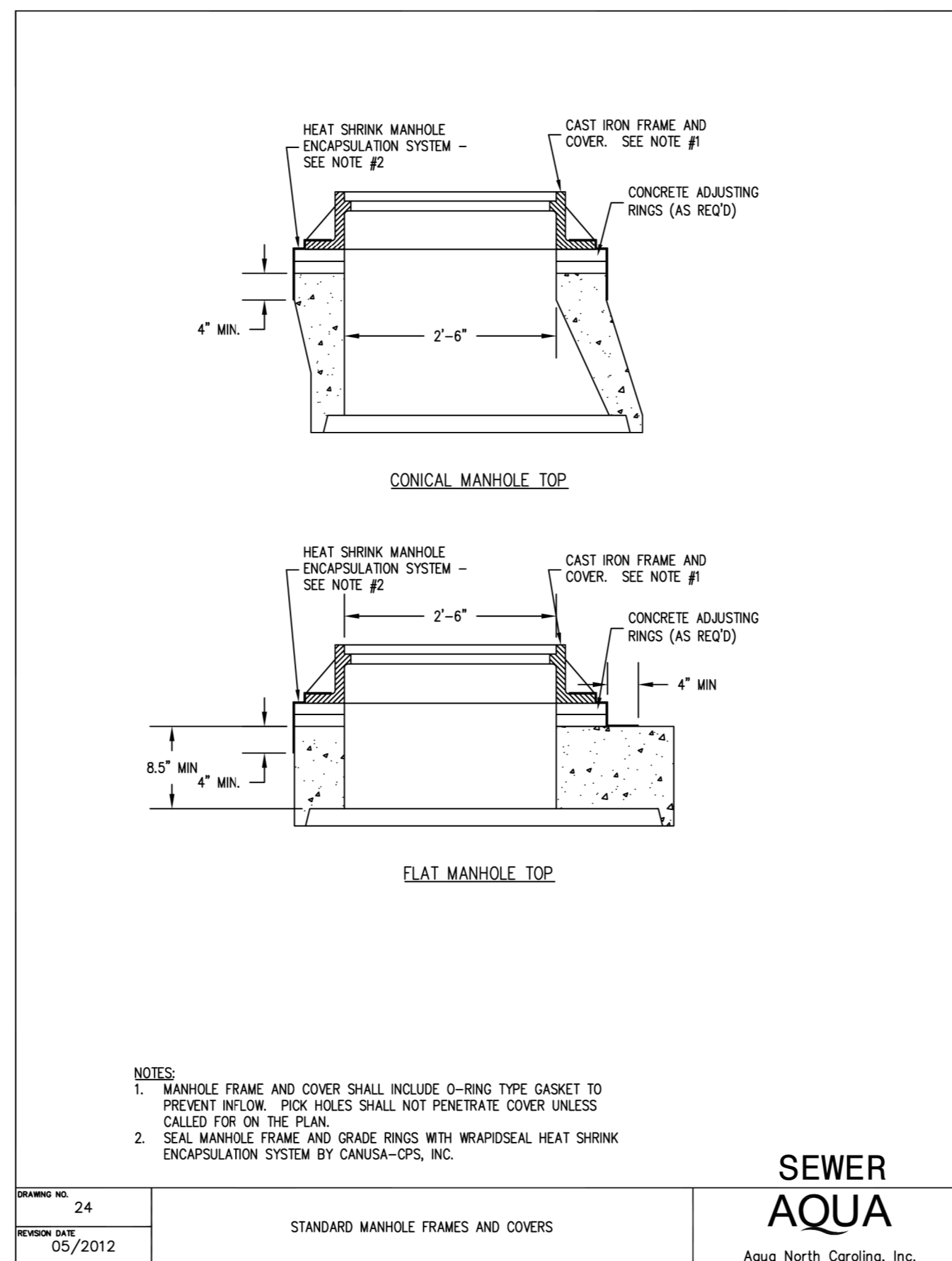
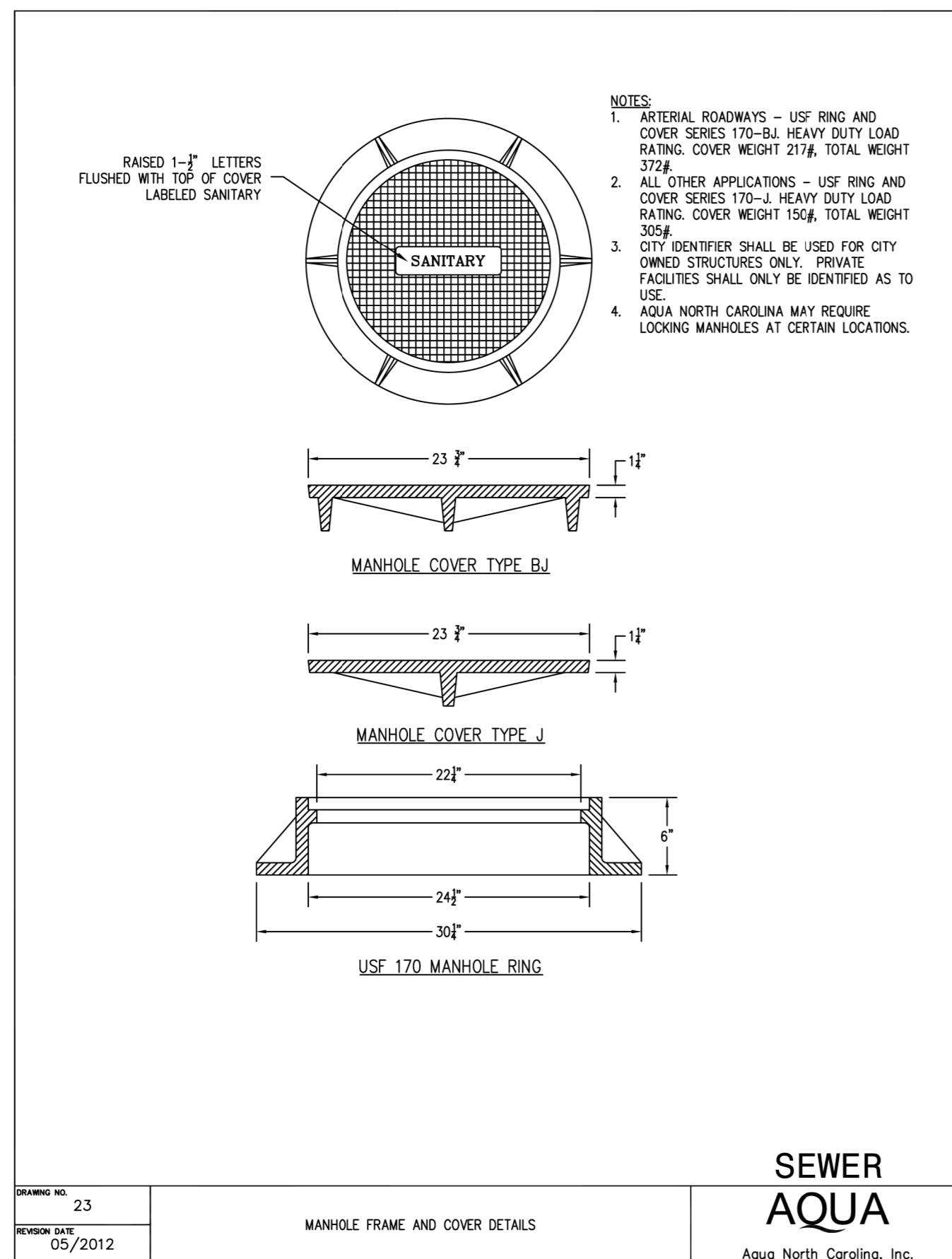
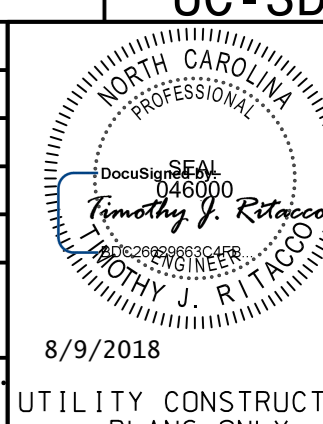
PROJECT TYPICAL DETAILS



DEWBERRY PROJECT
STATE A10
PROJECT NO. 27947
PHONE: 919.881.9939
NC CORP. No. F0209

PROJECT REFERENCE NO. R-3825B SHEET NO. UC-3DQ

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
REVISED:
NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION
8/9/2018
UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151
UTILITY CONSTRUCTION
PLANS ONLY



PROP. 707LF 12" FORCE MAIN SEWER

PROP. 185 LF BORE AND JACK OF 24"

MATCHLINE -L- RDY STA. 69+25.00 UC STA. 11+10.30
SEE SHEET RDY-8 / UC-8A



PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-80
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY 8/14/2018 1:43:20 PM EDT	

PROPOSED 12" PLUG VALVE

PROP. 110LF 12" FORCE MAIN SEWER

(2) PROPOSED 12" PLUG VALVE

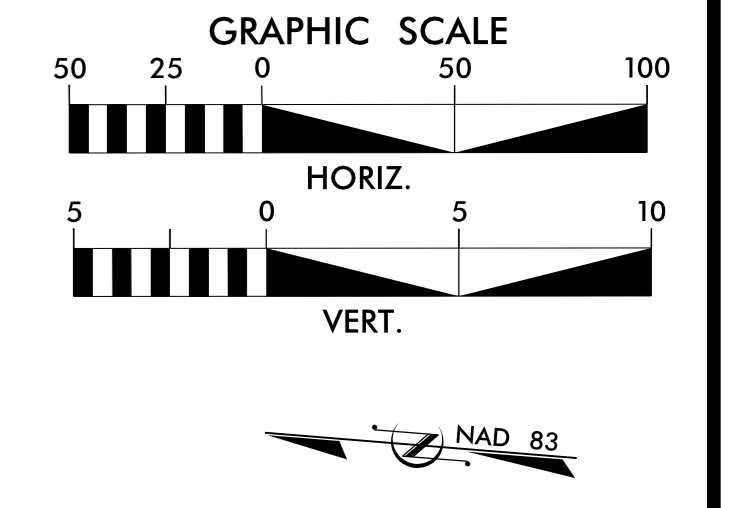
PROPOSED WYE & 45 DEG. BEND
45 DEG. HORIZ. BEND
+354.94 -L-
145.94 RT

CONNECT TO EXISTING 12" SANITARY SEWER FORCEMAIN WITH WYE & 45 DEG. BEND AND CONC. THRUST BLOCKING

45 DEG. HORIZ. BEND
+370.25 -L-
110.74 RT

PROP. 325LF ABANDON 12" UTILITY PIPE

UTILITY CONSTRUCTION



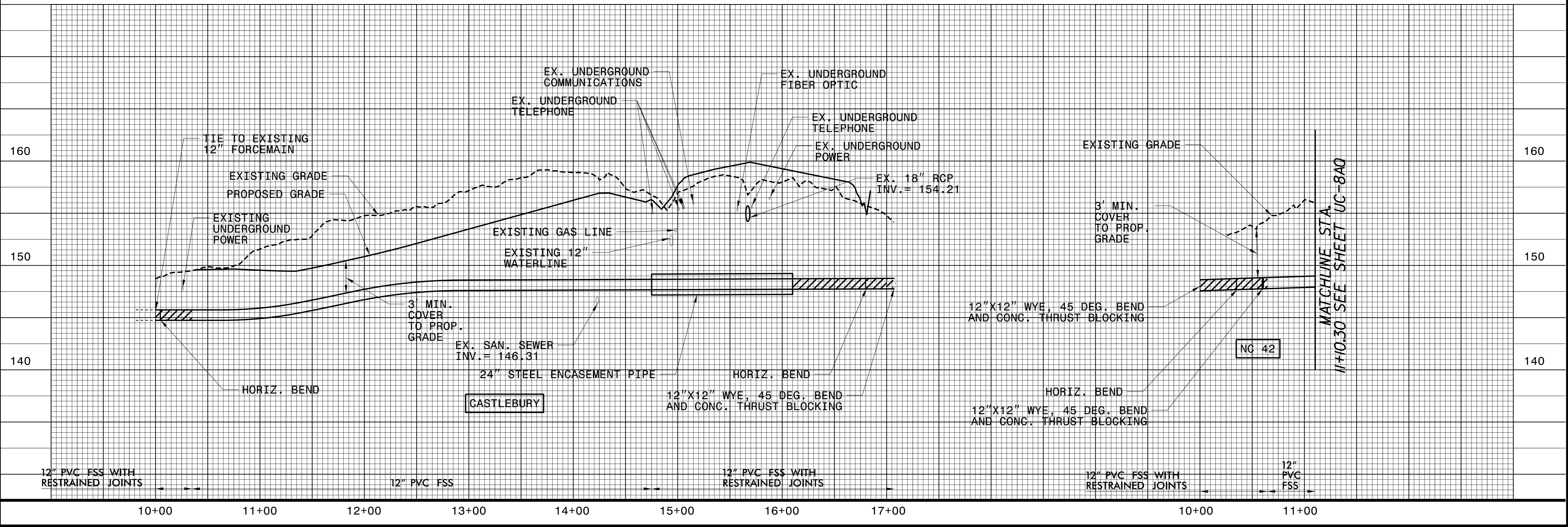
NOTE:
PRIOR TO COMMENCING ANY WORK ON ANY TRENCHLESS INSTALLATION ON THIS PROJECT, PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1600 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

CONNECT TO EXISTING 12" SANITARY SEWER FORCEMAIN WITH 11.25 DEG. BEND AND CONC. THRUST BLOCKING

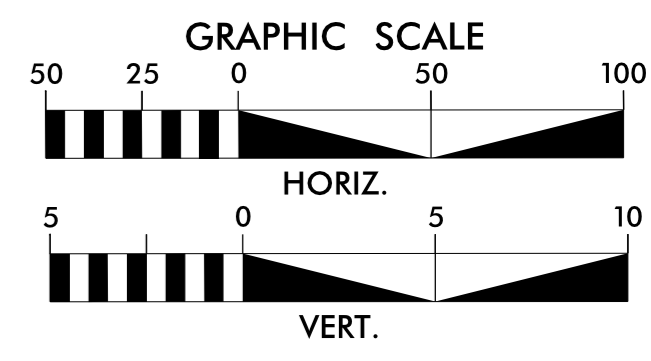
PROP. 575LF ABANDON 12" UTILITY PIPE

REVISIONS

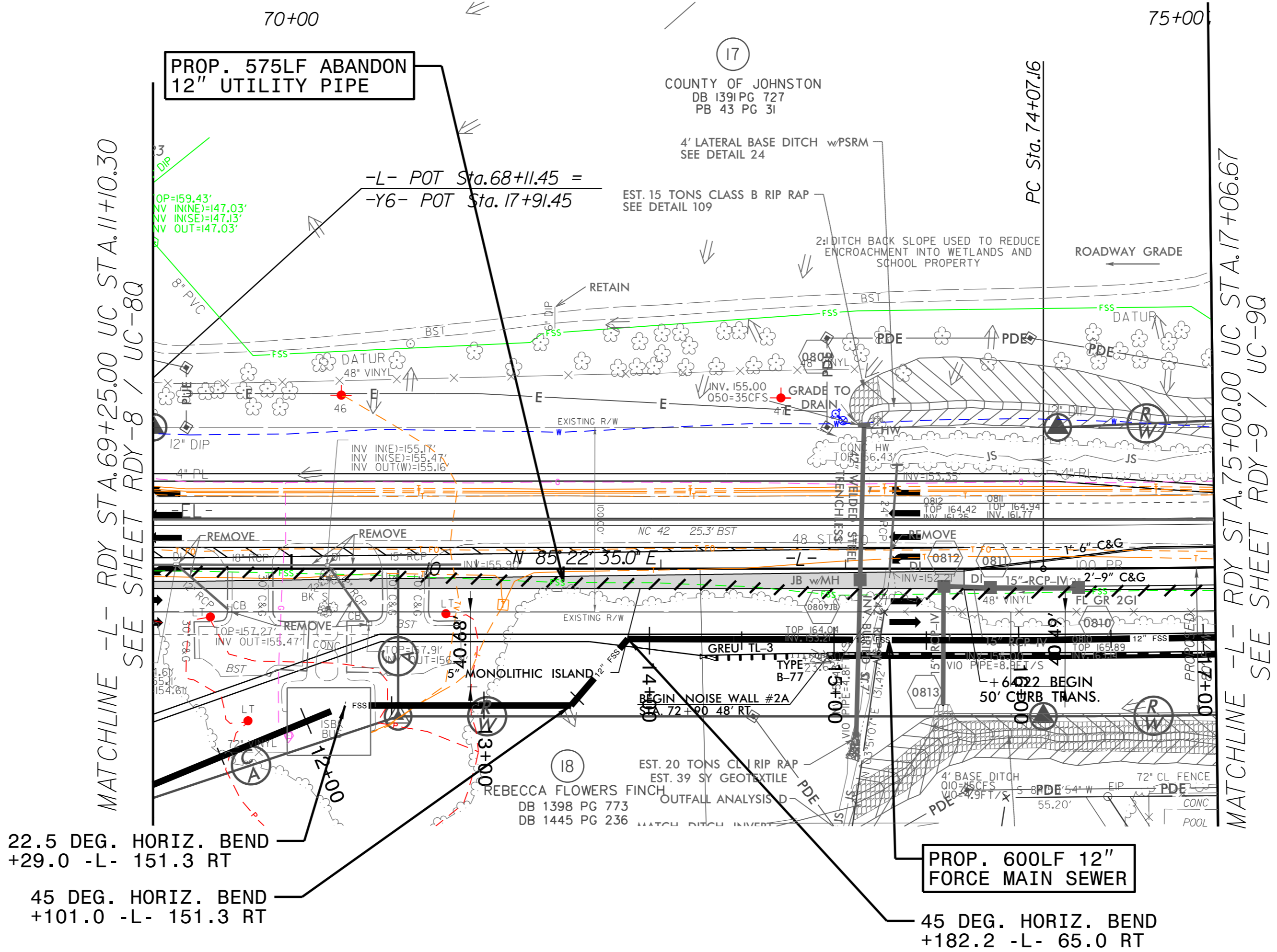


DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL TIMOTHY J. RETANCO 8/14/2018 1:43:20 PM EDT	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

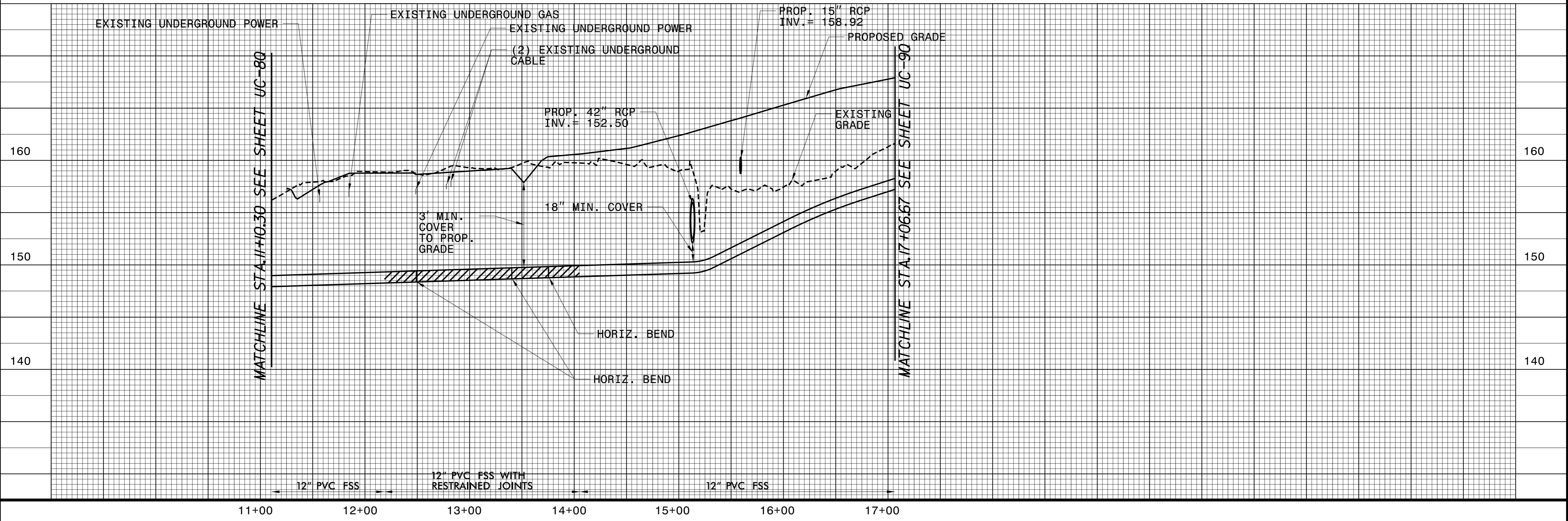
UTILITY CONSTRUCTION



REVISIONS



NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 700 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



8/17/19

Dewberry

PROJECT REFERENCE NO. **R-3825B** SHEET NO. **UC-90**

DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA PROFESSIONAL SEAL 046000	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
8/14/2018 2:35:03 PM EDT	
UTILITY CONSTRUCTION PLANS ONLY	

75+00

80+00

85+00

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1000 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

PROP. 2 EA 6" VALVE,
PROP. 10LF 12" WATER LINE,
PROP. 20LF 6" WATER LINE.

PROP. 4" DIA.
UTILITY MANHOLE

PROP. 52LF 8" SANITARY
GRAVITY SEWER

NEW SSMH
TOP= 188.15
INV. IN= 180.83
INV. OUT= 180.73

PROP. 4" DIA.
UTILITY MANHOLE

PROP. 50LF ABANDON 8" UTILITY PIPE

REMOVE UTILITY MANHOLE

PROP. 28LF 8" SANITARY
GRAVITY SEWER

8" PVC SS, S=2.2%
CONNECT TO
EX. SEWER
INV. IN= 178.71

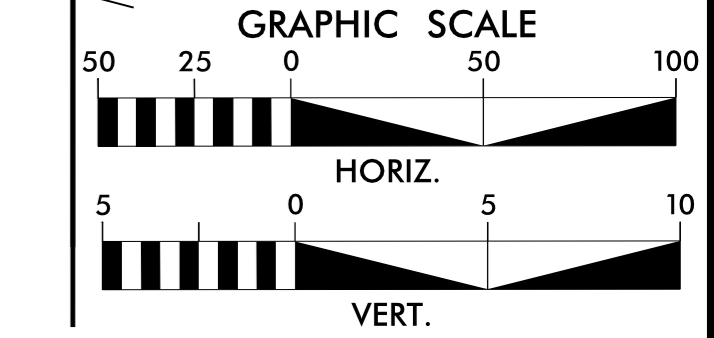
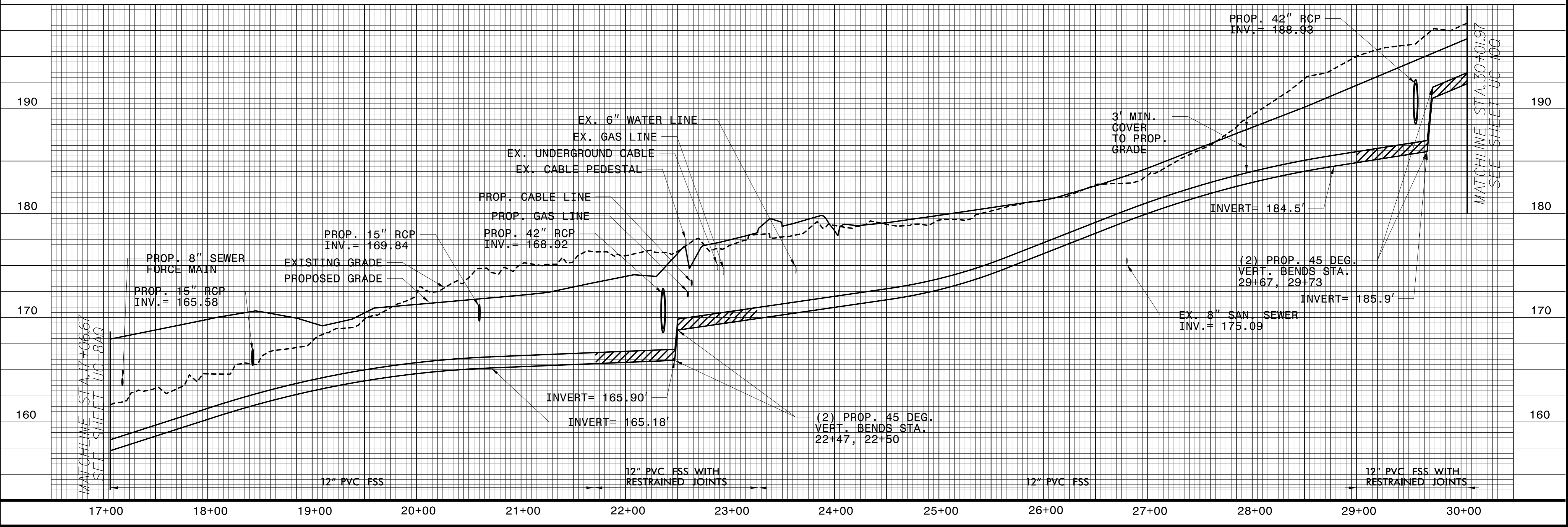
REFER TO DETAIL ON SHEET UC-3D
FOR CONNECTION METHOD TO
JOHNSTON CO. 24" WATER MAIN

POC Sta. 81+26.07 =
POT Sta. 17+35.33

UTILITY CONSTRUCTION

MATCHLINE -L- RDY STA. 75+00.00 UC STA. 17+06.67
SEE SHEET RDY-8 / UC-8A

MATCHLINE -L- RDY STA. 88+00.00
UC STA. 30+05.85
SEE SHEET RDY-10 / UC-10Q



REVISIONS



Dewberry

GRAPHIC SCALE
 50 25 0 50 100
 5 0 5 10
 HORIZ.
 VERT.

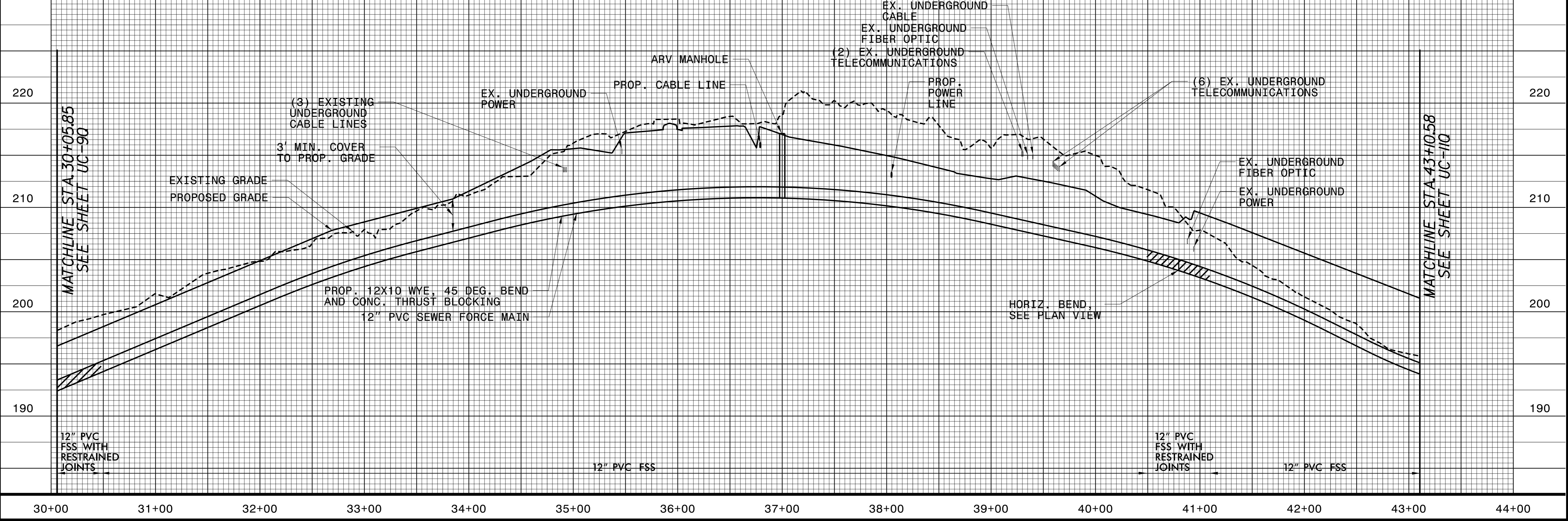
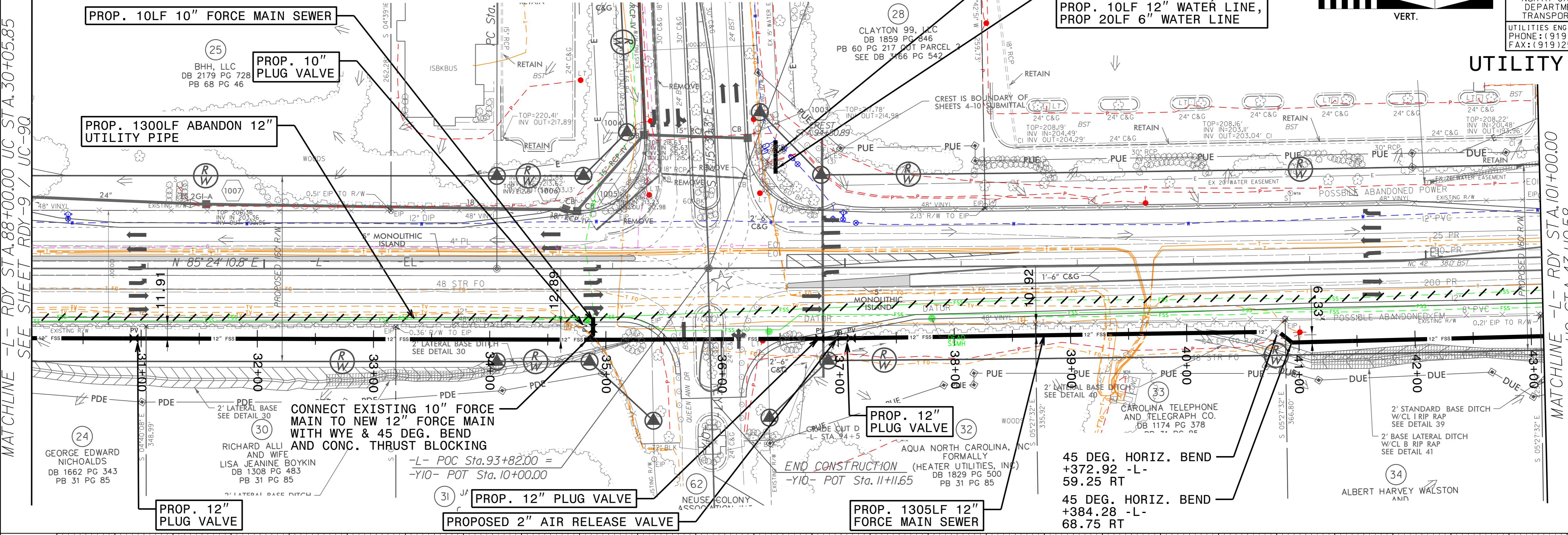
PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-10Q
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA PROFESSIONAL SEAL Timothy J. Reitzel 8/14/2018 1:43:20 PM EDT UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	

NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 800 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

REFER TO DETAIL ON SHEET UC-3DQ FOR CONNECTION METHOD TO JOHNSTON CO. 24" WATER MAIN
 PROP. 2 EA 6" VALVE,
 PROP. 10LF 12" WATER LINE,
 PROP 20LF 6" WATER LINE

UTILITY CONSTRUCTION



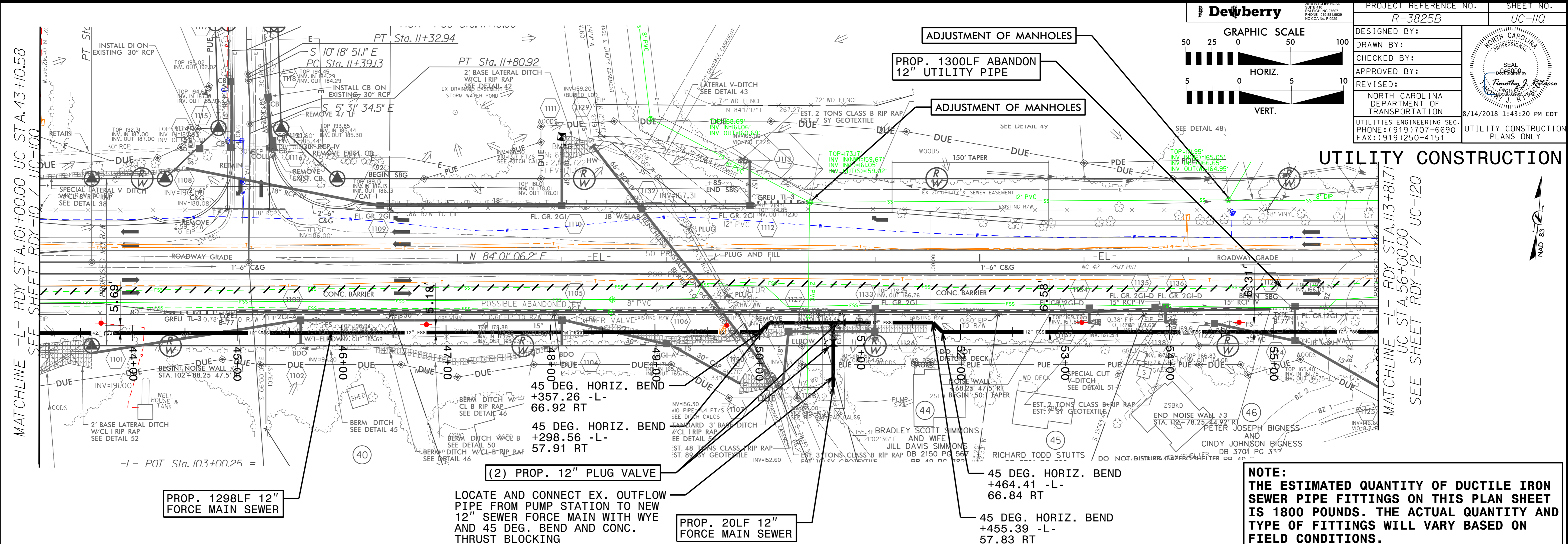
REVISIONS

MATCHLINE -L- RDY STA. 88+00.00 UC STA. 30+05.85
 SEE SHEET RDY-9 / UC-90

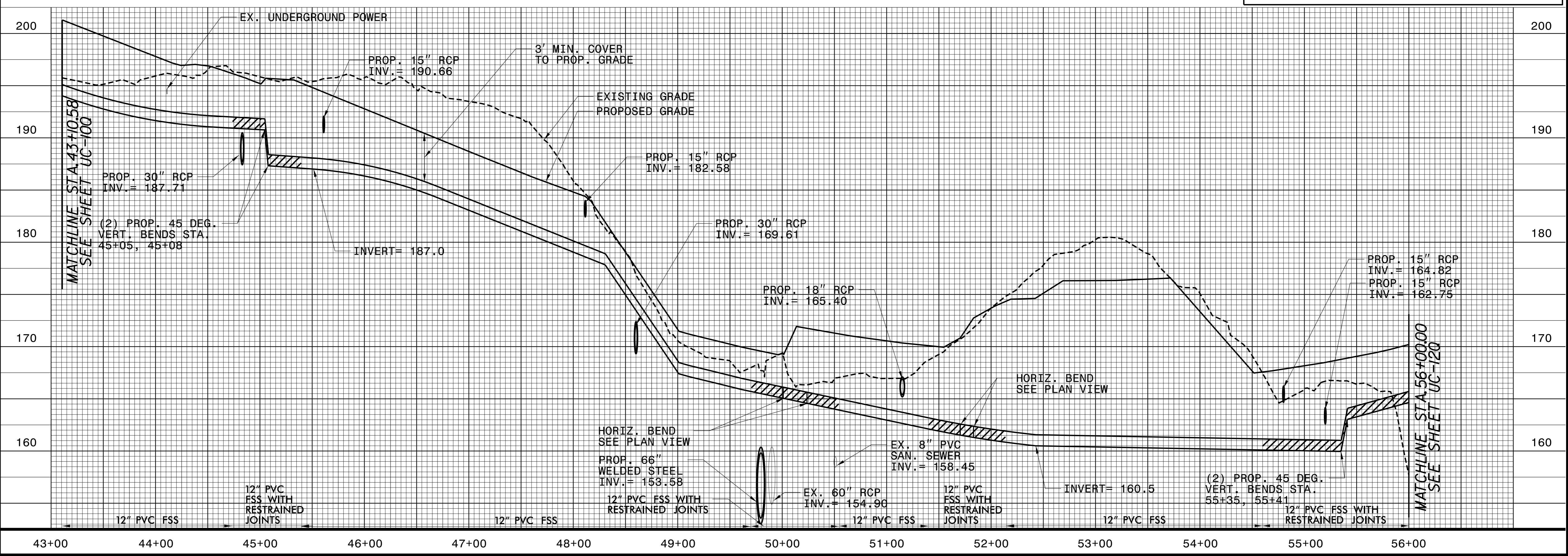
MATCHLINE -L- RDY STA. 101+00.00
 UC STA. 43+10.58
 SEE SHEET RDY-11 / UC-11Q

Deberry
 GRAPHIC SCALE
 50 25 0 50 100
 HORIZ. 5 0 5 10
 VERT.

PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-11Q
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	8/14/2018 1:43:20 PM EDT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

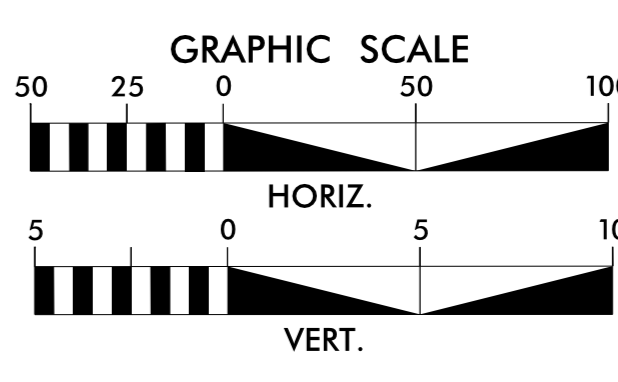


NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1800 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.





PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-120
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA PROFESSIONAL SEAL TIMOTHY J. ROBERTSON 8/14/2018 1:43:20 PM EDT	
UTILITY CONSTRUCTION PLANS ONLY	



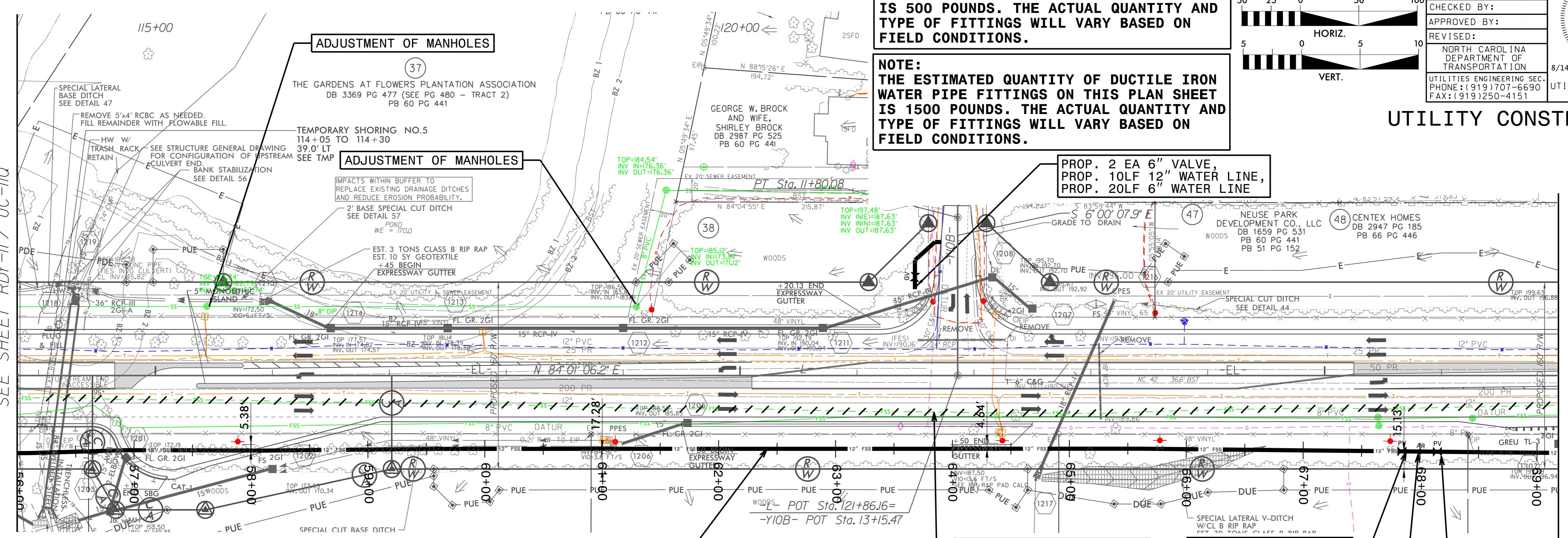
NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

UTILITY CONSTRUCTION

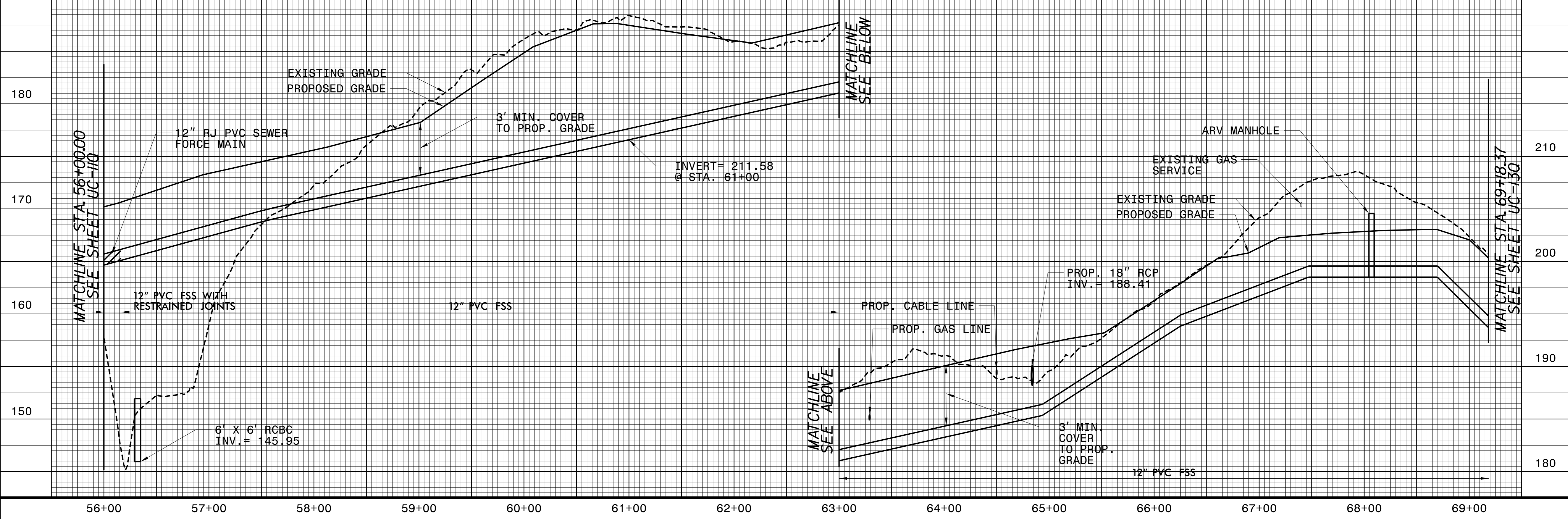
MATCHLINE -L- RDY STA.113+81.71 UC STA.56+00.00
SEE SHEET RDY-11 / UC-110

MATCHLINE -L- RDY STA.127+00.00
UC STA.69+18.37
SEE SHEET RDY-13 / UC-130



REVISIONS

190

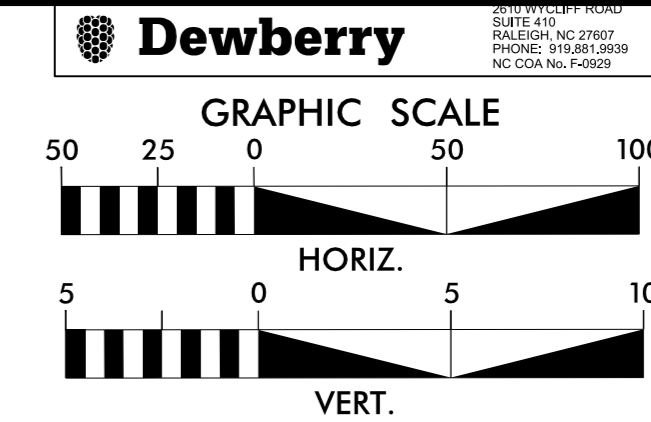


56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00

8/17/19

REFER TO UC-13A FOR PLAN INFORMATION

NOTE: THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 2000 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



PROJECT REFERENCE NO.	R-3825B
SHEET NO.	UC-130
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
8/14/2018 1:43:20 PM EDT	
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UTILITY CONSTRUCTION

MATCHLINE -L- RDY STA.127+00.00 UC STA.69+18.37
SEE SHEET RDY-12 / UC-120

MATCHLINE -L- RDY STA.140+00.00 UC STA.82+28.53
SEE SHEET RDY-14 / UC-140

22.5 DEG. HORIZ. BEND
+249.90 -L-
66.79 RT

22.5 DEG. HORIZ. BEND
+307.00 -L-
86.13 RT

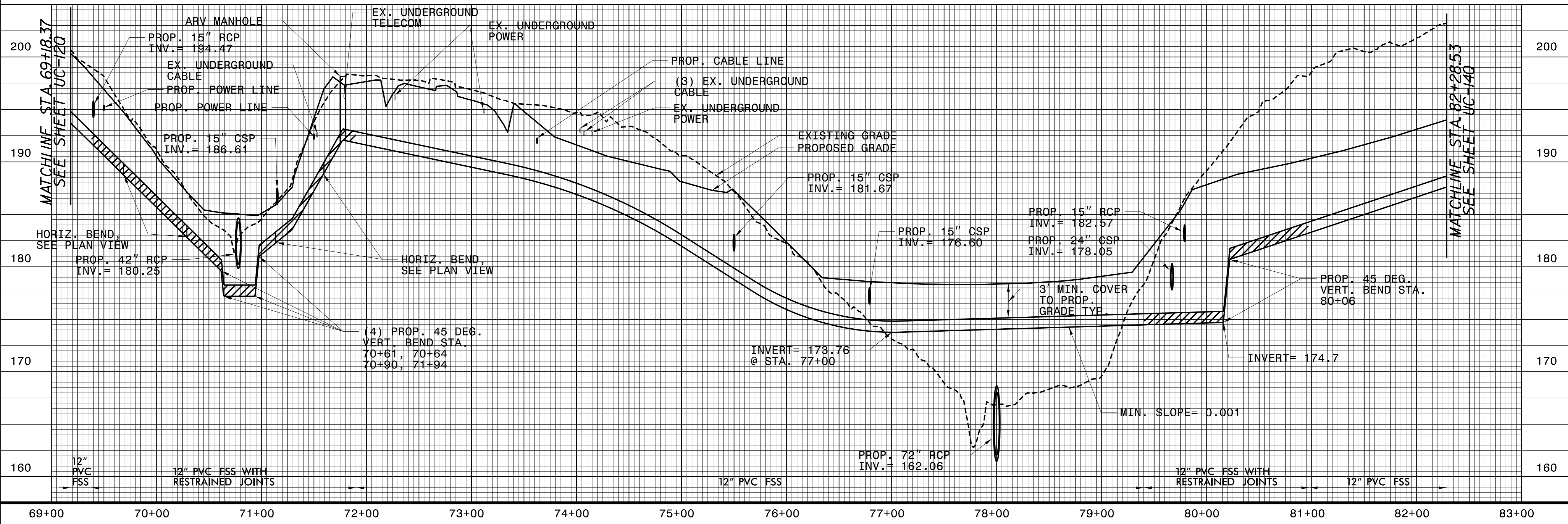
22.5 DEG. HORIZ. BEND
+430.44 -L-
61.81 RT

22.5 DEG. HORIZ. BEND
+391.45 -L-
86.13 RT

PROP. 2" AIR RELEASE VALVE

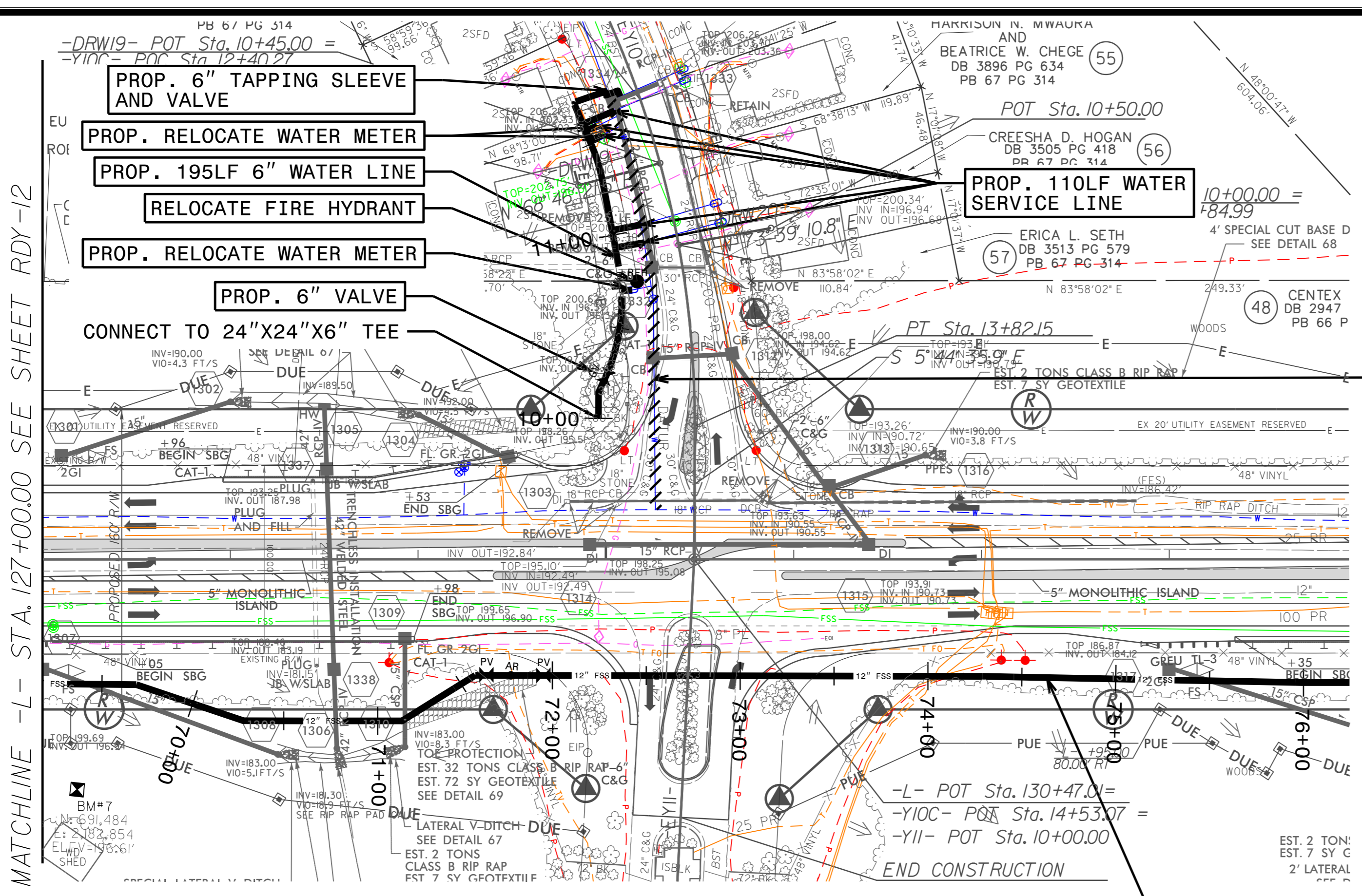
PROP. 1310LF 12" FORCE MAIN SEWER

PROP. 1300LF ABANDON 12" UTILITY PIPE

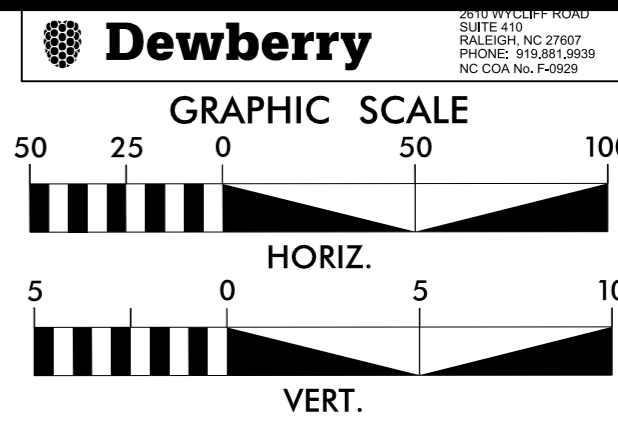


REVISIONS

MATCHLINE -L- RDY STA.140+00.00 UC STA.82+28.53
SEE SHEET RDY-14 / UC-140



NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1700 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-13AQ
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
8/14/2018 1:43:20 PM EDT UTILITY CONSTRUCTION PLANS ONLY	

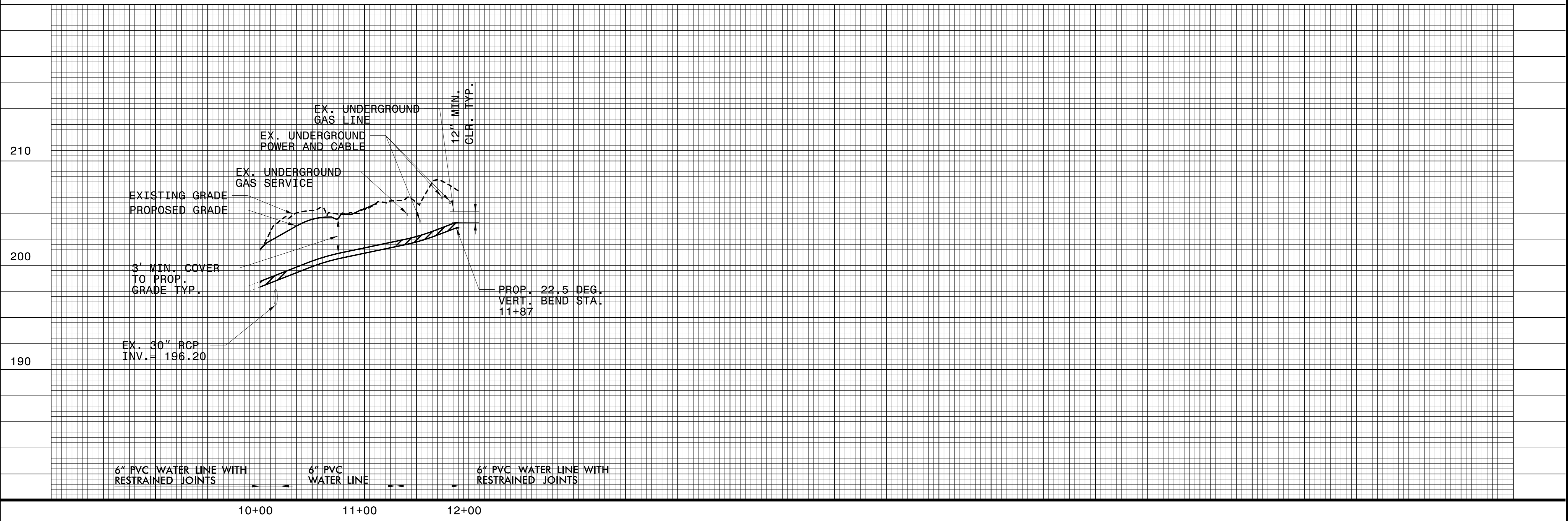
UTILITY CONSTRUCTION

REVISIONS

MATCHLINE -L- STA. 127+00.00 SEE SHEET RDY-12

PROP. 200LF ABANDON 6" UTILITY PIPE

REFER TO SHEET UC13Q FOR SANITARY SEWER

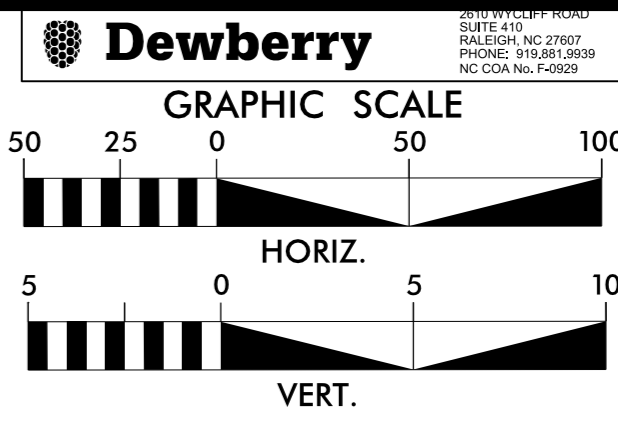


8/17/19

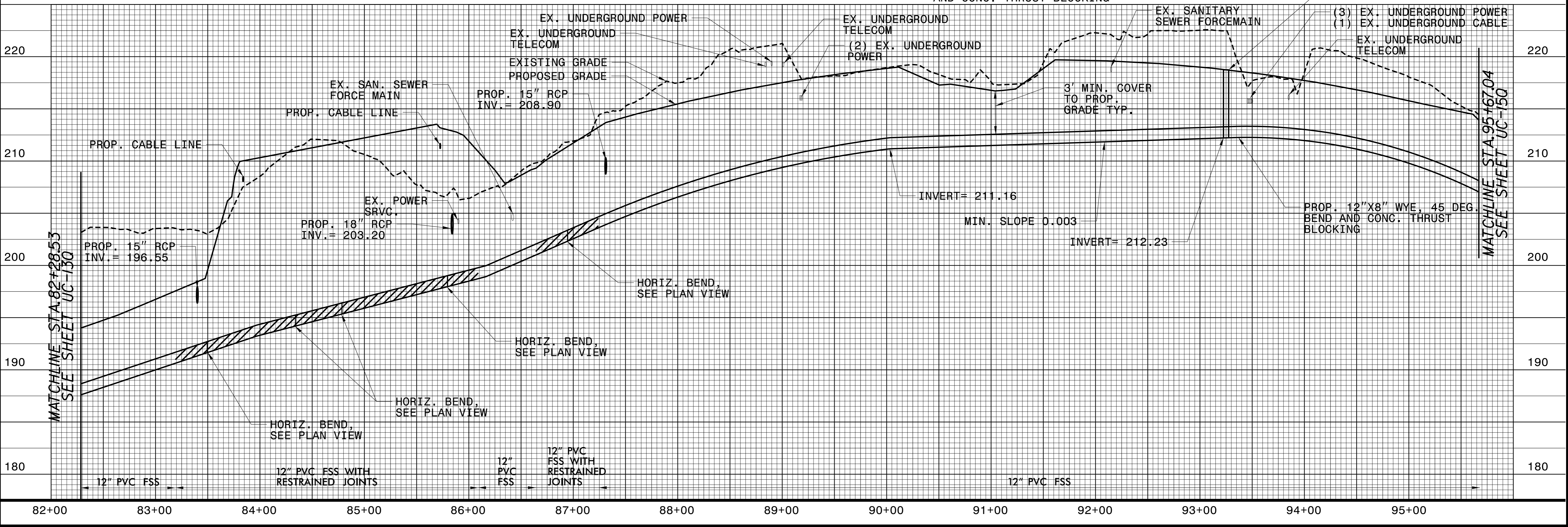
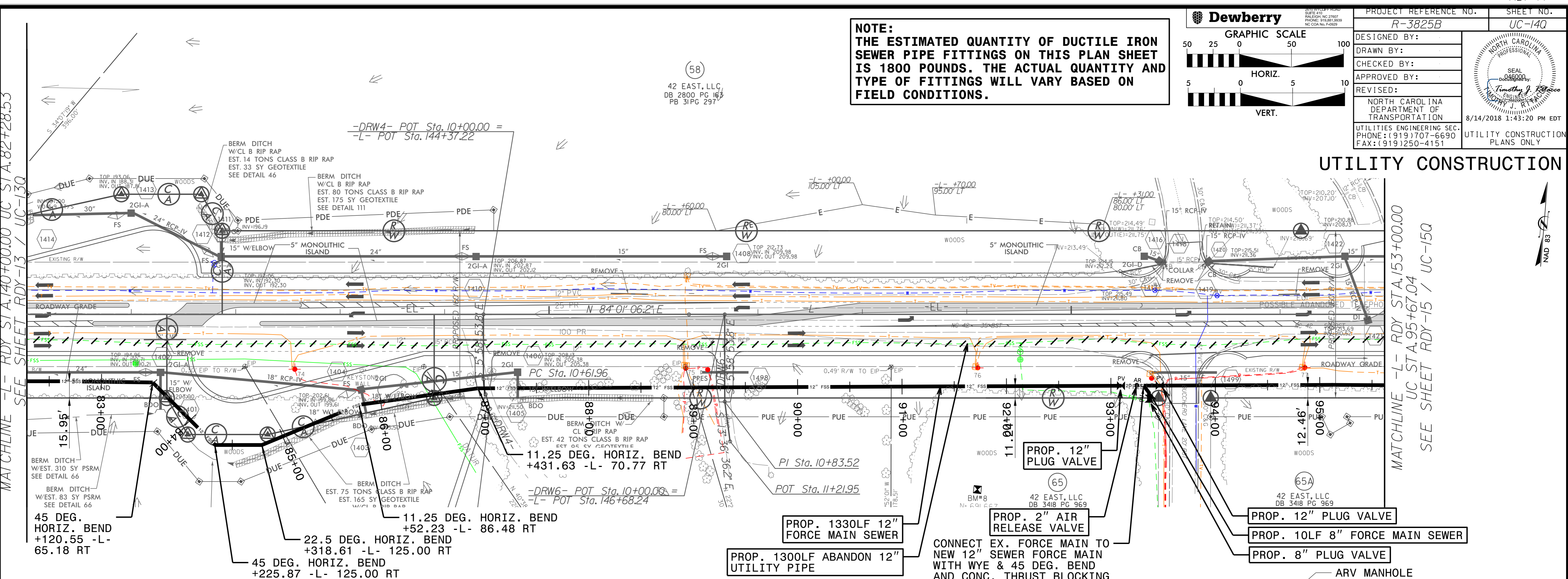
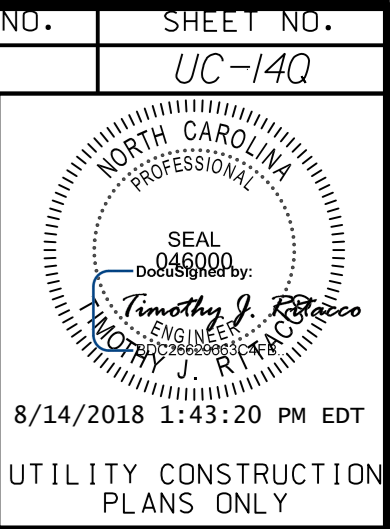
MATCHLINE -L- RDY STA. 140+00.00 UC STA. 82+28.53
SEE SHEET RDY-13 / UC-130

REVISIONS

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1800 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



PROJECT REFERENCE NO.	R-3825B
SHEET NO.	UC-14Q
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
8/14/2018 1:43:20 PM EDT	
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UTILITY CONSTRUCTION

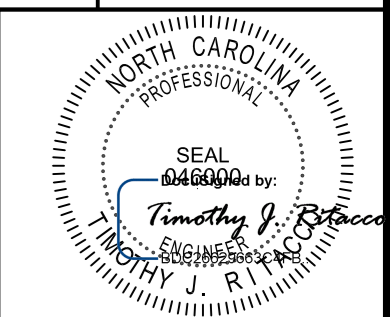
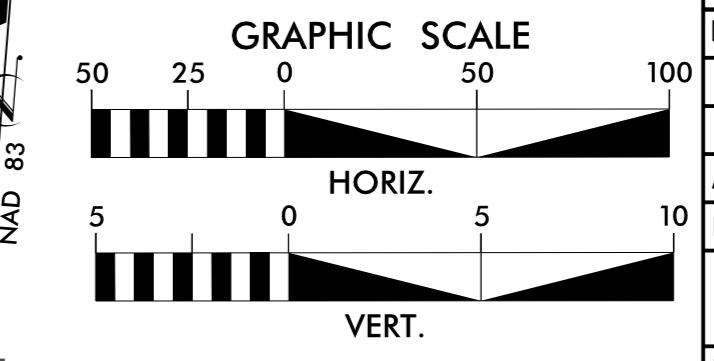
MATCHLINE -L- RDY STA. 153+00.00
UC STA. 95+67.04
SEE SHEET RDY-15 / UC-150

MATCHLINE STA. 95+67.04
SEE SHEET UC-150

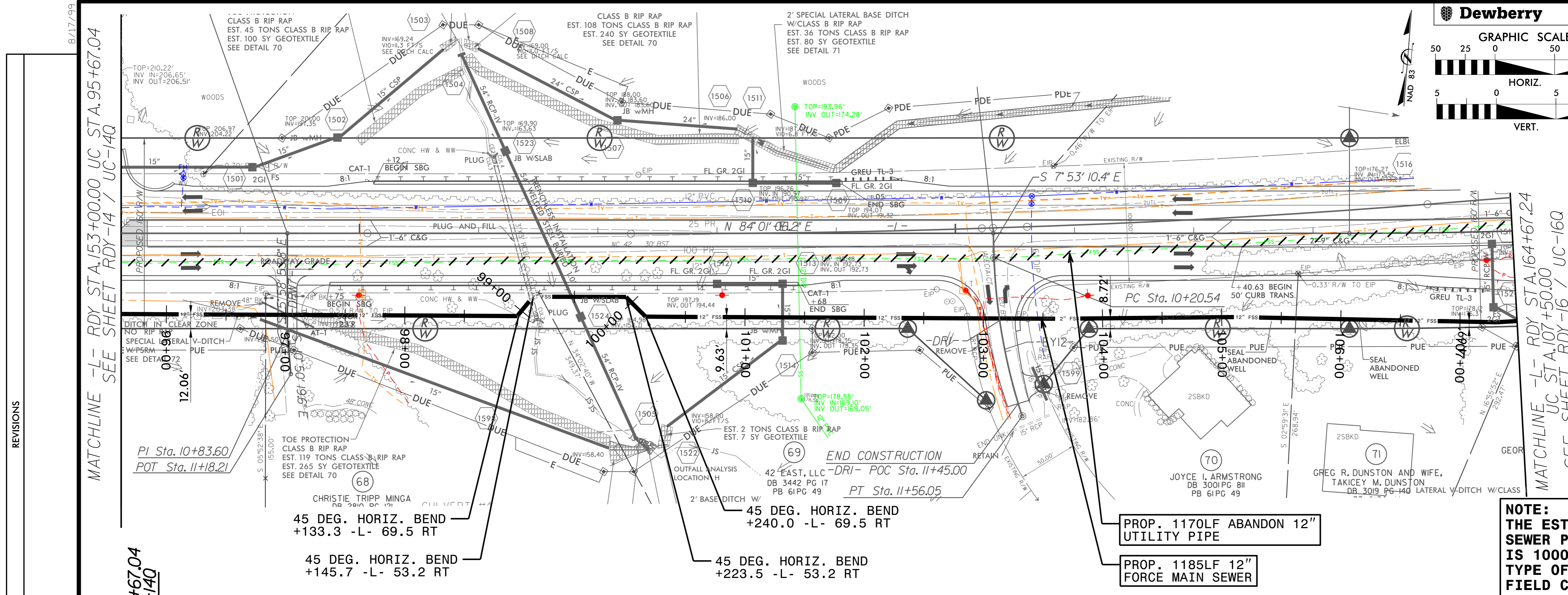


Dewberry

PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-150
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
8/14/2018 1:43:20 PM EDT	
UTILITY CONSTRUCTION PLANS ONLY	

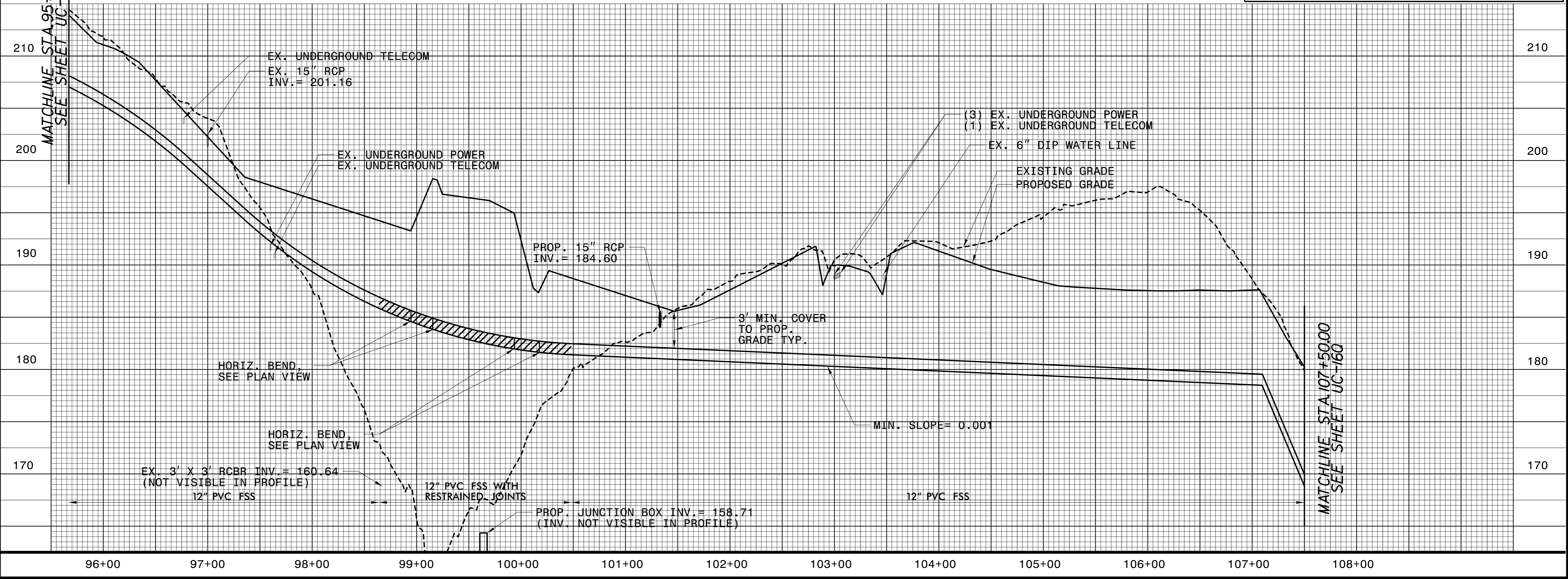


UTILITY CONSTRUCTION



NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1000 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

REVISIONS

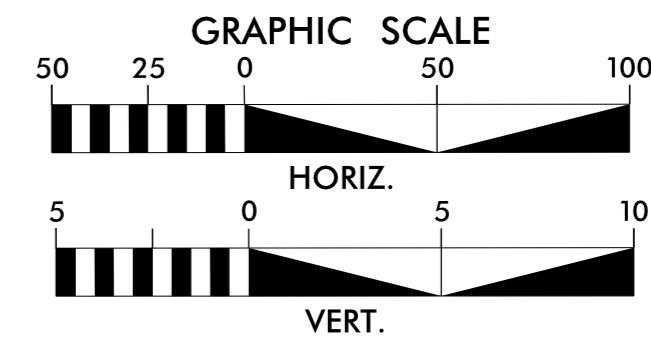


96+00 97+00 98+00 99+00 100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00

8/17/19

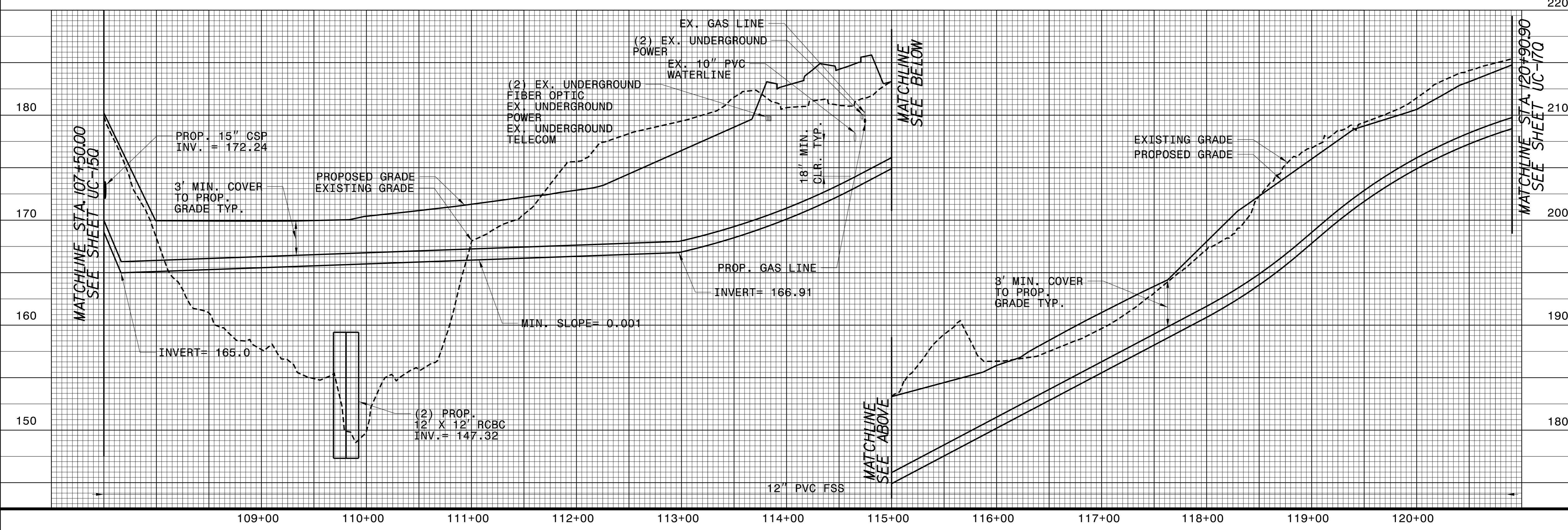
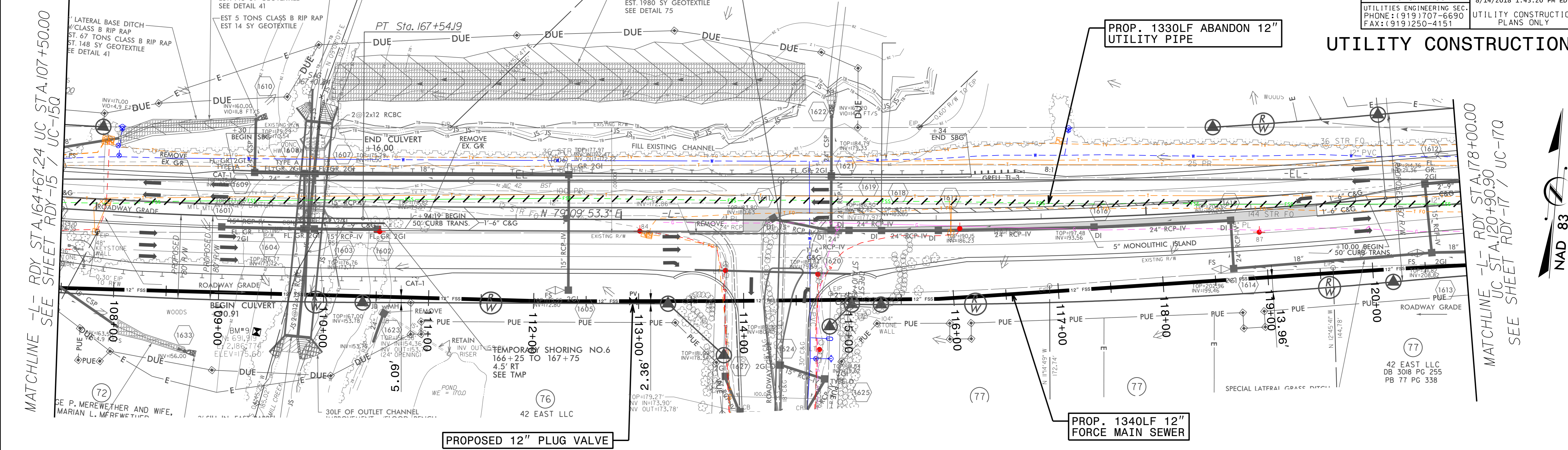
Dewberry

PROJECT REFERENCE NO. **R-3825B** SHEET NO. **UC-16Q**



DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA PROFESSIONAL SEAL	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
8/14/2018 1:43:20 PM EDT	
UTILITY CONSTRUCTION PLANS ONLY	

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



REVISIONS

NAD 83

MATCHLINE -L- RDY STA. 164+67.24 UC STA. 107+50.00
SEE SHEET RDI-15 / UC-15Q

MATCHLINE -L- RDY STA. 178+00.00
UC STA. 120+90.90
SEE SHEET RDI-17 / UC-17Q

PROPOSED 12" PLUG VALVE

PROP. 1340LF 12" FORCE MAIN SEWER

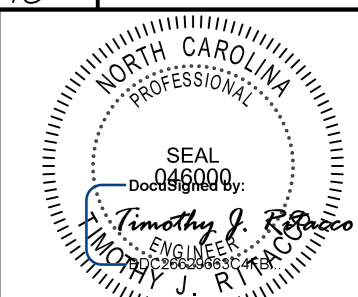
UTILITY CONSTRUCTION

109+00 110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00

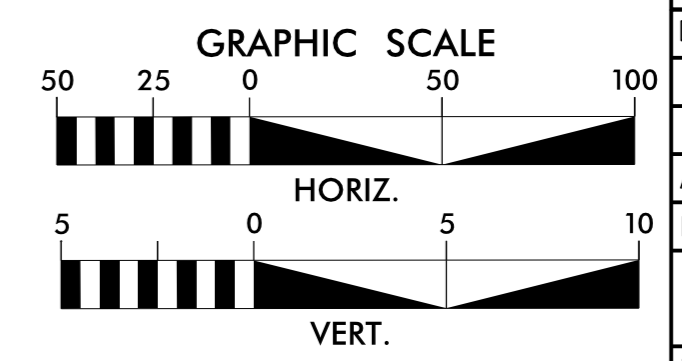
8/17/19

RDY-18

Dewberry

PROJECT REFERENCE NO.	R-3825B UC-18	SHEET NO.	UC-18Q
DESIGNED BY:			
DRAWN BY:			
CHECKED BY:			
APPROVED BY:			
REVISED:		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
		8/14/2018 1:43:20 PM EDT	
		UTILITY CONSTRUCTION PLANS ONLY	

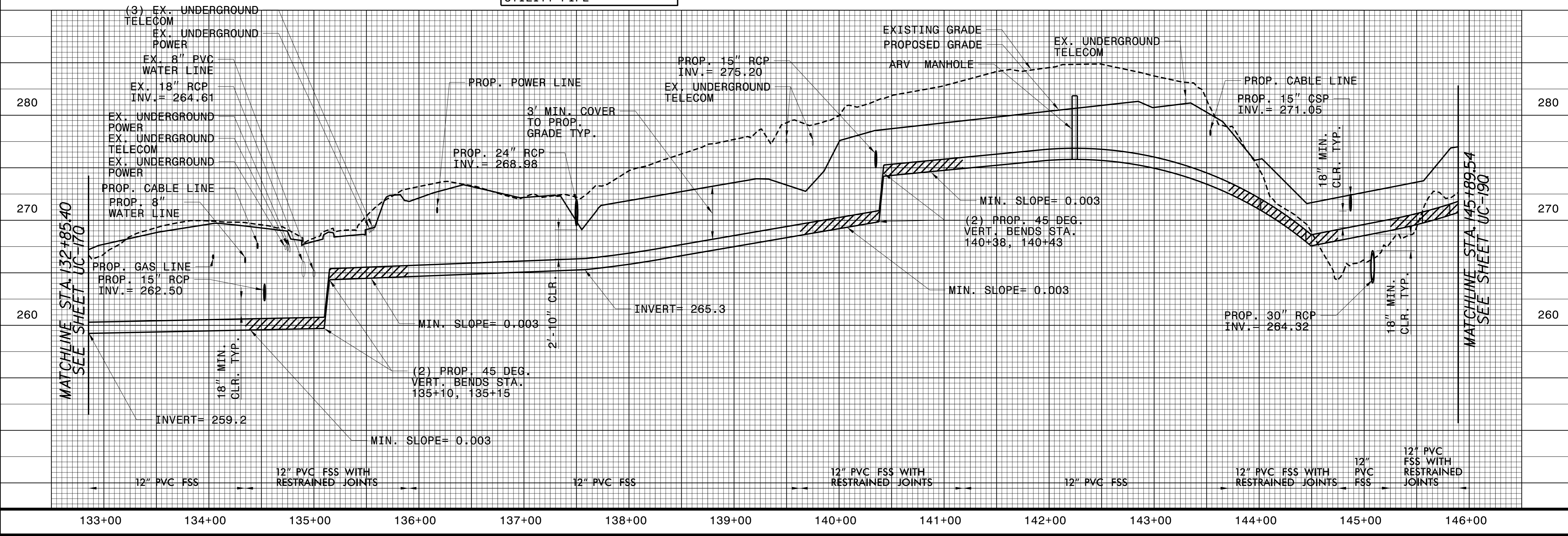
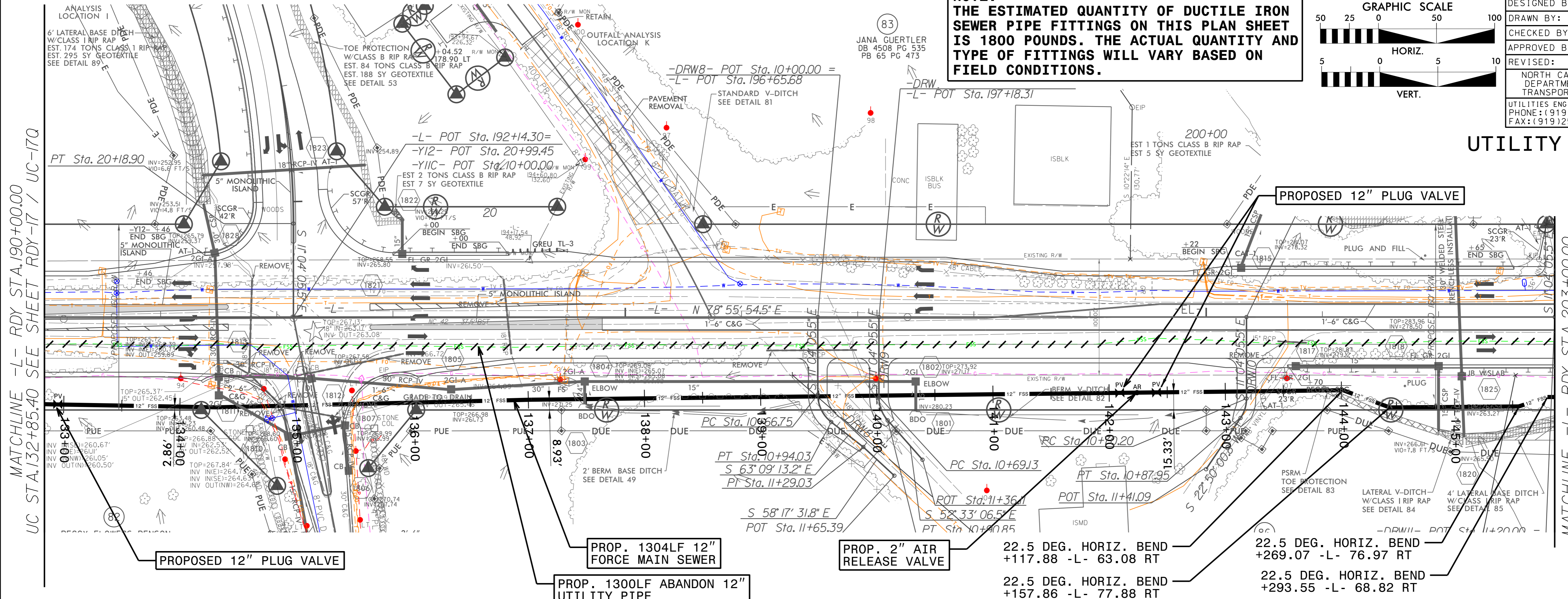
NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1800 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



UTILITY CONSTRUCTION

MATCHLINE -L- RDY STA.190+00.00
 UC STA.132+85.40 SEE SHEET RDY-17 / UC-17Q

MATCHLINE -L- RDY STA.203+00.00
 UC STA.145+89.54
 SEE SHEET RDY-19 / UC-19Q



REVISIONS



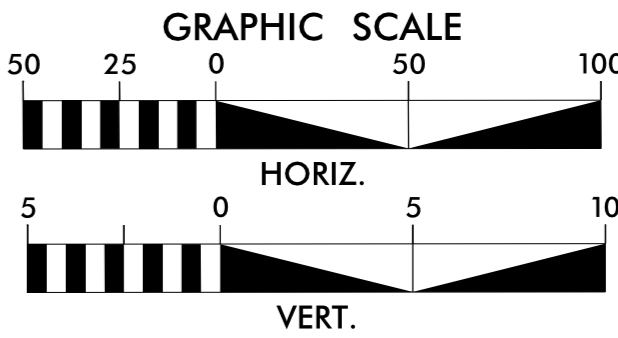
Dewberry

PROJECT REFERENCE NO. **R-3825B** SHEET NO. **UC-200**

DESIGNED BY: _____
 DRAWN BY: _____
 CHECKED BY: _____
 APPROVED BY: _____
 REVISED: _____

NORTH CAROLINA PROFESSIONAL SEAL
 Timothy J. Restucco
 PE 1001 PG 389

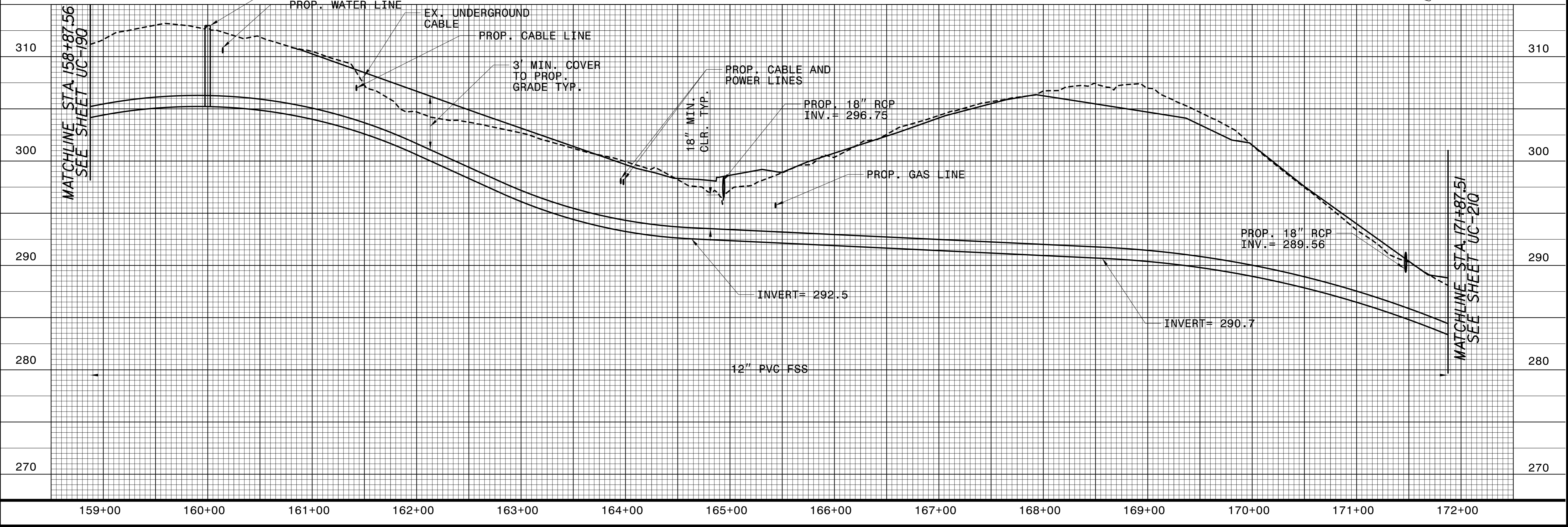
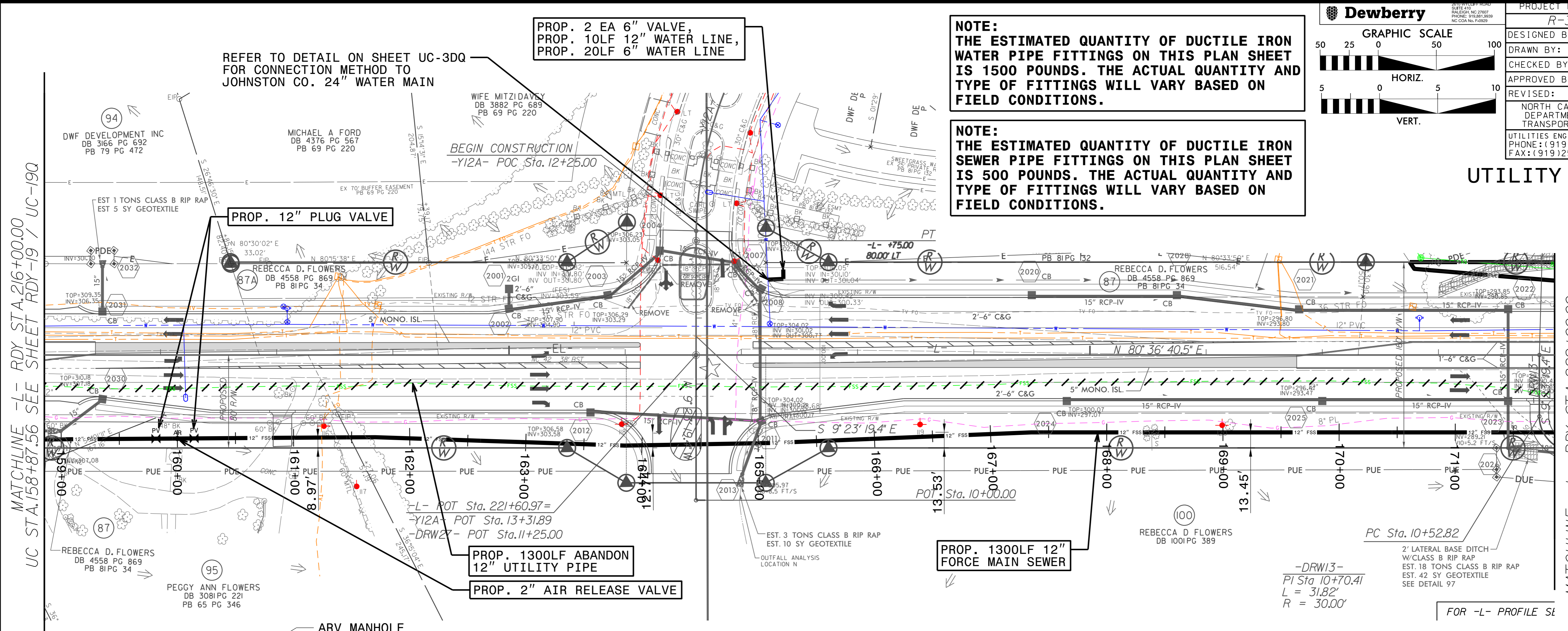
8/14/2018 1:43:20 PM EDT
 UTILITY CONSTRUCTION PLANS ONLY



NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

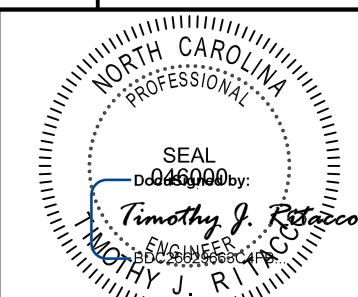
NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

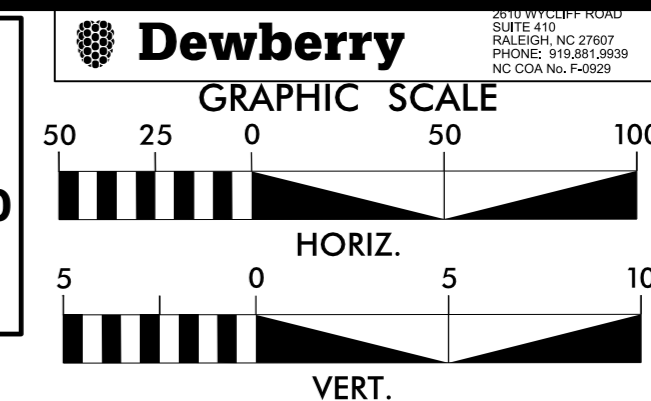
UTILITY CONSTRUCTION



REVISIONS

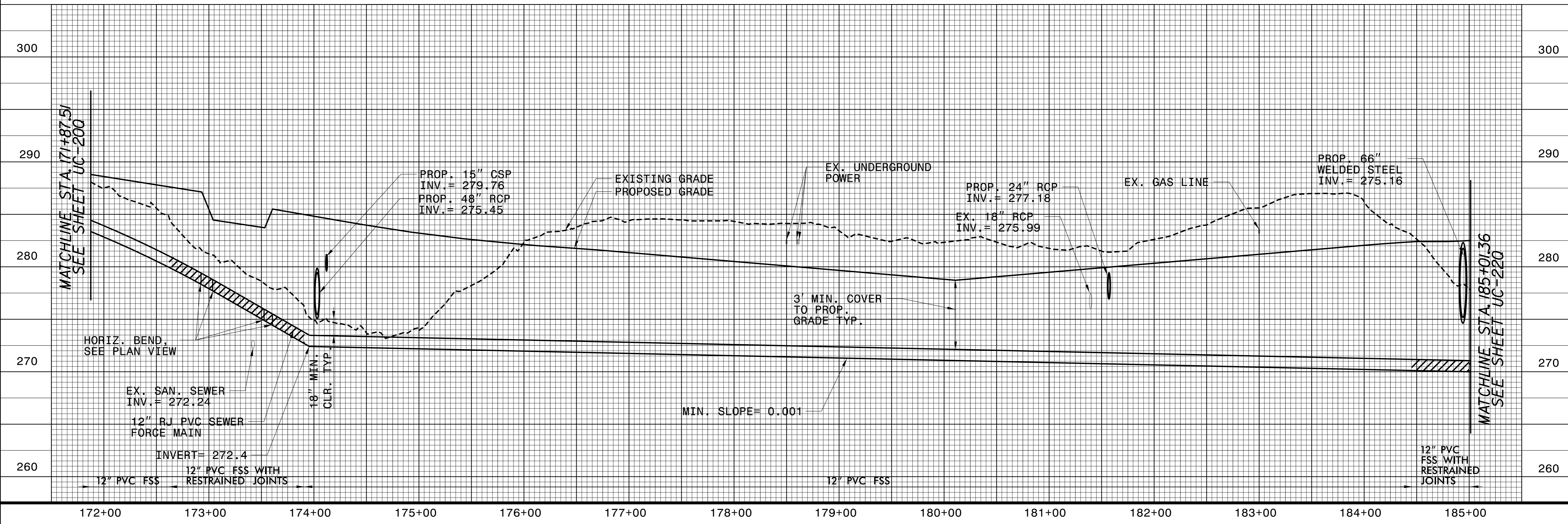
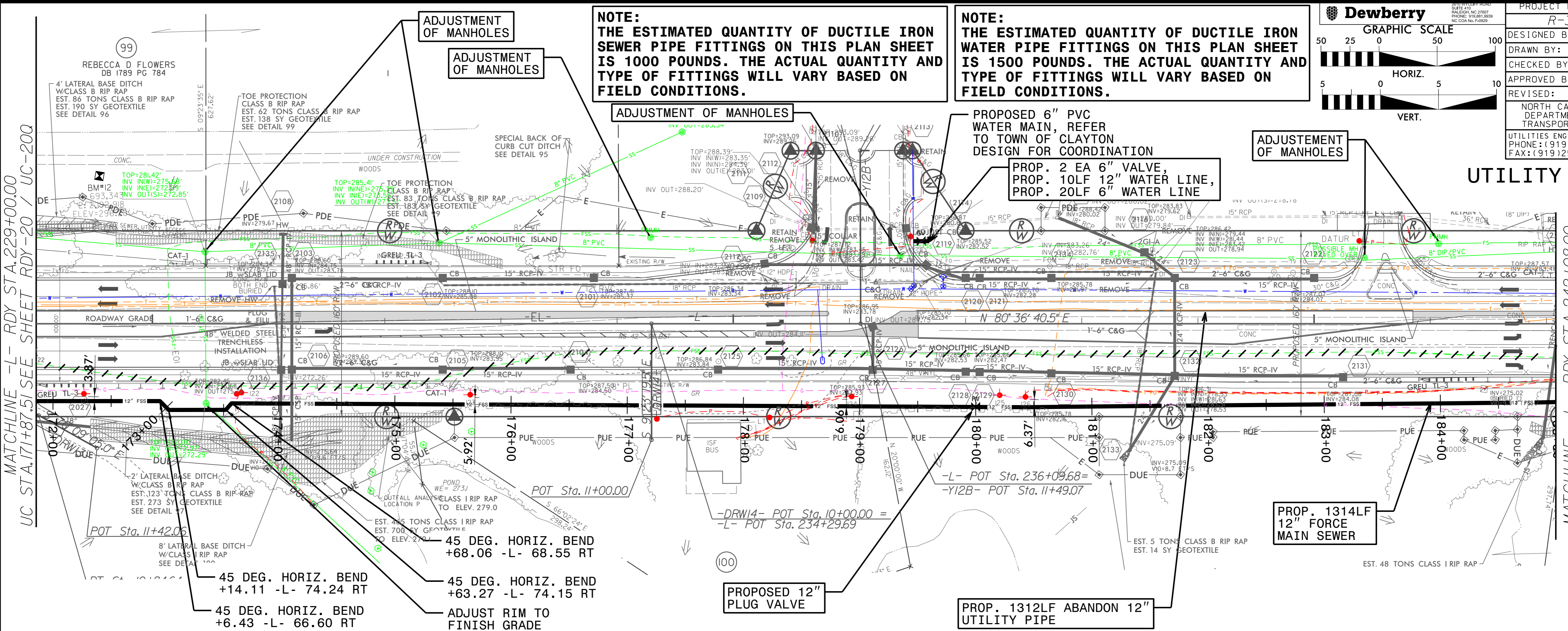
8/17/19

PROJECT REFERENCE NO.	R-3825B	SHEET NO.	UC-21Q
DESIGNED BY:			
DRAWN BY:			
CHECKED BY:			
APPROVED BY:			
REVISED:		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
		8/14/2018 1:43:20 PM EDT	
UTILITY CONSTRUCTION PLANS ONLY			



NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1000 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



REVISIONS

8/17/19

MATCHLINE -L- RDY STA. 229+00.00 UC STA. 171+87.51 SEE SHEET RDY-20 / UC-20Q

MATCHLINE -L- RDY STA. 242+08.00 UC STA. 185+01.36 SEE SHEET RDY-22 / UC-22Q

12/21/2020 REV. - ADJUST FORCE MAIN AND GRAVITY SEWER TO AVOID 66' DRAINAGE

RDY-21

PROJECT REFERENCE NO. R-3825B SHEET NO. UC-210A

DESIGNED BY: [Signature]

DRAWN BY: [Signature]

CHECKED BY: [Signature]

APPROVED BY: [Signature]

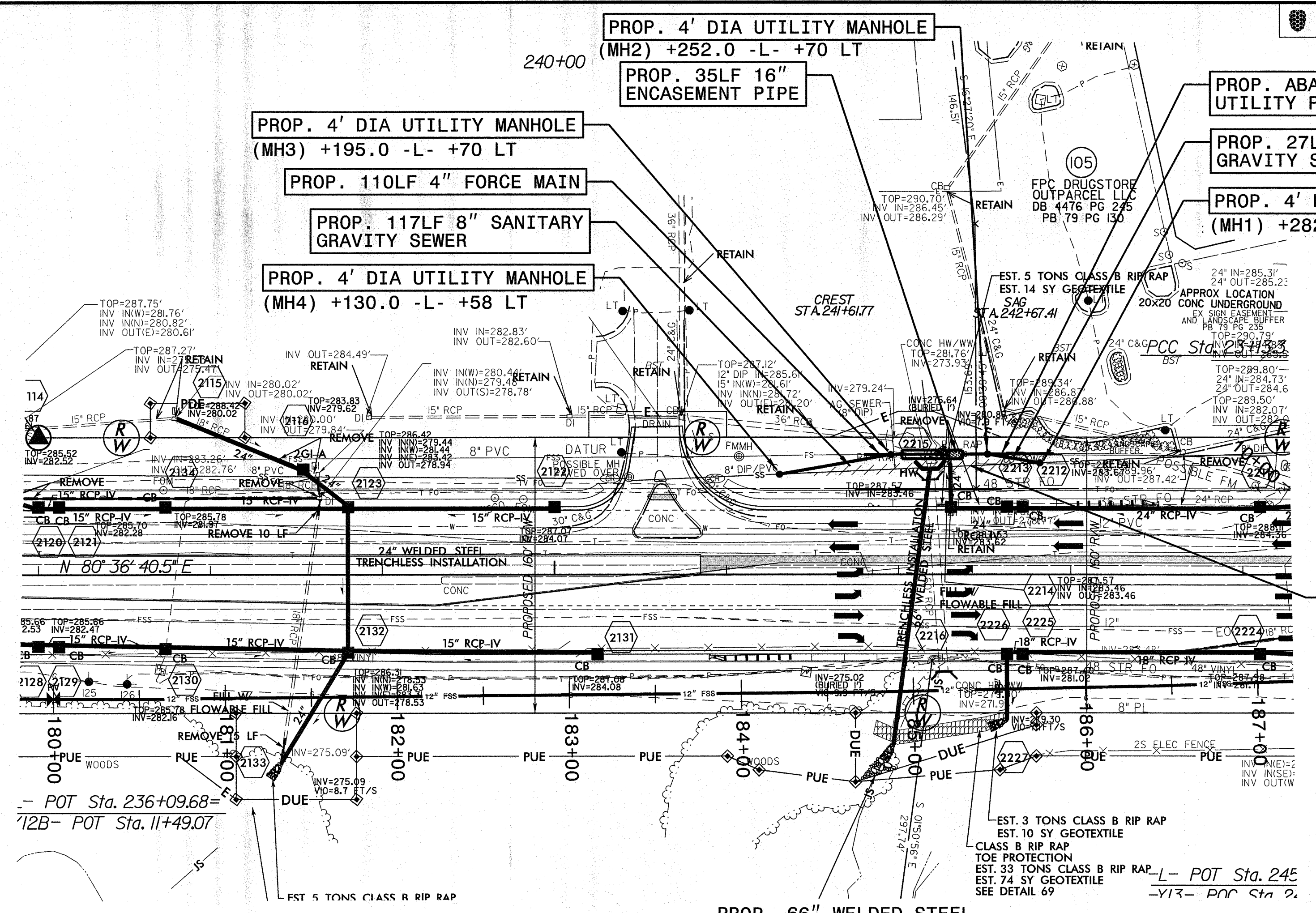
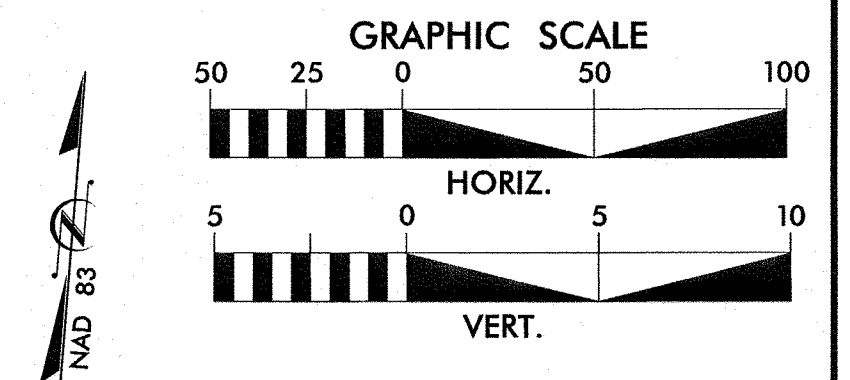
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

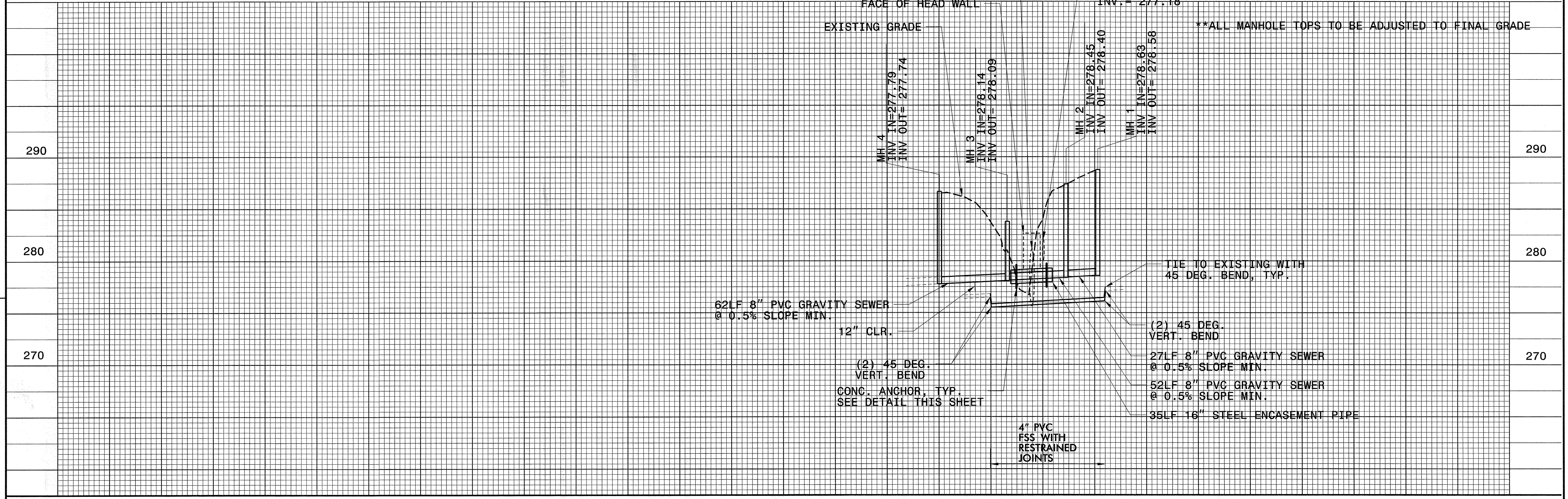


PROP. ABANDON 155LF 8\"/>

NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

PROP. 66\"/>
 INV. = 275.64
 FACE OF HEAD WALL
 PROP. 24\"/>
 INV. = 277.18

**ALL MANHOLE TOPS TO BE ADJUSTED TO FINAL GRADE



62LF 8\"/>
 @ 0.5% SLOPE MIN.
 12\"/>
 CLR.
 (2) 45 DEG. VERT. BEND
 CONC. ANCHOR, TYP. SEE DETAIL THIS SHEET
 4\"/>
 PVC FSS WITH RESTRAINED JOINTS
 27LF 8\"/>
 PVC GRAVITY SEWER @ 0.5% SLOPE MIN.
 52LF 8\"/>
 PVC GRAVITY SEWER @ 0.5% SLOPE MIN.
 35LF 16\"/>
 STEEL ENCASEMENT PIPE
 TIE TO EXISTING WITH 45 DEG. BEND, TYP.

REFER TO SHEET UC-22AQ FOR PROFILE INFORMATION

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1800 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

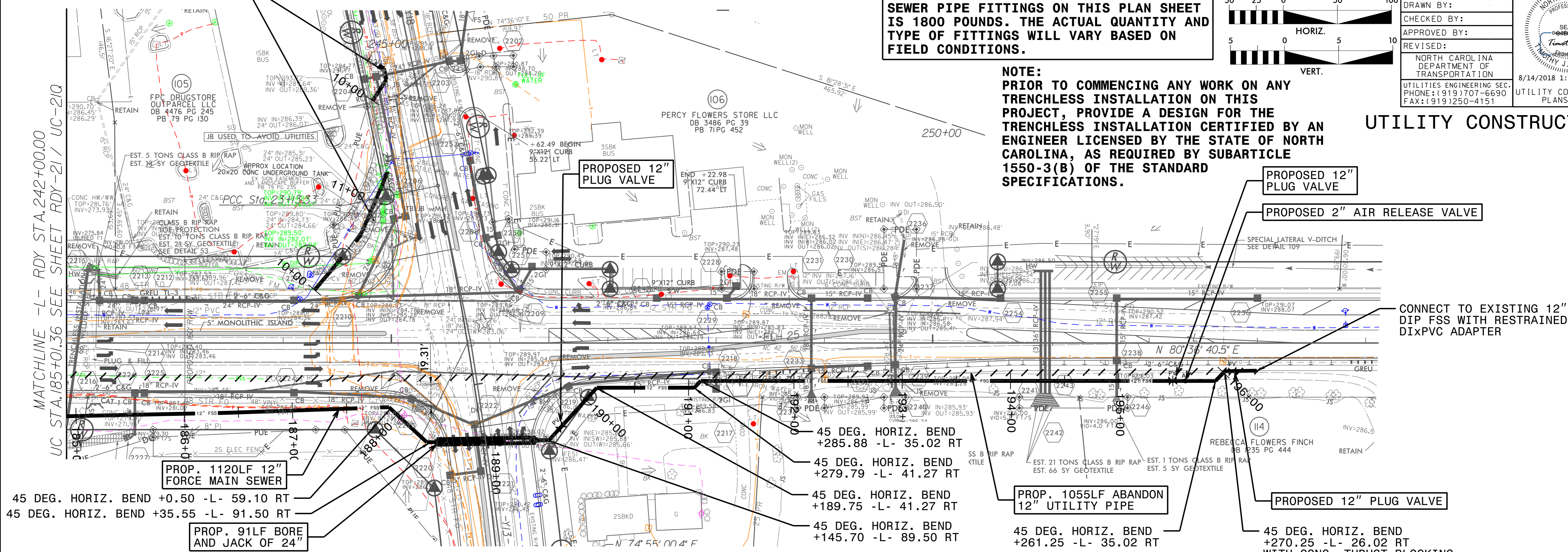
Dewberry

GRAPHIC SCALE
50 25 0 50 100
5 0 5 10
HORIZ.
VERT.

PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-22Q
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	8/14/2018 1:43:20 PM EDT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION

NOTE:
PRIOR TO COMMENCING ANY WORK ON ANY TRENCHLESS INSTALLATION ON THIS PROJECT, PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

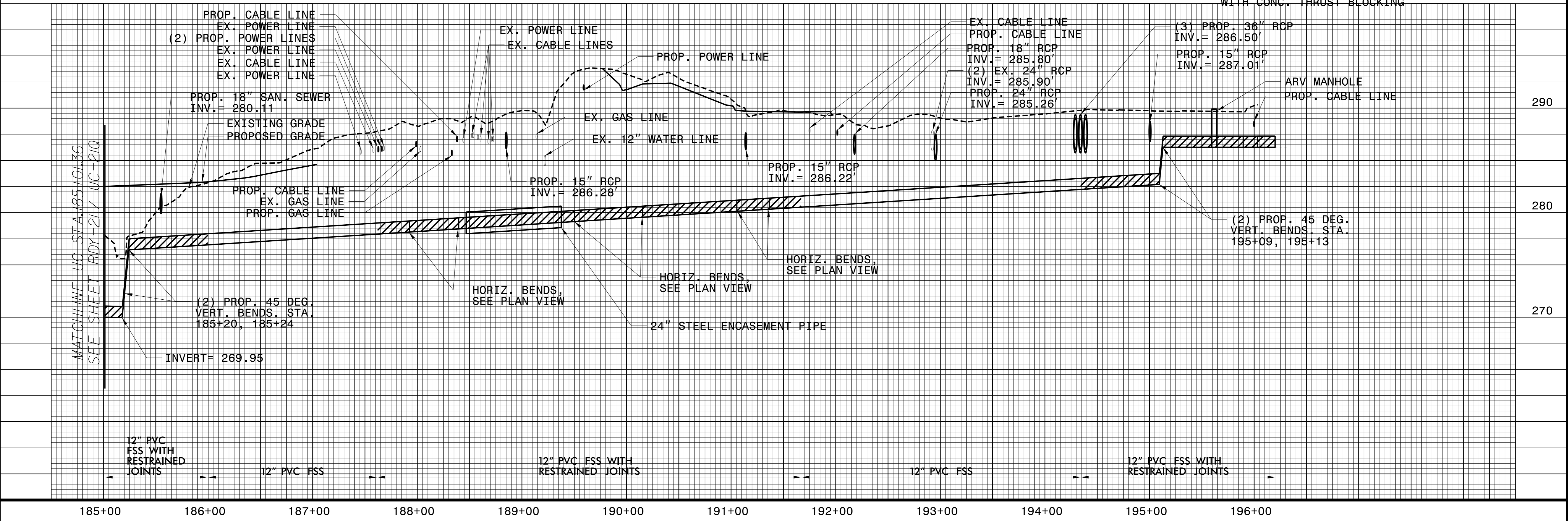


45 DEG. HORIZ. BEND +0.50 -L- 59.10 RT
 45 DEG. HORIZ. BEND +35.55 -L- 91.50 RT
 PROP. 1120LF 12" FORCE MAIN SEWER
 PROP. 91LF BORE AND JACK OF 24"

45 DEG. HORIZ. BEND +285.88 -L- 35.02 RT
 45 DEG. HORIZ. BEND +279.79 -L- 41.27 RT
 45 DEG. HORIZ. BEND +189.75 -L- 41.27 RT
 45 DEG. HORIZ. BEND +145.70 -L- 89.50 RT

PROP. 1055LF ABANDON 12" UTILITY PIPE
 45 DEG. HORIZ. BEND +261.25 -L- 35.02 RT

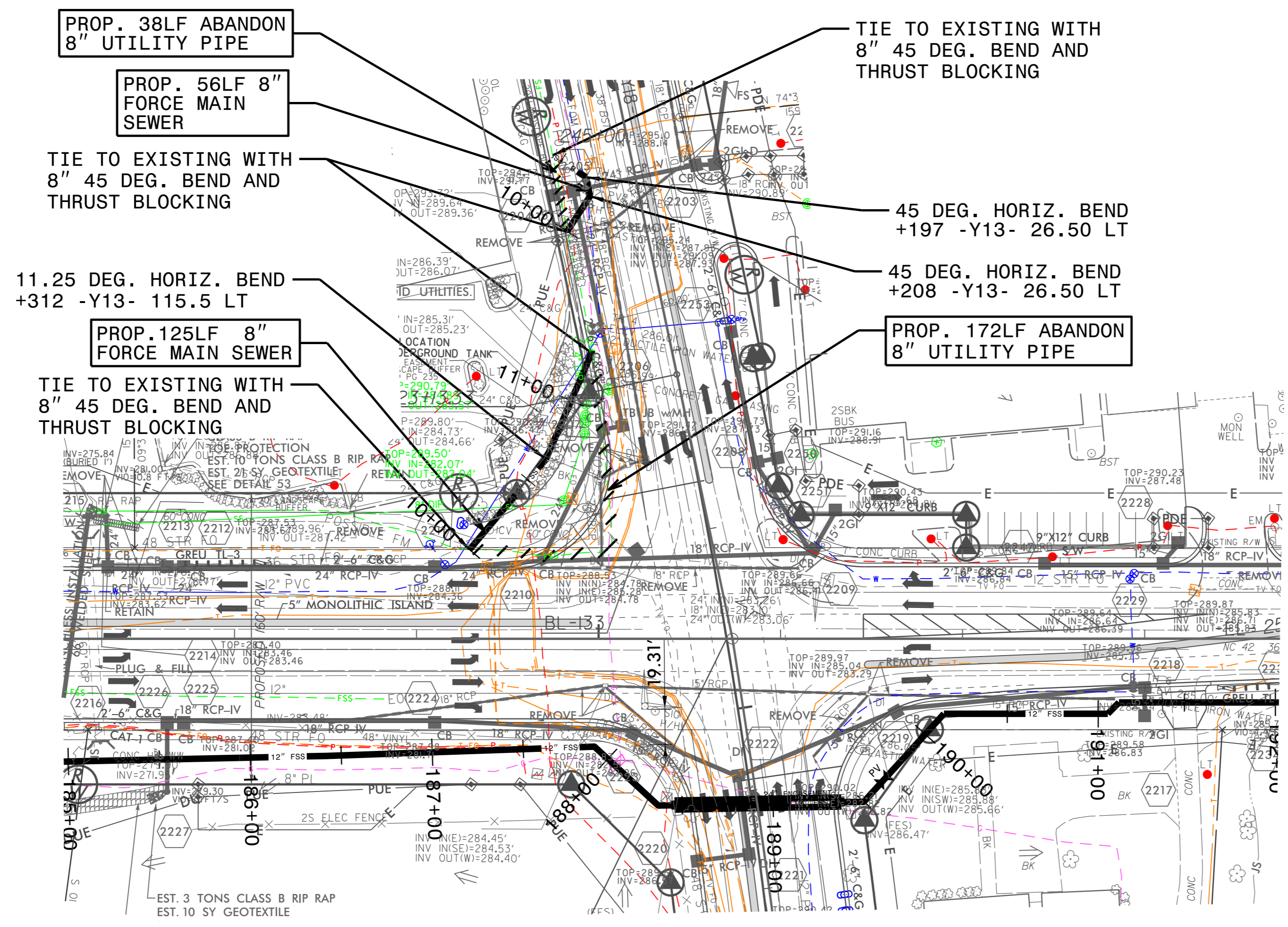
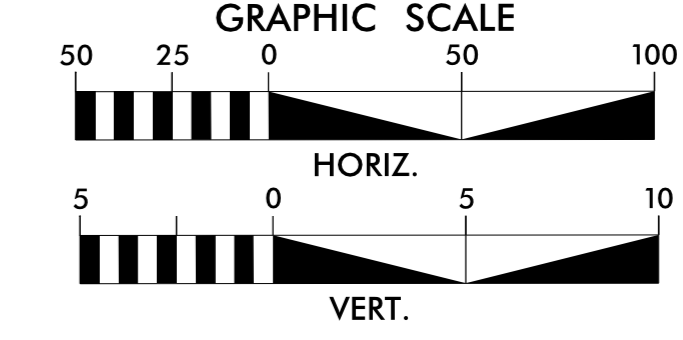
PROP. 12" PLUG VALVE
 45 DEG. HORIZ. BEND +270.25 -L- 26.02 RT WITH CONC. THRUST BLOCKING



185+00 186+00 187+00 188+00 189+00 190+00 191+00 192+00 193+00 194+00 195+00 196+00

REVISIONS

Dewberry
 PROJECT REFERENCE NO. **R-3825B** SHEET NO. **UC-22AQ**
 RDY 22
 DESIGNED BY:
 DRAWN BY:
 CHECKED BY:
 APPROVED BY:
 REVISED:
 NORTH CAROLINA PROFESSIONAL SEAL
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
 8/14/2018 1:43:20 PM EDT
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UTILITY CONSTRUCTION

NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 2500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

