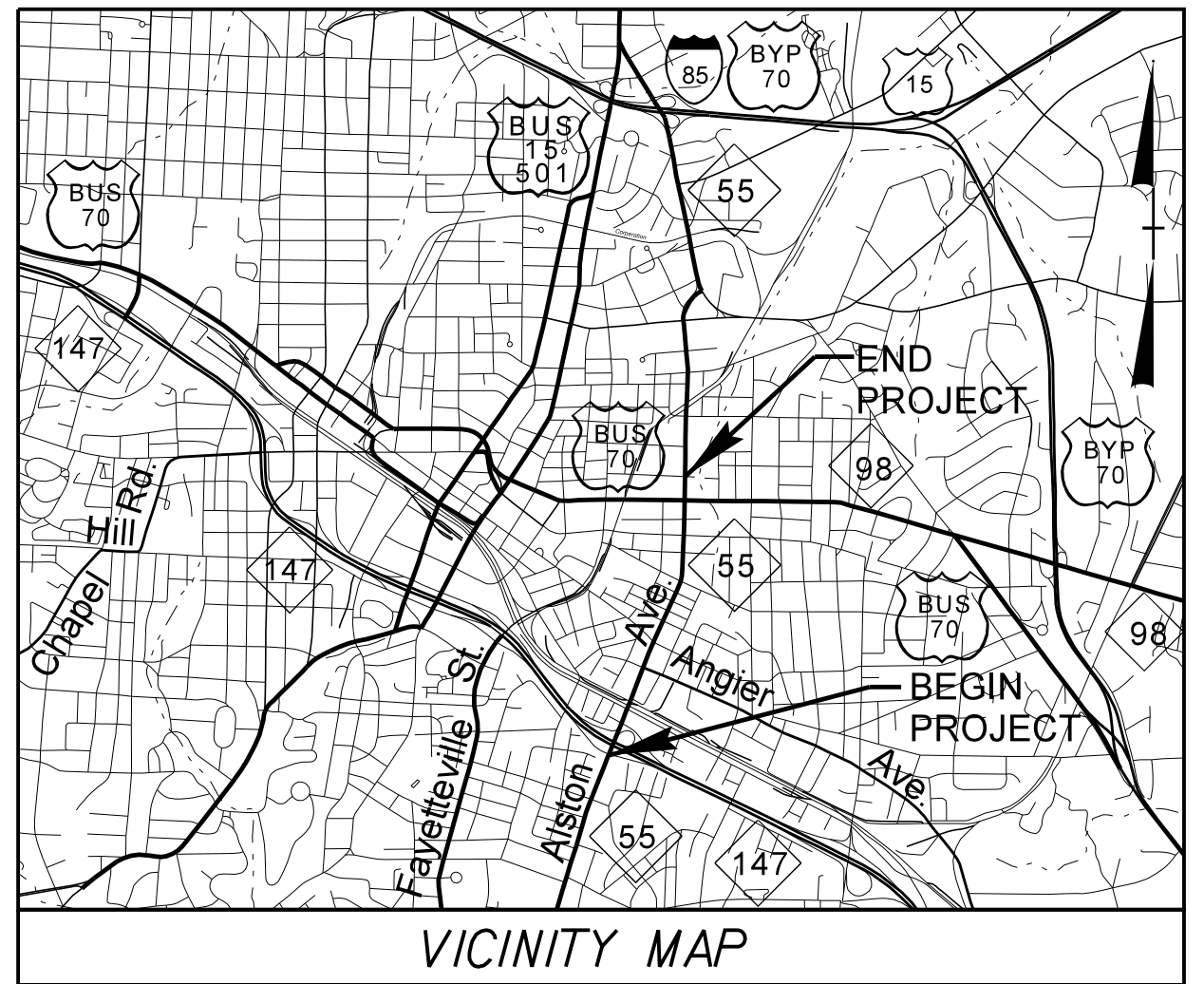


09/08/19  
 SYSTEM TIME  
 DCON  
 USERNAME

**TIP PROJECT: U-3308**

See Sheet UC-1 For Index of Sheets  
See Sheet UC-2 For CONVENTIONAL SYMBOLS



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

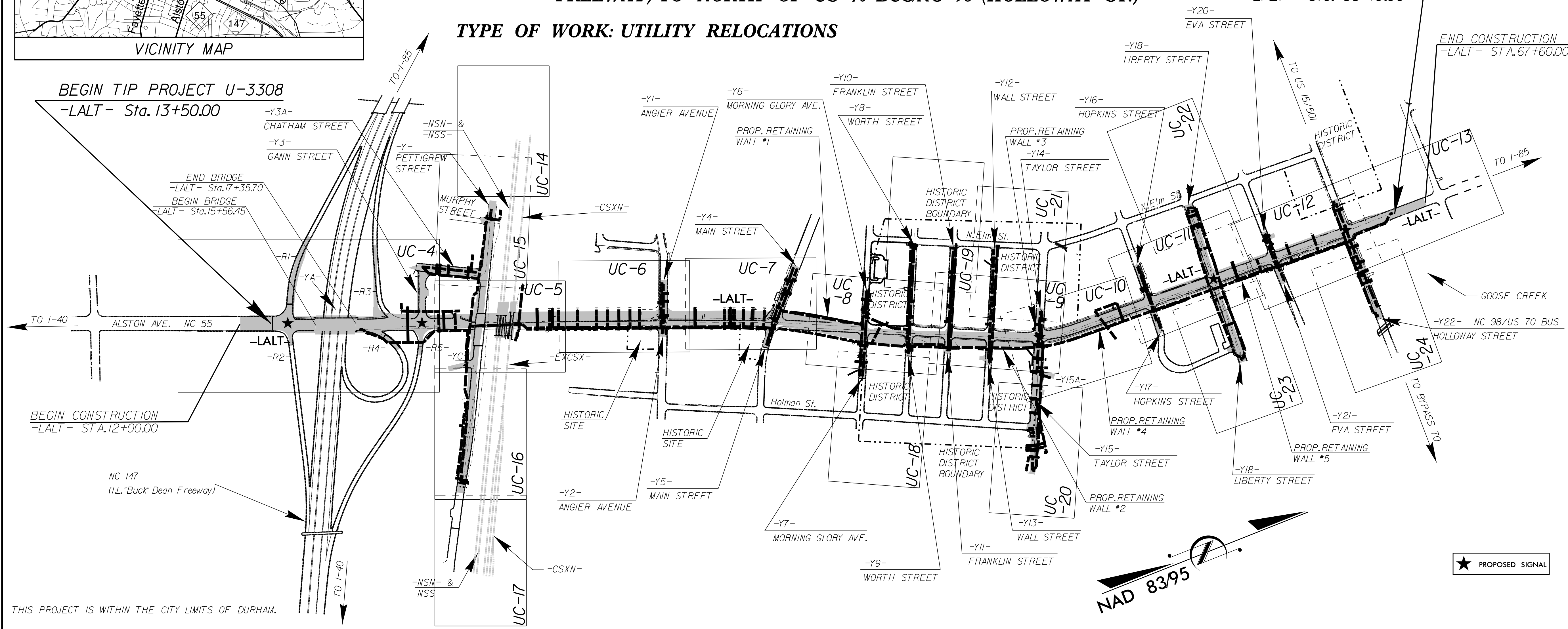
**UTILITY CONSTRUCTION PLANS  
DURHAM COUNTY**

|            |           |
|------------|-----------|
| T.I.P. NO. | SHEET NO. |
| U-3308     | UC-1      |

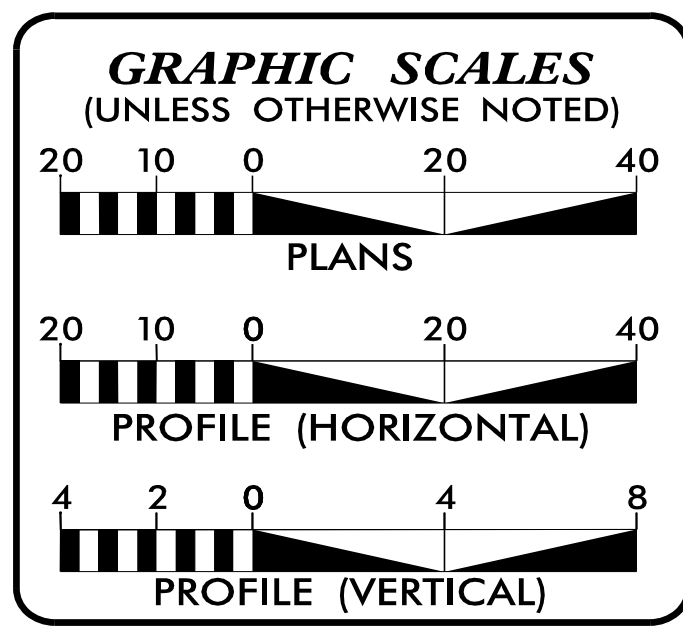
UTILITY CONSTRUCTION

**LOCATION: NC 55 (ALSTON AVE.) FROM NC 147 (I.L. "BUCK" DEAN FREEWAY) TO NORTH OF US 70 BUS/NC 98 (HOLLOWAY ST.)**

**TYPE OF WORK: UTILITY RELOCATIONS**



THIS PROJECT IS WITHIN THE CITY LIMITS OF DURHAM.  
CLEARING SHALL BE PERFORMED ON THIS PROJECT TO THE LIMITS ESTABLISHED BY METHOD III



| SHEET NO.        | DESCRIPTION                 |
|------------------|-----------------------------|
| UC-1             | TITLE SHEET                 |
| UC-2             | UTILITY SYMBOLOGY           |
| UC-3             | NOTES                       |
| UC-3A THRU UC-3D | DETAILS                     |
| UC-4 THRU UC-24  | UTILITY CONSTRUCTION SHEETS |
| UC-25 THRU UC-49 | PROFILE SHEETS              |

**WATER AND SEWER OWNERS ON PROJECT**

(1) WATER - CITY OF DURHAM  
(2) SANITARY SEWER - CITY OF DURHAM

NCDOT IS RESPONSIBLE FOR THE COST OF THIS PROJECT.

SEAL

**NORTH CAROLINA PROFESSIONAL SEAL**  
030056  
ENGINEER  
JEFFREY J. WING

Designed by: Jeff Wing  
5/27/2015

PREPARED IN THE OFFICE OF:  
**DIVISION OF HIGHWAYS  
UTILITIES UNIT  
UTILITIES ENGINEERING**

1555 MAIL SERVICES CENTER  
RALEIGH NC 27699-1555  
PHONE (919) 707-6690  
FAX (919) 250-4151

**Roger Worthington, P.E.** UTILITIES SECTION ENGINEER  
**Steve McKee, P.E.** UTILITIES SQUAD LEADER PROJECT ENGINEER  
**Jeffrey J. Wing, PE** UTILITIES PROJECT DESIGNER

5/14/99

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. SHEET NO.  
U-3308 UC-2

UTILITY CONSTRUCTION

## UTILITIES PLAN SHEET SYMBOLS

### PROPOSED WATER SYMBOLS

|                                 |                    |
|---------------------------------|--------------------|
| Water Line (Sized as Shown)     | ----- 12" WL ----- |
| 11¼ Degree Bend                 | ----- +---+        |
| 22½ Degree Bend                 | ----- +---+        |
| 45 Degree Bend                  | ----- +---+        |
| 90 Degree Bend                  | ----- +---+        |
| Plug                            | -----              |
| Tee                             | ----- +---+        |
| Cross                           | ----- +---+        |
| Reducer                         | ----- >            |
| Gate Valve                      | ----- GV           |
| Butterfly Valve                 | ----- BV           |
| Tapping Valve                   | ----- TV           |
| Line Stop                       | ----- LS           |
| Line Stop with Bypass           | ----- LS/BP        |
| Blow Off                        | ----- BO           |
| Fire Hydrant                    | ----- PEH          |
| Relocate Fire Hydrant           | ----- REH          |
| Remove Fire Hydrant             | ----- REM FH       |
| Water Meter                     | ----- PWM          |
| Relocate Water Meter            | ----- RWM          |
| Remove Water Meter              | ----- REM WM       |
| Water Pump Station              | ----- PS(W)        |
| RPZ Backflow Preventer          | ----- PRPZ         |
| DCV Backflow Preventer          | ----- PDBP         |
| Relocate RPZ Backflow Preventer | ----- RRPZ         |
| Relocate DCV Backflow Preventer | ----- RDBP         |

### PROPOSED SEWER SYMBOLS

|  |                     |
|--|---------------------|
| Gravity Sewer Line (Sized as Shown)    | ----- 12" SS -----  |
| Force Main Sewer Line (Sized as Shown) | ----- 12" FSS ----- |
| Manhole (Sized per Note)               | ----- •             |
| Sewer Pump Station                     | ----- PST(SS)       |

### PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

|  |                                |
|--|--------------------------------|
| Power Pole                             | ----- ⚡                        |
| Telephone Pole                         | ----- ☎                        |
| Joint Use Pole                         | ----- ⚡☎                       |
| Telephone Pedestal                     | ----- TEL PED                  |
| Utility Line by Others (Type as Shown) | ----- PROP O/H POW LINES ----- |
| Trenchless Installation                | ----- 12" TL INSTALL -----     |
| Encasement by Open Cut                 | ----- 24" ENCAS BY OC -----    |
| Encasement                             | ----- 24" ENCASUREMENT -----   |

|                   |                  |
|-------------------|------------------|
| Thrust Block      | -----            |
| Air Release Valve | ----- AR         |
| Utility Vault     | ----- UV         |
| Concrete Pier     | ----- CP         |
| Steel Pier        | ----- SP         |
| Plan Note         | ----- ↖ NOTE     |
| Pay Item Note     | ----- ↖ PAY ITEM |


### EXISTING UTILITIES SYMBOLS

|  |              |   |                                |
|--|--------------|---|--------------------------------|
| Power Pole                             | ----- ⚡      | *Underground Power Line                   | ----- P -----                  |
| Telephone Pole                         | ----- ☎      | *Underground Telephone Cable              | ----- T -----                  |
| Joint Use Pole                         | ----- ⚡☎     | *Underground Telephone Conduit            | ----- TC -----                 |
| Utility Pole                           | ----- •      | *Underground Fiber Optics Telephone Cable | ----- T FO -----               |
| Utility Pole with Base                 | ----- □      | *Underground TV Cable                     | ----- TV -----                 |
| H-Frame Pole                           | ----- ●      | *Underground Fiber Optics TV Cable        | ----- TV FO -----              |
| Power Transmission Line Tower          | ----- ☒      | *Underground Gas Pipeline                 | ----- G -----                  |
| Water Manhole                          | ----- ⊙      | Aboveground Gas Pipeline                  | ----- A/G Gas -----            |
| Power Manhole                          | ----- ⊙      | *Underground Water Line                   | ----- W -----                  |
| Telephone Manhole                      | ----- ⊙      | Aboveground Water Line                    | ----- A/G Water -----          |
| Sanitary Sewer Manhole                 | ----- ⊙      | *Underground Gravity Sanitary Sewer Line  | ----- SS -----                 |
| Hand Hole for Cable                    | ----- ☒      | Aboveground Gravity Sanitary Sewer Line   | ----- A/G Sanitary Sewer ----- |
| Power Transformer                      | ----- ☒      | *Underground SS Forced Main Line          | ----- FSS -----                |
| Telephone Pedestal                     | ----- ☐      | Underground Unknown Utility Line          | ----- ?UTL -----               |
| CATV Pedestal                          | ----- ☐      | SUE Test Hole                             | ----- ⊕                        |
| Gas Valve                              | ----- ◇      | Water Meter                               | ----- ⊖                        |
| Gas Meter                              | ----- ⊖      | Water Valve                               | ----- ⊕                        |
| Located Miscellaneous Utility Object   | ----- ⊙      | Fire Hydrant                              | ----- ⊕                        |
| Abandoned According to Utility Records | ----- AATUR  | Sanitary Sewer Cleanout                   | ----- ⊙                        |
| End of Information                     | ----- E.O.I. |   |                                |

\*For Existing Utilities  
 Utility Line Drawn from Record (Type as Shown) -----  
 Designated Utility Line (Type as Shown) -----

5/14/99

# UTILITY CONSTRUCTION

|   |        |  |      |
|---|--------|--|------|
| PROJECT REFERENCE NO.   | U-3308 | SHEET NO.  | UC-3 |
| DESIGNED BY:  | DGB    |  |      |
| DRAWN BY:   | JGB    |  |      |
| CHECKED BY:   | KFC    |  |      |
| APPROVED BY:  | JJW    | NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION                                  |      |
| REVISED:  |        |  |      |
| P.O. BOX 33068<br>RALEIGH, NORTH CAROLINA 27636-3068<br>PHONE: (919) 677-2000<br>FAX: (919) 677-2050<br>PE NO. F-0102 |        | UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151         |      |
|   |        | UTILITY CONSTRUCTION<br>PLANS ONLY   |      |

## 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 WATER AND SEWER UTILITIES BELONG TO THE CITY OF DURHAM.
3. ALL WATERLINES SHALL BE INSTALLED IN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES SHALL BE INSTALLED IN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, 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 OPPROTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.
6. THE DRAWINGS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, ORIENTATION, ELEVATION, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, ORIENTATION, ELEVATION, AND TYPE MATERIAL OF THE EXISTING UTILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING UTILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING UTILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITONAL COST TO THE DEPARTMENT.

7. THE CONTRACTOR SHALL COORDINATE THE RELOCATION AND/OR PROTECTION OF THE EXISTING GAS, CABLE, COMMUNICATION, ELECTRIC, ETC. UTILITIES WHERE IN CONFLICT WITH THE PROPOSED WATER AND SEWER UTILITIES, AT NO ADDITIONAL COST TO THE OWNER.
8. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE DRAWINGS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.
9. PRIOR TO PLACEMENT OF PROPOSED SANITARY GRAVITY SEWER THE CONTRACTOR SHALL LOCATE ALL EXISTING SEWER SERVICE LATERALS (DEPTH AND PIPE DIAMETER) AND NOTIFY THE RESIDENT ENGINEER IF THERE ARE COMPLICATIONS WITH CONNECTING TO THE PROPOSED SANITARY GRAVITY SEWER. THE CONTRACTOR'S COST FOR ALL WORK ASSOCIATED WITH SEWER SERVICES, IS INCIDENTAL TO SEWER SERVICE PAYMENT ITEM.
10. PRIOR TO PLACEMENT OF PROPOSED WATERLINE THE CONTRACTOR SHALL LOCATE ALL EXISTING WATER SERVICE LATERALS (DEPTH AND PIPE DIAMETER) AND NOTIFY THE RESIDENT ENGINEER IF THERE ARE COMPLICATIONS WITH CONNECTING TO THE PROPOSED WATERLINE. THE CONTRACTOR'S COST FOR ALL WORK ASSOCIATED WITH WATER SERVICES, IS INCIDENTAL TO WATER SERVICE PAYMENT ITEM.
11. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF WATER AND SEWER IMPROVEMENTS WITH OTHER WORK INCLUDING GRADING, RETAINING WALL PLACEMENT, BRIDGE WORK, ETC. TO AVOID DAMAGE TO THE UTILITIES.
12. 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.
13. 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.
14. THE CONTRACTOR SHALL REFER TO THE "UTILITIES BY OTHERS" PLANS FOR PROPOSED GAS, TELECOMMUNICATION, AND POWER UTILITY RELOCATIONS.

### PROJECT SPECIFIC NOTES:

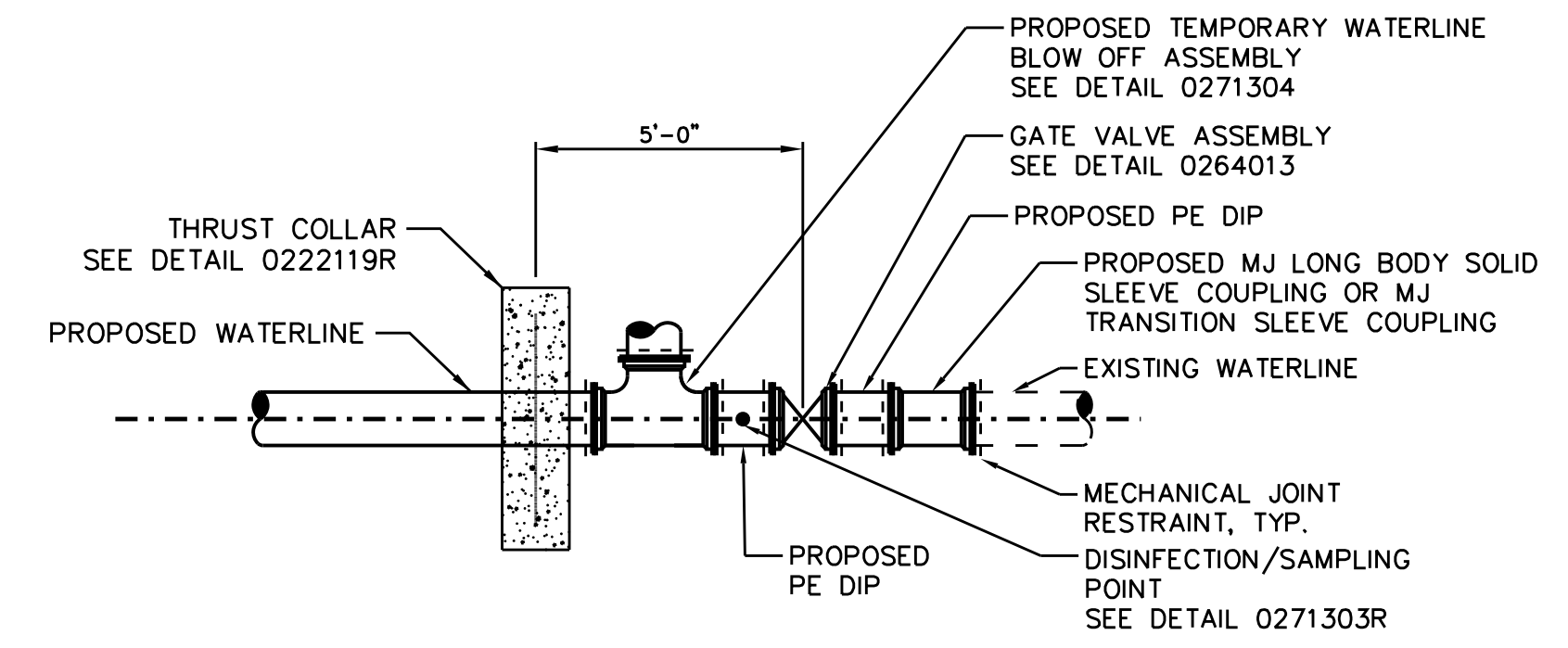
1. ALL PROPOSED WATER LINE 2" IN DIAMETER SHALL BE COPPER PIPE. ALL PROPOSED WATER LINE 4"-12" IN DIAMETER SHALL BE DI (DUCTILE IRON PUSH-ON) PC 350 PIPE, UNLESS SPECIFIED TO BE RESTRAINED JOINT PIPE AND/OR SPECIAL THICKNESS CLASS AS SHOWN ON THE PLAN/PROFILE. ALL PROPOSED WATER LINE 16" IN DIAMETER AND LARGER SHALL BE DI (DUCTILE IRON PUSH-ON) PC 250 PIPE, UNLESS SPECIFIED TO BE RESTRAINED JOINT PIPE AND/OR SPECIAL THICKNESS CLASS AS SHOWN ON THE PLAN/PROFILE.
2. ALL PROPOSED GRAVITY SEWER LINES 12" IN DIAMETER AND SMALLER SHALL BE PROTECTO 401 LINED DI (DUCTILE IRON PUSH-ON) PC 350 PIPE. ALL PROPOSED GRAVITY SEWER LINES 16" IN DIAMETER AND GREATER SHALL BE PROTECTO 401 LINED DI (DUCTILE IRON PUSH-ON) PC 250 PIPE.
3. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE ENCASEMENT.
4. ALL VALVES 16 INCHES AND SMALLER SHALL BE 250 PSI RESILIENT SEAT GATE VALVES. ALL VALVES LARGER THAN 16 INCHES SHALL BE CLASS 150B BUTTERFLY VALVES, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
5. PRIOR TO DEFLECTING THE WATER LINE AROUND THE EXISTING OR PROPOSED DRAINAGE STRCTURE OR ANY OTHER DEFLECTION, THE CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER. THE CONTRACTOR'S COST FOR ALL WORK ASSOCIATED WITH THESE DEFLECTIONS IS INCIDENTAL TO THE WATER LINE PAYMENT ITEM.
6. ALL WATER AND SEWER SERVICES TO BE REMOVED THAT ARE CONNECTED TO ACTIVE MAINS SHALL BE ABANDONED FROM SERVICE TO MAIN.
7. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THE BORING AND JACKING DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.

5/14/99

|  |           |
|--|-----------|
| PROJECT REFERENCE NO.  | SHEET NO. |
| U-3308   | UC-3A     |
| DESIGNED BY: KFC   |           |
| DRAWN BY: JGB  |           |
| CHECKED BY: KFC  |           |
| APPROVED BY: JJW   |           |
| REVISED:   |           |
| NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION                          |           |
| UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |           |
| UTILITY CONSTRUCTION PLANS ONLY  |           |

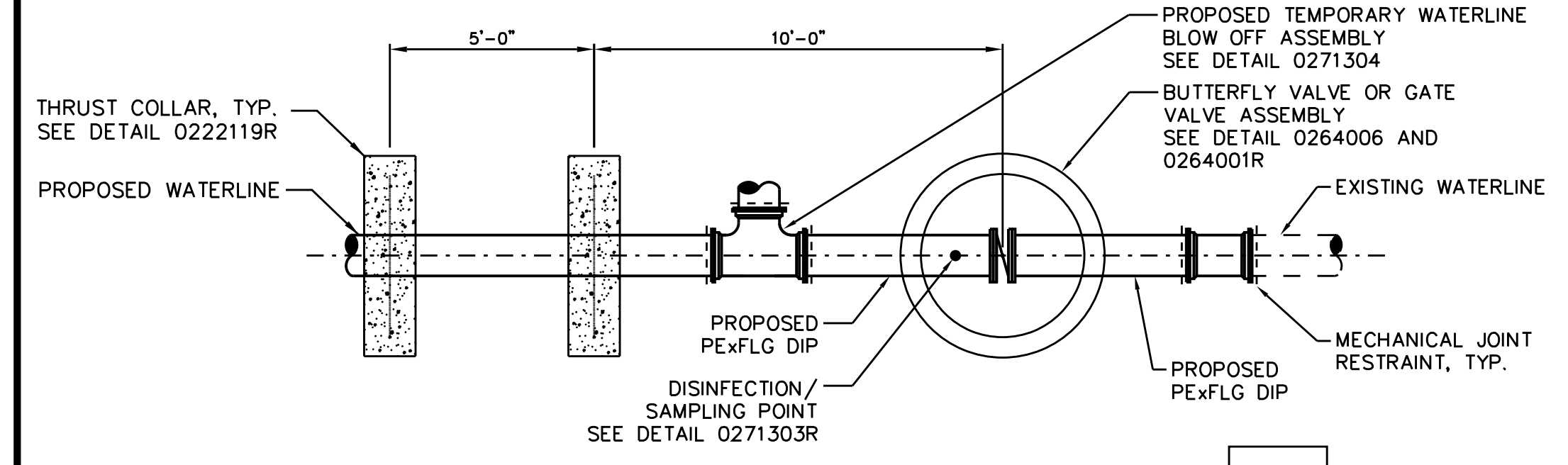
PREPARED IN THE OFFICE OF:  
**Kimley»Horn**  
 P.O. BOX 33068  
 RALEIGH, NORTH CAROLINA 27636-3068  
 PHONE: (919) 677-2000  
 FAX: (919) 677-2050  
 PE NO. F-0102

UTILITY CONSTRUCTION



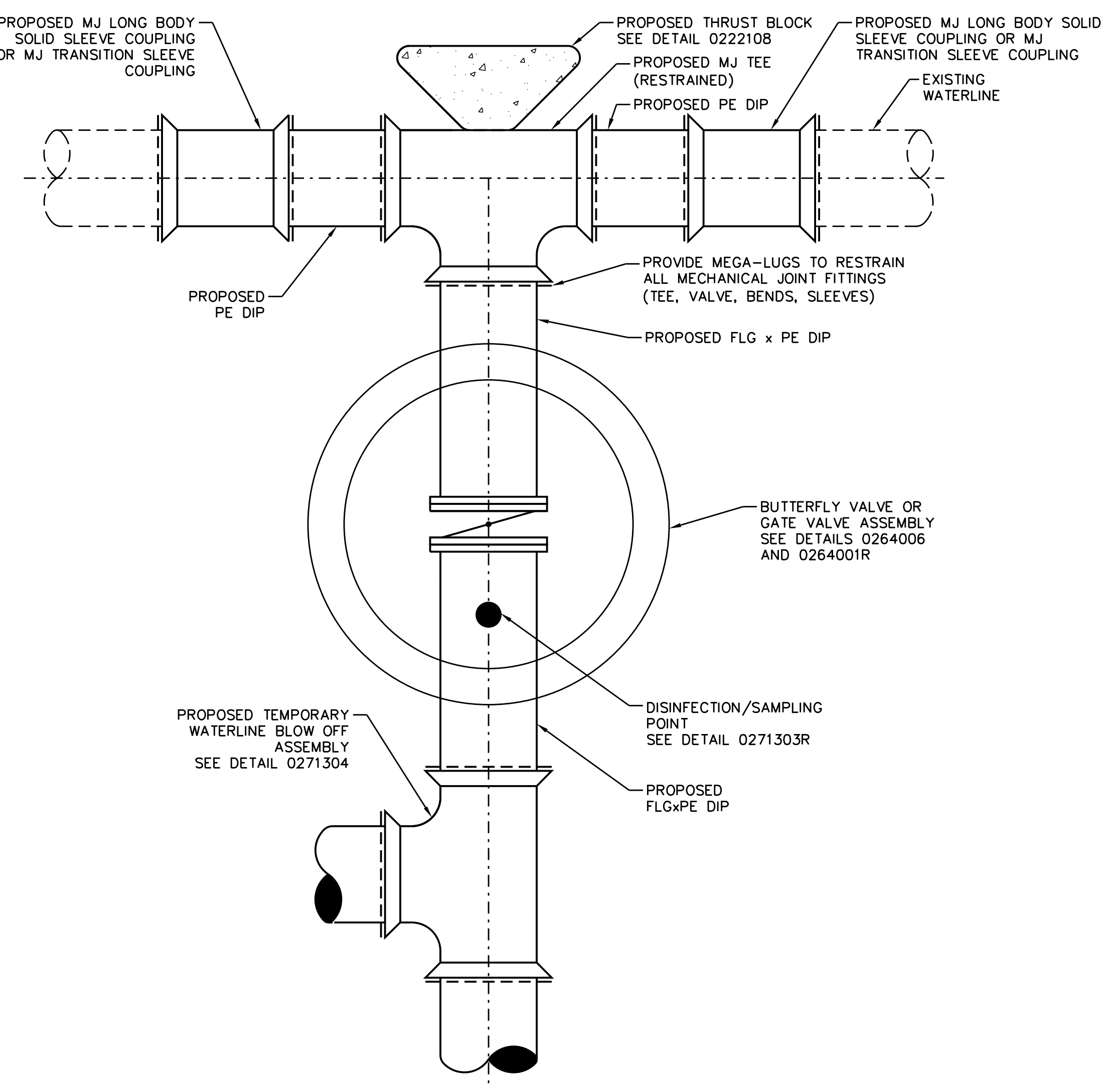
CONNECTION DETAIL NO. 1 (12" DIA AND LESS)  
 SCALE: NTS

|       |
|-------|
| 1     |
| UC-3A |



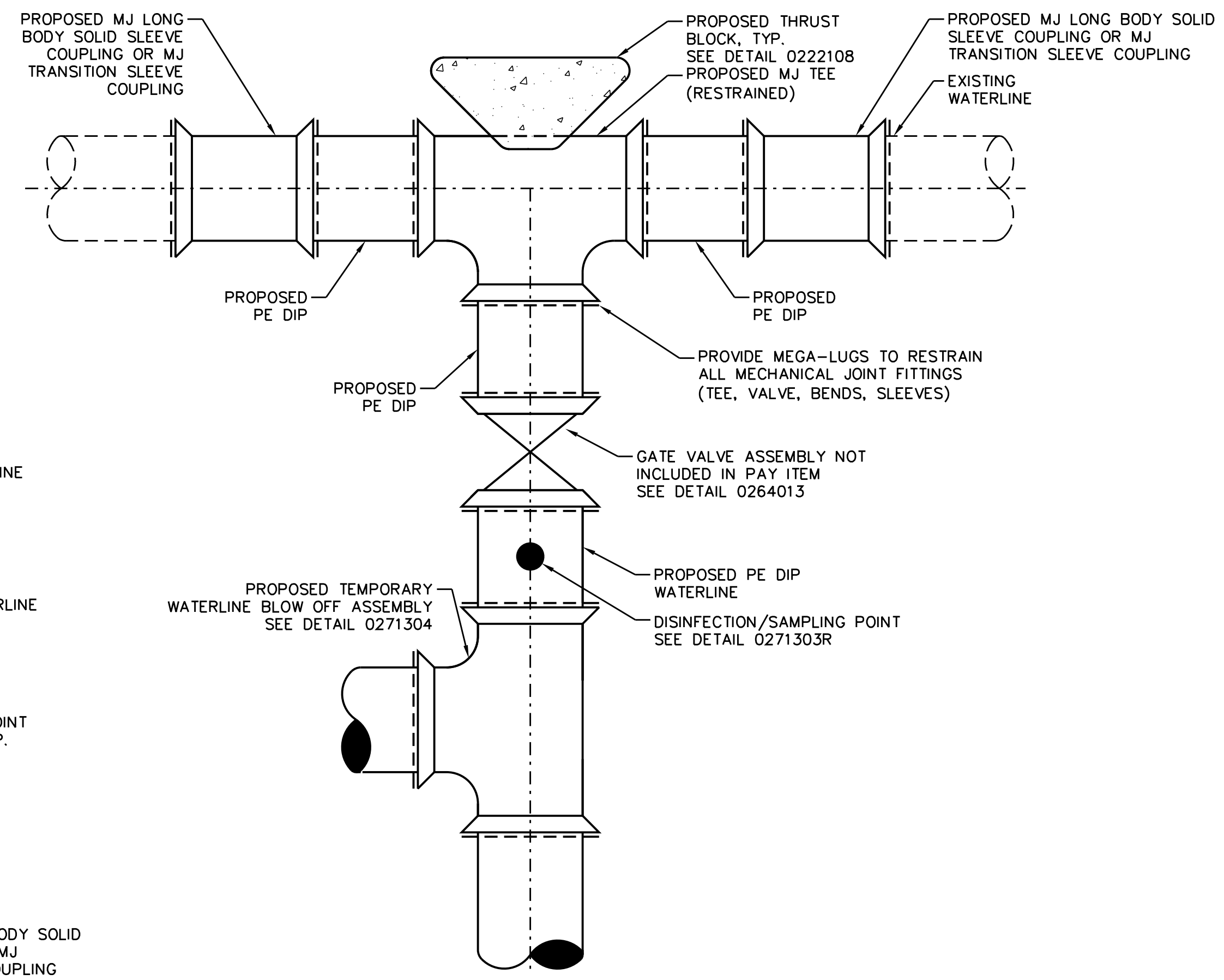
CONNECTION DETAIL NO. 2 (GREATER THAN 12" DIA)  
 SCALE: NTS

|       |
|-------|
| 2     |
| UC-3A |



CONNECTION DETAIL NO. 3 (12" DIA AND LESS)  
 SCALE: NTS

|       |
|-------|
| 3     |
| UC-3A |

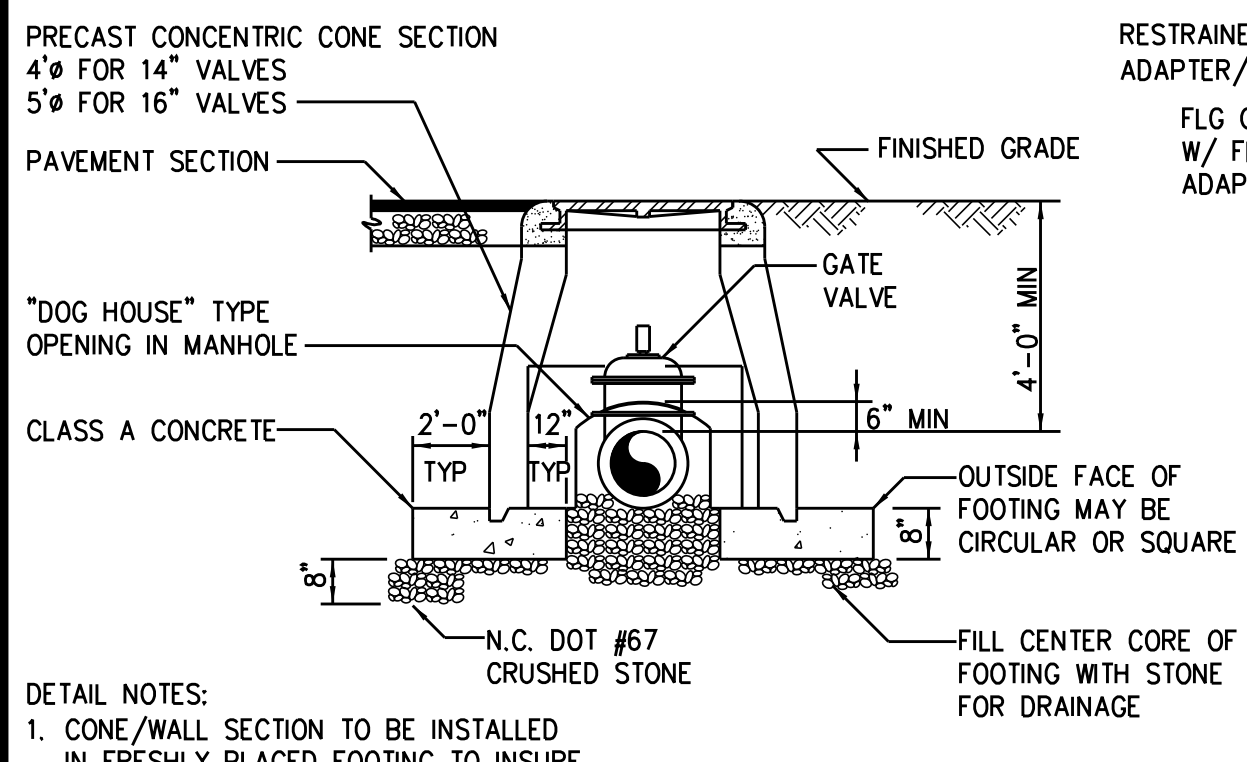


CONNECTION DETAIL NO. 4 (GREATER THAN 12" DIA)  
 SCALE: NTS

|       |
|-------|
| 4     |
| UC-3A |

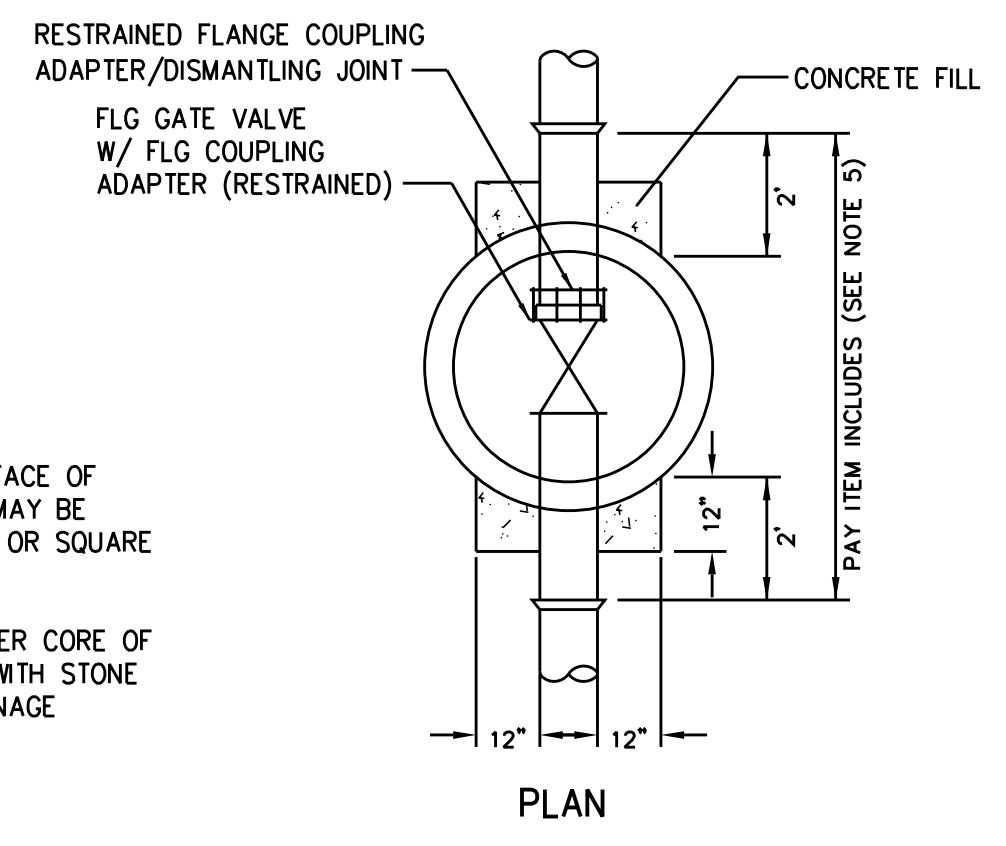
- NOTES:
1. THE CONTRACTOR SHALL FIELD VERIFY EXACT ELEVATION, LOCATION, ORIENTATION, DIMENSION, AND MATERIAL OF PIPING TO BE CONNECTED TO PRIOR TO ORDERING MATERIALS.
  2. THE CONTRACTOR SHALL PROVIDE A MEANS TO KEEP ALL NEW PIPING COMPLETELY ISOLATED FROM EXISTING PIPING UNTIL ALL NEW PIPING HAS BEEN TESTED, DISINFECTED, AND ACCEPTED BY NCDOT AND THE CITY OF DURHAM FOR SERVICE.
  3. DESIGN PRESSURE IS 350 PSI.
  4. 12" OF NCDOT NO. 67 STONE BEDDING SHALL EXTEND UNDER ENTIRE LENGTH OF DIP IN THE CONNECTION PAY ITEM LIMIT.
  5. ALL CONNECTION FITTINGS AND JOINTS SHALL BE RESTRAINED DIP USING MECHANICAL JOINT RESTRAINT.
  6. CONCRETE THRUST COLLARS SHALL BE PLACED AND CURED THREE DAYS PRIOR TO RE-PRESSURIZING THE PIPE.

5/14/99



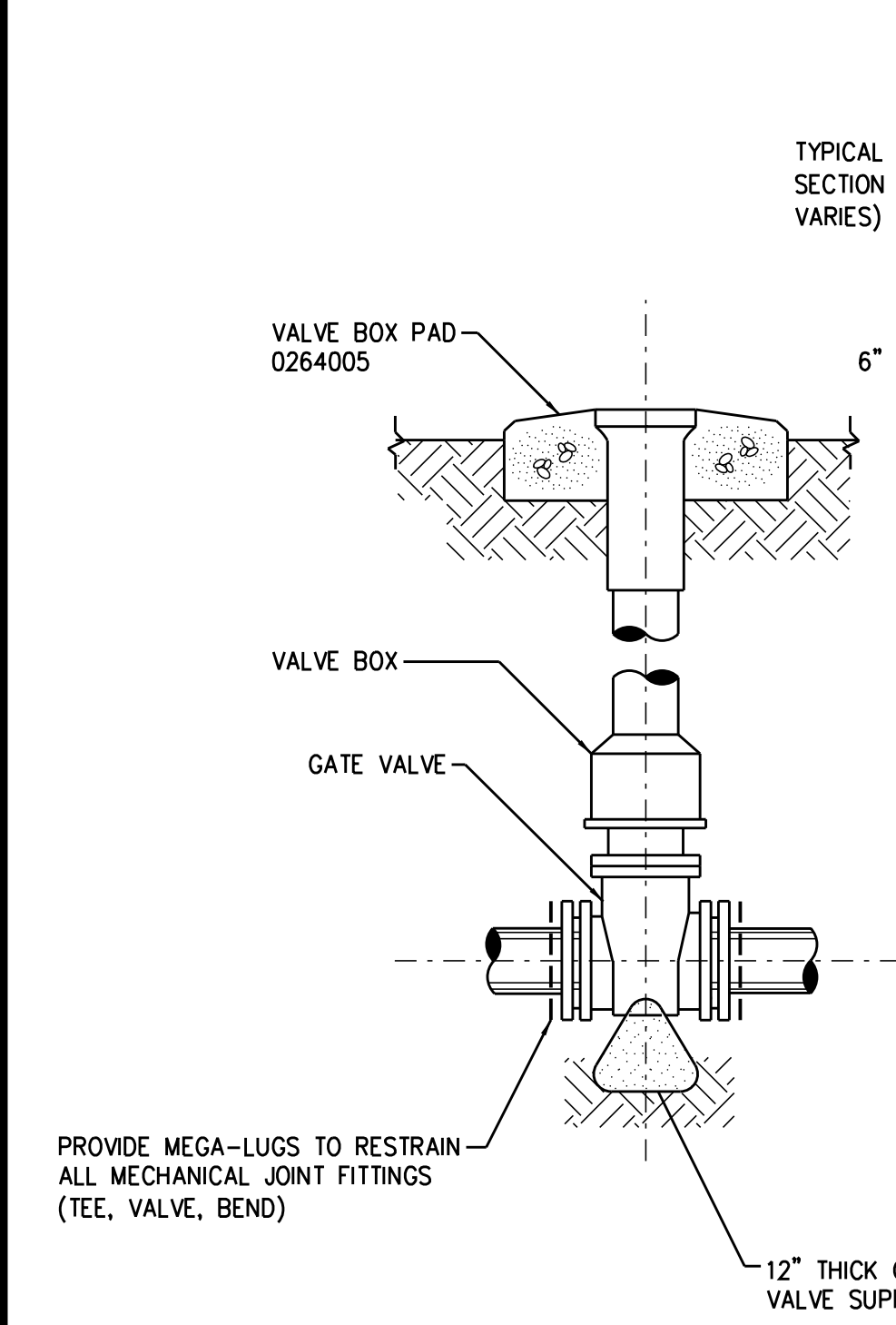
- DETAIL NOTES:**
1. CONE/WALL SECTION TO BE INSTALLED IN FRESHLY PLACED FOOTING TO INSURE UNIFORM BEARING.
  2. ADD BARREL SECTIONS TO MANHOLE AS NECESSARY.
  3. ELIMINATE FOOTING AT OPENING.
  4. 2'-0" MAXIMUM DISTANCE FROM OUTSIDE OF MANHOLE TO FIRST PIPE JOINT. (EACH SIDE OF MANHOLE)
  5. PAY ITEM DOES NOT INCLUDE PIPING.

SECTION

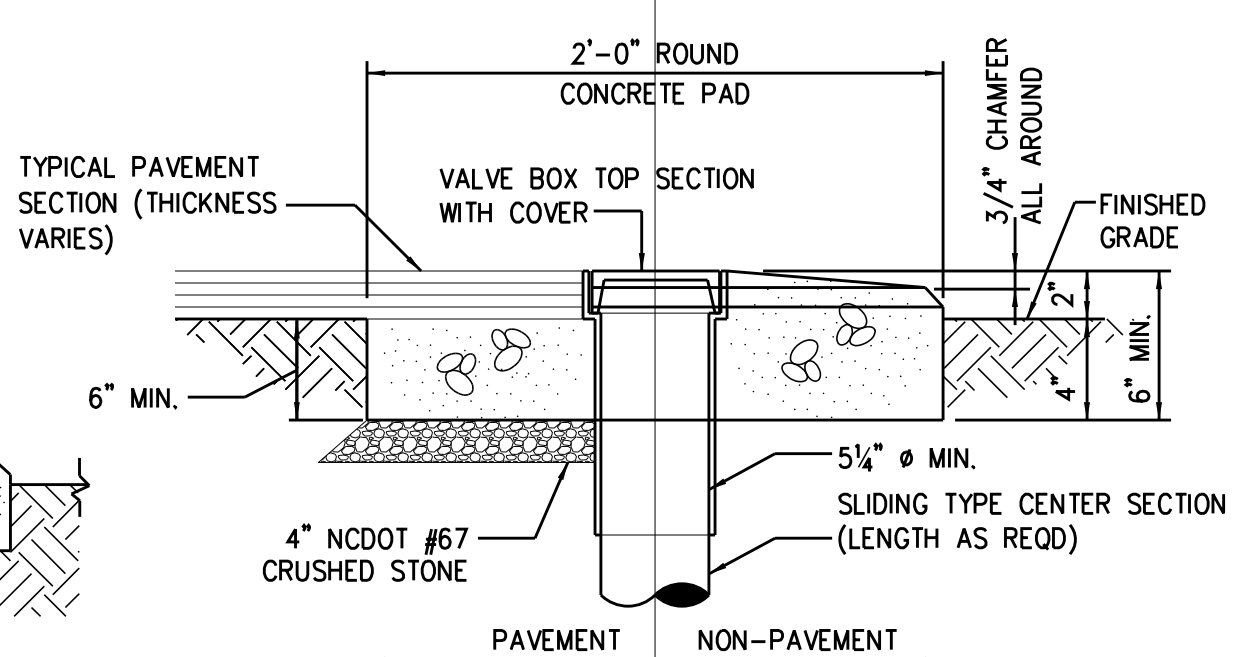


PLAN

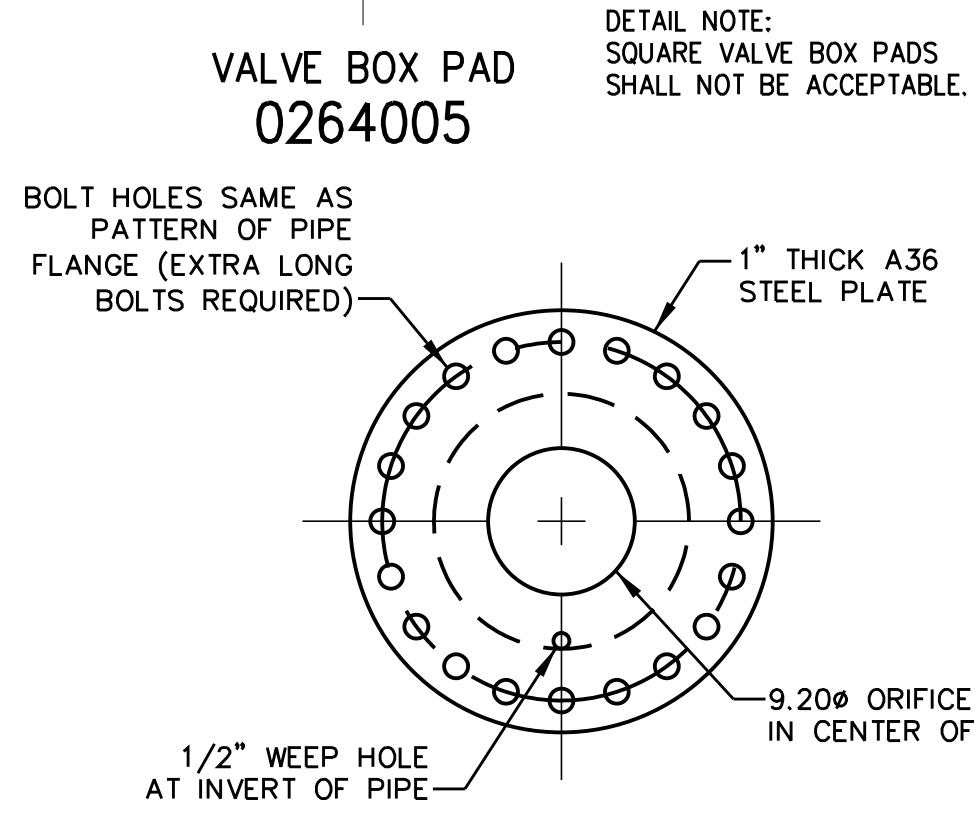
**GATE VALVE ASSEMBLY  
(FOR 14" AND 16" VALVES)  
0264001R**



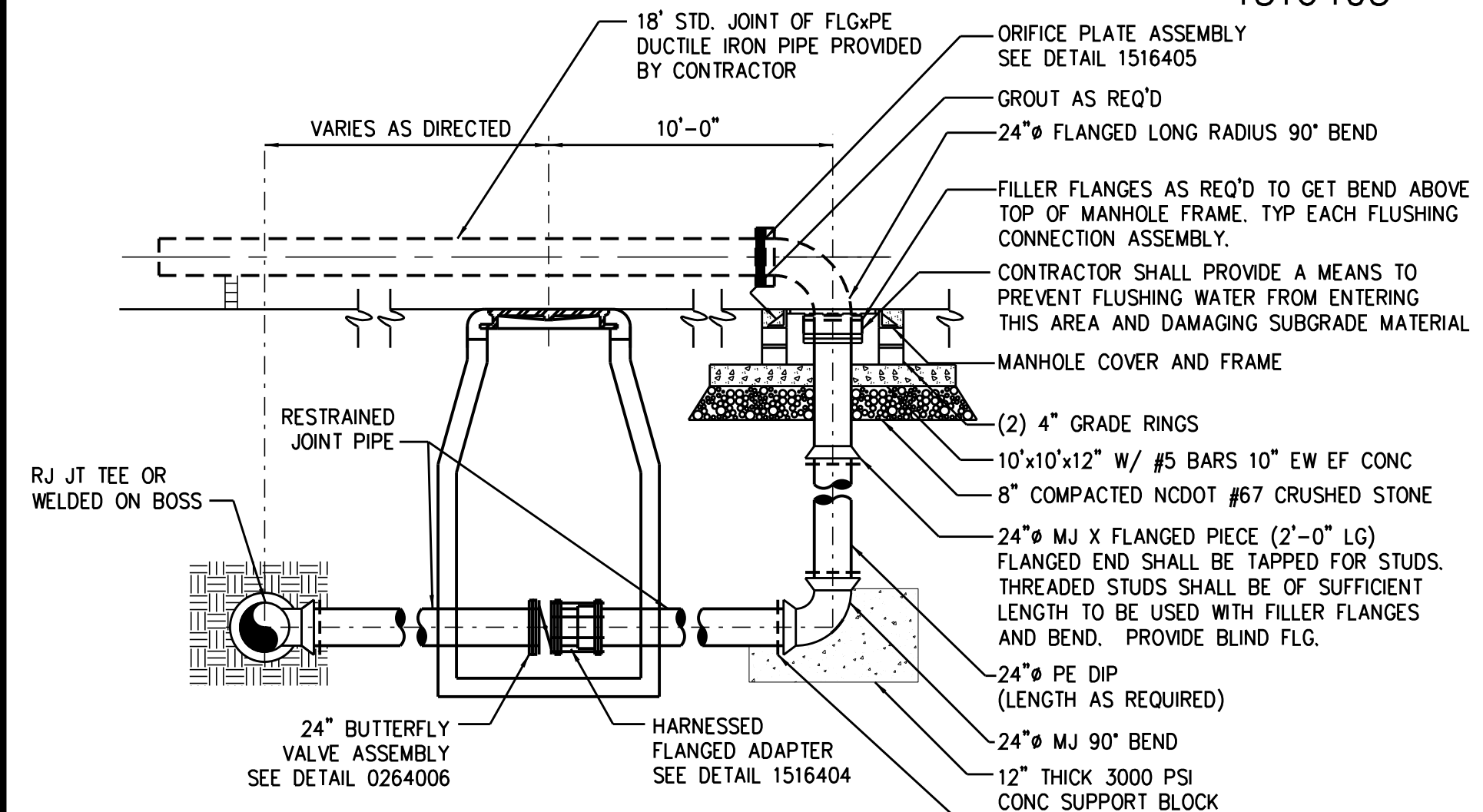
**GATE VALVE ASSEMBLY  
(FOR 4" THRU 12" VALVES)  
0264013**



**VALVE BOX PAD  
0264005**

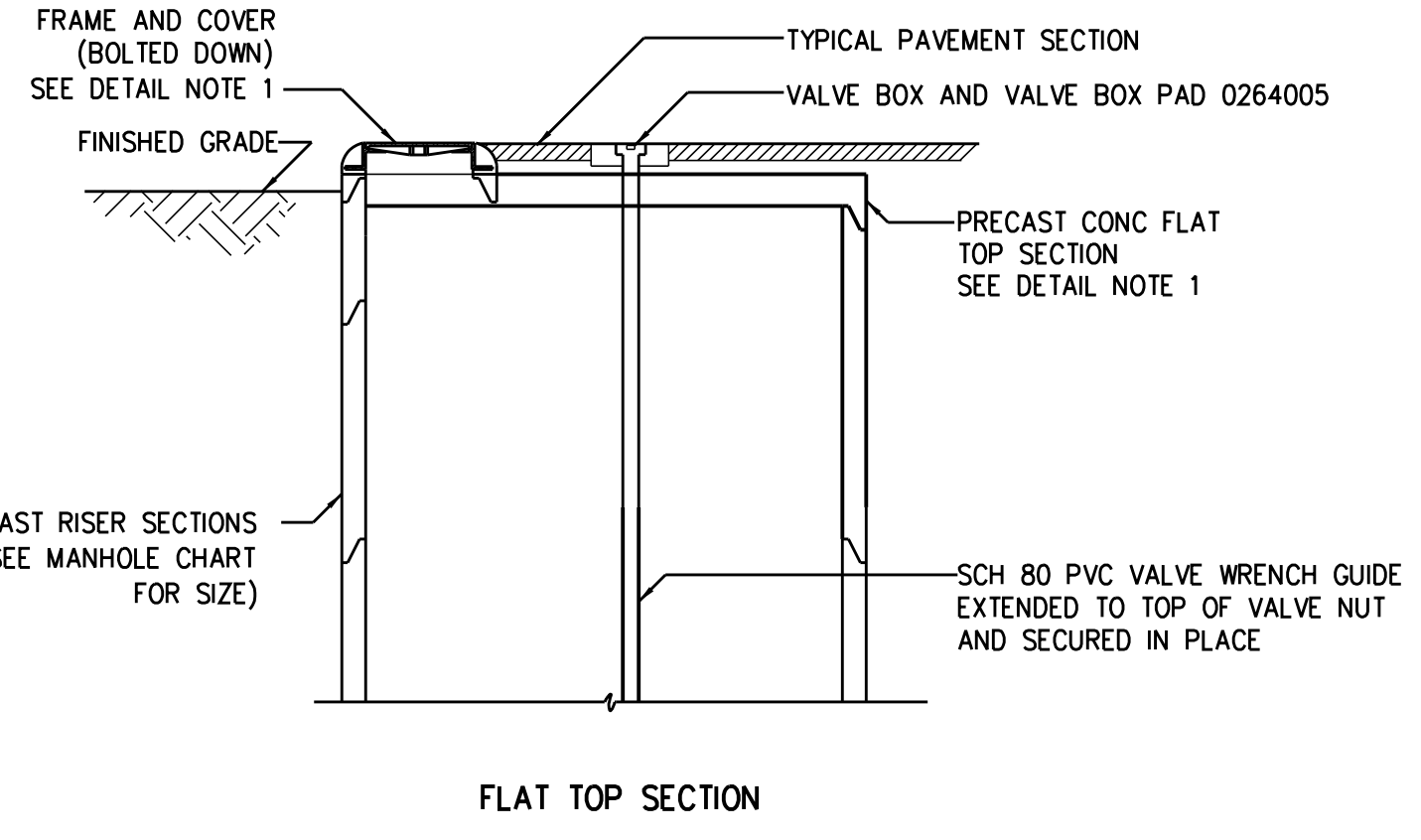


**ORIFICE PLATE ASSEMBLY  
1516405**

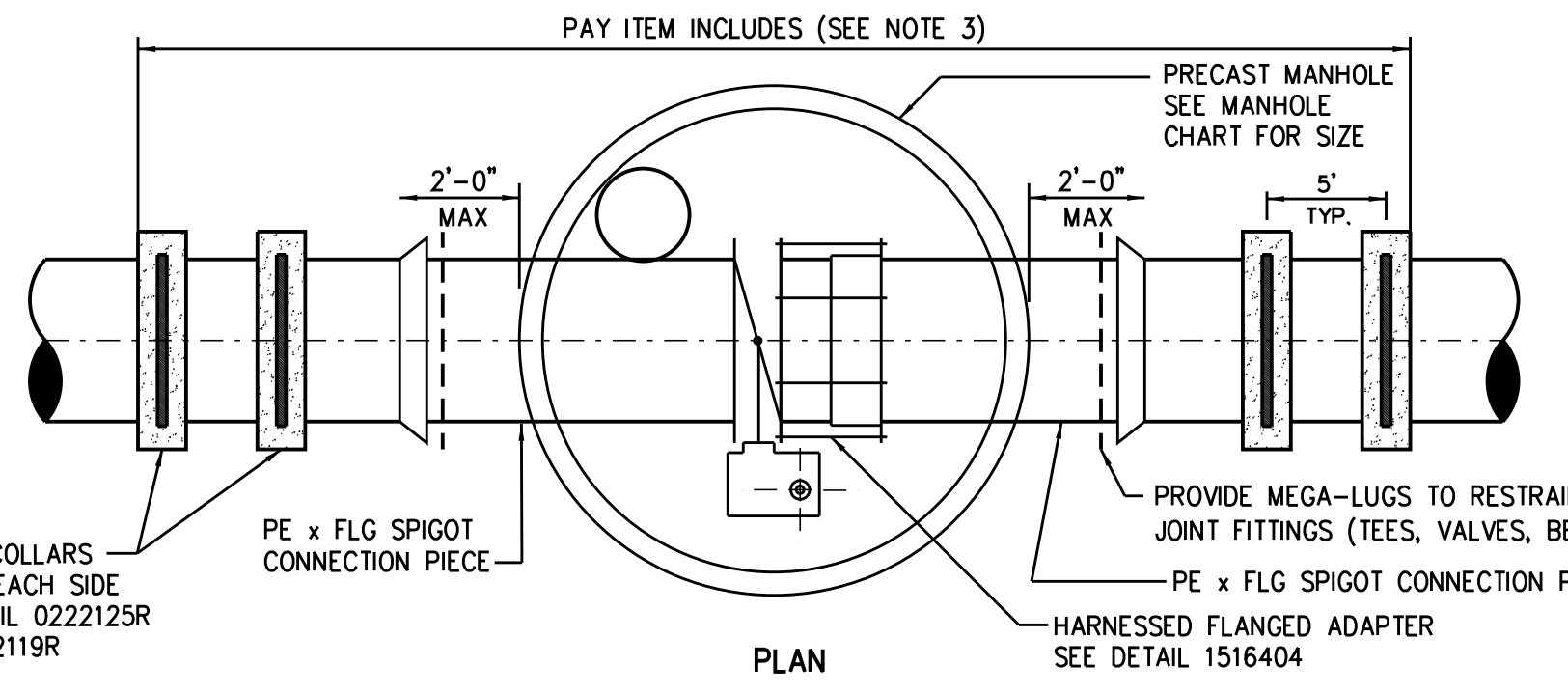


**FLUSHING CONNECTION ASSEMBLY  
0260118**

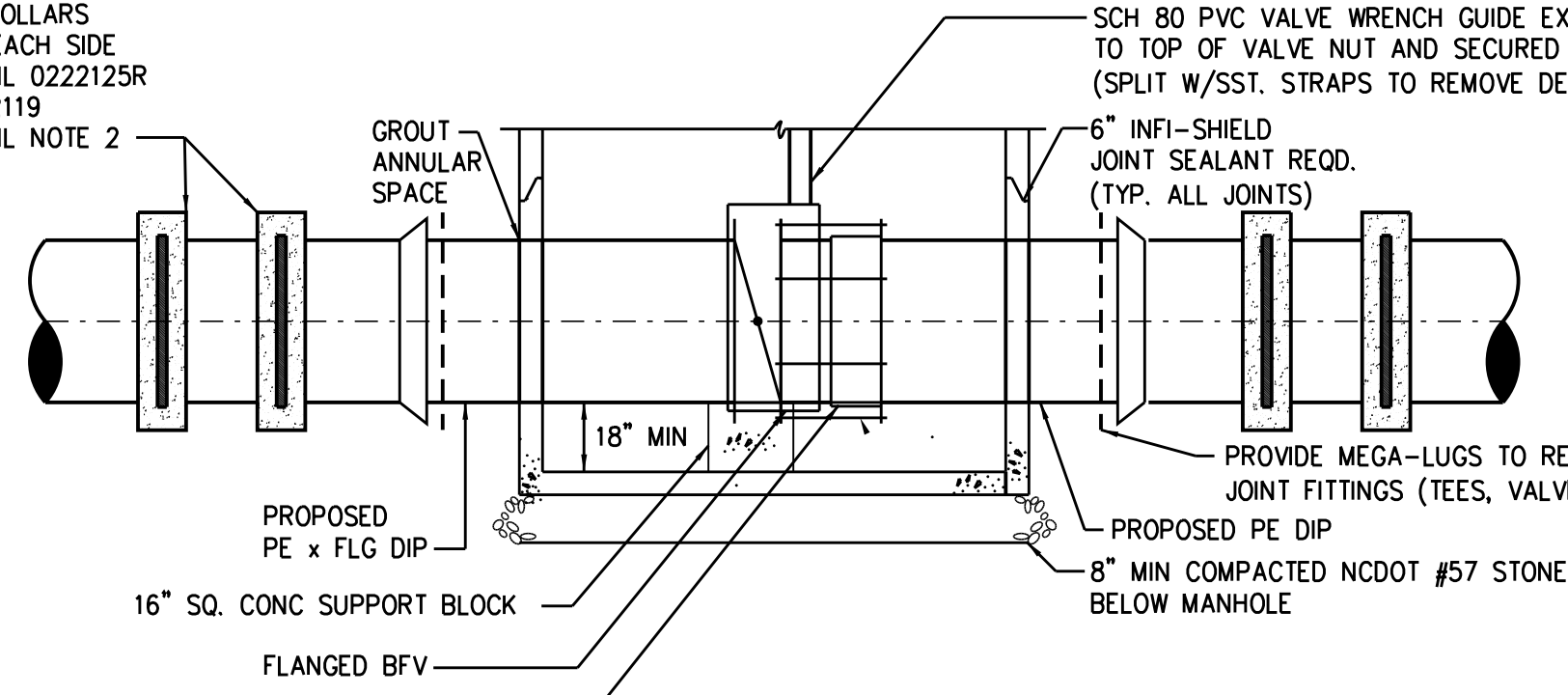
NOTE: THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER/CITY OF DURHAM FOR CONTROL OF FLUSHING WATER



FLAT TOP SECTION



PLAN

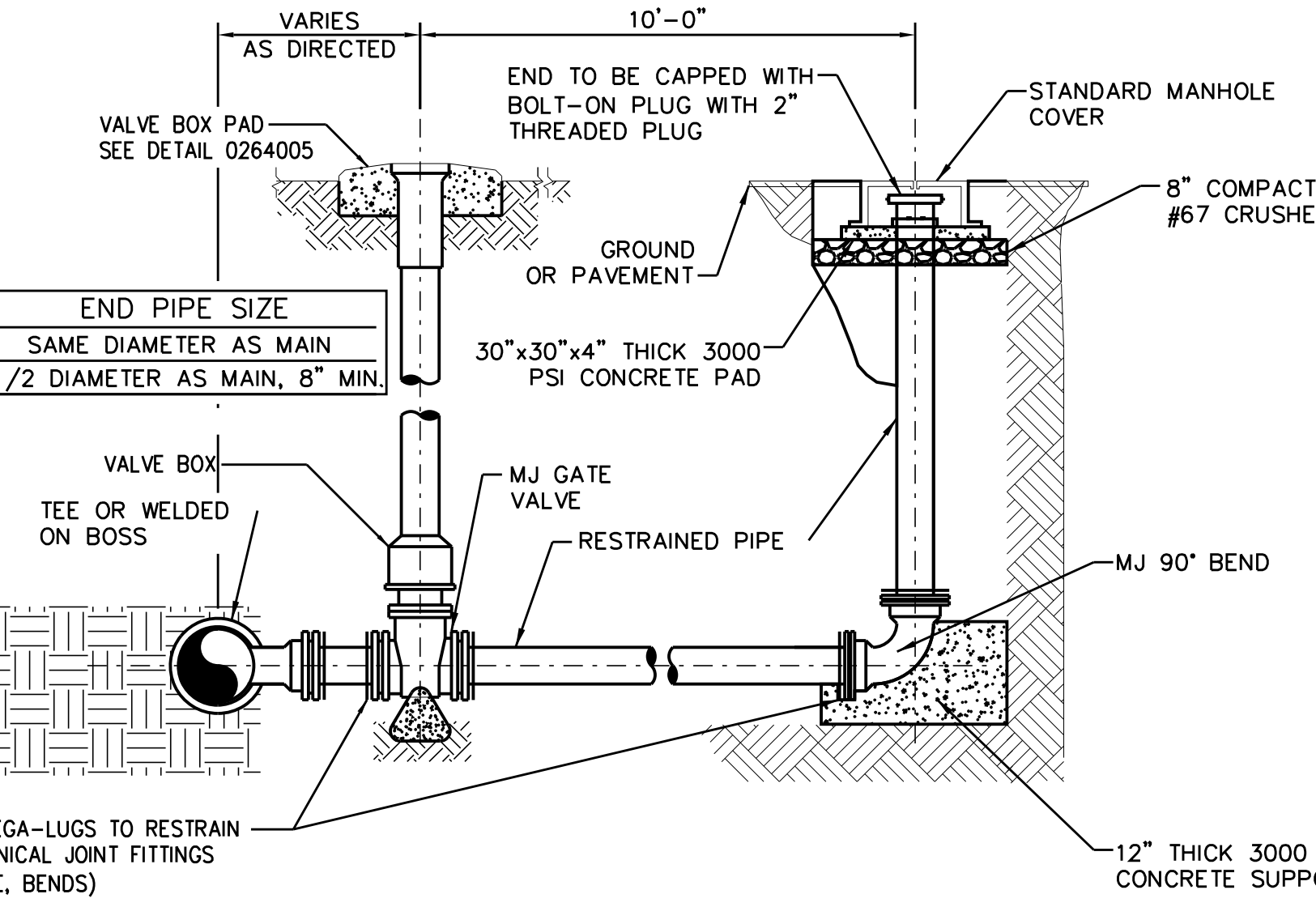


BASE SECTION

**TYPICAL BUTTERFLY VALVE ASSEMBLY  
(FOR 18-INCH THRU 36-INCH VALVES)  
0264006**

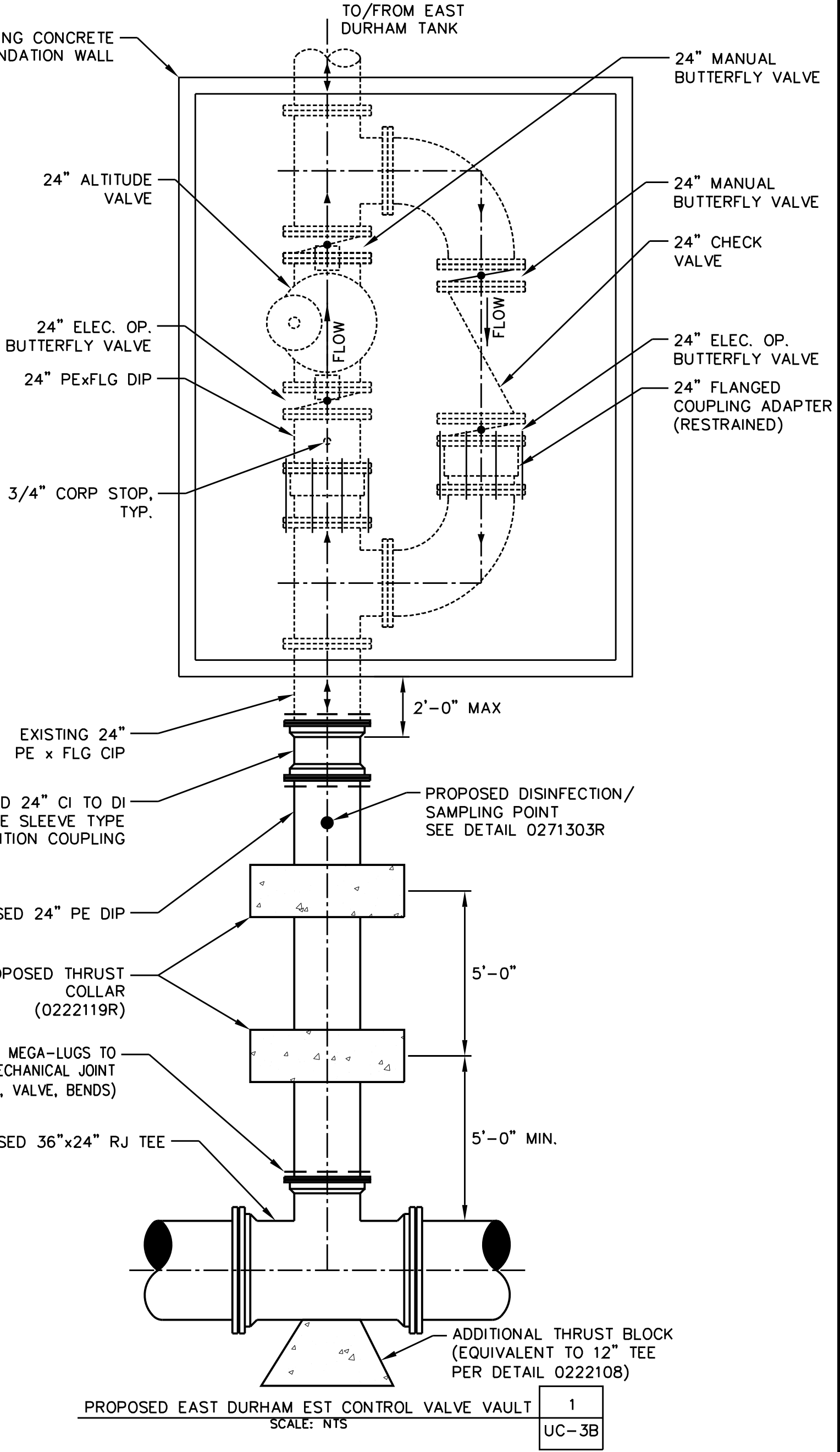
- DETAIL NOTES:**
1. VALVE MANHOLES LOCATED WITHIN NCDOT ROADWAY PAVEMENT SECTIONS SHALL REQUIRE THE TOP OF THE FLAT TOP SLAB TO BE 15" BELOW THE BOTTOM OF THE PAVEMENT.
  2. THRUST COLLARS ARE NOT REQUIRED ON FLUSHING CONNECTION ASSEMBLY VALVE (DETAIL 0260118)
  3. PAY ITEM DOES NOT INCLUDE PIPING.

| MAIN SIZE | END PIPE SIZE                 |
|-----------|-------------------------------|
| 6" - 12"  | SAME DIAMETER AS MAIN         |
| 16" - 36" | 1/2 DIAMETER AS MAIN, 8" MIN. |



**TEMPORARY WATERLINE  
BLOW OFF ASSEMBLY  
0271304**

| VALVE SIZE | MANHOLE SIZE |
|------------|--------------|
| 18"        | 6'-0" DIA    |
| 20"        | 6'-0" DIA    |
| 24"        | 7'-0" DIA    |
| 30"        | 7'-0" DIA    |
| 36"        | 8'-0" DIA    |
| 42"        | 10'-0" DIA   |



**PROPOSED EAST DURHAM EST CONTROL VALVE VAULT  
SCALE: NTS**

PROJECT REFERENCE NO. U-3308 SHEET NO. UC-3B

DESIGNED BY: JAR  
DRAWN BY: JGB  
CHECKED BY: JJW  
APPROVED BY: JJW

REVISIONS:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION PLANS ONLY

PREPARED IN THE OFFICE OF:

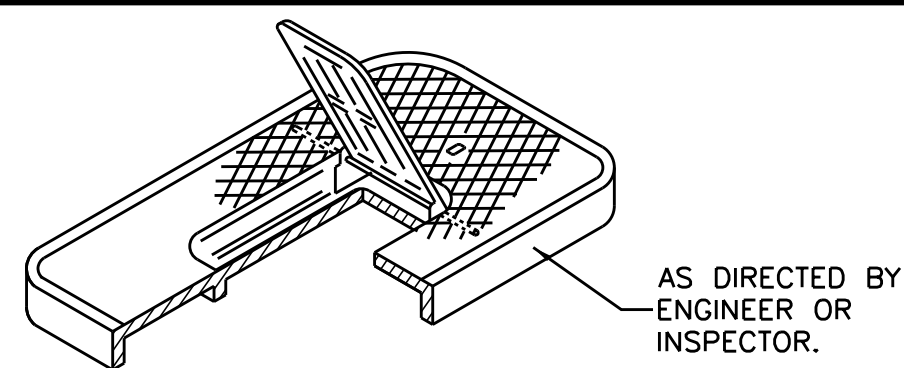
**Kimley Horn**

P.O. BOX 33068  
RALEIGH, NORTH CAROLINA 27636-3068  
PHONE: (919) 677-2000  
FAX: (919) 677-2050  
PE NO. F-0102

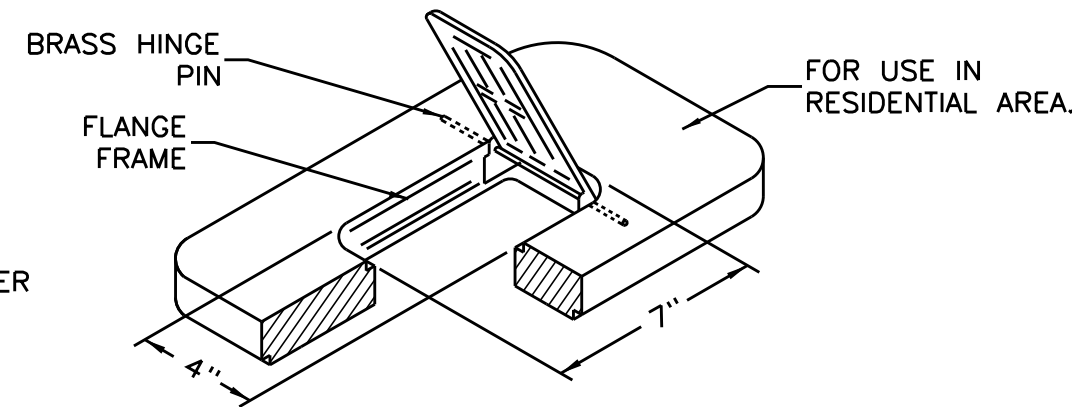


5/14/99

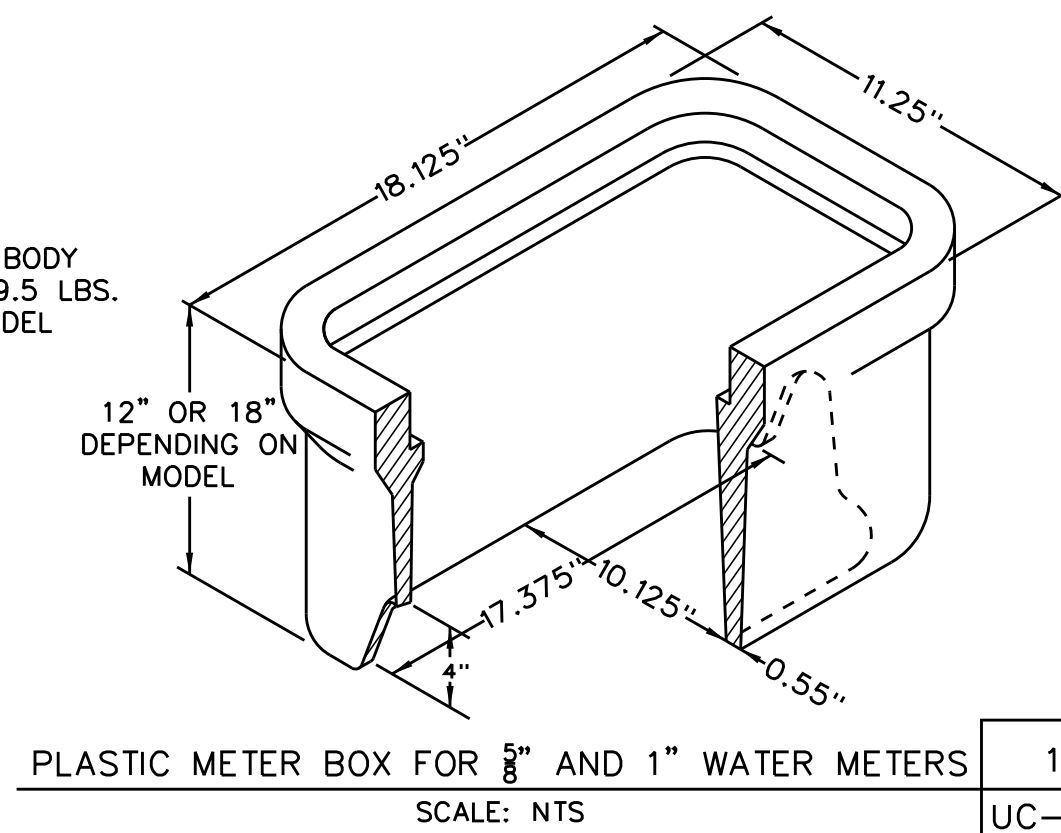
NO. 33. T - DUCTILE IRON COVER WITH DUCTILE IRON HINGE LID WEIGHT 18 LBS.



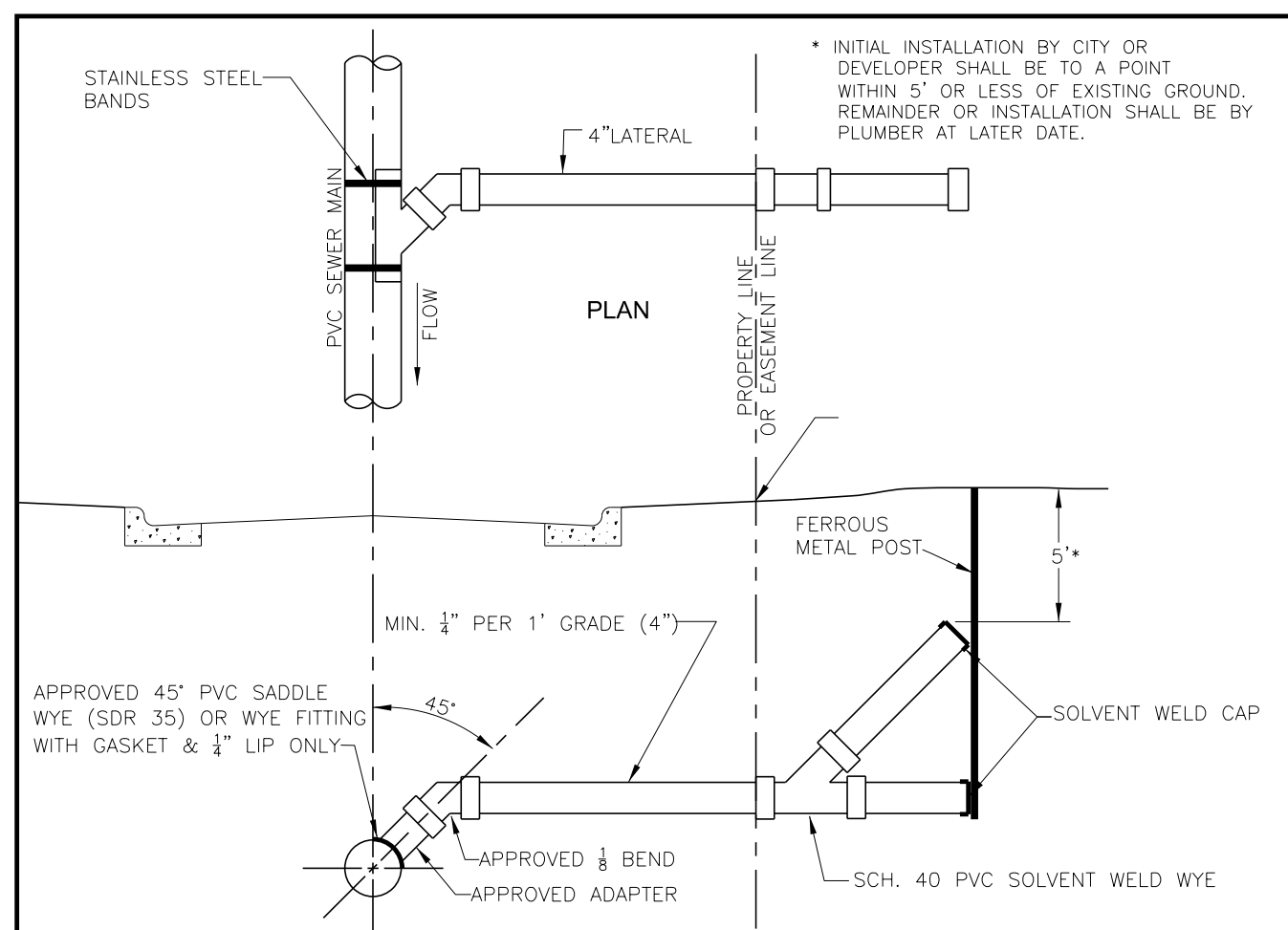
NO. 33. H - PLASTIC COVER WITH PLASTIC HINGE LID WEIGHT 8 LBS.



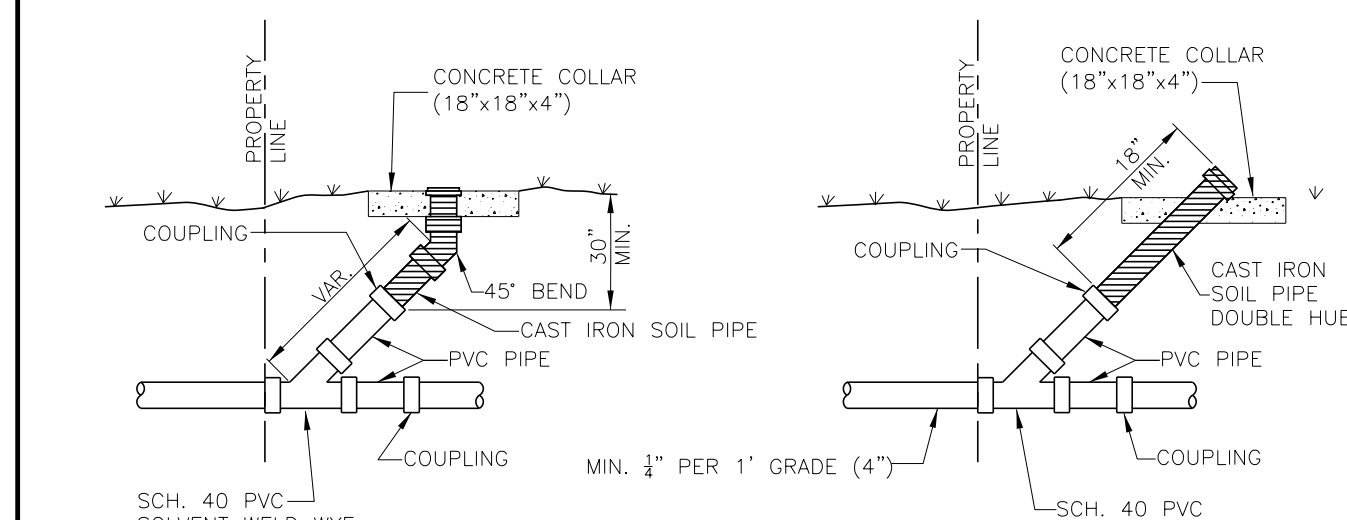
NO. 33. - PLASTIC BODY WEIGHT 15 LBS. OR 19.5 LBS. DEPENDING ON MODEL



1 UC-3C



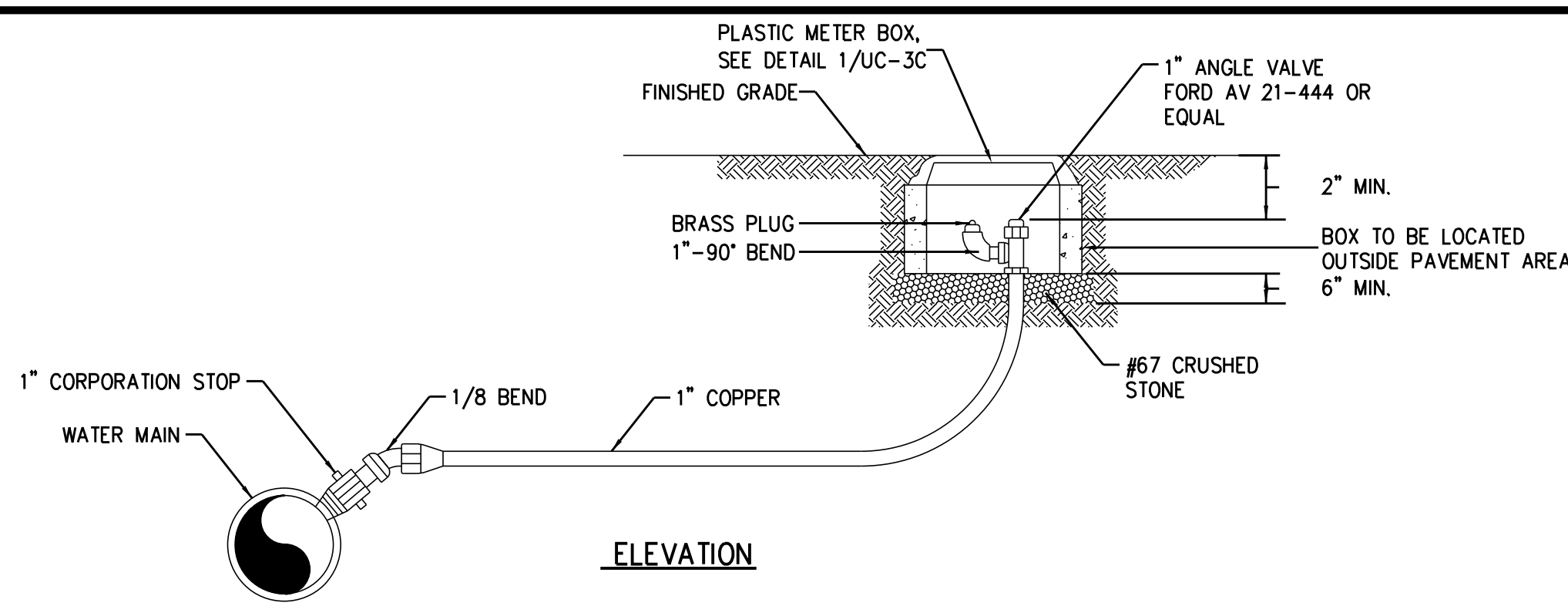
STANDARD SEWER MAIN LATERAL STUB-OUT



CLEAN OUT DETAILS

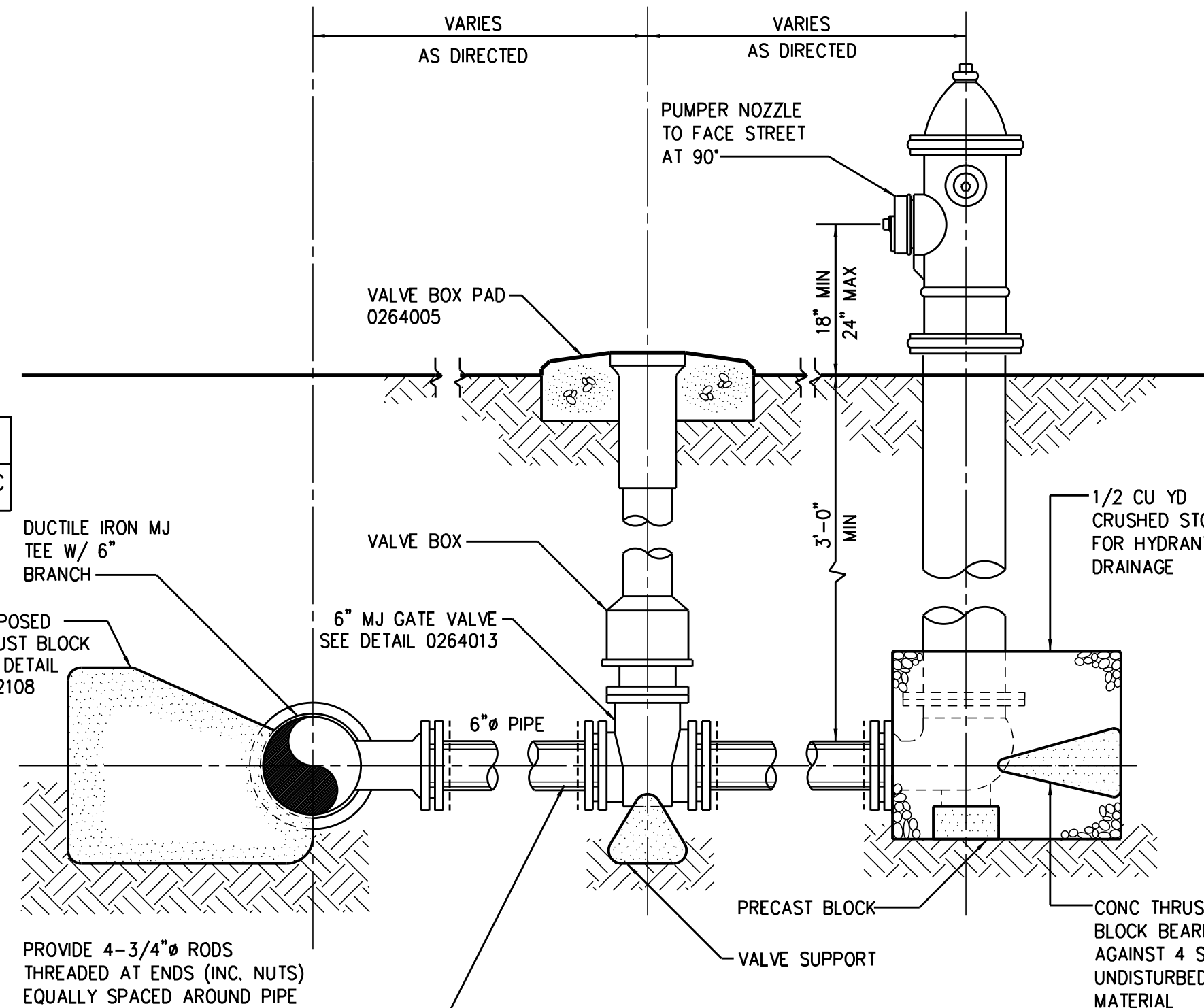
|                         |                           |   |                   |
|-------------------------|---------------------------|---|-------------------|
| DURHAM CITY OF RESPONSE | SANITARY SEWER LATERAL    |   | SCALE: NTS        |
|                         | 4" SEWER LATERAL          |   | DETAIL NO. SS-1.0 |
|                         | REVISION DATE: 05/21/2008 | CITY OF DURHAM, NORTH CAROLINA DEPARTMENT OF PUBLIC WORKS |                   |

NOTE: CONTRACTOR SHALL FIELD LOCATE EXISTING SANITARY SEWER SERVICES PRIOR TO INSTALLATION OF PROPOSED MAIN LINE SANITARY SEWER.



ELEVATION

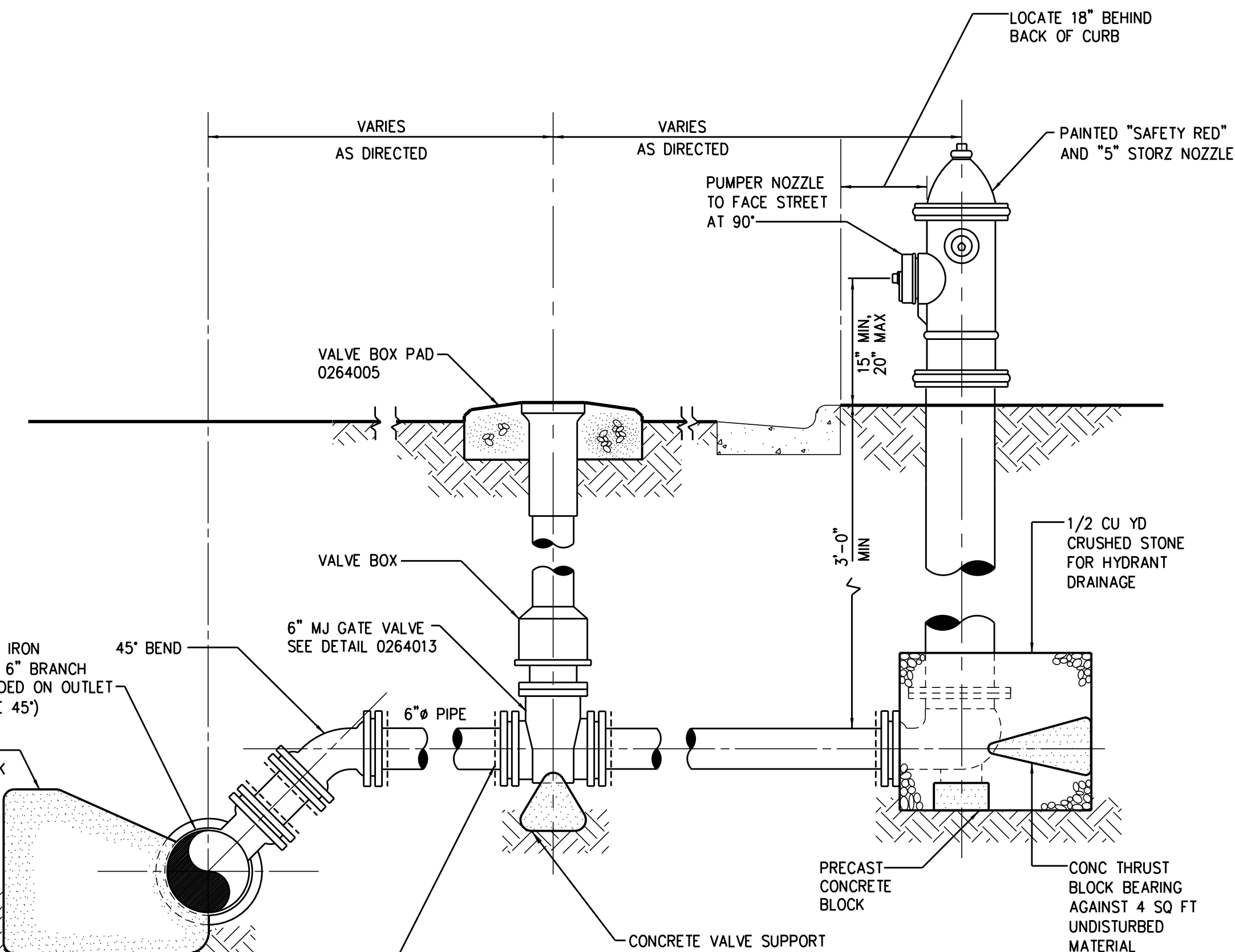
DISINFECTION AND SAMPLING POINT 0271303R



FIRE HYDRANT 1553000

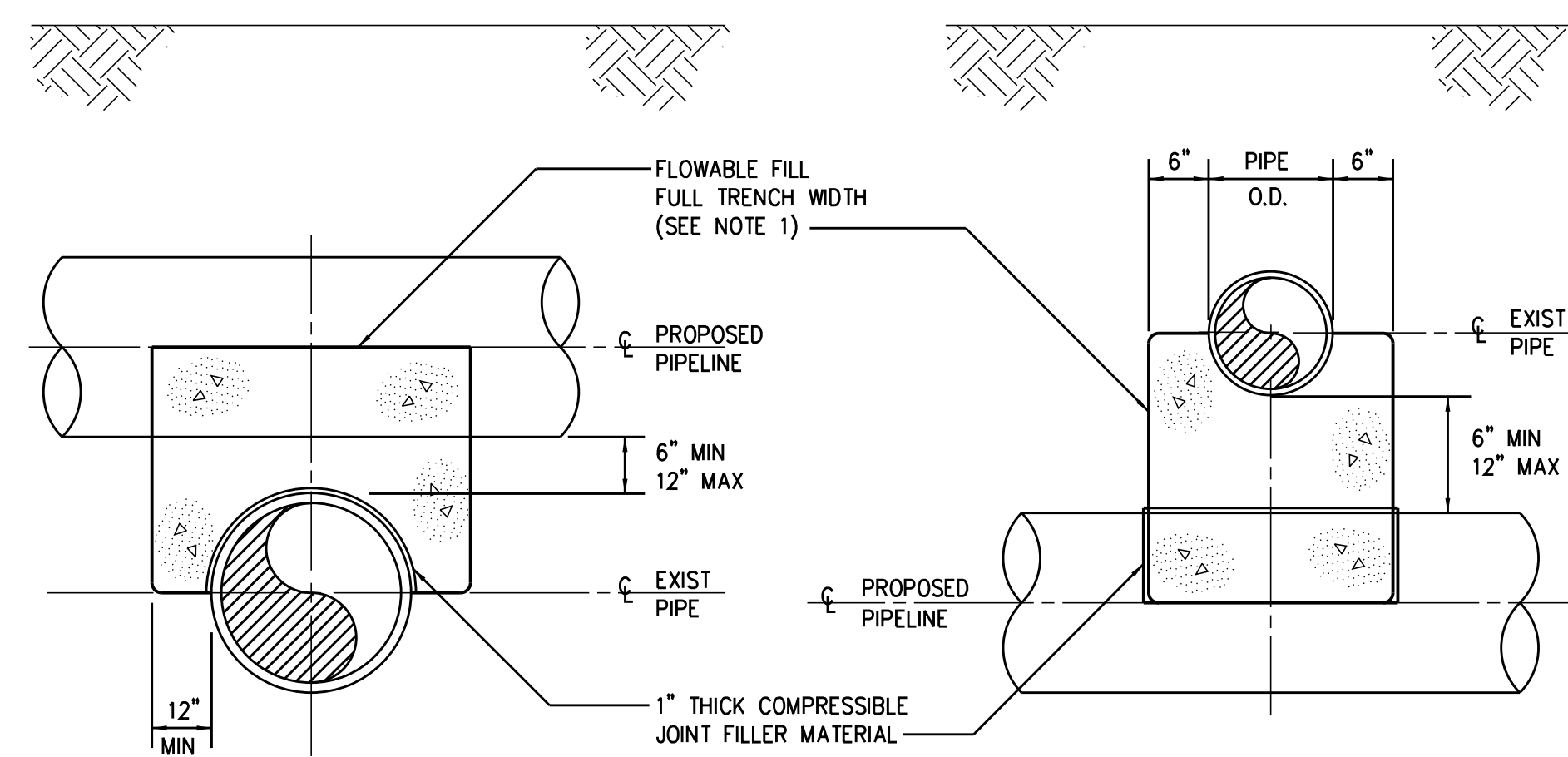
PROVIDE 4-3/4" RODS THREADED AT ENDS (INC. NUTS) EQUALLY SPACED AROUND PIPE BETWEEN ALL MECHANICAL JOINT FITTINGS (TEE, VALVE, BEND)

- DETAIL NOTES:
- LOCATE HYDRANT 18" FROM BACK OF CURB OR 12" INSIDE R/W.
  - ALL PIPE AND FITTINGS SHALL BE RESTRAINED WITH MECHANICAL JOINT RETAINER GLANDS



AIR RELEASE ASSEMBLY (USED IN-LIEU OF ARV) 1553000R

PROVIDE MEGA-LUGS TO RESTRAIN ALL MECHANICAL JOINT FITTINGS (TEE, VALVE, BEND)

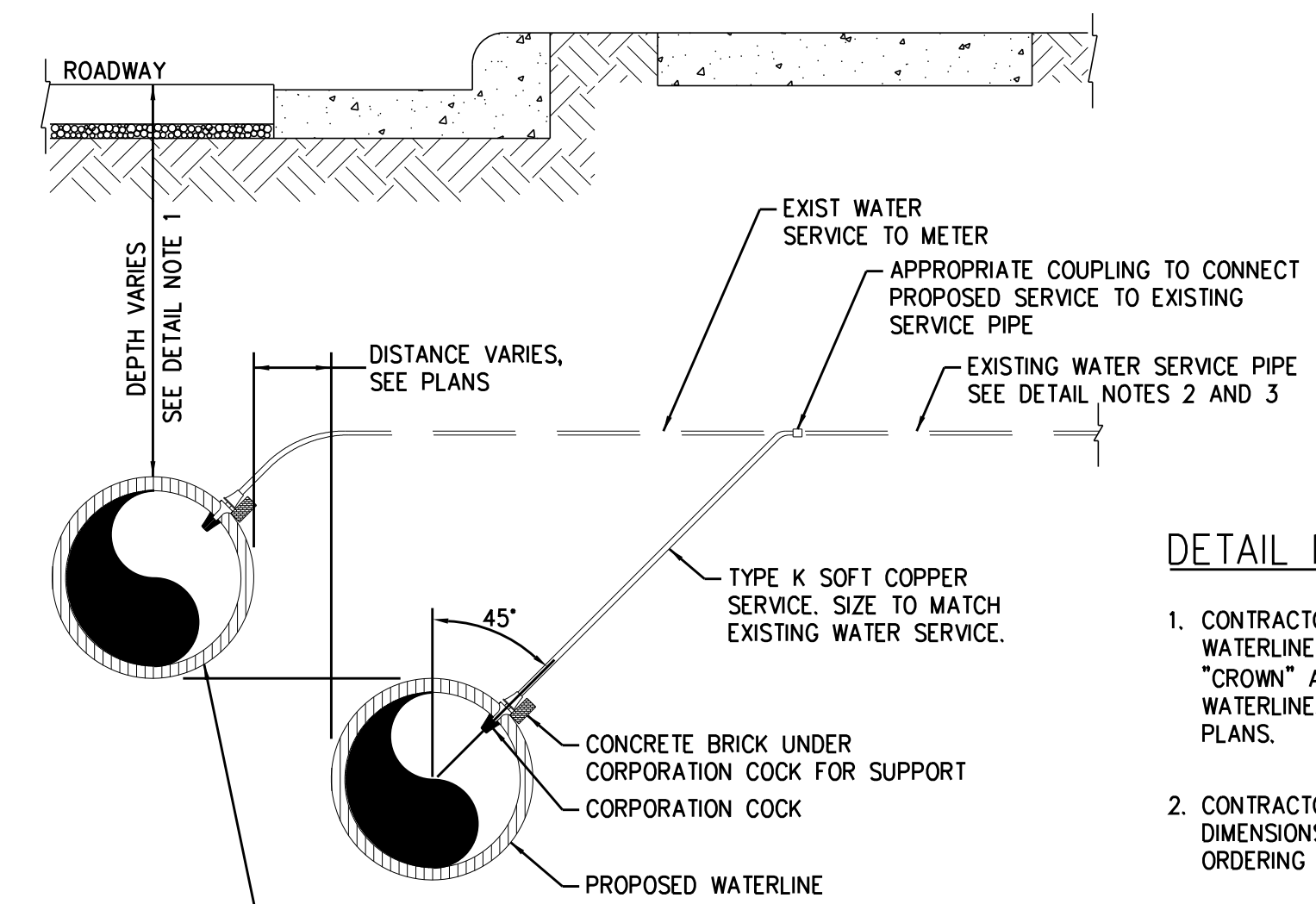


PROPOSED PIPELINE OVER EXIST PIPE

PROPOSED PIPELINE UNDER EXIST PIPE

0222118

NOTE: NO ENCASEMENT REQUIRED FOR SPACE GREATER THAN 12"



TYPICAL SERVICE CONNECTION

0260121

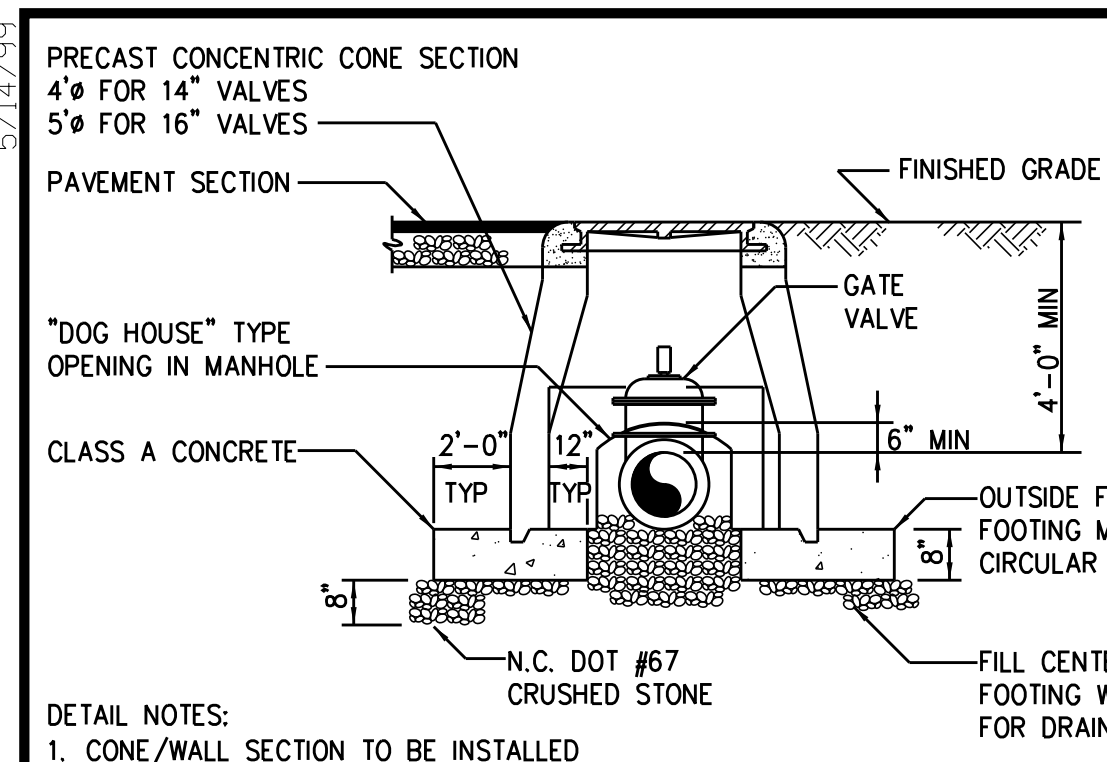
DETAIL NOTES:

- CONTRACTOR SHALL VERIFY DEPTH OF EXISTING WATERLINE AND LOCATE PROPOSED WATERLINE "CROWN" AT THE "INVERT" OF THE EXISTING WATERLINE, UNLESS OTHERWISE SHOWN ON THE PLANS.
- CONTRACTOR SHALL VERIFY EXACT MATERIALS AND DIMENSIONS OF EXISTING WATER SERVICES PRIOR TO ORDERING MATERIALS.
- CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER IF THERE ARE COMPLICATIONS WITH CONNECTING TO THE EXISTING WATERLINE.

|   |   |
|---|---|
| PROJECT REFERENCE NO.<br>U-3308   | SHEET NO.<br>UC-3C  |
| DESIGNED BY: KFC  |   |
| DRAWN BY: JGB   |   |
| CHECKED BY: DGB   |   |
| APPROVED BY: JJW  |   |
| REVISED:  | NORTH CAROLINA DEPARTMENT OF TRANSPORTATION<br>UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |
| PREPARED IN THE OFFICE OF:<br><b>Kimley»Horn</b><br>P.O. BOX 33068<br>RALEIGH, NORTH CAROLINA 27636-3068<br>PHONE: (919) 677-2000<br>FAX: (919) 677-2050<br>PE NO. F-0102 |   |
| UTILITY CONSTRUCTION PLANS ONLY   |   |

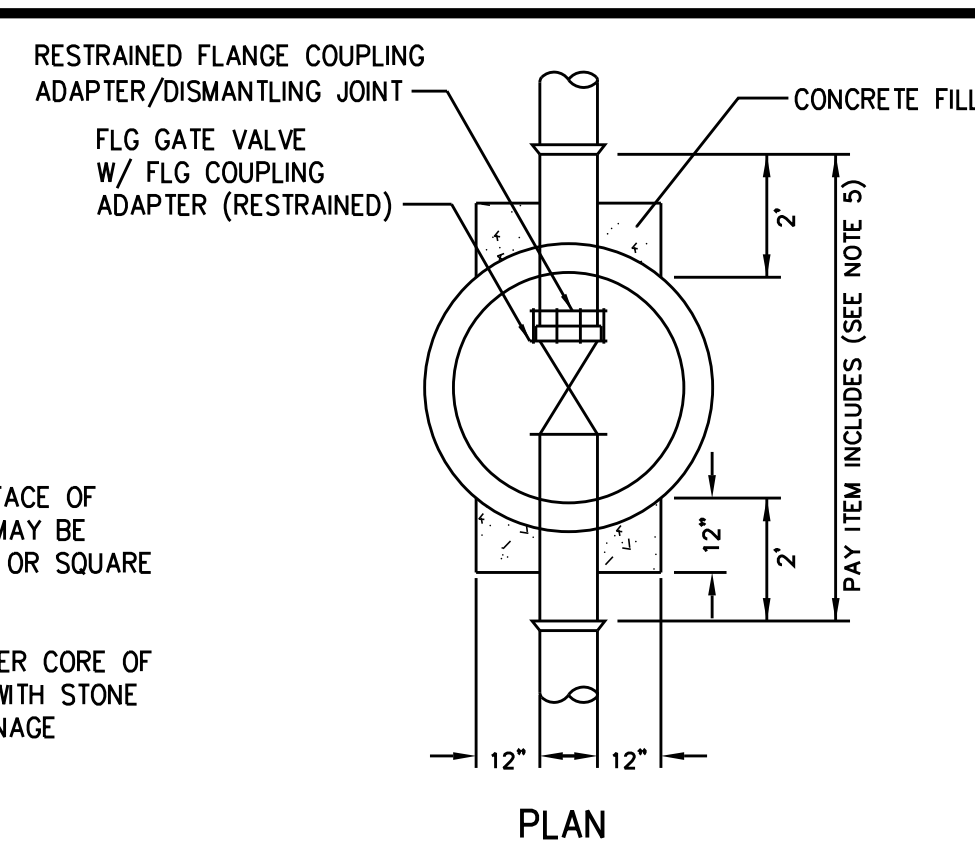
UTILITY CONSTRUCTION PLANS ONLY

5/14/19

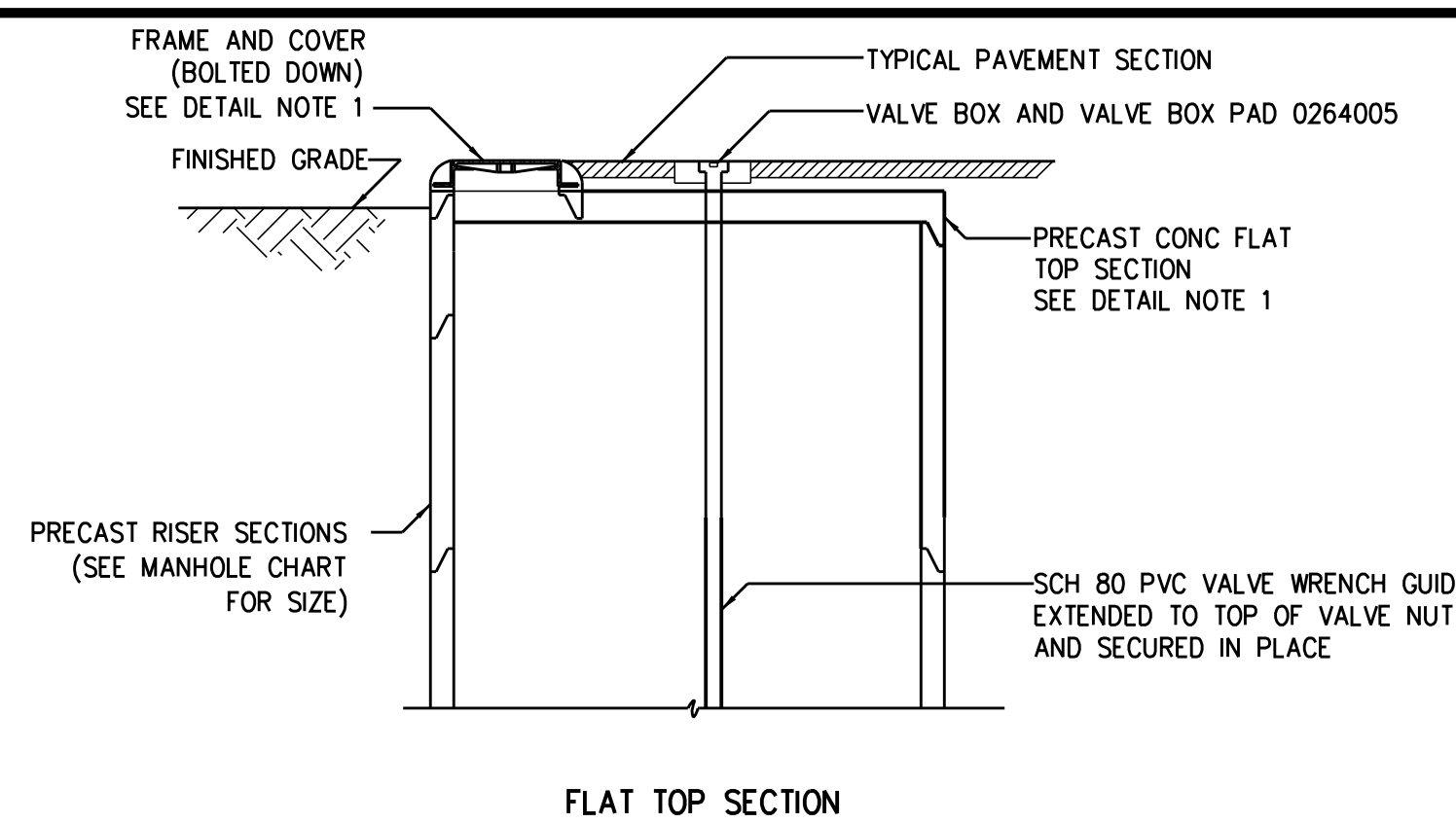


- DETAIL NOTES:**
1. CONE/WALL SECTION TO BE INSTALLED IN FRESHLY PLACED FOOTING TO INSURE UNIFORM BEARING.
  2. ADD BARREL SECTIONS TO MANHOLE AS NECESSARY.
  3. ELIMINATE FOOTING AT OPENING.
  4. 2'-0" MAXIMUM DISTANCE FROM OUTSIDE OF MANHOLE TO FIRST PIPE JOINT. (EACH SIDE OF MANHOLE)
  5. PAY ITEM DOES NOT INCLUDE PIPING.

**SECTION**



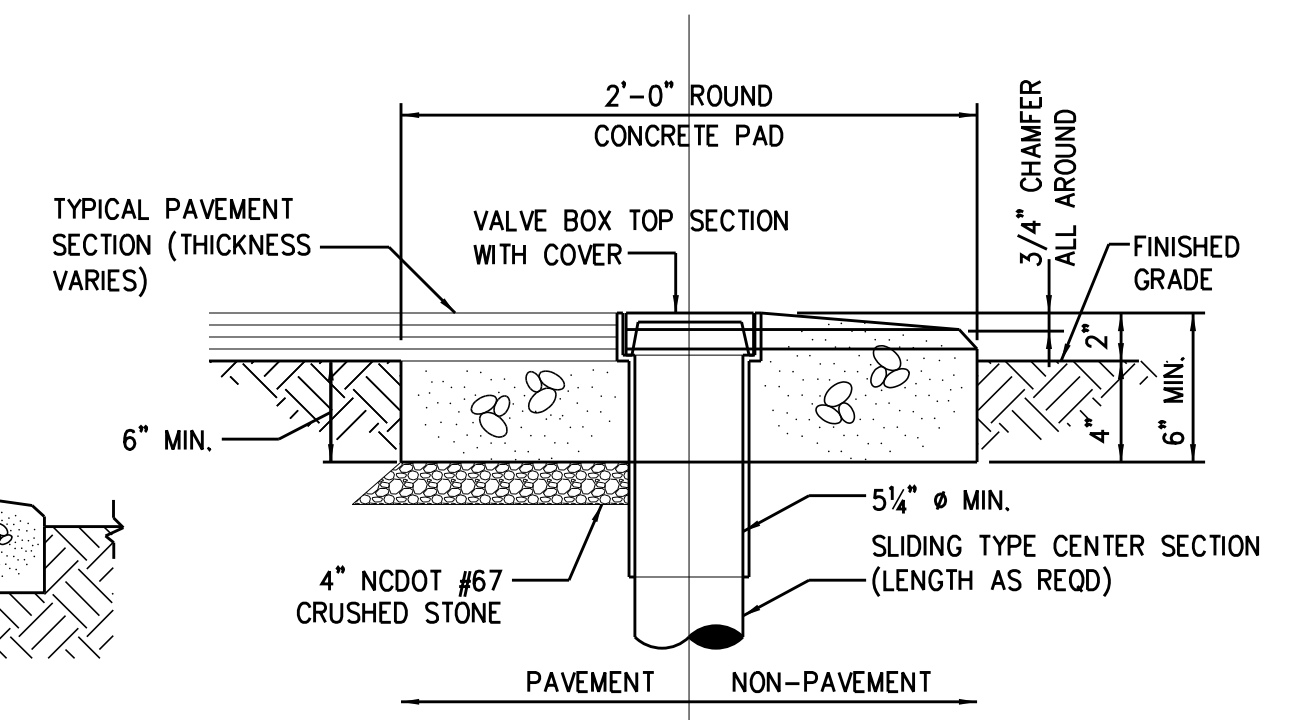
**PLAN**



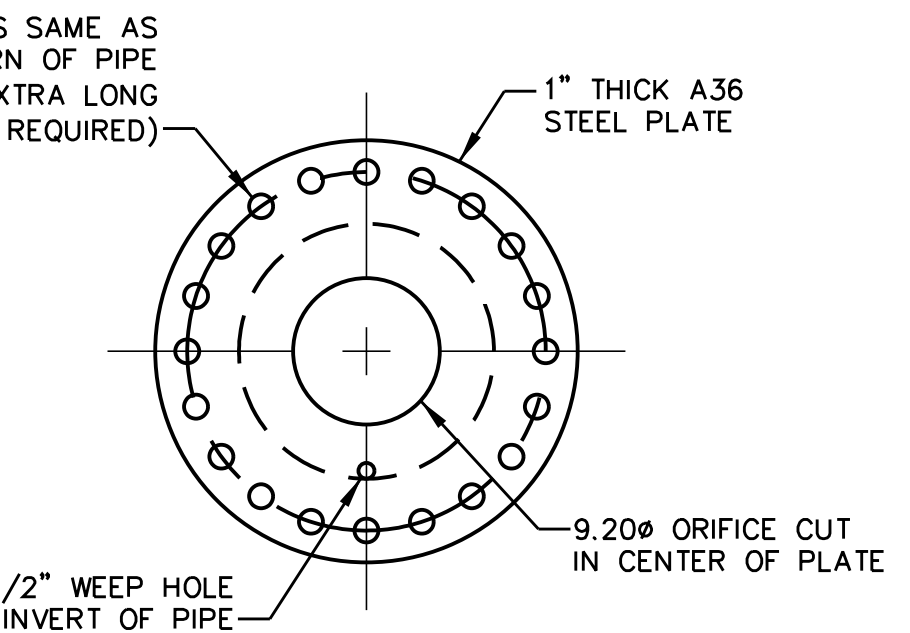
**FLAT TOP SECTION**

| MANHOLE CHART |              |
|---------------|--------------|
| VALVE SIZE    | MANHOLE SIZE |
| 18"           | 6'-0" DIA    |
| 20"           | 6'-0" DIA    |
| 24"           | 7'-0" DIA    |
| 30"           | 7'-0" DIA    |
| 36"           | 8'-0" DIA    |
| 42"           | 10'-0" DIA   |

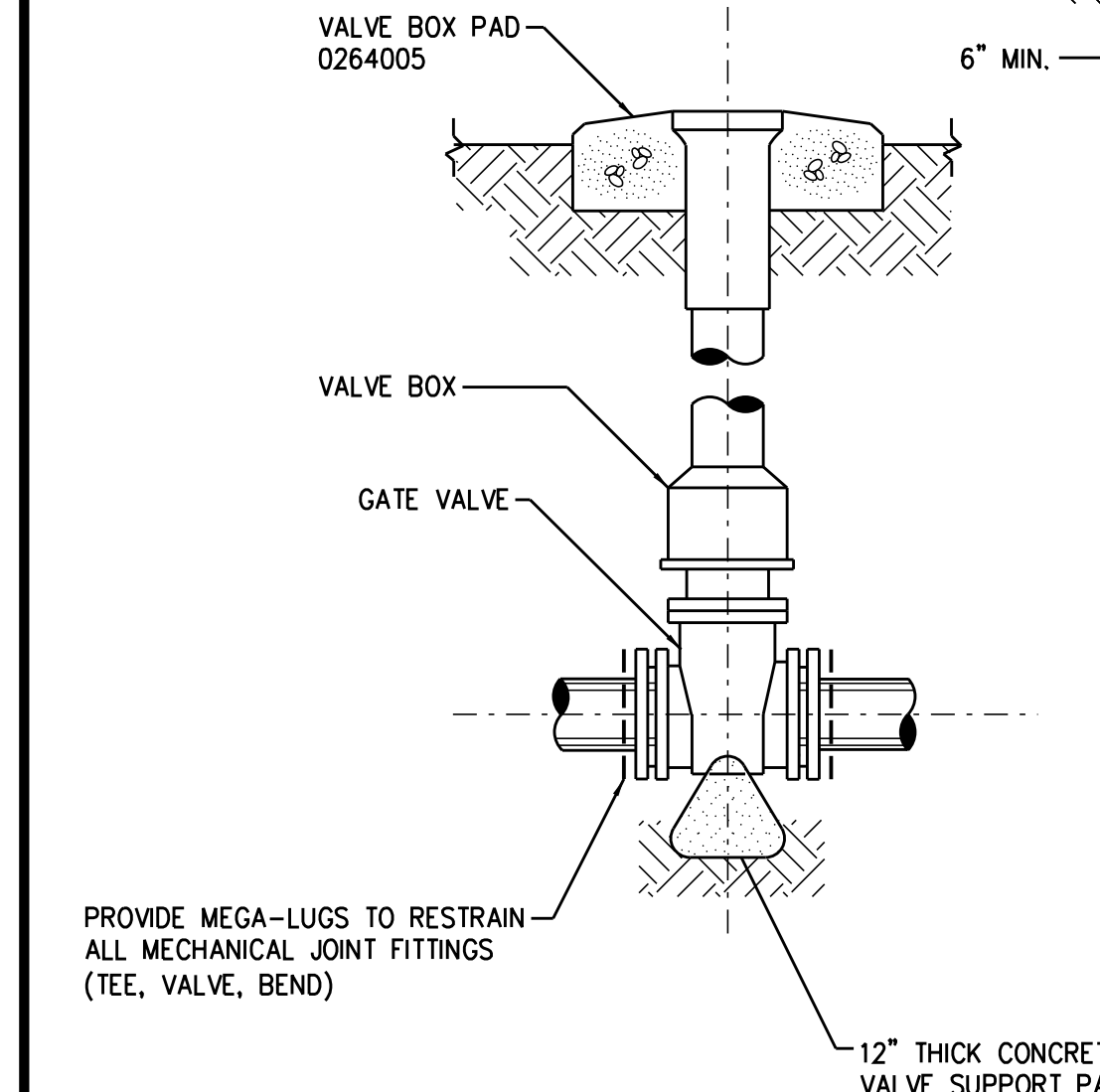
**GATE VALVE ASSEMBLY (FOR 14" AND 16" VALVES) 0264001R**



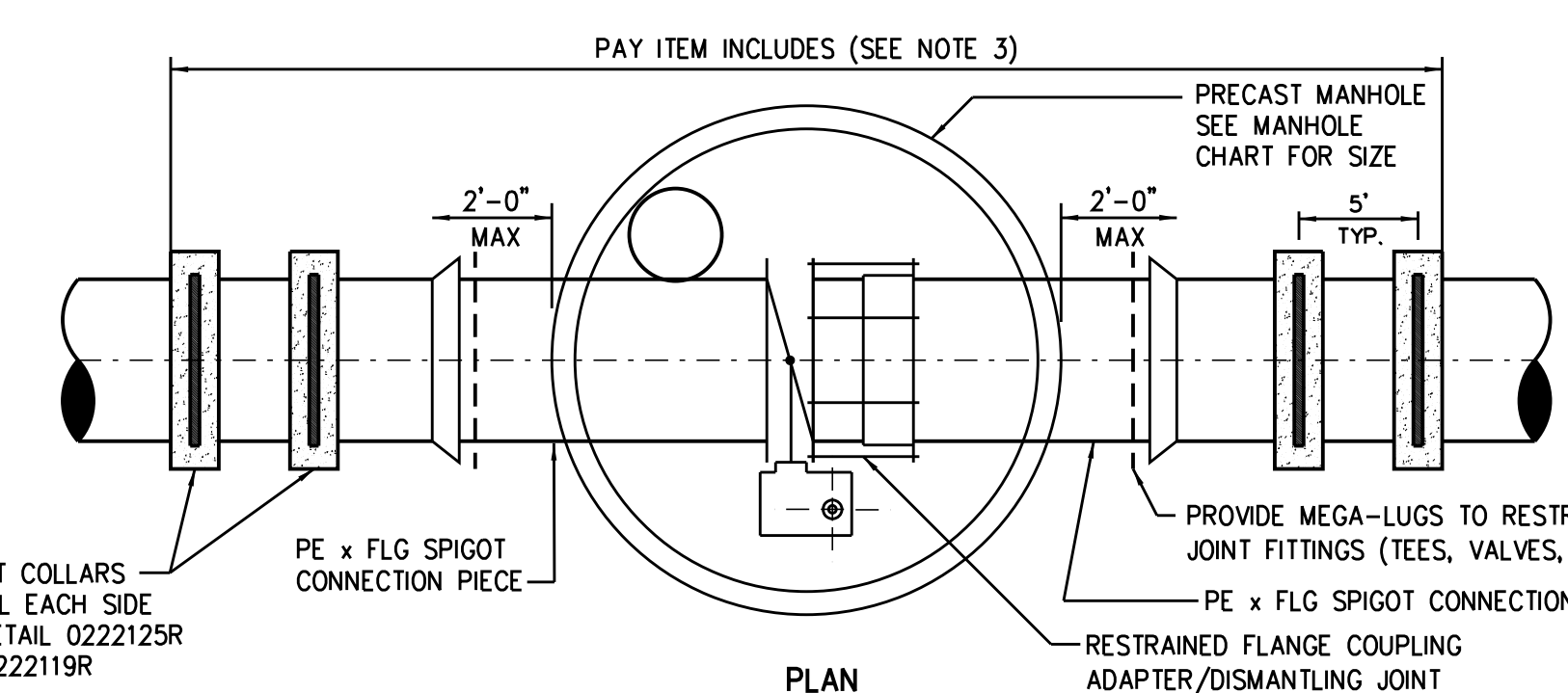
**VALVE BOX PAD 0264005**



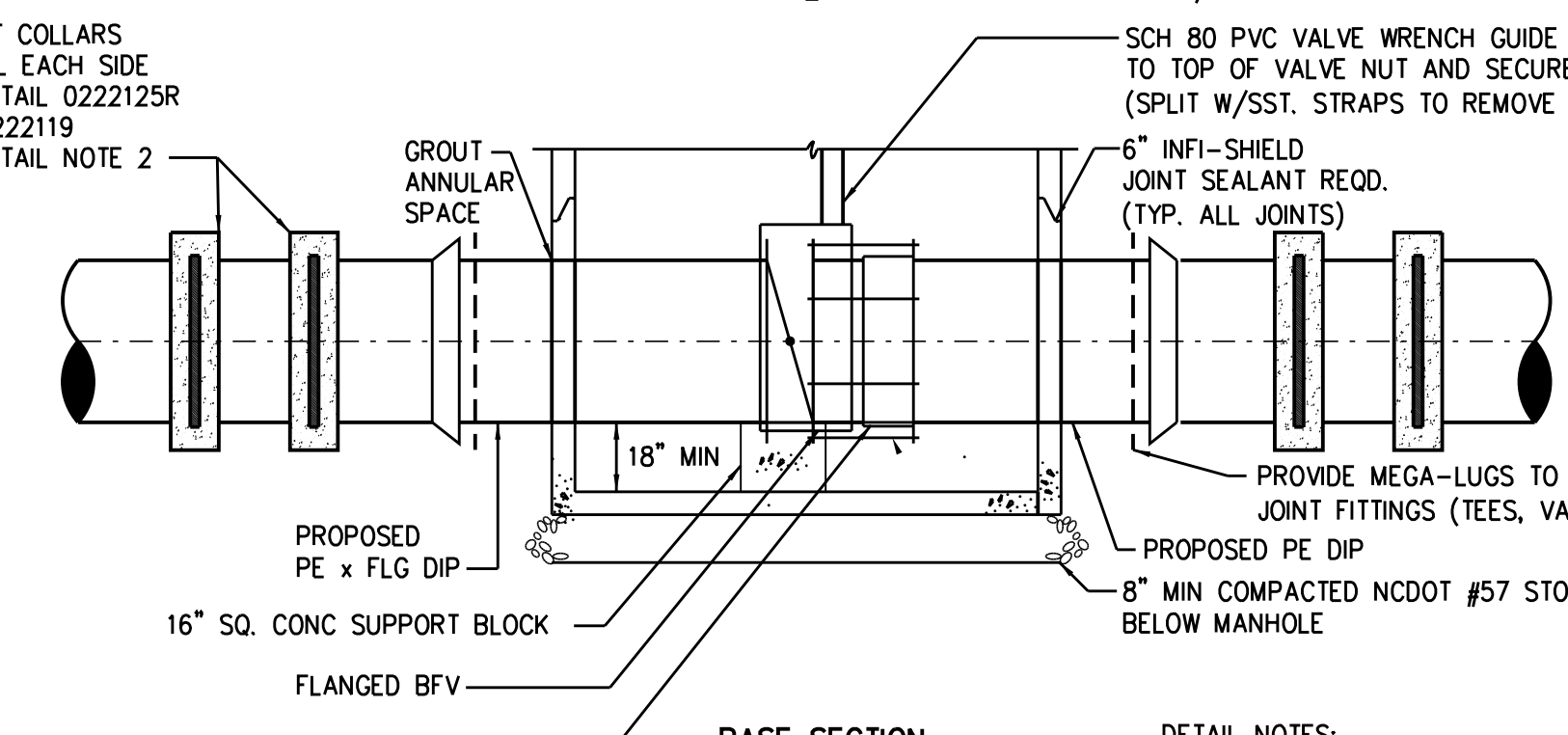
**ORIFICE PLATE ASSEMBLY 1516405**



**GATE VALVE ASSEMBLY (FOR 4" THRU 12" VALVES) 0264013**

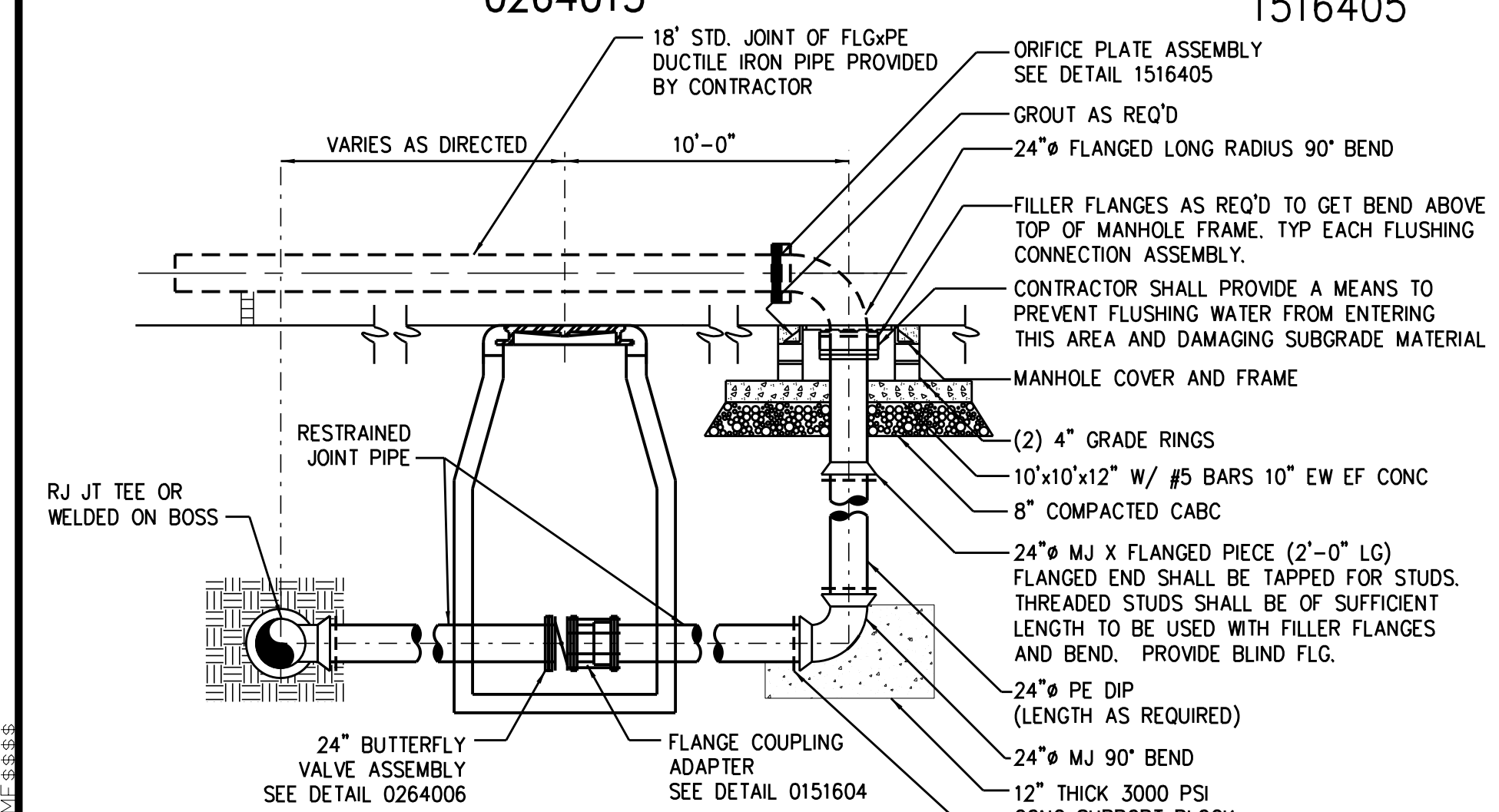


**PLAN**

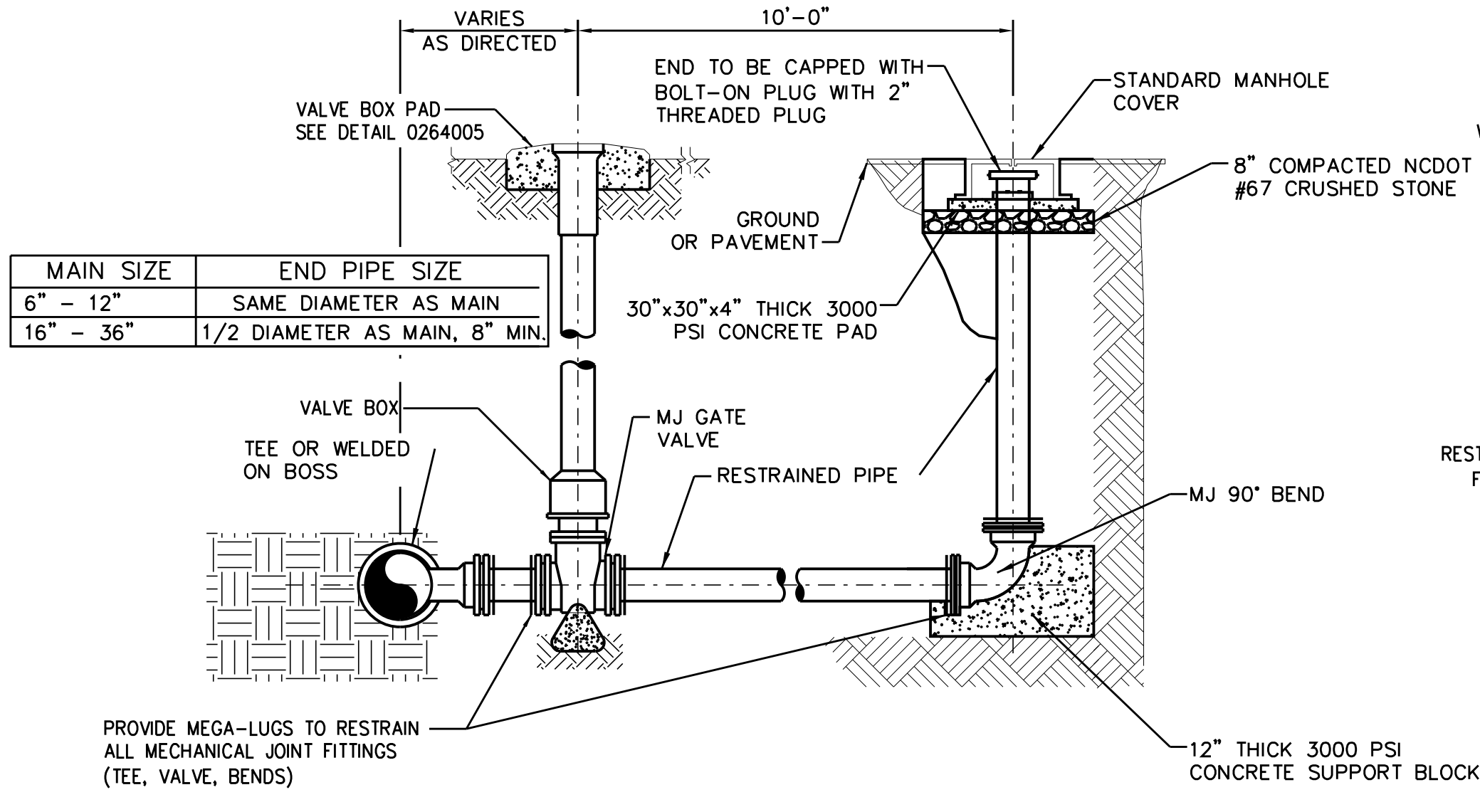


**BASE SECTION**

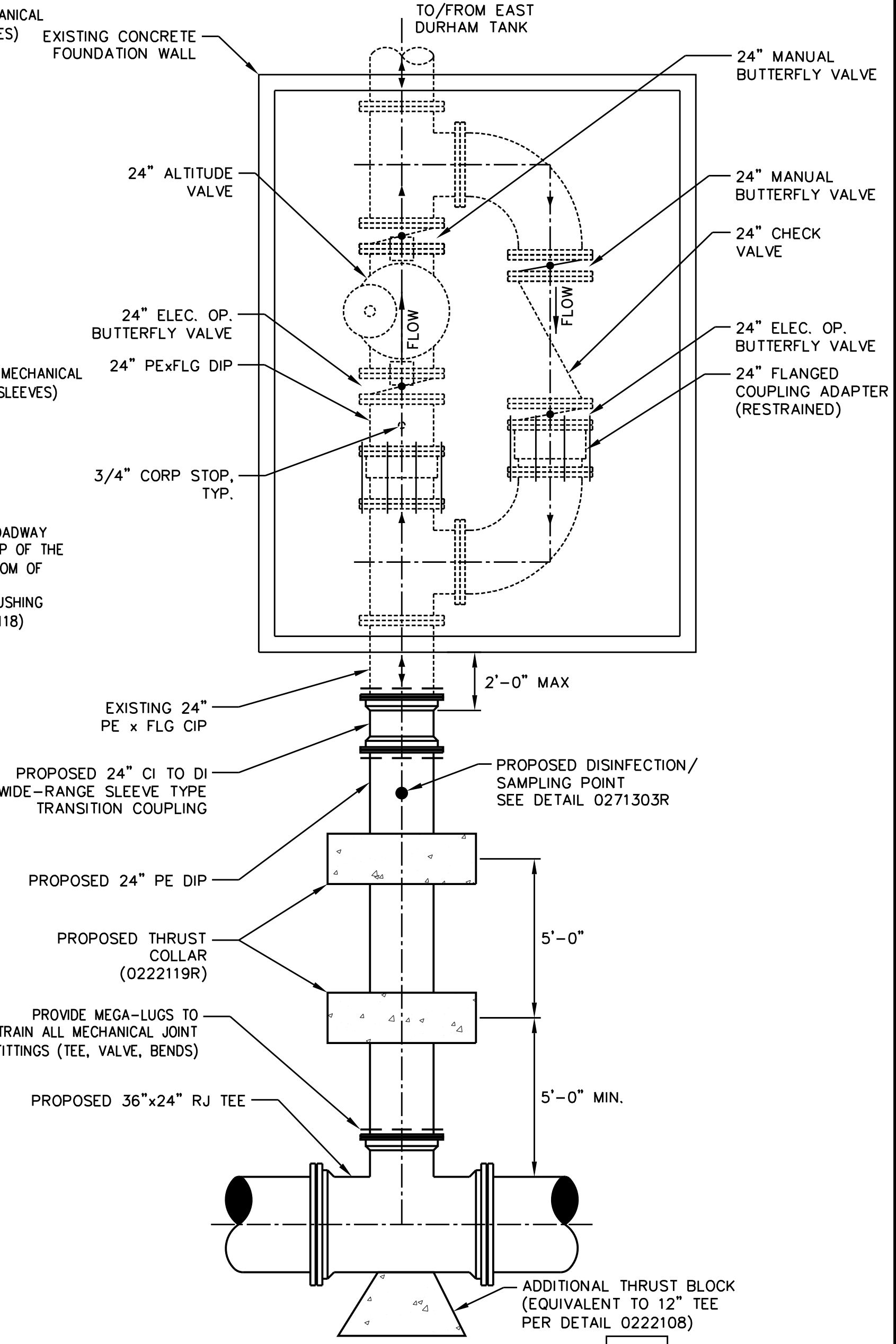
**TYPICAL BUTTERFLY VALVE ASSEMBLY (FOR 18-INCH THRU 36-INCH VALVES) 0264006**



**FLUSHING CONNECTION ASSEMBLY 0260118**



**TEMPORARY WATERLINE BLOW OFF ASSEMBLY 0271304**



**PROPOSED EAST DURHAM EST CONTROL VALVE VAULT 1 UC-3B**

PROJECT REFERENCE NO. U-3308 SHEET NO. UC-3B

DESIGNED BY: JAR  
DRAWN BY: JGB  
CHECKED BY: JJW  
APPROVED BY: JJW

PREPARED IN THE OFFICE OF:  
**Kimley»Horn**  
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RALEIGH, NORTH CAROLINA 27636-3068  
PHONE: (919) 677-2000  
FAX: (919) 677-2050  
PE NO. F-0102

NORTH CAROLINA PROFESSIONAL SEAL  
030056  
JEFFREY J. HORN  
5/27/2015

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
UTILITY ENGINEERING SEC.  
PHONE: (919) 707-6690  
FAX: (919) 250-4151

UTILITY CONSTRUCTION PLANS ONLY

**UTILITY CONSTRUCTION**





40 20 0 40 80 2015 ADT  
2035 ADT  
(in 100's)

- (17) CITY OF DURHAM  
DB 312 PG 131
- (80) MECHANICS & FARMERS BANK  
DB 2734 PG 941
- (81) CITY OF DURHAM  
DB 34 PG 609

PROJECT REFERENCE NO. U-3308 SHEET NO. UC-4

DESIGNED BY: DGB  
DRAWN BY: JGB  
CHECKED BY: KFC  
APPROVED BY: JJW  
REVISED:

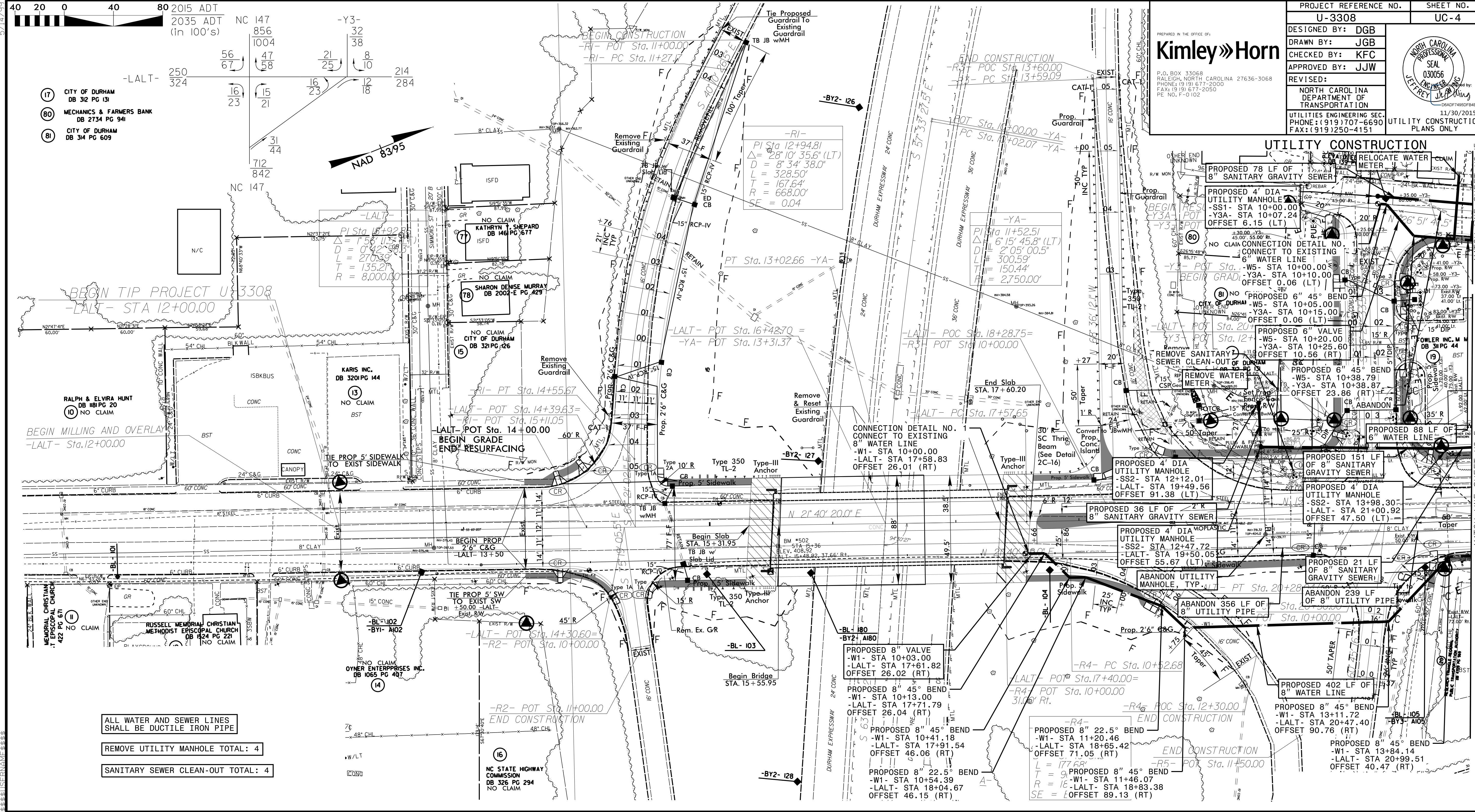
**Kimley»Horn**

PREPARED IN THE OFFICE OF:  
P.O. BOX 33068  
RALEIGH, NORTH CAROLINA 27636-3068  
PHONE: (919) 677-2000  
FAX: (919) 677-2050  
PE. NO. F-0102

**NORTH CAROLINA PROFESSIONAL SEAL**  
J. J. WOODS  
ENGINEER  
11/30/2015

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
UTILITIES ENGINEERING SEC.  
PHONE: (919) 707-6690  
FAX: (919) 250-4151

UTILITY CONSTRUCTION PLANS ONLY



5/14/2015  
11:59:11 AM  
C:\WORK\2015\U-3308\UC-4.dwg  
JGB

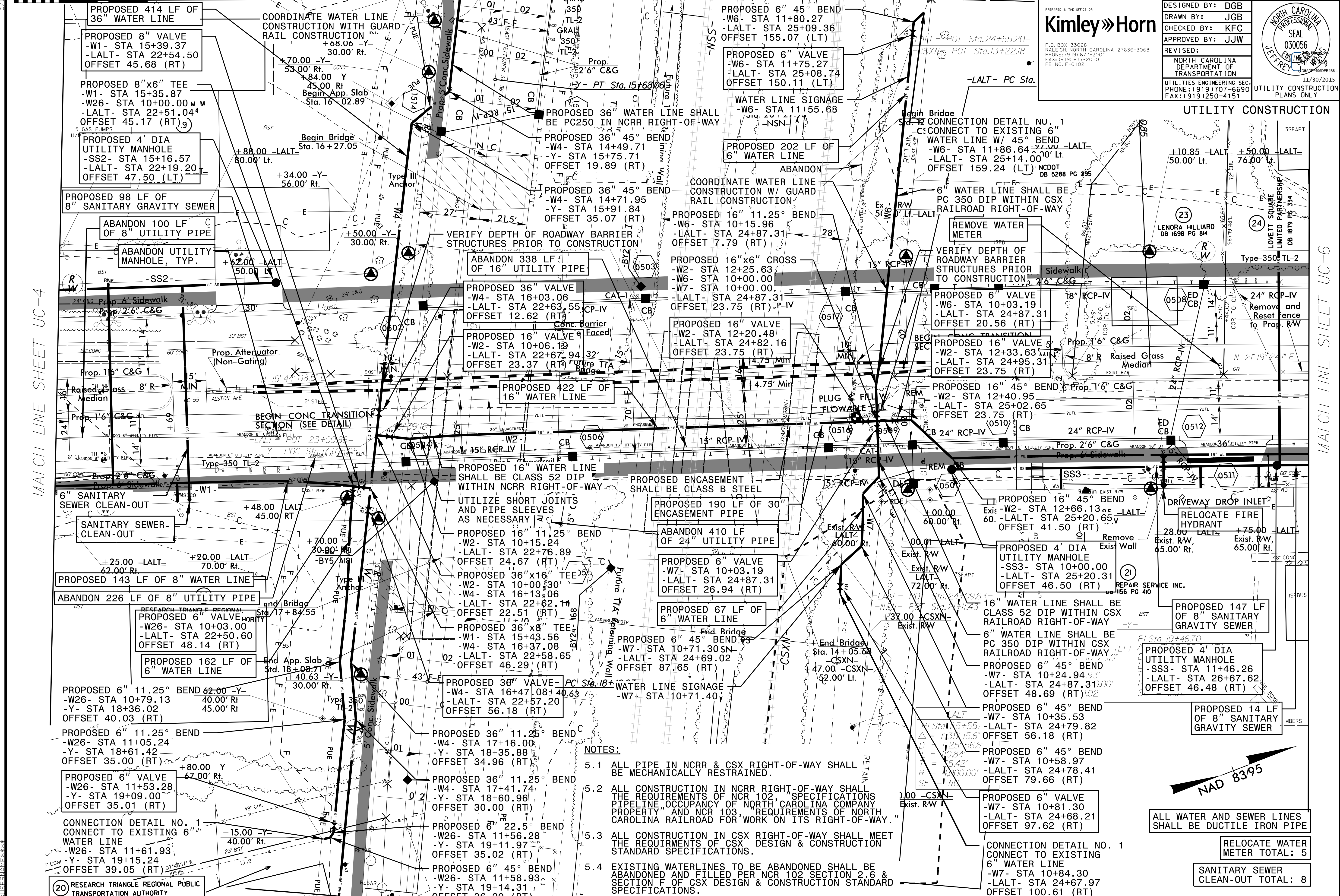
MATCH LINE SHEET UC-3  
MATCH LINE SHEET UC-5

DESIGNED BY: DGB  
 DRAWN BY: JGB  
 CHECKED BY: KFC  
 APPROVED BY: JJW

**Kimley»Horn**

P.O. BOX 33068  
 RALEIGH, NORTH CAROLINA 27636-3068  
 PHONE: (919) 677-2000  
 FAX: (919) 677-2050  
 PE NO. F-0102

11/30/2015  
 UTILITY CONSTRUCTION PLANS ONLY

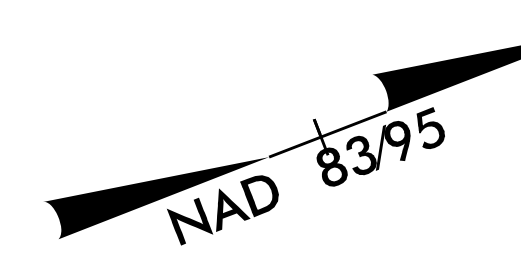


MATCH LINE SHEET UC-4

MATCH LINE SHEET UC-6

NOTES:

- ALL PIPE IN NCRR & CSX RIGHT-OF-WAY SHALL BE MECHANICALLY RESTRAINED.
- ALL CONSTRUCTION IN NCRR RIGHT-OF-WAY SHALL MEET THE REQUIREMENTS OF NCR 102, 'SPECIFICATIONS PIPELINE OCCUPANCY OF NORTH CAROLINA COMPANY PROPERTY' AND NCR 103, 'REQUIREMENTS OF NORTH CAROLINA RAILROAD FOR WORK ON ITS RIGHT-OF-WAY.'
- ALL CONSTRUCTION IN CSX RIGHT-OF-WAY SHALL MEET THE REQUIREMENTS OF CSX DESIGN & CONSTRUCTION STANDARD SPECIFICATIONS.
- EXISTING WATER LINES TO BE ABANDONED SHALL BE ABANDONED AND FILLED PER NCR 102 SECTION 2.6 & SECTION F OF CSX DESIGN & CONSTRUCTION STANDARD SPECIFICATIONS.



5/14/2015

RESEARCH TRIANGLE REGIONAL  
 TRANSPORTATION AUTHORITY  
 DB 4709 PG 969

RELOCATE WATER METER TOTAL: 5

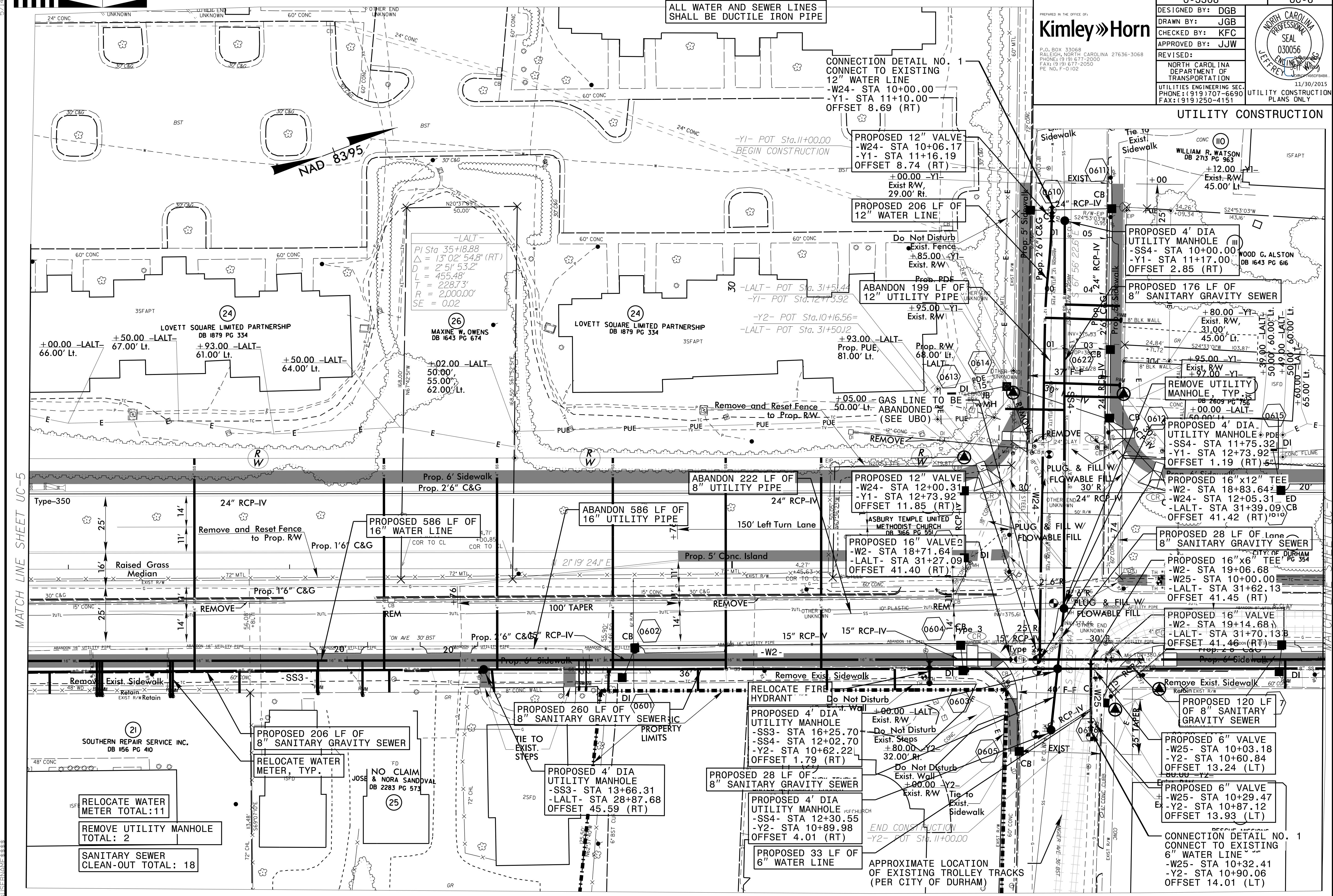
SANITARY SEWER CLEAN-OUT TOTAL: 8



|  |                                 |
|--|---------------------------------|
| PROJECT REFERENCE NO.  | SHEET NO.                       |
| U-3308   | UC-6                            |
| DESIGNED BY: DGB   |                                 |
| DRAWN BY: JGB  |                                 |
| CHECKED BY: KFC  |                                 |
| APPROVED BY: JJW   |                                 |
| REVISED:   | 11/30/2015                      |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION                          | UTILITY CONSTRUCTION PLANS ONLY |
| UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 |                                 |

**Kimley»Horn**

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RALEIGH, NORTH CAROLINA 27636-3068  
PHONE: (919) 677-2000  
FAX: (919) 677-2050  
PE NO. F-0102



MATCH LINE SHEET UC-5

MATCH LINE SHEET UC-7



ALL WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE

REMOVE UTILITY MANHOLE TOTAL: 2

RELOCATE WATER METER TOTAL: 8

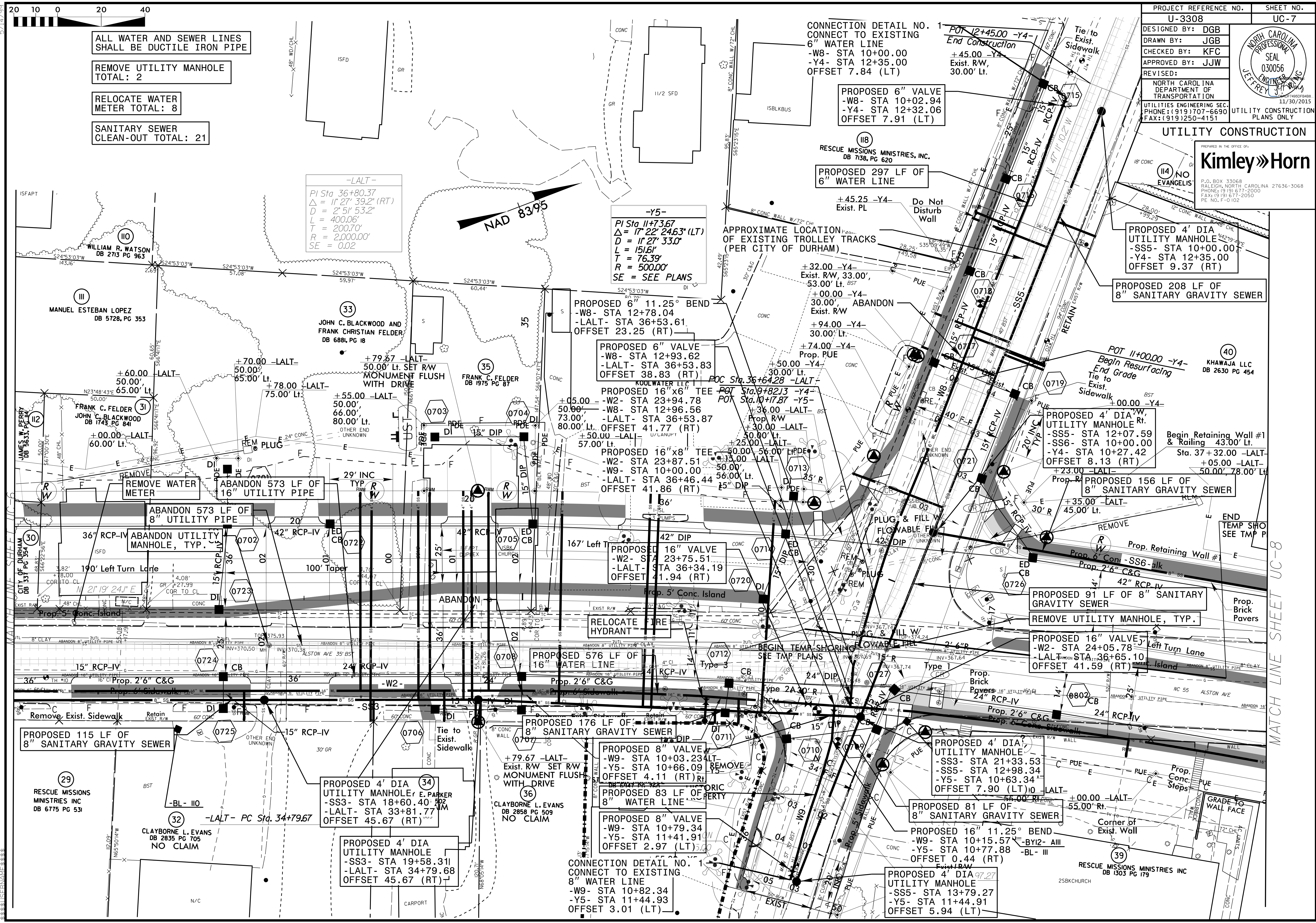
SANITARY SEWER CLEAN-OUT TOTAL: 21

|  |                                 |
|--|---------------------------------|
| PROJECT REFERENCE NO.  | SHEET NO.                       |
| U-3308   | UC-7                            |
| DESIGNED BY: DGB   |                                 |
| DRAWN BY: JGB  |                                 |
| CHECKED BY: KFC  |                                 |
| APPROVED BY: JJW   |                                 |
| REVISED:   | UTILITY CONSTRUCTION PLANS ONLY |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION<br>UTILITIES ENGINEERING SECTION<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |                                 |

PREPARED IN THE OFFICE OF

**Kimley»Horn**

P.O. BOX 33068  
 RALEIGH, NORTH CAROLINA 27636-3068  
 PHONE: (919) 677-2000  
 FAX: (919) 677-2050  
 FE. NO. F-0102



01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00

MATCH LINE SHEET UC-8

5/14/99



ALL WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE

REMOVE UTILITY MANHOLE TOTAL: 7

RELOCATE WATER METER TOTAL: 15  
RELOCATE FIRE HYDRANT TOTAL: 4

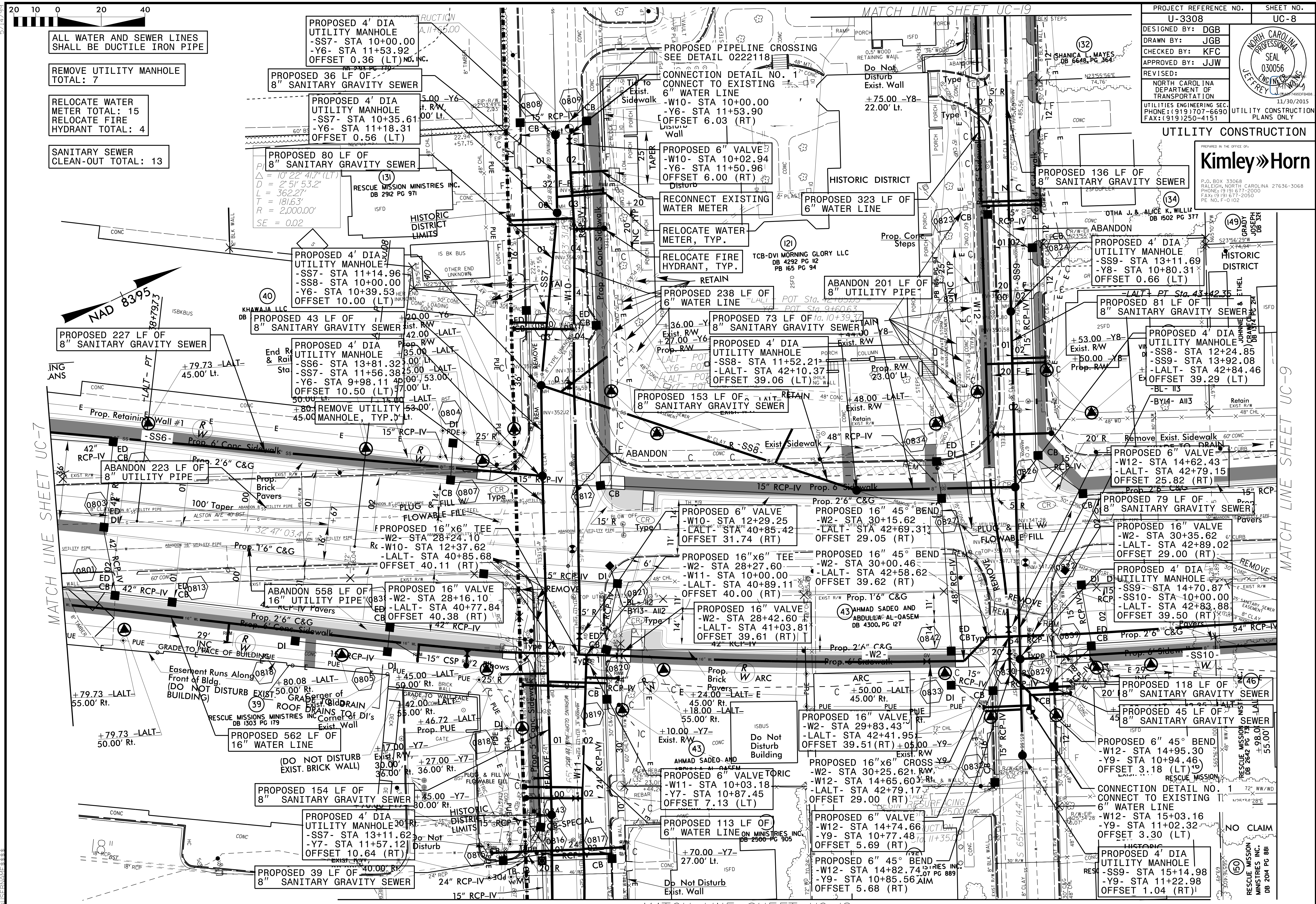
SANITARY SEWER CLEAN-OUT TOTAL: 13

|  |      |
|--|------|
| PROJECT REFERENCE NO.  | UC-8 |
| U-3308   |      |
| DESIGNED BY:   | DGB  |
| DRAWN BY:  | JGB  |
| CHECKED BY:  | KFC  |
| APPROVED BY:   | JJW  |
| REVISED:   |      |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION                          |      |
| UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 |      |
| UTILITY CONSTRUCTION PLANS ONLY                                      |      |



Kimley»Horn

P.O. BOX 33068  
RALEIGH, NORTH CAROLINA 27636-3068  
PHONE: (919) 677-2000  
FAX: (919) 677-2050  
REG. NO. F-0102



MATCH LINE SHEET UC-7

MATCH LINE SHEET UC-19

MATCH LINE SHEET UC-9

MATCH LINE SHEET UC-18

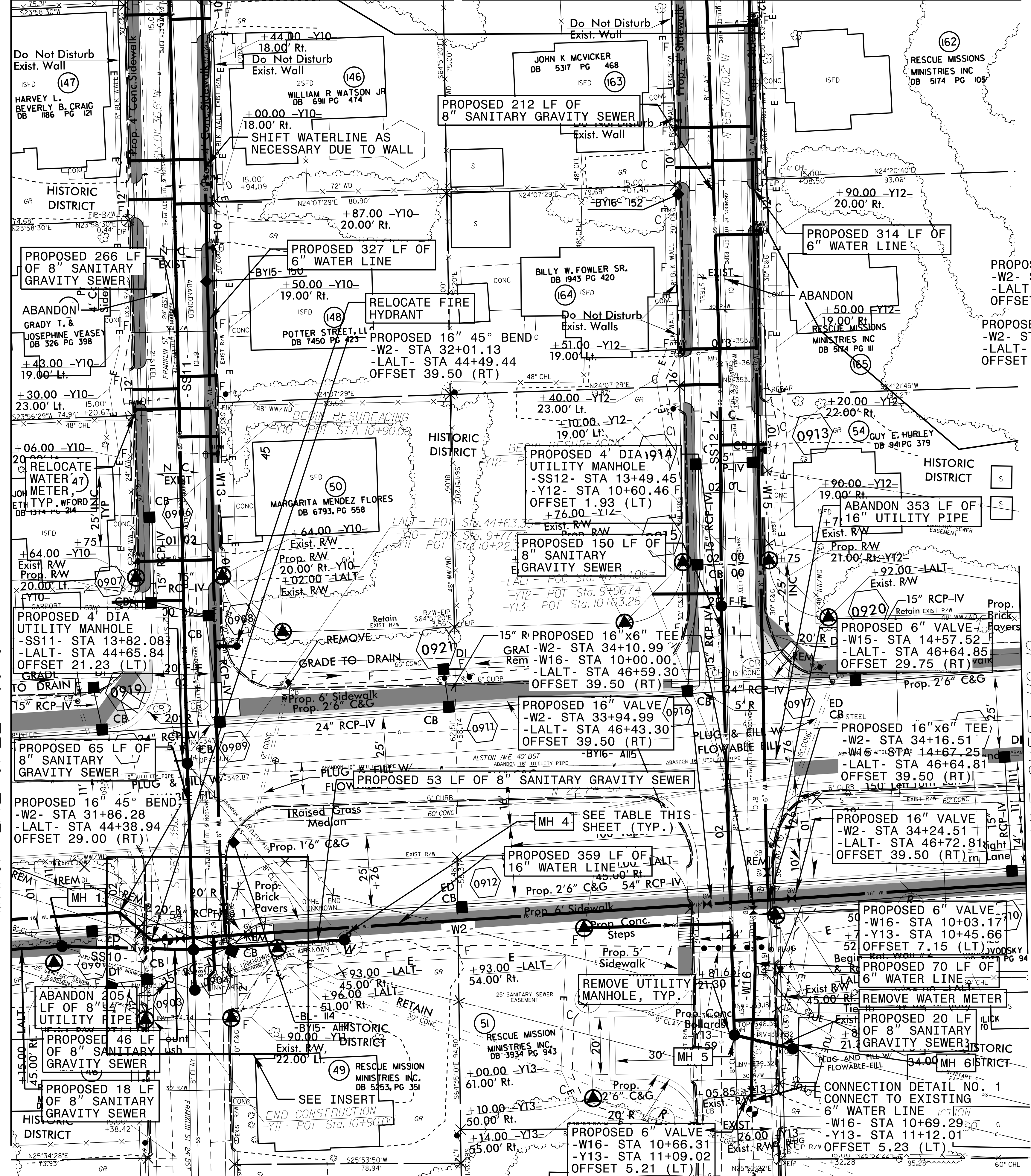
5/14/2019



MATCH LINE SHEET UC-19

MATCH LINE SHEET UC-21

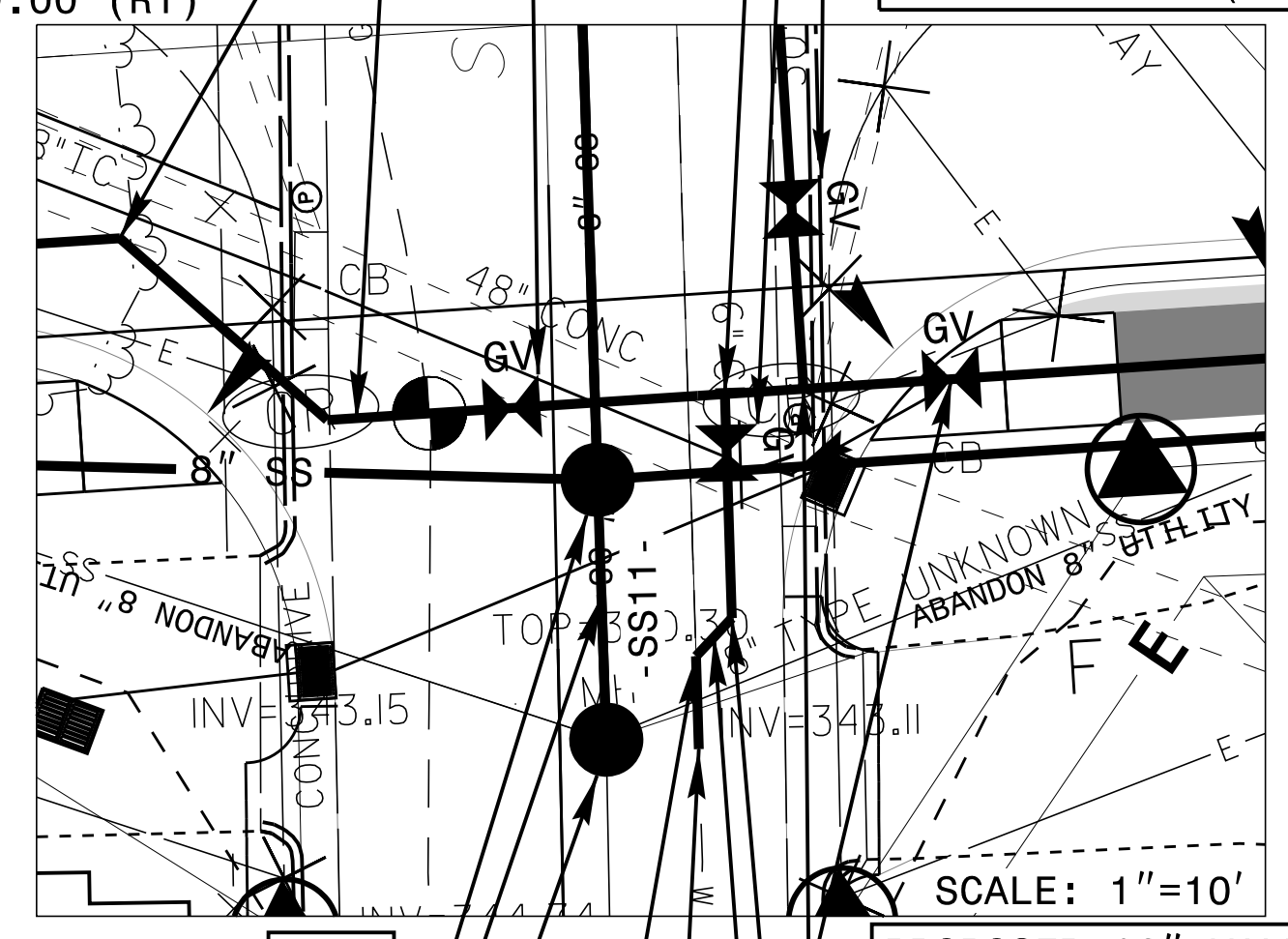
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| PROJECT REFERENCE NO.   | SHEET NO.                       |
| U-3308  | UC-9                            |
| DESIGNED BY: DGB  |                                 |
| DRAWN BY: JGB   |                                 |
| CHECKED BY: KFC   |                                 |
| APPROVED BY: JJW  |                                 |
| REVISOR:  | UTILITY CONSTRUCTION PLANS ONLY |
| PREPARED IN THE OFFICE OF:<br><b>Kimley»Horn</b><br>P.O. BOX 33068<br>RALEIGH, NORTH CAROLINA 27636-3068<br>PHONE: (919) 677-2000<br>FAX: (919) 677-2050<br>PE NO. F-0102 |                                 |



- MH 1  
PROPOSED 4' DIA  
UTILITY MANHOLE  
-SS10- STA 11+35.41  
-LALT- STA 44+18.14  
OFFSET 39.50 (RT)
- MH 2  
PROPOSED 4' DIA  
UTILITY MANHOLE  
-SS10- STA 11+81.22  
-SS11- STA 14+47.01  
-LALT- STA 44+63.76  
OFFSET 43.67 (RT)
- MH 3  
PROPOSED 4' DIA  
UTILITY MANHOLE  
-SS11- STA 14+61.01  
-LALT- STA 44+63.31  
OFFSET 57.66 (RT)
- MH 4  
PROPOSED 4' DIA  
UTILITY MANHOLE  
-SS10- STA 12+33.86  
-LALT- STA 45+16.40  
OFFSET 43.67 (RT)

- ALL WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE
- REMOVE UTILITY MANHOLE TOTAL: 5
- RELOCATE WATER METER TOTAL: 11
- SANITARY SEWER CLEAN-OUT TOTAL: 18

- PROPOSED 16" VALVE  
-W2- STA 32+11.11  
-LALT- STA 44+59.41  
OFFSET 39.50 (RT)
- PROPOSED 16"x6" TEE  
-W2- STA 32+22.61  
-W14- STA 10+00.00  
-LALT- STA 44+70.91  
OFFSET 39.50 (RT)
- PROPOSED 6" VALVE  
-W14- STA 10+03.18  
-Y11- STA 10+64.65  
OFFSET 9.31 (LT)
- PROPOSED 6" VALVE  
-W13- STA 14+61.67  
-Y10- STA 9+77.66  
OFFSET 13.07 (RT)
- PROPOSED 6" 45° BEND  
-W2- STA 32+01.13  
-LALT- STA 44+49.44  
OFFSET 39.50 (RT)
- PROPOSED 6" 45° BEND  
-W2- STA 31+86.28  
-LALT- STA 44+38.94  
OFFSET 29.00 (RT)
- PROPOSED 16" VALVE  
-W2- STA 32+34.84  
-LALT- STA 44+83.14  
OFFSET 39.50 (RT)
- PROPOSED 16"x6" TEE  
-W2- STA 32+26.84  
-W13- STA 14+71.40  
-LALT- STA 44+75.14  
OFFSET 39.50 (RT)
- PROPOSED 6" 45° BEND  
-W14- STA 10+14.91  
-Y11- STA 10+75.56  
OFFSET 7.43 (LT)
- PROPOSED 6" 45° BEND  
-W14- STA 10+12.08  
-Y11- STA 10+73.54  
OFFSET 9.40 (LT)
- PROPOSED 20 LF OF 6" WATER LINE
- PROPOSED 16" VALVE  
-W16- STA 10+03.17  
-Y13- STA 10+45.66  
OFFSET 7.15 (LT)
- PROPOSED 70 LF OF 6" WATER LINE
- PROPOSED 20 LF OF 8" SANITARY GRAVITY SEWER
- PROPOSED 6" VALVE  
-W16- STA 10+69.29  
-Y13- STA 11+12.01  
OFFSET 5.23 (LT)



- CONNECTION DETAIL NO. 1  
CONNECT TO EXISTING 6" WATER LINE  
-W14- STA 10+19.91  
-Y11- STA 10+80.56  
OFFSET 7.48 (LT)

- MH 5  
PROPOSED 4' DIA  
UTILITY MANHOLE  
-SS12- STA 14+98.87  
-Y13- STA 10+88.96  
OFFSET 0.42 (RT)
- MH 6  
PROPOSED 4' DIA  
UTILITY MANHOLE  
-SS12- STA 15+19.78  
-Y13- STA 10+94.18  
OFFSET 19.83 (LT)





PROJECT REFERENCE NO. U-3308 SHEET NO. UC-10

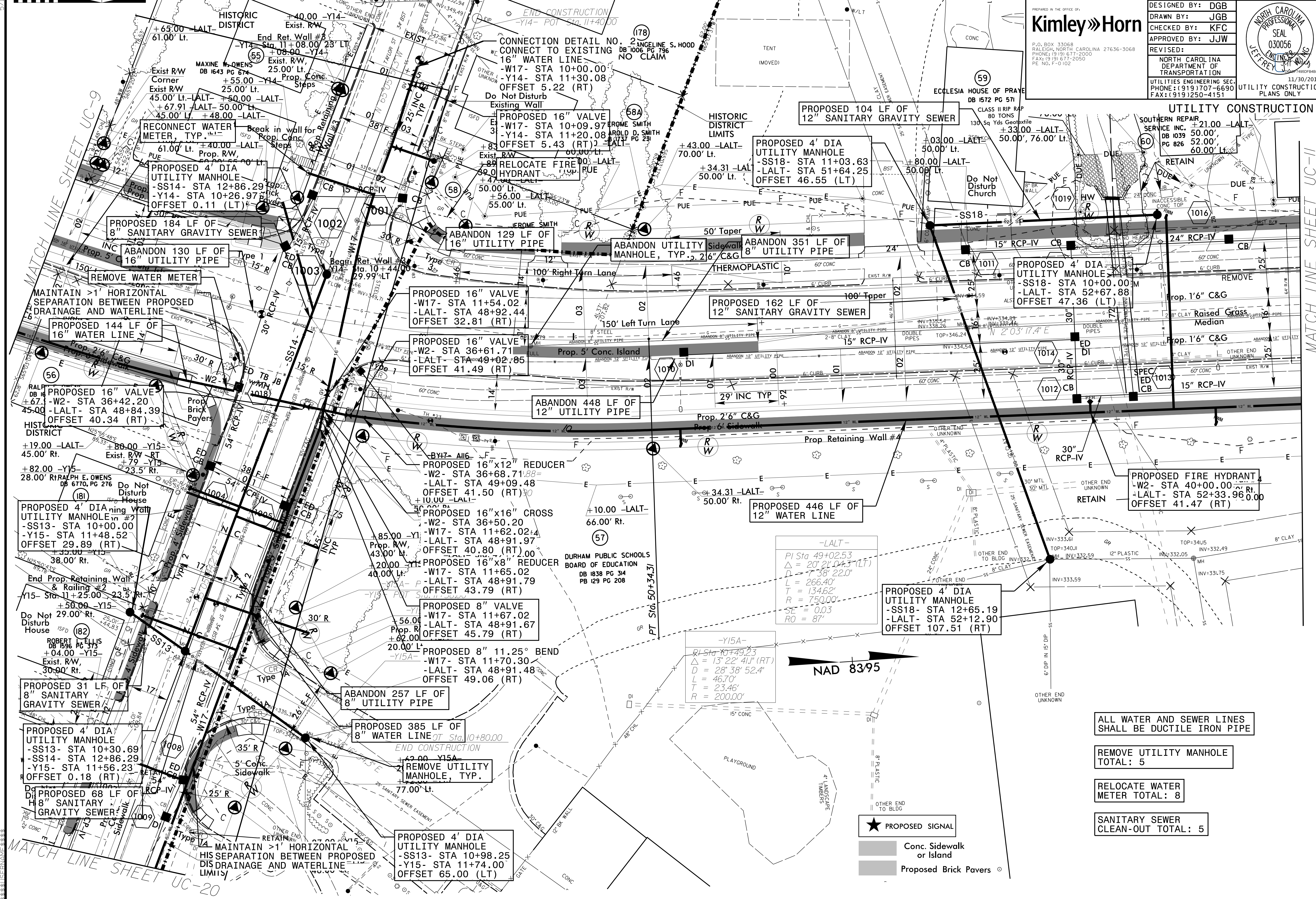
DESIGNED BY: DGB  
 DRAWN BY: JGB  
 CHECKED BY: KFC  
 APPROVED BY: JJW

REVISIONS:

NORTH CAROLINA PROFESSIONAL SEAL 030056

PREPARED IN THE OFFICE OF:  
**Kimley»Horn**  
 P.O. BOX 33068  
 RALEIGH, NORTH CAROLINA 27636-3068  
 PHONE: (919) 677-2000  
 FAX: (919) 677-2050  
 PE NO. F-0102

11/30/2015  
 UTILITIES ENGINEERING SEC. UTILITY CONSTRUCTION PLANS ONLY



ALL WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE

REMOVE UTILITY MANHOLE TOTAL: 5

RELOCATE WATER METER TOTAL: 8

SANITARY SEWER CLEAN-OUT TOTAL: 5

- ★ PROPOSED SIGNAL
- Conc. Sidewalk or Island
- Proposed Brick Pavers

NAD 8395

-Y15A-  
 PI Sta 10+74.23  
 $\Delta = 13^{\circ} 22' 41" (RT)$   
 $D = 28^{\circ} 38' 52.4"$   
 $L = 46.70'$   
 $T = 23.46'$   
 $R = 200.00'$

-LALT-  
 PI Sta 49+02.53  
 $\Delta = 20^{\circ} 21' 04.3" (LT)$   
 $D = 7^{\circ} 38' 22.0"$   
 $L = 266.40'$   
 $T = 134.62'$   
 $SE = 0.03$   
 $RO = 87'$

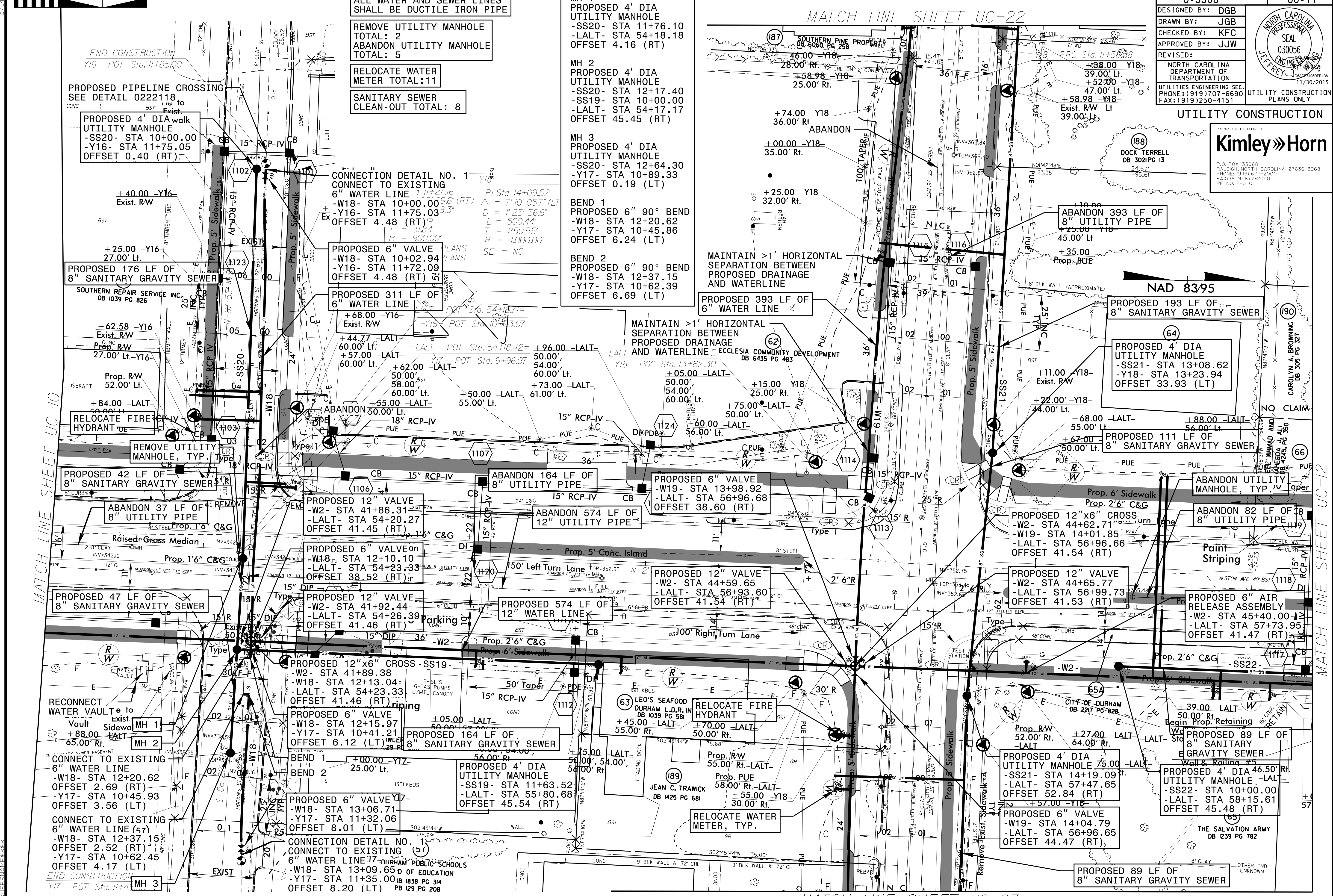
MATCH LINE SHEET UC-20

MATCH LINE SHEET UC-11



|                                 |   |
|---------------------------------|---|
| PROJECT REFERENCE NO.           | SHEET NO.   |
| U-3308                          | UC-11   |
| DESIGNED BY: DGB                |   |
| DRAWN BY: JGB                   |   |
| CHECKED BY: KFC                 |   |
| APPROVED BY: JJW                |   |
| REVISOR:                        | NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION<br>UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |
| UTILITY CONSTRUCTION PLANS ONLY |   |

PREPARED IN THE OFFICE OF  
**Kimley»Horn**  
 P.O. BOX 33068  
 RALEIGH, NORTH CAROLINA 27636-3068  
 PHONE: (919) 677-2000  
 FAX: (919) 677-2050  
 REG. NO. F-0102



ALL WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE

REMOVE UTILITY MANHOLE TOTAL: 2  
 ABANDON UTILITY MANHOLE TOTAL: 5

RELOCATE WATER METER TOTAL: 11

SANITARY SEWER CLEAN-OUT TOTAL: 8

MH 1  
 PROPOSED 4' DIA UTILITY MANHOLE  
 -SS20- STA 11+76.10  
 -LALT- STA 54+18.18  
 OFFSET 4.16 (RT)

MH 2  
 PROPOSED 4' DIA UTILITY MANHOLE  
 -SS20- STA 12+17.40  
 -SS19- STA 10+00.00  
 -LALT- STA 54+17.17  
 OFFSET 45.45 (RT)

MH 3  
 PROPOSED 4' DIA UTILITY MANHOLE  
 -SS20- STA 12+64.30  
 -Y17- STA 10+89.33  
 OFFSET 0.19 (LT)

BEND 1  
 PROPOSED 6" 90° BEND  
 -W18- STA 12+20.62  
 -Y17- STA 10+62.39  
 OFFSET 6.24 (LT)

BEND 2  
 PROPOSED 6" 90° BEND  
 -W18- STA 12+37.15  
 -Y17- STA 10+62.39  
 OFFSET 6.69 (LT)

CONNECT TO EXISTING 6" WATER LINE  
 -W18- STA 12+20.62  
 OFFSET 2.69 (RT)  
 -Y17- STA 10+45.93  
 OFFSET 3.56 (LT)

CONNECT TO EXISTING 6" WATER LINE (57)  
 -W18- STA 12+37.15  
 OFFSET 2.52 (RT)  
 -Y17- STA 10+62.45  
 OFFSET 4.17 (LT)

CONNECT TO EXISTING 6" WATER LINE  
 -W18- STA 12+13.04  
 -LALT- STA 54+23.33  
 OFFSET 41.46 (RT)

CONNECT TO EXISTING 6" WATER LINE  
 -W18- STA 12+15.97  
 -Y17- STA 10+41.21  
 OFFSET 6.12 (LT)

CONNECT TO EXISTING 6" WATER LINE  
 -W18- STA 13+06.71  
 -Y17- STA 11+32.06  
 OFFSET 8.01 (LT)

CONNECT TO EXISTING 6" WATER LINE  
 -W18- STA 11+63.52  
 -LALT- STA 55+80.68  
 OFFSET 45.54 (RT)

CONNECT TO EXISTING 6" WATER LINE  
 -W18- STA 13+09.65  
 -Y17- STA 11+35.00  
 OFFSET 8.20 (LT)

PROPOSED 89 LF OF 8" SANITARY GRAVITY SEWER

PROPOSED 4' DIA UTILITY MANHOLE  
 -SS21- STA 14+19.09  
 -LALT- STA 57+47.65  
 OFFSET 52.84 (RT)

PROPOSED 6" VALVE  
 -W19- STA 14+04.79  
 -LALT- STA 56+96.65  
 OFFSET 44.47 (RT)

MATCH LINE SHEET UC-10 (left) MATCH LINE SHEET UC-22 (top) MATCH LINE SHEET UC-23 (bottom) MATCH LINE SHEET UC-12 (right)

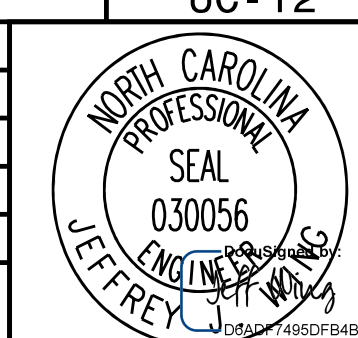


ALL WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE  
REMOVE UTILITY MANHOLE TOTAL: 2  
RELOCATE WATER METER TOTAL: 15  
SANITARY SEWER CLEAN-OUT TOTAL: 14



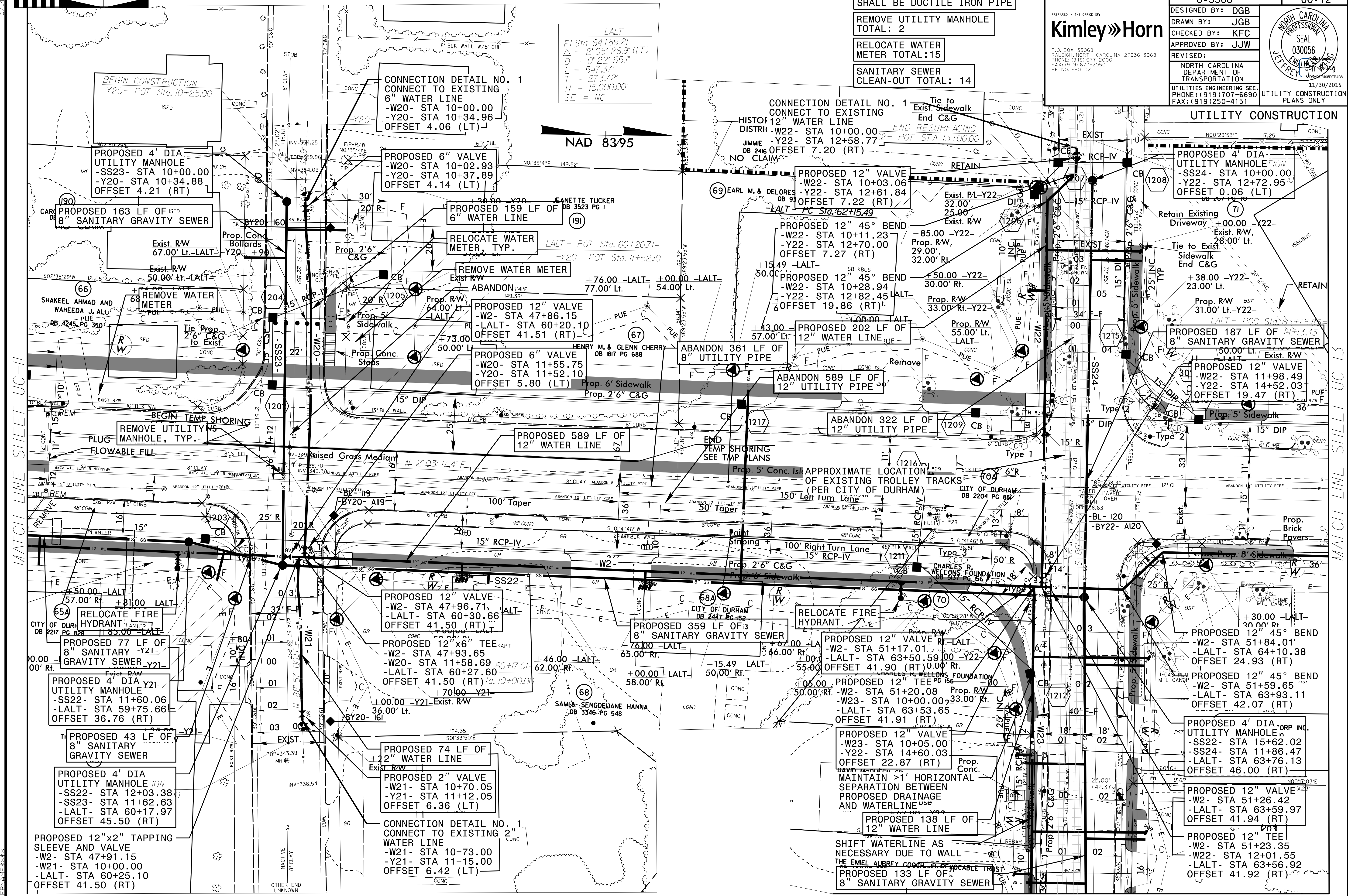
P.O. BOX 33068  
RALEIGH, NORTH CAROLINA 27636-3068  
PHONE: (919) 677-2000  
FAX: (919) 677-2050  
PE NO. F-0102

|   |        |
|---|--------|
| PROJECT REFERENCE NO.                       | UC-12  |
| SHEET NO.                                   | U-3308 |
| DESIGNED BY:                                | DGB    |
| DRAWN BY:                                   | JGB    |
| CHECKED BY:                                 | KFC    |
| APPROVED BY:                                | JJW    |
| REVISED:                                    |        |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION |        |
| UTILITIES ENGINEERING SECTION               |        |
| PHONE: (919) 707-6690                       |        |
| FAX: (919) 250-4151                         |        |
| UTILITY CONSTRUCTION PLANS ONLY             |        |



-LALT-  
PI Sta 64+89.21  
Δ = 2° 05' 26.9" (LT)  
D = 0° 22' 55.1"  
L = 547.37'  
T = 273.72'  
R = 15,000.00'  
SE = NC

NAD 83/95



MATCH LINE SHEET UC-11

MATCH LINE SHEET UC-13

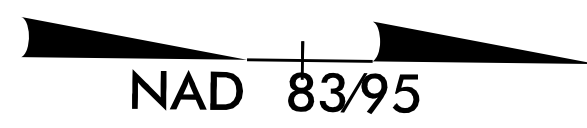
MATCH LINE SHEET UC-24



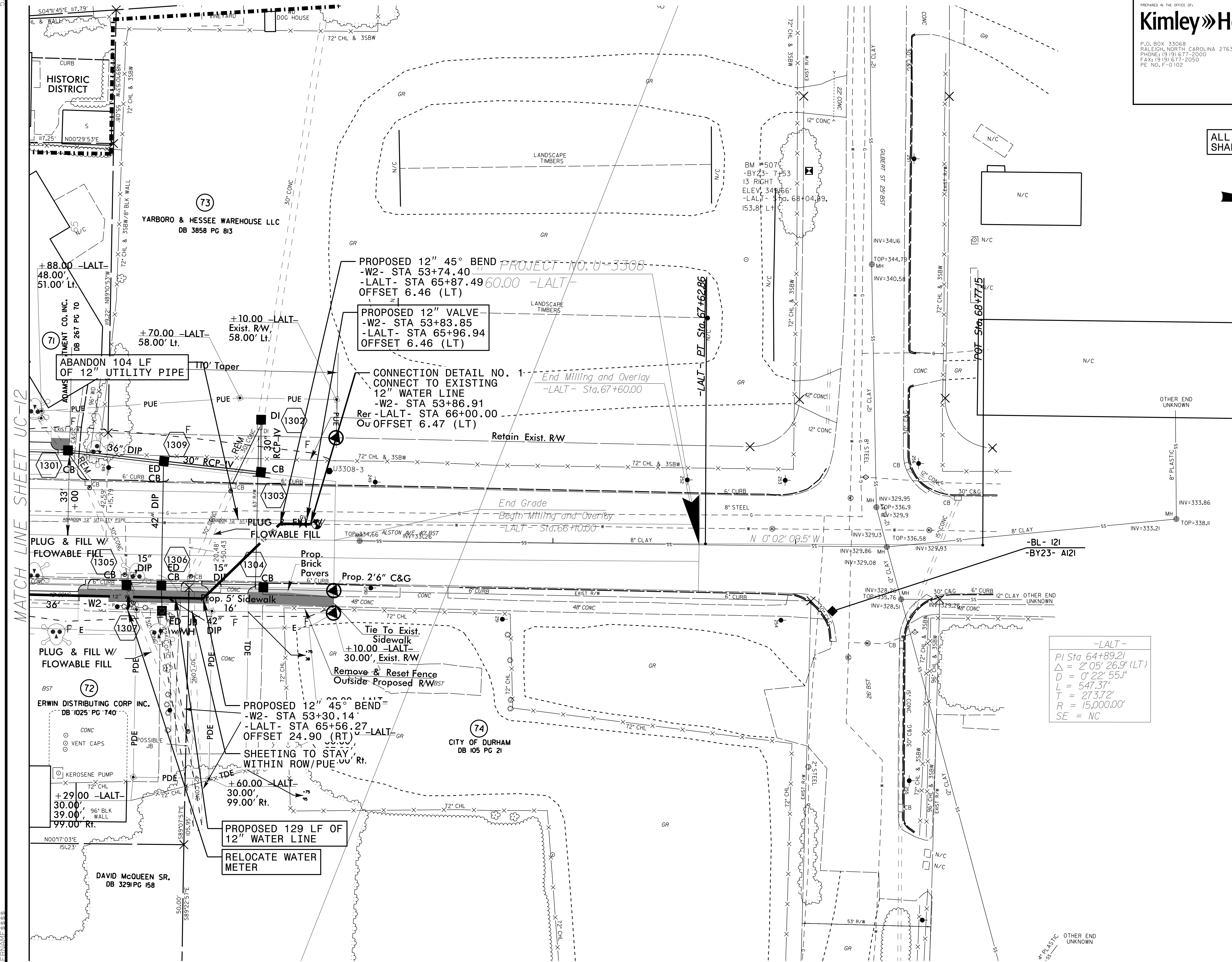
|                       |   |
|-----------------------|---|
| PROJECT REFERENCE NO. | SHEET NO.   |
| U-3308                | UC-13   |
| DESIGNED BY: DGB      |   |
| DRAWN BY: JGB         |   |
| CHECKED BY: KFC       |   |
| APPROVED BY: JJW      |   |
| REVISIONS:            | NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION<br>UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |
| UTILITY CONSTRUCTION  |   |

PREPARED IN THE OFFICE OF:  
**Kimley»Horn**  
 P.O. BOX 33068  
 RALEIGH, NORTH CAROLINA 27636-3068  
 PHONE: (919) 677-2000  
 FAX: (919) 677-2050  
 PE NO. F-0102

ALL WATER AND SEWER LINES  
 SHALL BE DUCTILE IRON PIPE



MATCH LINE SHEET UC-12



-LALT-  
 Pl Sta 64+89.21  
 $\Delta = 2' 05" 26.9" (LT)$   
 $D = 0' 22" 55.1"$   
 $L = 547.37'$   
 $T = 273.72'$   
 $R = 15,000.00'$   
 $SE = NC$

5/14/99  
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PREPARED IN THE OFFICE OF:  
**Kimley»Horn**  
 P.O. BOX 33068  
 RALEIGH, NORTH CAROLINA 27636-3068  
 PHONE: (919) 677-2000  
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 PE NO. F-0102

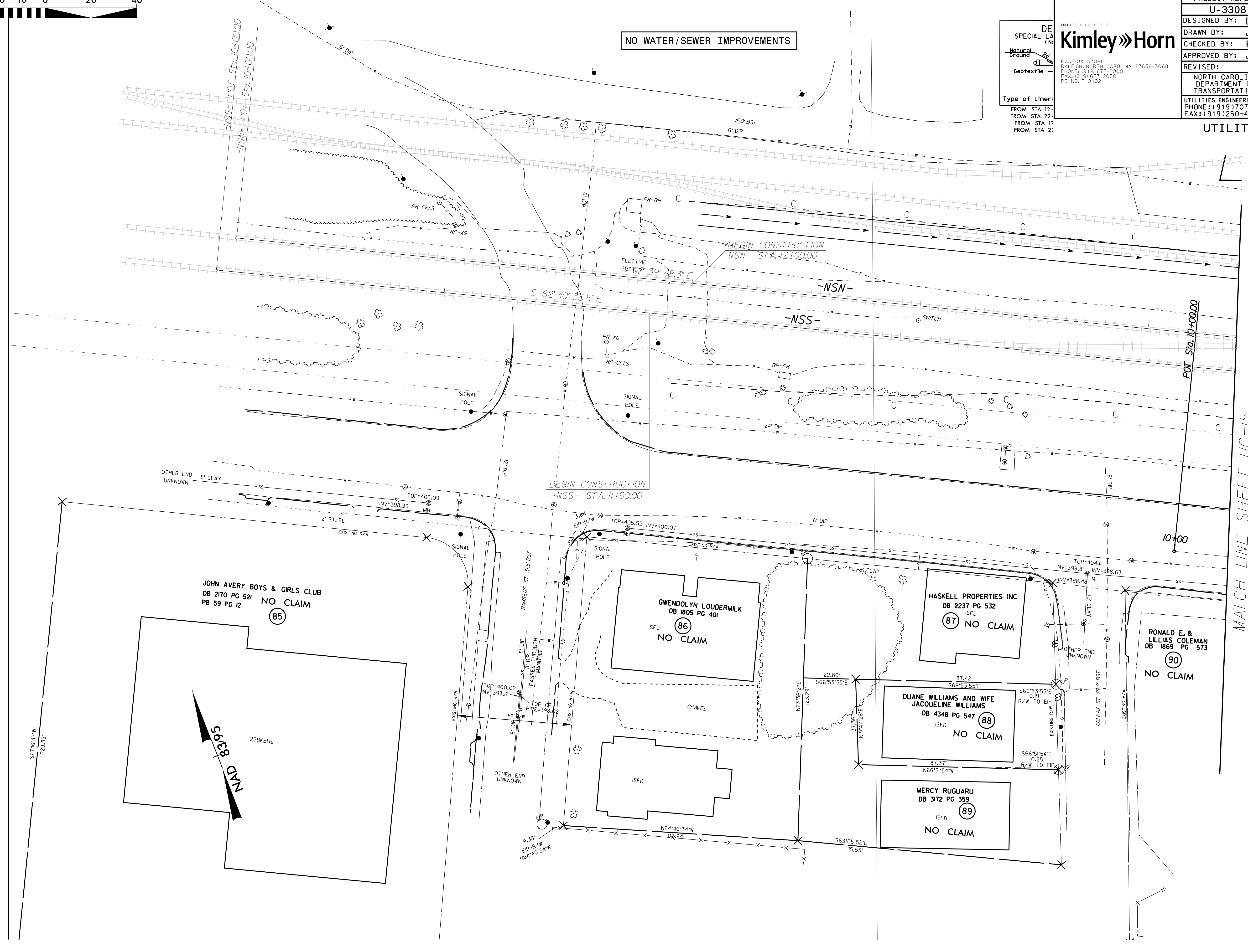
**DESIGNED BY: DGB**  
**DRAWN BY: JGB**  
**CHECKED BY: KFC**  
**APPROVED BY: JJW**

REVIS: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 UTILITIES ENGINEERING SEC.  
 PHONE: (919) 707-6690  
 FAX: (919) 250-4151

UTILITY CONSTRUCTION PLANS ONLY



NO WATER/SEWER IMPROVEMENTS



JOHN AVERY BOYS & GIRLS CLUB  
 DB 2170 PG 521  
 PB 59 PG 12  
 NO CLAIM

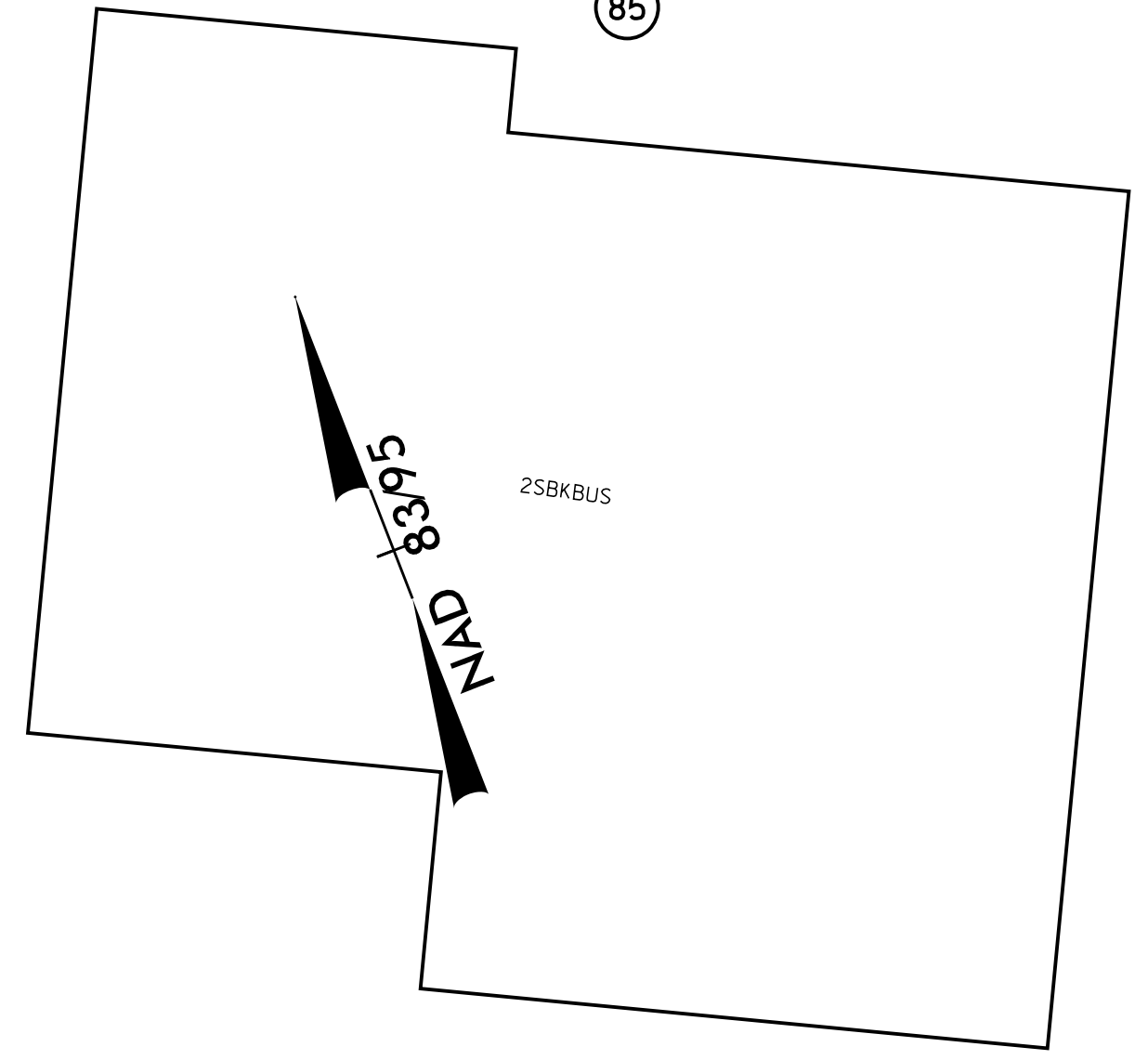
GWENDOLYN LOUDERMILK  
 DB 1805 PG 401  
 ISFD  
 NO CLAIM

HASKELL PROPERTIES INC  
 DB 2237 PG 532  
 ISFD  
 NO CLAIM

DUANE WILLIAMS AND WIFE  
 JACQUELINE WILLIAMS  
 DB 4348 PG 547  
 ISFD  
 NO CLAIM

MERCY RUGUARU  
 DB 3172 PG 359  
 ISFD  
 NO CLAIM

RONALD E. &  
 LILLIAS COLEMAN  
 DB 1869 PG 573  
 NO CLAIM



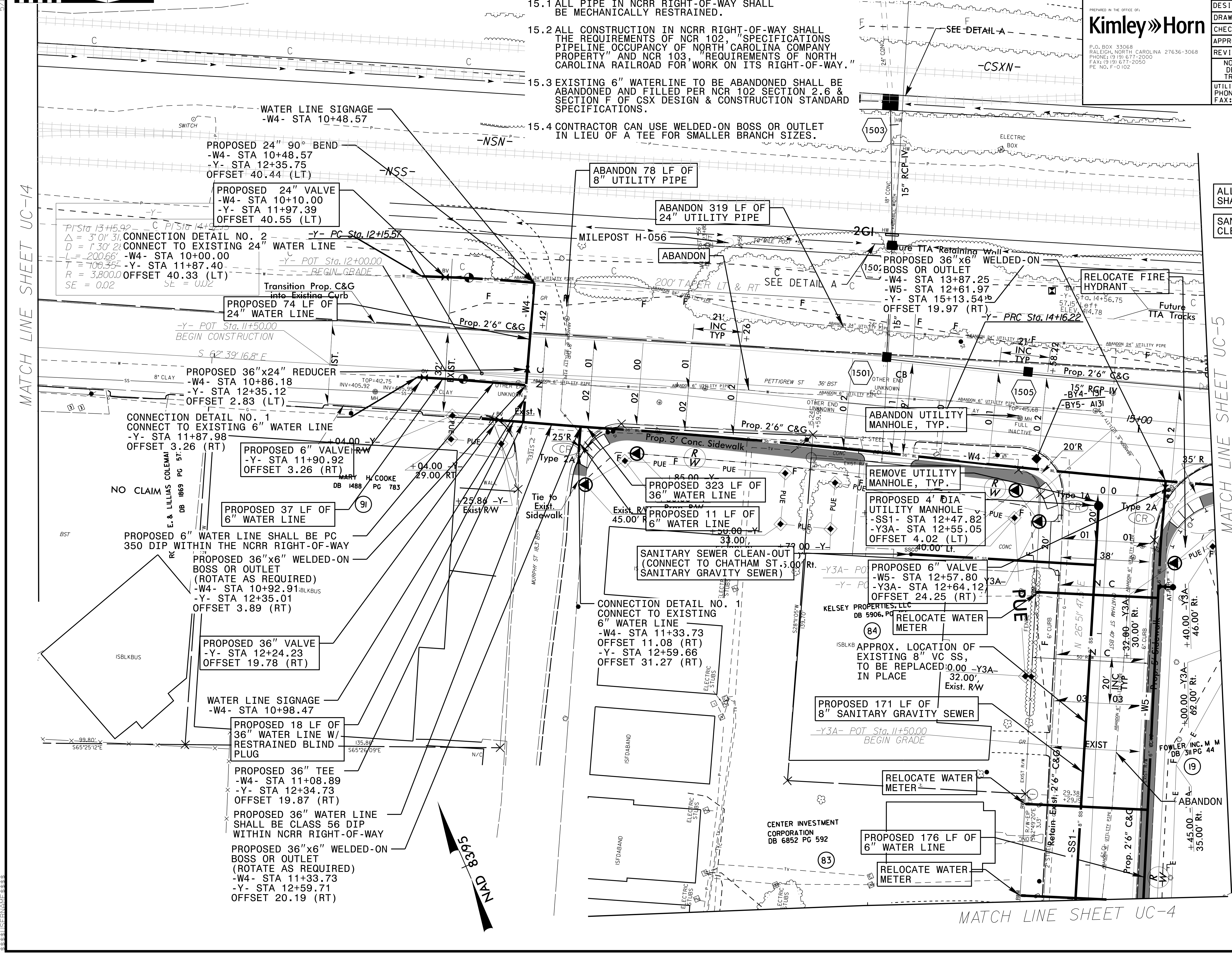
MATCH LINE SHEET UC-15

5/14/14/99  
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**NOTES:**

- 15.1 ALL PIPE IN NCRR RIGHT-OF-WAY SHALL BE MECHANICALLY RESTRAINED.
- 15.2 ALL CONSTRUCTION IN NCRR RIGHT-OF-WAY SHALL THE REQUIREMENTS OF NCR 102, "SPECIFICATIONS PIPELINE OCCUPANCY OF NORTH CAROLINA COMPANY PROPERTY" AND NCR 103, "REQUIREMENTS OF NORTH CAROLINA RAILROAD FOR WORK ON ITS RIGHT-OF-WAY."
- 15.3 EXISTING 6" WATERLINE TO BE ABANDONED SHALL BE ABANDONED AND FILLED PER NCR 102 SECTION 2.6 & SECTION F OF CSX DESIGN & CONSTRUCTION STANDARD SPECIFICATIONS.
- 15.4 CONTRACTOR CAN USE WELDED-ON BOSS OR OUTLET IN LIEU OF A TEE FOR SMALLER BRANCH SIZES.

|  |                                 |
|--|---------------------------------|
| PROJECT REFERENCE NO.<br><b>U-3308</b>                                     | SHEET NO.<br><b>UC-15</b>       |
| DESIGNED BY: <b>DGB</b>  |                                 |
| DRAWN BY: <b>JGB</b>   |                                 |
| CHECKED BY: <b>KFC</b>   |                                 |
| APPROVED BY: <b>JJW</b>  |                                 |
| REVISOR:   |                                 |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION                                |                                 |
| UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 | UTILITY CONSTRUCTION PLANS ONLY |



MATCH LINE SHEET UC-14

MATCH LINE SHEET UC-5

MATCH LINE SHEET UC-4

ALL WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE

SANITARY SEWER CLEAN-OUT TOTAL: 3

**UTILITY CONSTRUCTION**

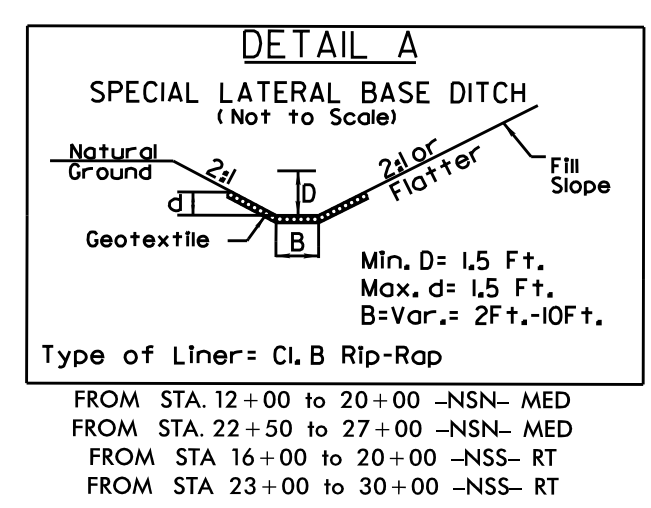
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|                            |   |
|----------------------------|---|
| PROJECT REFERENCE NO.      | SHEET NO.                                   |
| U-3308                     | UC-16                                       |
| DESIGNED BY: DGB           |   |
| DRAWN BY: JGB              |   |
| CHECKED BY: KFC            |   |
| APPROVED BY: JJW           |   |
| REVISED:                   | NORTH CAROLINA DEPARTMENT OF TRANSPORTATION |
| UTILITIES ENGINEERING SEC. | UTILITY CONSTRUCTION PLANS ONLY             |
| PHONE: (919) 707-6690      |   |
| FAX: (919) 250-4151        |   |

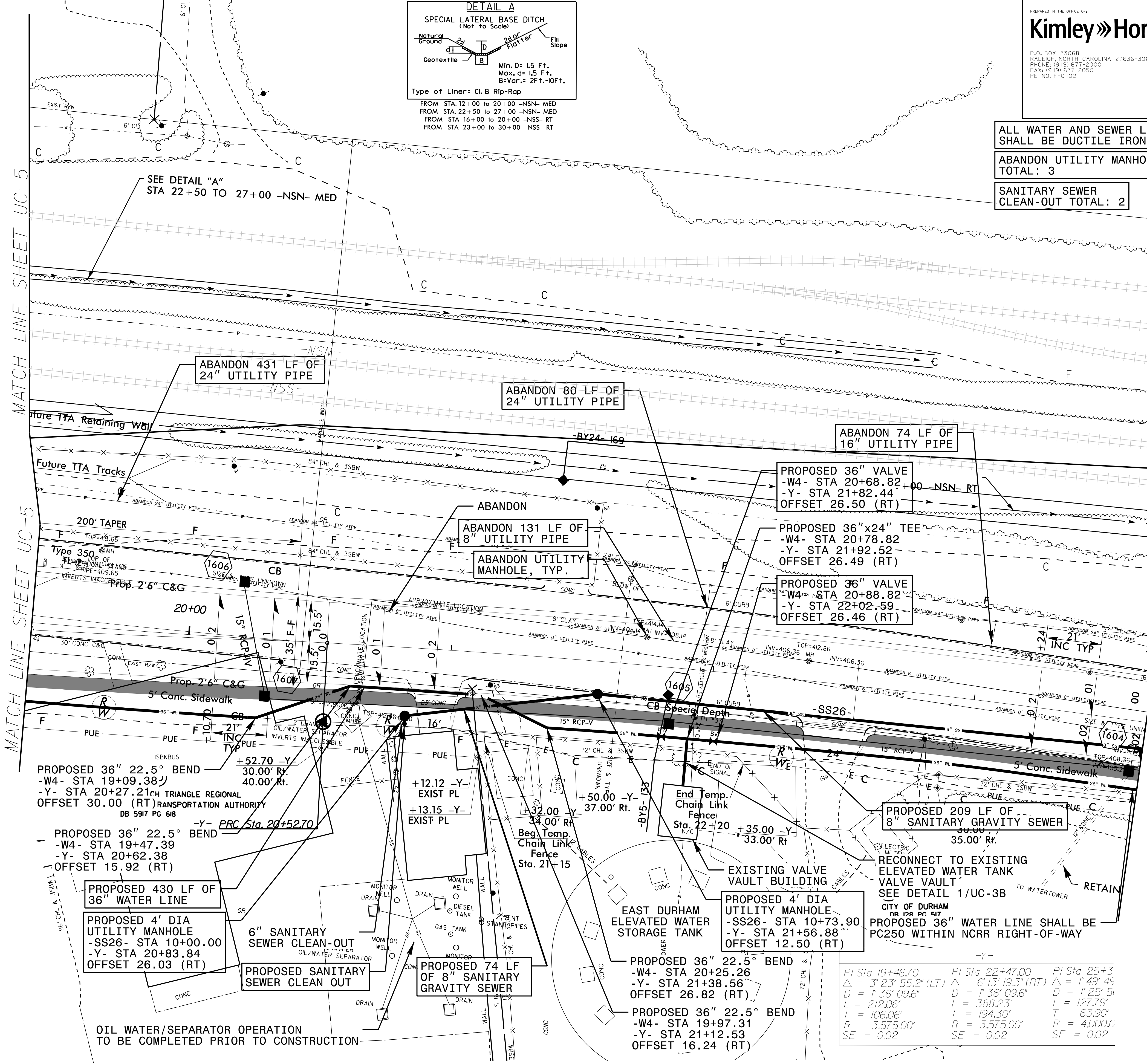
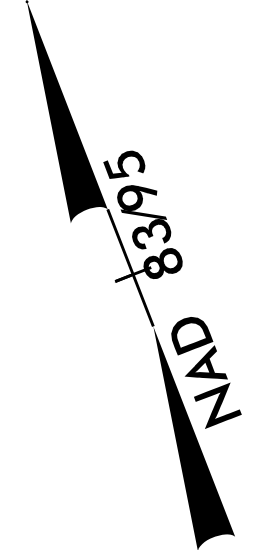
PREPARED IN THE OFFICE OF:  
**Kimley»Horn**  
 P.O. BOX 33068  
 RALEIGH, NORTH CAROLINA 27636-3068  
 PHONE: (919) 677-2000  
 FAX: (919) 677-2050  
 PE NO. F-0102

ALL WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE  
 UTILITY CONSTRUCTION  
 ABANDON UTILITY MANHOLE TOTAL: 3  
 SANITARY SEWER CLEAN-OUT TOTAL: 2



MATCH LINE SHEET UC-5

MATCH LINE SHEET UC-17



|                       |                       |                |
|-----------------------|-----------------------|----------------|
| PI Sta 19+46.70       | PI Sta 22+47.00       | PI Sta 25+3    |
| Δ = 3' 23" 55.2" (LT) | Δ = 6' 13" 19.3" (RT) | Δ = 1' 49" 45" |
| D = 1' 36" 09.6"      | D = 1' 36" 09.6"      | D = 1' 25" 51" |
| L = 212.06'           | L = 388.23'           | L = 127.79'    |
| T = 106.06'           | T = 194.30'           | T = 63.90'     |
| R = 3,575.00'         | R = 3,575.00'         | R = 4,000.0'   |
| SE = 0.02             | SE = 0.02             | SE = 0.02      |



5/14/99

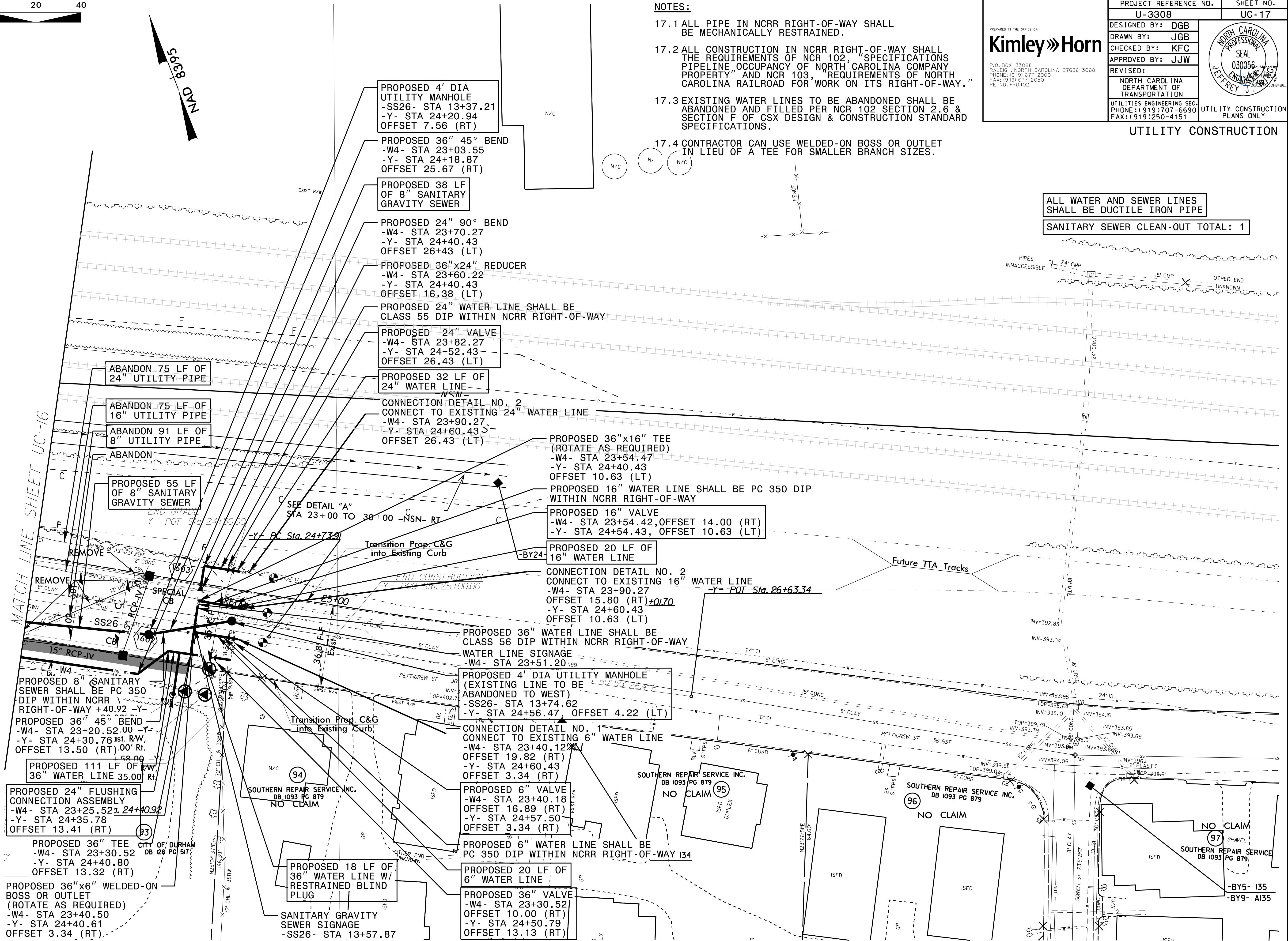


- NOTES:**
- 17.1 ALL PIPE IN NCRR RIGHT-OF-WAY SHALL BE MECHANICALLY RESTRAINED.
  - 17.2 ALL CONSTRUCTION IN NCRR RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF NCR 102, "SPECIFICATIONS PIPELINE OCCUPANCY OF NORTH CAROLINA COMPANY PROPERTY" AND NCR 103, "REQUIREMENTS OF NORTH CAROLINA RAILROAD FOR WORK ON ITS RIGHT-OF-WAY."
  - 17.3 EXISTING WATER LINES TO BE ABANDONED SHALL BE ABANDONED AND FILLED PER NCR 102 SECTION 2.6 & SECTION F OF CSX DESIGN & CONSTRUCTION STANDARD SPECIFICATIONS.
  - 17.4 CONTRACTOR CAN USE WELDED-ON BOSS OR OUTLET IN LIEU OF A TEE FOR SMALLER BRANCH SIZES.

|  |  |   |  |
|--|--|---|--|
| PROJECT REFERENCE NO.<br><b>U-3308</b>                                     |  | SHEET NO.<br><b>UC-17</b>                         |  |
| DESIGNED BY: <b>DGB</b>  |  |   |  |
| DRAWN BY: <b>JGB</b>   |  |   |  |
| CHECKED BY: <b>KFC</b>   |  |   |  |
| APPROVED BY: <b>JJW</b>  |  |   |  |
| REVISED:   |  | NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION |  |
| UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |  | UTILITY CONSTRUCTION<br>PLANS ONLY                |  |

**ALL WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE**

**SANITARY SEWER CLEAN-OUT TOTAL: 1**



MATCH LINE SHEET UC-16

Future TTA Tracks

PROPOSED 8" SANITARY SEWER SHALL BE PC 350 DIP WITHIN NCRR RIGHT-OF-WAY +40.92 -Y-  
 PROPOSED 36" 45° BEND -W4- STA 23+20.52, 24+09.2  
 -Y- STA 24+30.76 1st. RW, OFFSET 13.50 (RT) 00' Rt.  
 PROPOSED 111 LF OF 36" WATER LINE 35.00 Rt.  
 PROPOSED 24" FLUSHING CONNECTION ASSEMBLY -W4- STA 23+25.52, 24+40.92  
 -Y- STA 24+35.78 OFFSET 13.41 (RT) (B3)  
 PROPOSED 36" TEE -W4- STA 23+30.52 DB 128 PG 517  
 -Y- STA 24+40.80 OFFSET 13.32 (RT)  
 PROPOSED 36" x6" WELDED-ON BOSS OR OUTLET (ROTATE AS REQUIRED) -W4- STA 23+40.50  
 -Y- STA 24+40.61 OFFSET 3.34 (RT)

PROPOSED 4" DIA UTILITY MANHOLE -SS26- STA 13+37.21  
 -Y- STA 24+20.94 OFFSET 7.56 (RT)  
 PROPOSED 36" 45° BEND -W4- STA 23+03.55  
 -Y- STA 24+18.87 OFFSET 25.67 (RT)  
 PROPOSED 38 LF OF 8" SANITARY GRAVITY SEWER  
 PROPOSED 24" 90° BEND -W4- STA 23+70.27  
 -Y- STA 24+40.43 OFFSET 26+43 (LT)  
 PROPOSED 36" x24" REDUCER -W4- STA 23+60.22  
 -Y- STA 24+40.43 OFFSET 16.38 (LT)  
 PROPOSED 24" WATER LINE SHALL BE CLASS 55 DIP WITHIN NCRR RIGHT-OF-WAY  
 PROPOSED 24" VALVE -W4- STA 23+82.27  
 -Y- STA 24+52.43 OFFSET 26.43 (LT)  
 PROPOSED 32 LF OF 24" WATER LINE  
 CONNECTION DETAIL NO. 2 CONNECT TO EXISTING 24" WATER LINE -W4- STA 23+90.27  
 -Y- STA 24+60.43 OFFSET 26.43 (LT)

PROPOSED 36" x16" TEE (ROTATE AS REQUIRED) -W4- STA 23+54.47  
 -Y- STA 24+40.43 OFFSET 10.63 (LT)  
 PROPOSED 16" WATER LINE SHALL BE PC 350 DIP WITHIN NCRR RIGHT-OF-WAY  
 PROPOSED 16" VALVE -W4- STA 23+54.42, OFFSET 14.00 (RT)  
 -Y- STA 24+54.43, OFFSET 10.63 (LT)  
 PROPOSED 20 LF OF 16" WATER LINE  
 CONNECTION DETAIL NO. 2 CONNECT TO EXISTING 16" WATER LINE -W4- STA 23+90.27  
 -Y- STA 24+60.43 OFFSET 10.63 (LT)

PROPOSED 36" WATER LINE SHALL BE CLASS 56 DIP WITHIN NCRR RIGHT-OF-WAY WATER LINE SIGNAGE -W4- STA 23+51.20  
 PROPOSED 4" DIA UTILITY MANHOLE (EXISTING LINE TO BE ABANDONED TO WEST) -SS26- STA 13+74.62  
 -Y- STA 24+56.47, OFFSET 4.22 (LT)  
 CONNECTION DETAIL NO. 1 CONNECT TO EXISTING 6" WATER LINE -W4- STA 23+40.12  
 -Y- STA 24+60.43 OFFSET 19.82 (RT)  
 -Y- STA 24+57.50 OFFSET 3.34 (RT)  
 PROPOSED 6" VALVE -W4- STA 23+40.18  
 -Y- STA 24+57.50 OFFSET 16.89 (RT)  
 -Y- STA 24+57.50 OFFSET 3.34 (RT)

PROPOSED 6" WATER LINE SHALL BE PC 350 DIP WITHIN NCRR RIGHT-OF-WAY 134  
 PROPOSED 20 LF OF 6" WATER LINE  
 PROPOSED 36" VALVE -W4- STA 23+30.52  
 -Y- STA 24+50.79 OFFSET 10.00 (RT)  
 -Y- STA 24+50.79 OFFSET 13.13 (RT)

PROPOSED 18 LF OF 36" WATER LINE W/ RESTRAINED BLIND PLUG  
 SANITARY GRAVITY SEWER SIGNAGE -SS26- STA 13+57.87

SOUTHERN REPAIR SERVICE INC. DB 1093 PG 879 NO CLAIM (94)

SOUTHERN REPAIR SERVICE INC. DB 1093 PG 879 NO CLAIM (95)

SOUTHERN REPAIR SERVICE INC. DB 1093 PG 879 NO CLAIM (96)

SOUTHERN REPAIR SERVICE DB 1093 PG 879 NO CLAIM (97)

-BY5- 135  
-BY9- A135



|  |           |
|--|-----------|
| PROJECT REFERENCE NO.  | SHEET NO. |
| U-3308   | UC-18     |
| DESIGNED BY: DGB   |           |
| DRAWN BY: JGB  |           |
| CHECKED BY: KFC  |           |
| APPROVED BY: JJW   |           |
| REVISED:   |           |
| NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION                          |           |
| UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |           |
| 11/30/2015<br>UTILITY CONSTRUCTION<br>PLANS ONLY                           |           |

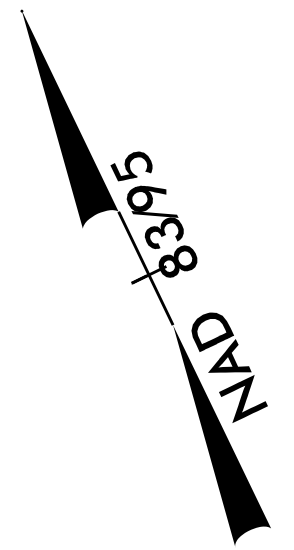
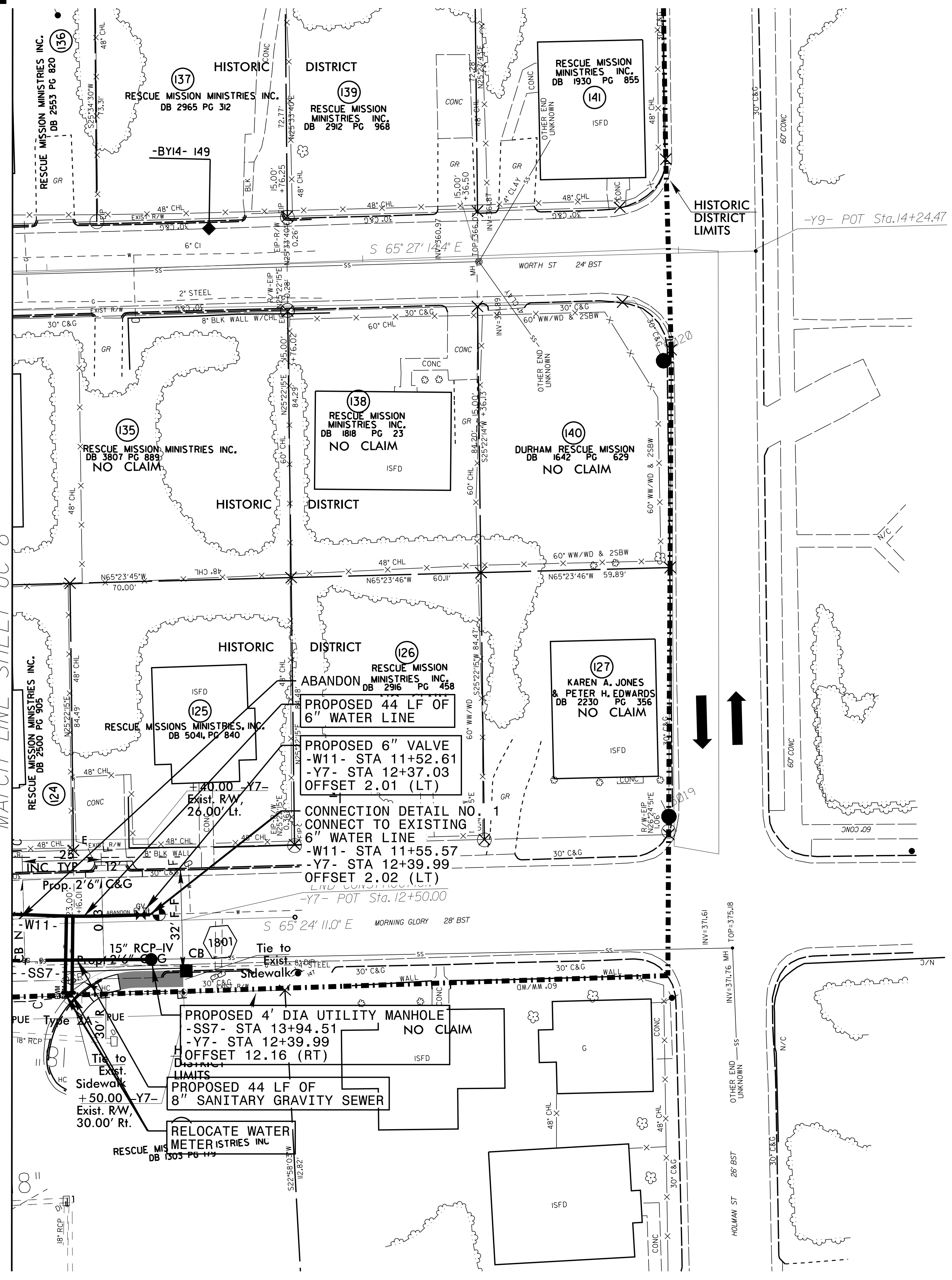
PREPARED IN THE OFFICE OF:  
**Kimley»Horn**  
 P.O. BOX 33068  
 RALEIGH, NORTH CAROLINA 27636-3068  
 PHONE: (919) 677-2000  
 FAX: (919) 677-2050  
 PE NO. F-0102

**UTILITY CONSTRUCTION**

ALL WATER AND SEWER LINES  
 SHALL BE DUCTILE IRON PIPE

SANITARY SEWER CLEAN-OUT TOTAL: 2

MATCH LINE SHEET UC-8



Conc. Sidewalk  
 or Island

FOR -Y7- TYPICAL SEE SHEET 2-F  
 FOR -Y7- PROFILE SEE SHEET 32

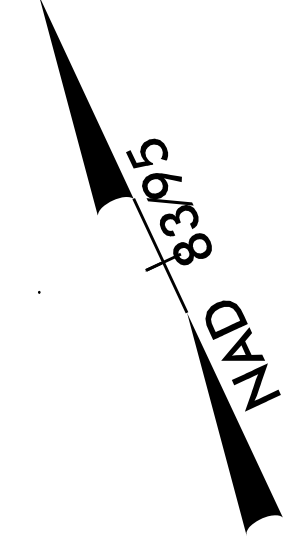


5/14/19

ALL WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE

RELOCATE WATER METER TOTAL: 6

SANITARY SEWER CLEAN-OUT TOTAL: 12

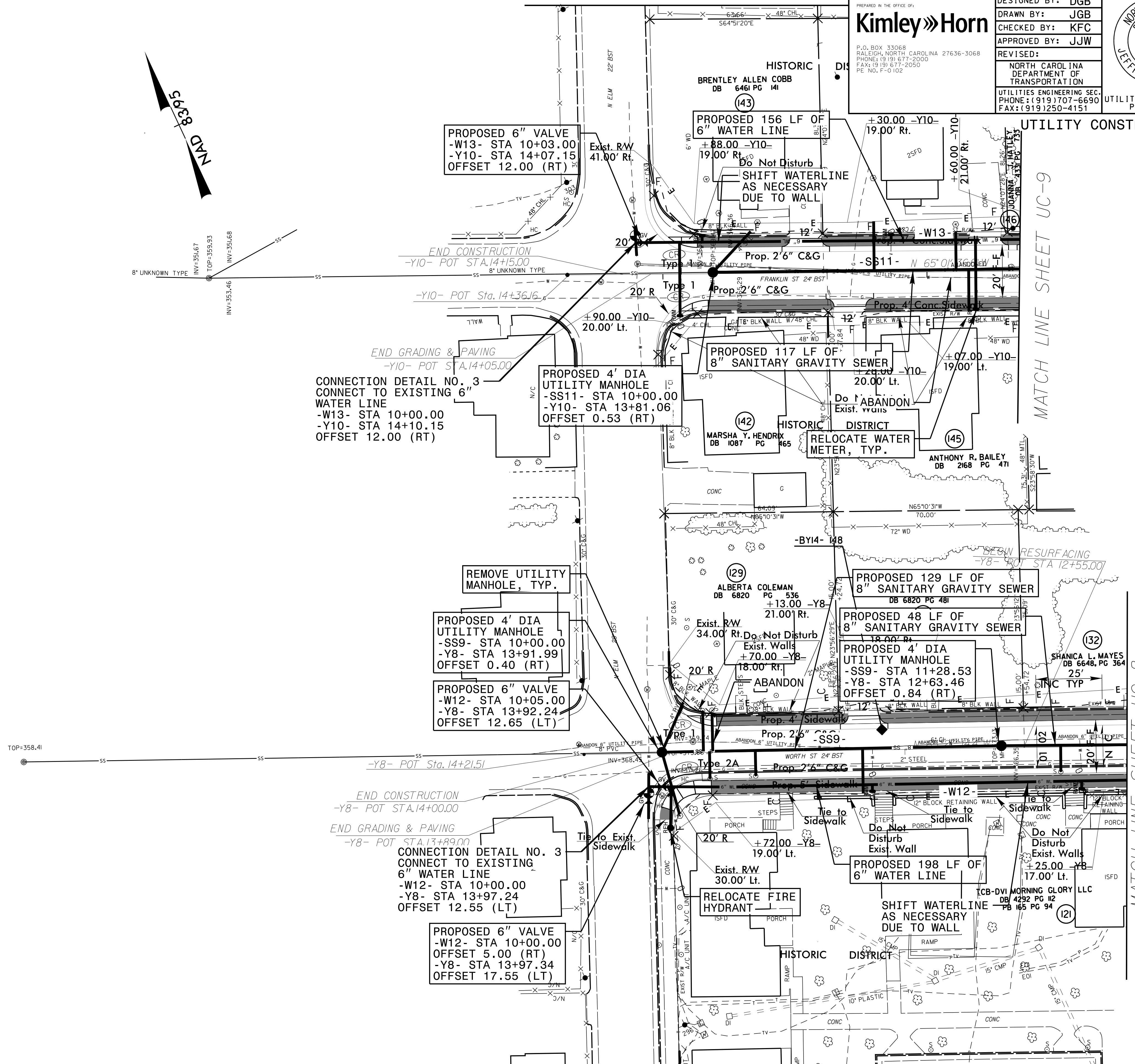


MATCH LINE SHEET UC-21

**Kimley»Horn**

P.O. BOX 33068  
RALEIGH, NORTH CAROLINA 27636-3068  
PHONE: (919) 677-2000  
FAX: (919) 677-2050  
PE NO. F-0102

| PROJECT REFERENCE NO.           | SHEET NO.   |
|---------------------------------|---|
| U-3308                          | UC-19   |
| DESIGNED BY: DGB                |   |
| DRAWN BY: JGB                   |   |
| CHECKED BY: KFC                 |   |
| APPROVED BY: JJW                |   |
| REVISED:                        | NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION<br>UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |
| UTILITY CONSTRUCTION PLANS ONLY |   |



PROPOSED 6" VALVE  
-W13- STA 10+03.00  
-Y10- STA 14+07.15  
OFFSET 12.00 (RT)

PROPOSED 156 LF OF  
6" WATER LINE  
+88.00 -Y10-  
19.00' Rt.

Do Not Disturb  
SHIFT WATERLINE  
AS NECESSARY  
DUE TO WALL

END CONSTRUCTION  
-Y10- POT STA. 14+15.00

END GRADING & PAVING  
-Y10- POT STA. 14+36.16

CONNECTION DETAIL NO. 3  
CONNECT TO EXISTING 6"  
WATER LINE  
-W13- STA 10+00.00  
-Y10- STA 14+10.15  
OFFSET 12.00 (RT)

PROPOSED 4' DIA  
UTILITY MANHOLE  
-SS11- STA 10+00.00  
-Y10- STA 13+81.06  
OFFSET 0.53 (RT)

PROPOSED 117 LF OF  
8" SANITARY GRAVITY SEWER  
+28.00 -Y10-  
20.00' Lt.

RELOCATE WATER  
METER, TYP.

REMOVE UTILITY  
MANHOLE, TYP.

PROPOSED 4' DIA  
UTILITY MANHOLE  
-SS9- STA 10+00.00  
+70.00 -Y8-  
OFFSET 0.40 (RT)

PROPOSED 6" VALVE  
-W12- STA 10+05.00  
-Y8- STA 13+92.24  
OFFSET 12.65 (LT)

PROPOSED 129 LF OF  
8" SANITARY GRAVITY SEWER  
+13.00 -Y8-  
21.00' Rt.

PROPOSED 48 LF OF  
8" SANITARY GRAVITY SEWER  
+18.00' Rt.

PROPOSED 4' DIA  
UTILITY MANHOLE  
-SS9- STA 11+28.53  
-Y8- STA 12+63.46  
OFFSET 0.84 (RT)

END CONSTRUCTION  
-Y8- POT STA. 14+00.00

END GRADING & PAVING  
-Y8- POT STA. 13+89.00

CONNECTION DETAIL NO. 3  
CONNECT TO EXISTING  
6" WATER LINE  
-W12- STA 10+00.00  
-Y8- STA 13+97.24  
OFFSET 12.55 (LT)

PROPOSED 6" VALVE  
-W12- STA 10+00.00  
OFFSET 5.00 (RT)  
-Y8- STA 13+97.34  
OFFSET 17.55 (LT)

PROPOSED 198 LF OF  
6" WATER LINE  
+25.00 -Y8-  
17.00' Lt.

SHIFT WATERLINE  
AS NECESSARY  
DUE TO WALL

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MATCH LINE SHEET UC-8

MATCH LINE SHEET UC-9



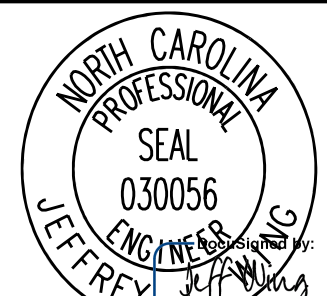
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5/14/99

PROJECT REFERENCE NO. U-3308 SHEET NO. UC-20

Kimley Horn

P.O. BOX 33068  
RALEIGH, NORTH CAROLINA 27636-3068  
PHONE: (919) 677-2000  
FAX: (919) 677-2050  
PE NO. F-0102



DESIGNED BY: DGB  
DRAWN BY: JGB  
CHECKED BY: KFC  
APPROVED BY: JJW  
REVISED:  
NORTH CAROLINA  
DEPARTMENT OF  
TRANSPORTATION  
UTILITIES ENGINEERING SEC.  
PHONE: (919) 707-6690  
FAX: (919) 250-4151

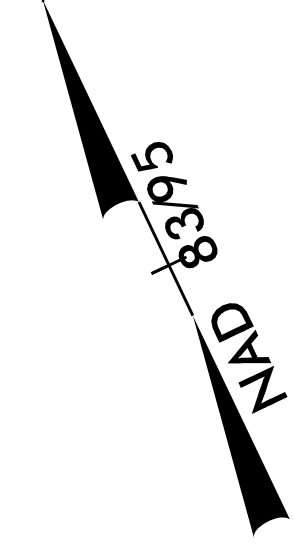
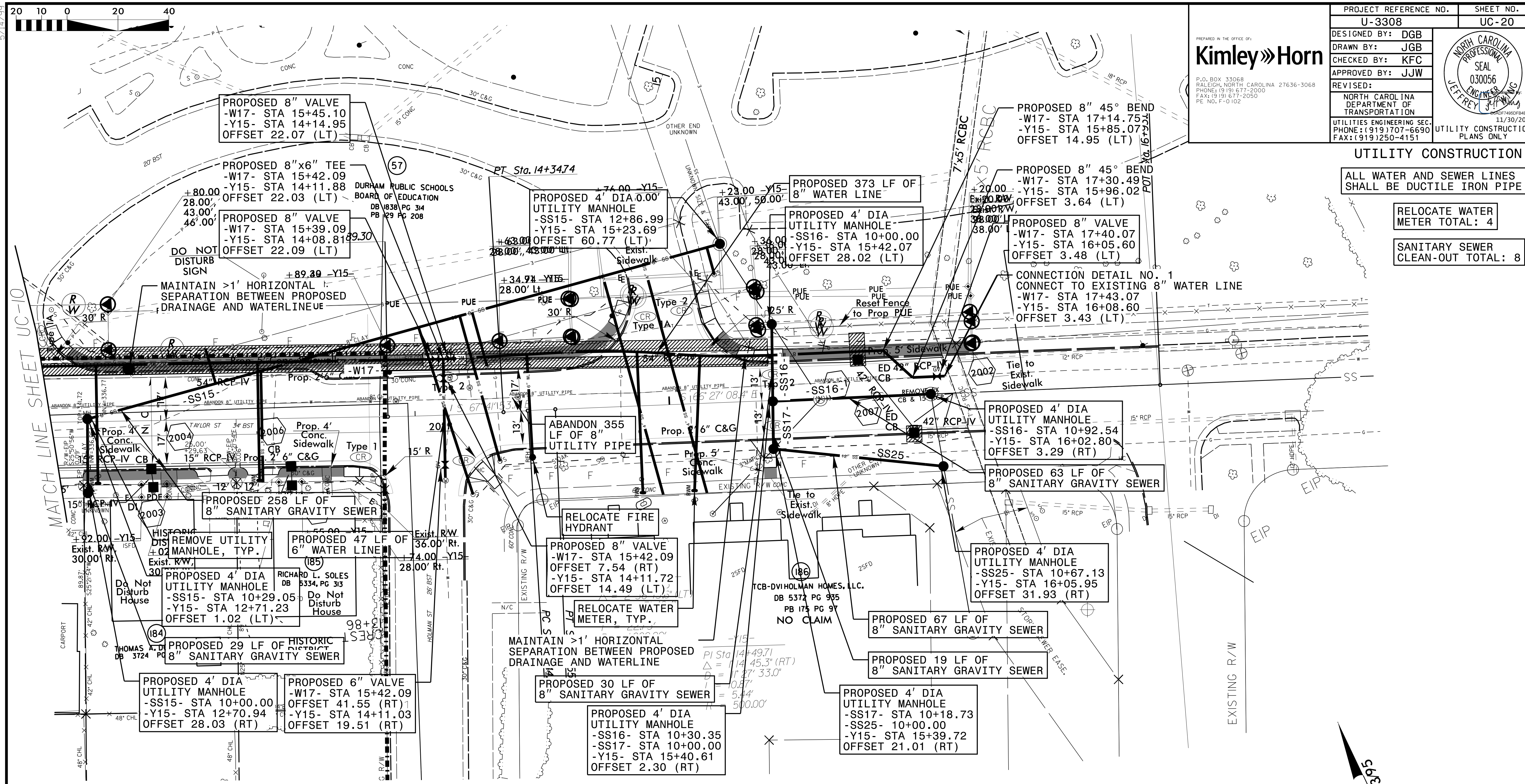
UTILITY CONSTRUCTION  
PLANS ONLY

UTILITY CONSTRUCTION  
ALL WATER AND SEWER LINES  
SHALL BE DUCTILE IRON PIPE

RELOCATE WATER  
METER TOTAL: 4

SANITARY SEWER  
CLEAN-OUT TOTAL: 8

MATCH LINE SHEET UC-10



Vertical text on the left margin containing sheet identification and revision information.



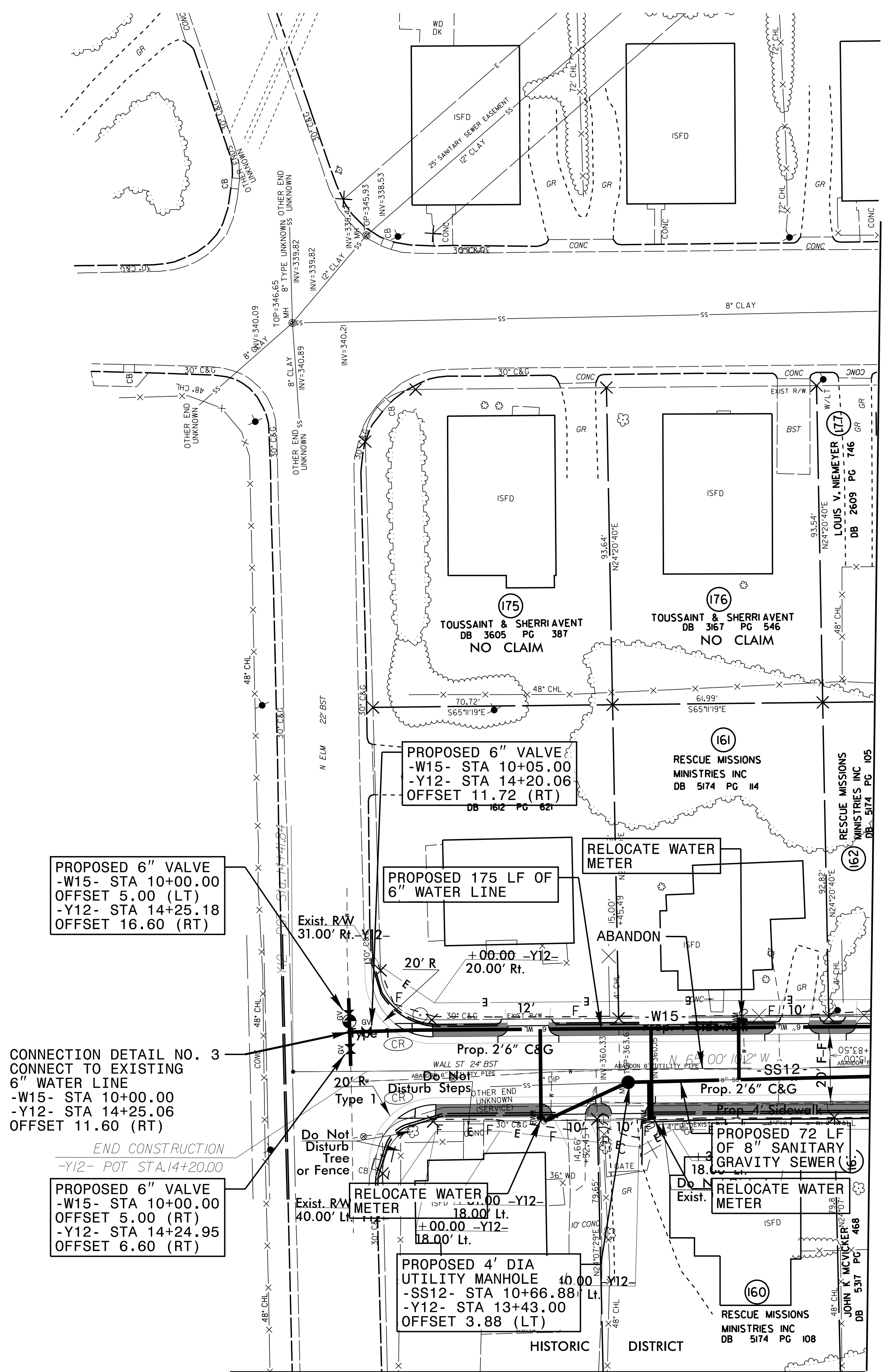
5/14/99

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| PROJECT REFERENCE NO. |     | SHEET NO.   |                                    |
| U-3308                |     | UC-21   |                                    |
| DESIGNED BY:          | DGB |   |                                    |
| DRAWN BY:             | JGB |   |                                    |
| CHECKED BY:           | KFC |   |                                    |
| APPROVED BY:          | JJW |   |                                    |
| REVISED:              |     | NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION<br>UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |                                    |
|                       |     |   | UTILITY CONSTRUCTION<br>PLANS ONLY |

UTILITY CONSTRUCTION

ALL WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE

SANITARY SEWER CLEAN-OUT TOTAL: 4



PROPOSED 6" VALVE  
 -W15- STA 10+05.00  
 -Y12- STA 14+20.06  
 OFFSET 11.72 (RT)  
 DB 162 PG 62

CONNECTION DETAIL NO. 3  
 CONNECT TO EXISTING  
 6" WATER LINE  
 -W15- STA 10+00.00  
 -Y12- STA 14+25.06  
 OFFSET 11.60 (RT)

PROPOSED 6" VALVE  
 -W15- STA 10+00.00  
 OFFSET 5.00 (RT)  
 -Y12- STA 14+24.95  
 OFFSET 6.60 (RT)

PROPOSED 6" VALVE  
 -W15- STA 10+05.00  
 -Y12- STA 14+20.06  
 OFFSET 11.72 (RT)  
 DB 162 PG 62

PROPOSED 175 LF OF  
 6" WATER LINE

PROPOSED 4' DIA  
 UTILITY MANHOLE  
 -SS12- STA 10+66.88  
 -Y12- STA 13+43.00  
 OFFSET 3.88 (LT)

MATCH LINE SHEET UC-9

MATCH LINE SHEET 19



5/14/99

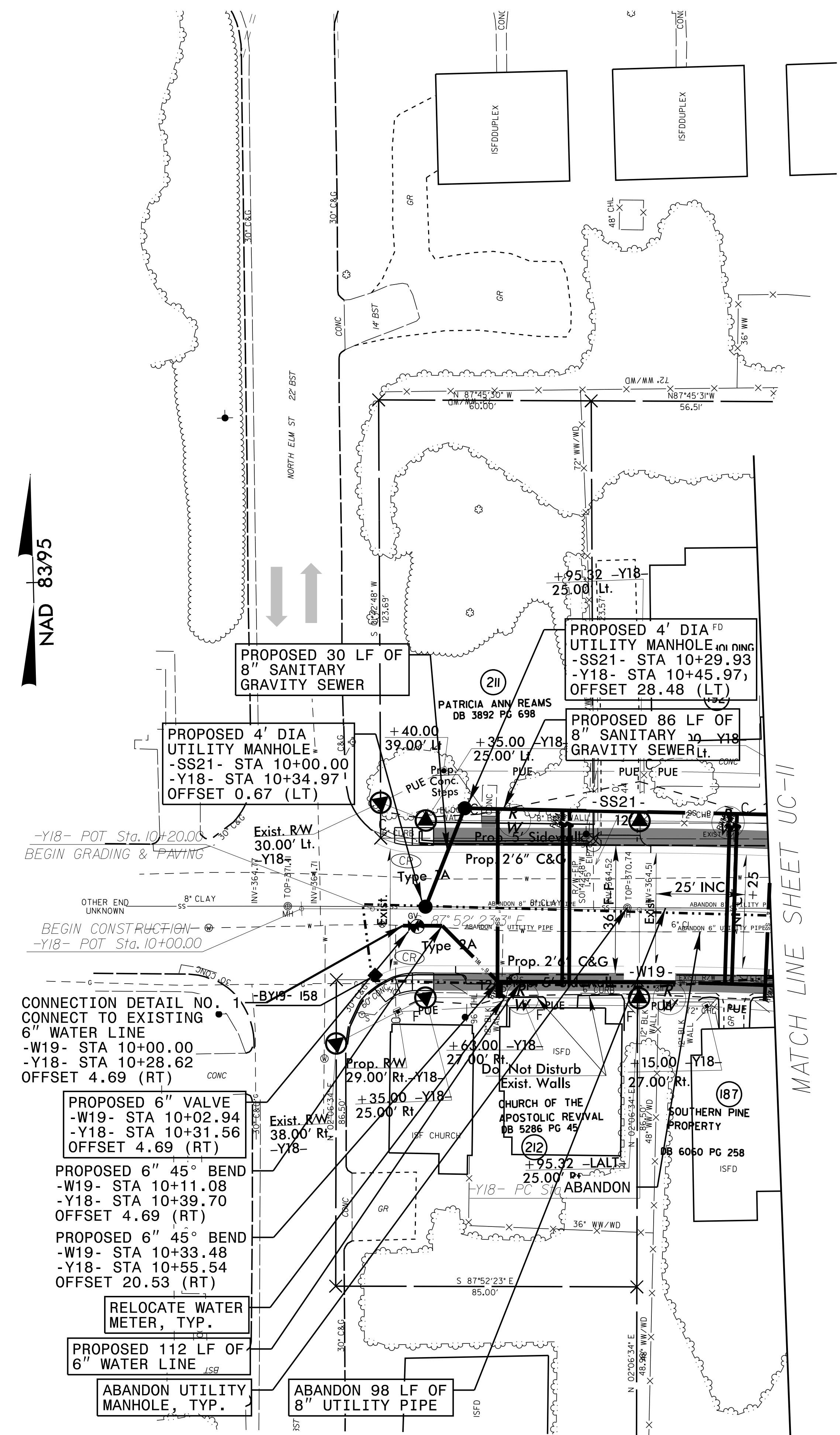
-Y18-  
 PI Sta 11+27.16  
 $\Delta = 4' 03'' 09.6''$  (RT)  
 $D = 6' 21'' 58.3''$   
 $L = 63.66'$   
 $T = 31.84'$   
 $R = 900.00'$   
 SE = SEE PLANS  
 RO = SEE PLANS

|  |           |
|--|-----------|
| PROJECT REFERENCE NO.  | SHEET NO. |
| U-3308   | UC-22     |
| DESIGNED BY: DGB   |           |
| DRAWN BY: JGB  |           |
| CHECKED BY: KFC  |           |
| APPROVED BY: JJW   |           |
| REVISED:   |           |
| NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION                          |           |
| UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |           |
| UTILITY CONSTRUCTION   |           |

ALL WATER AND SEWER LINES  
 SHALL BE DUCTILE IRON PIPE

SANITARY SEWER  
 CLEAN-OUT: 6

NAD 8395



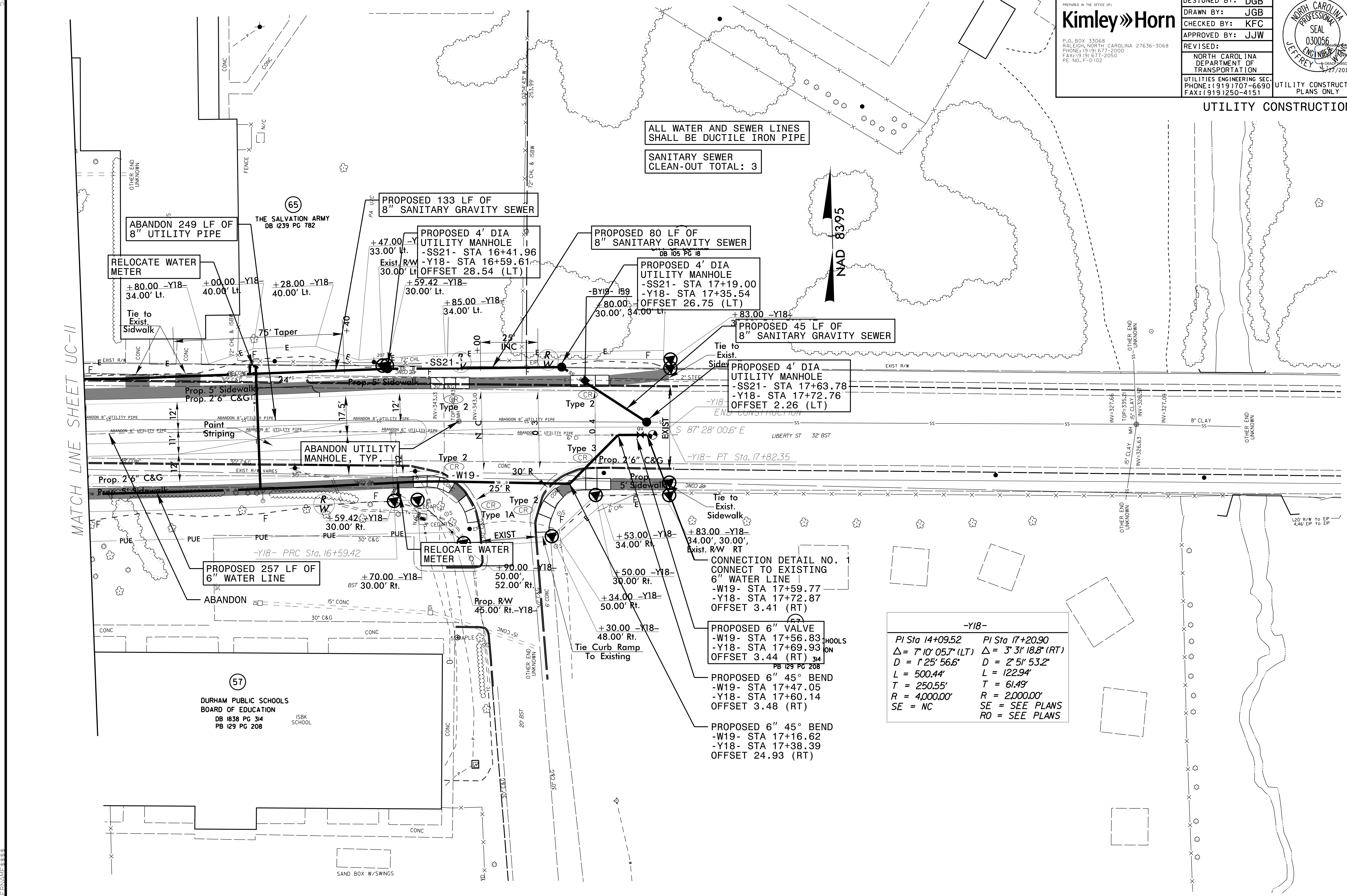
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PREPARED IN THE OFFICE OF  
**Kimley»Horn**  
 P.O. BOX 33068  
 RALEIGH, NORTH CAROLINA 27636-3068  
 PHONE: (919) 677-2000  
 FAX: (919) 677-2050  
 PE NO. F-0102

|  |                                    |
|--|------------------------------------|
| PROJECT REFERENCE NO.<br><b>U-3308</b>                                     | SHEET NO.<br><b>UC-23</b>          |
| DESIGNED BY: <b>DGB</b>  |                                    |
| DRAWN BY: <b>JGB</b>   |                                    |
| CHECKED BY: <b>KFC</b>   |                                    |
| APPROVED BY: <b>JJW</b>  |                                    |
| REVISED:   |                                    |
| NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION                          |                                    |
| UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 | UTILITY CONSTRUCTION<br>PLANS ONLY |

**UTILITY CONSTRUCTION**



**-Y18-**

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| PI Sta 14+09.52                     | PI Sta 17+20.90                     |
| $\Delta = 7^{\circ} 10' 05.7" (LT)$ | $\Delta = 3^{\circ} 31' 18.8" (RT)$ |
| $D = 1^{\circ} 25' 56.6"$           | $D = 2^{\circ} 51' 53.2"$           |
| $L = 500.44'$                       | $L = 122.94'$                       |
| $T = 250.55'$                       | $T = 61.49'$                        |
| $R = 4,000.00'$                     | $R = 2,000.00'$                     |
| $SE = NC$                           | $SE = SEE PLANS$                    |
|                                     | $RO = SEE PLANS$                    |

MATCH LINE SHEET UC-11

**(57)**  
 DURHAM PUBLIC SCHOOLS  
 BOARD OF EDUCATION  
 DB 1838 PG 314  
 PB 129 PG 208

**(65)**  
 THE SALVATION ARMY  
 DB 1239 PG 782

5/14/99  
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5/14/99

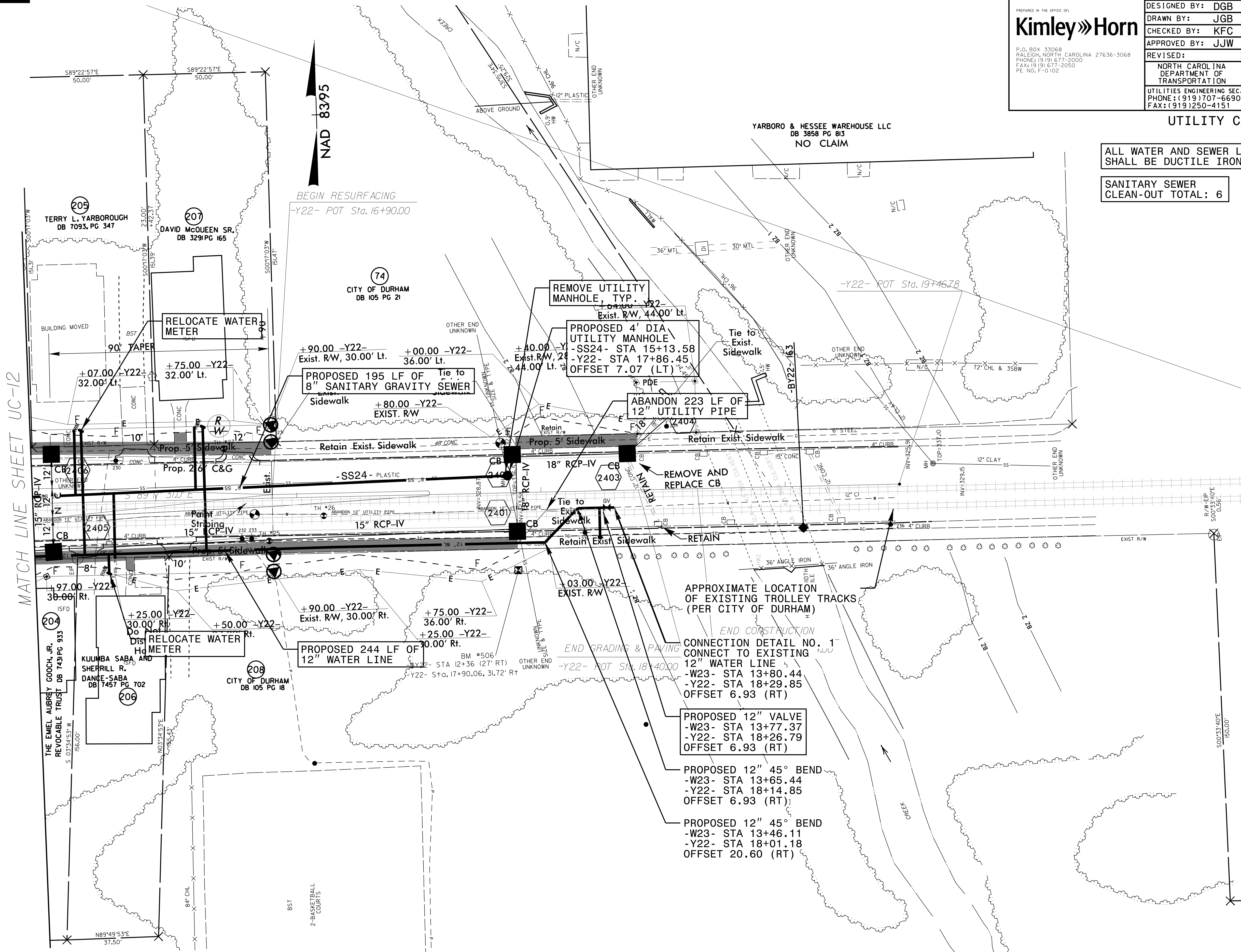
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| PROJECT REFERENCE NO.<br>U-3308  | SHEET NO.<br>UC-24                                |
| DESIGNED BY: DGB   |   |
| DRAWN BY: JGB  |   |
| CHECKED BY: KFC  |   |
| APPROVED BY: JJW   |   |
| REVISOR:   | NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION |
| UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 | UTILITY CONSTRUCTION<br>PLANS ONLY                |

**UTILITY CONSTRUCTION**

ALL WATER AND SEWER LINES  
SHALL BE DUCTILE IRON PIPE

SANITARY SEWER  
CLEAN-OUT TOTAL: 6

MATCH LINE SHEET UC-12



APPROXIMATE LOCATION OF EXISTING TROLLEY TRACKS (PER CITY OF DURHAM)

END CONSTRUCTION  
CONNECTION DETAIL NO. 1  
CONNECT TO EXISTING  
12" WATER LINE

-W23- STA 13+80.44  
-Y22- STA 18+29.85  
OFFSET 6.93 (RT)

PROPOSED 12" VALVE  
-W23- STA 13+77.37  
-Y22- STA 18+26.79  
OFFSET 6.93 (RT)

PROPOSED 12" 45° BEND  
-W23- STA 13+65.44  
-Y22- STA 18+14.85  
OFFSET 6.93 (RT)

PROPOSED 12" 45° BEND  
-W23- STA 13+46.11  
-Y22- STA 18+01.18  
OFFSET 20.60 (RT)

BEGIN RESURFACING  
-Y22- POT Sta. 16+90.00

REMOVE UTILITY  
MANHOLE, TYP. -Y22-  
Exist. R.W, 44.00' Lt.  
PROPOSED 4' DIA.  
UTILITY MANHOLE  
-SS24- STA 15+13.58  
-Y22- STA 17+86.45  
OFFSET 7.07 (LT)

PROPOSED 195 LF OF  
8" SANITARY GRAVITY SEWER  
Sidewalk  
+80.00 -Y22-  
EXIST. R.W

ABANDON 223 LF OF  
12" UTILITY PIPE

PROPOSED 244 LF OF  
12" WATER LINE

TERRY L. YARBOROUGH  
DB 7093, PG 347

DAVID MCQUEEN SR.  
DB 3291 PG 165

CITY OF DURHAM  
DB 105 PG 21

YARBORO & HESSE WAREHOUSE LLC  
DB 3858 PG 813  
NO CLAIM

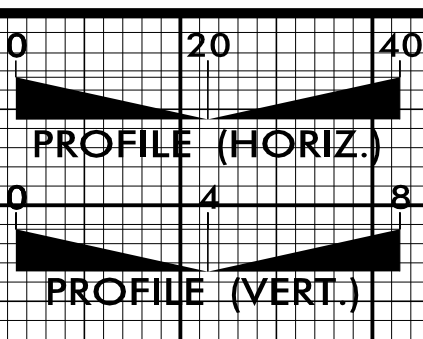
KUUMBA SABA AND  
SHERILL R.  
DANCE-SABA  
DB 7457 PG 702

CITY OF DURHAM  
DB 105 PG 18

2-BASKETBALL  
COURTS

R/W-SEP  
S0033340E  
150.00'

5/28/99



RESTRAINED JOINT PIPE

PROJECT REFERENCE NO. U-3308 SHEET NO. UC-25

DESIGNED BY: DGB  
DRAWN BY: JGB  
CHECKED BY: KFC  
APPROVED BY: JJW

REVISIONS:

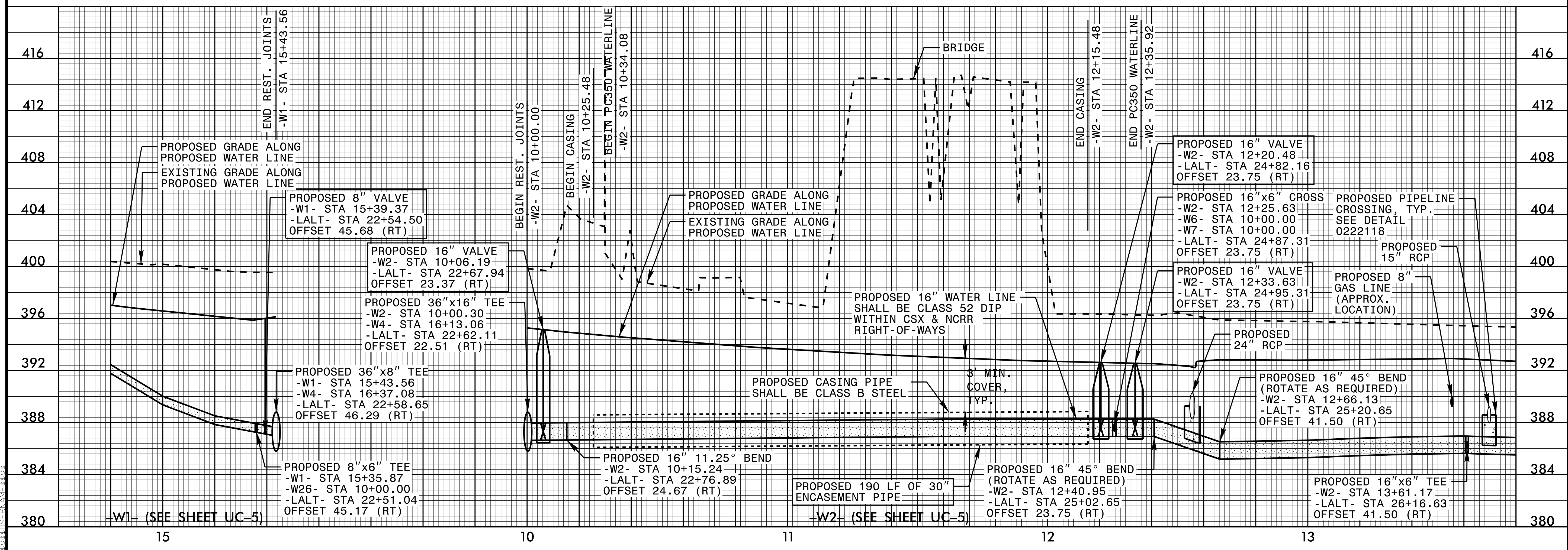
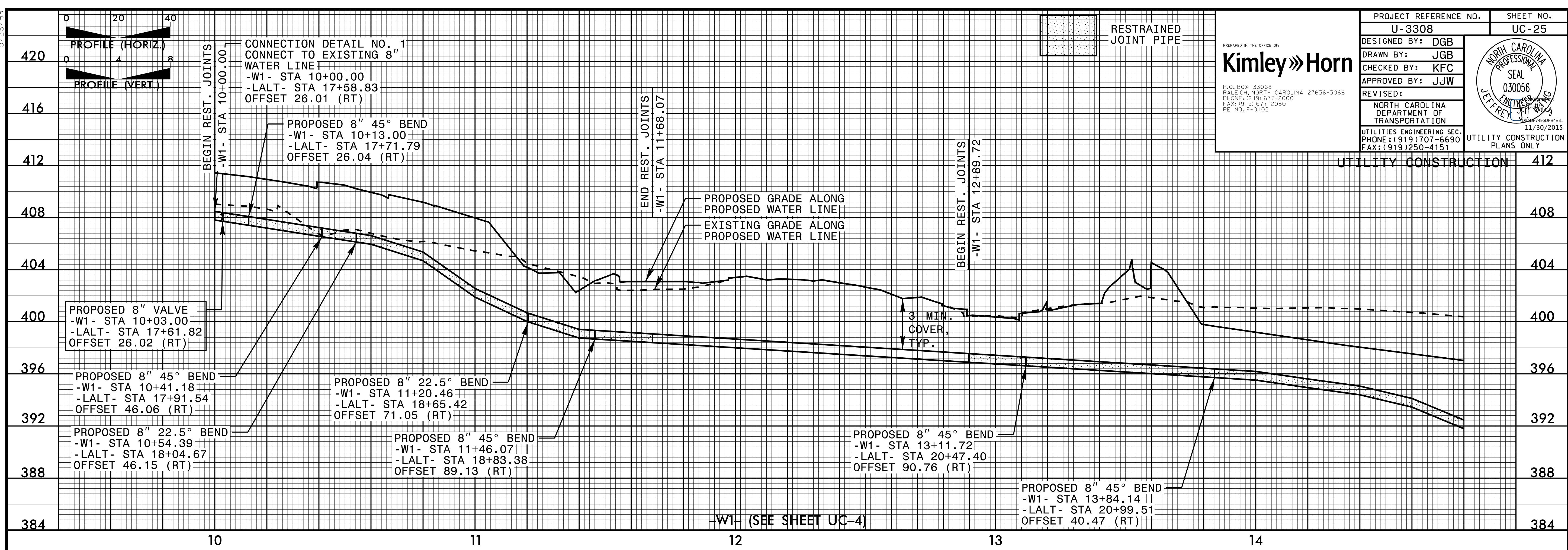
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

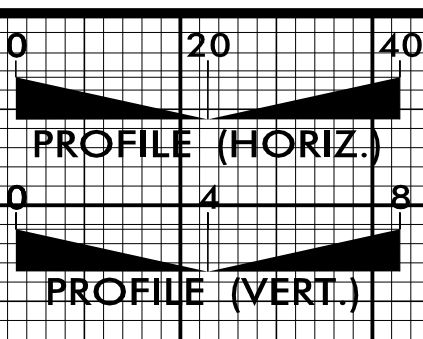
UTILITY CONSTRUCTION PLANS ONLY

PREPARED IN THE OFFICE OF:  
**Kimley»Horn**  
P.O. BOX 33068  
RALEIGH, NORTH CAROLINA 27636-3068  
PHONE: (919) 677-2000  
FAX: (919) 677-2050  
PE NO. P-0102

NORTH CAROLINA PROFESSIONAL SEAL  
030056  
JEFFREY J. WOOD  
11/30/2015

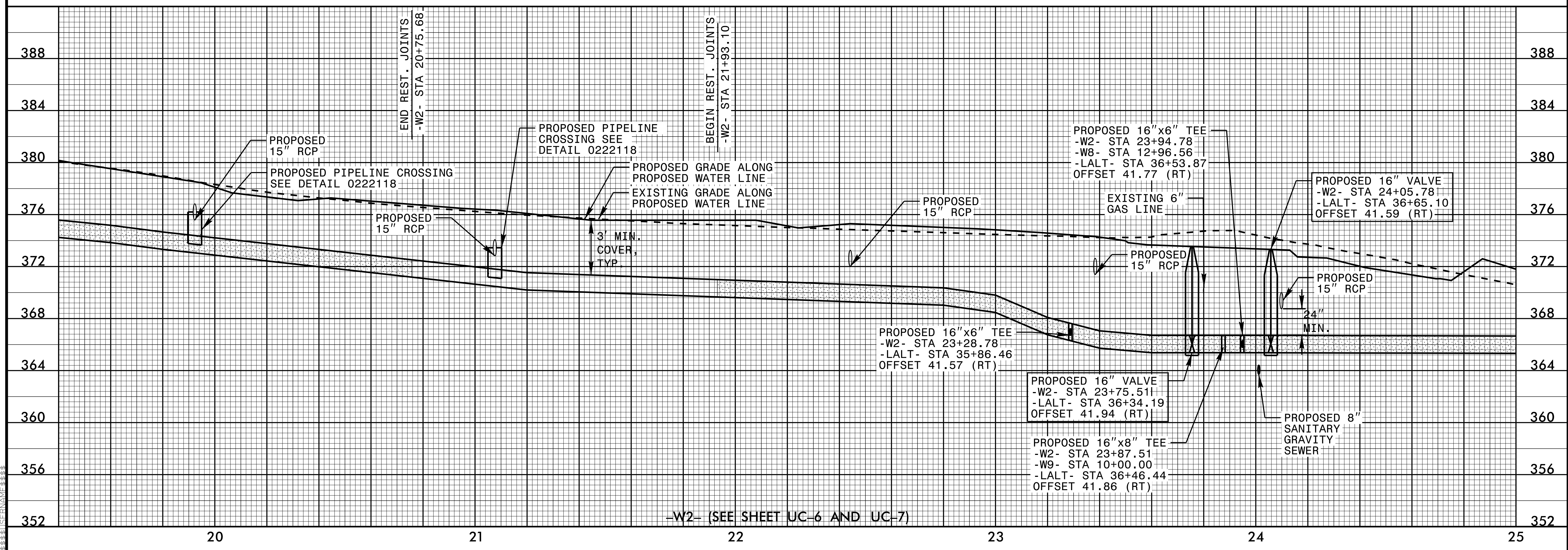
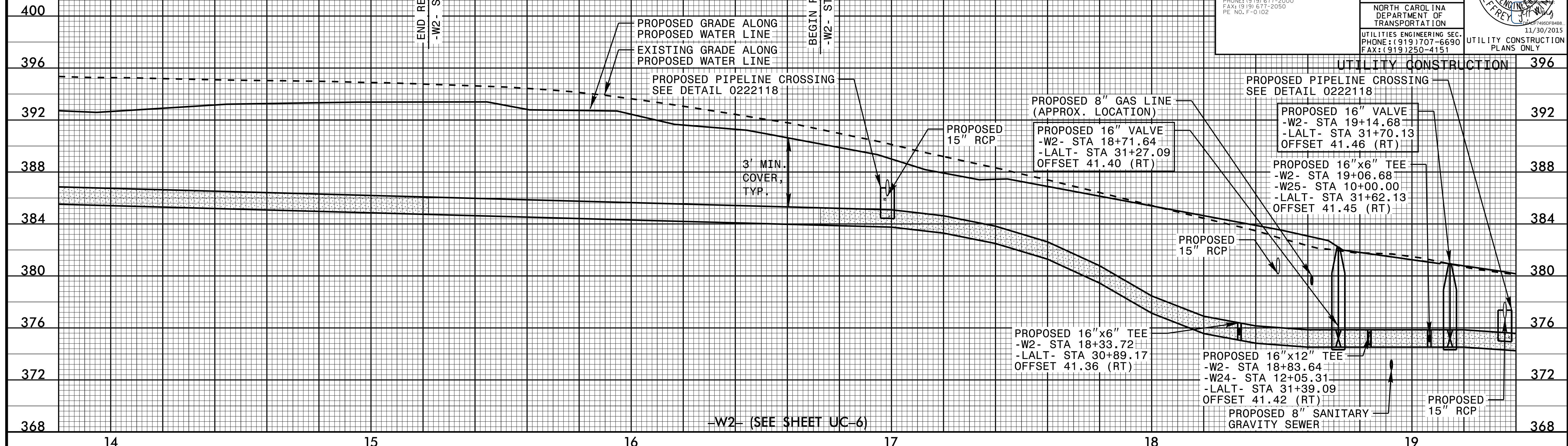


5/28/99



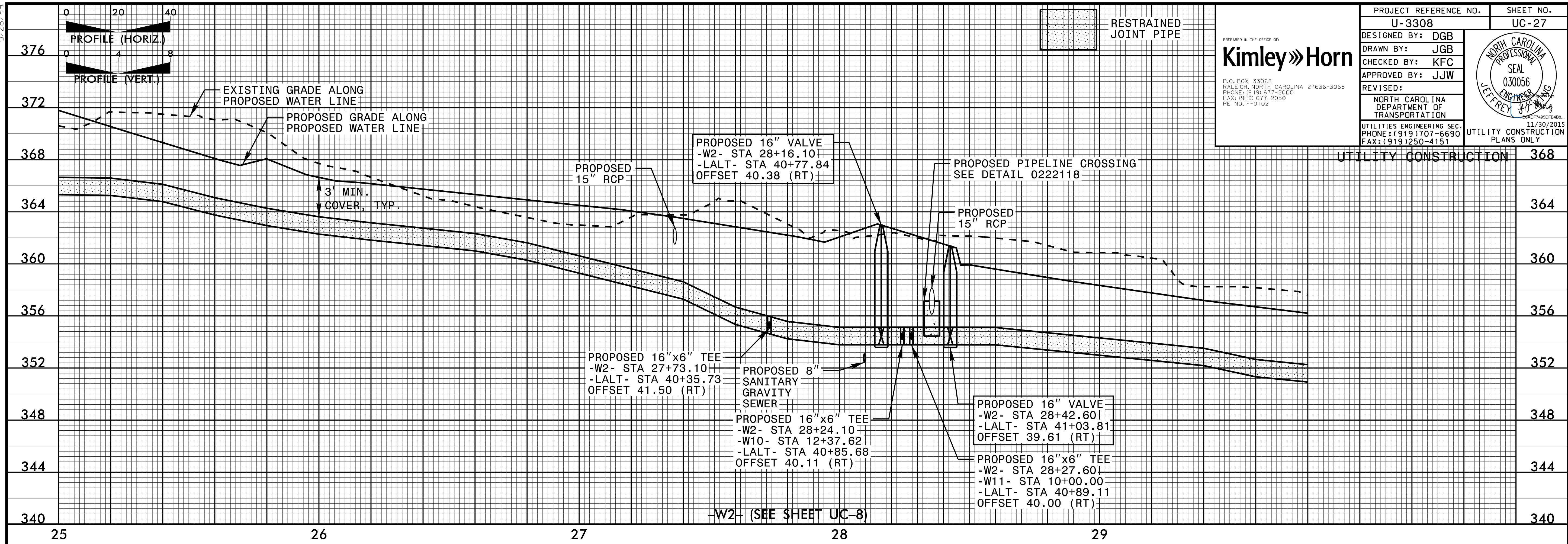
RESTRAINED JOINT PIPE

|  |                    |
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| PROJECT REFERENCE NO.<br>U-3308                                      | SHEET NO.<br>UC-26 |
| DESIGNED BY: DGB   |                    |
| DRAWN BY: JGB  |                    |
| CHECKED BY: KFC  |                    |
| APPROVED BY: JJW   | REVISER:           |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION                          |                    |
| UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 |                    |
| UTILITY CONSTRUCTION PLANS ONLY                                      |                    |



5/28/99

5/28/99



PROJECT REFERENCE NO. U-3308 SHEET NO. UC-27

DESIGNED BY: DGB

DRAWN BY: JGB

CHECKED BY: KFC

APPROVED BY: JJW

REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

UTILITY CONSTRUCTION PLANS ONLY

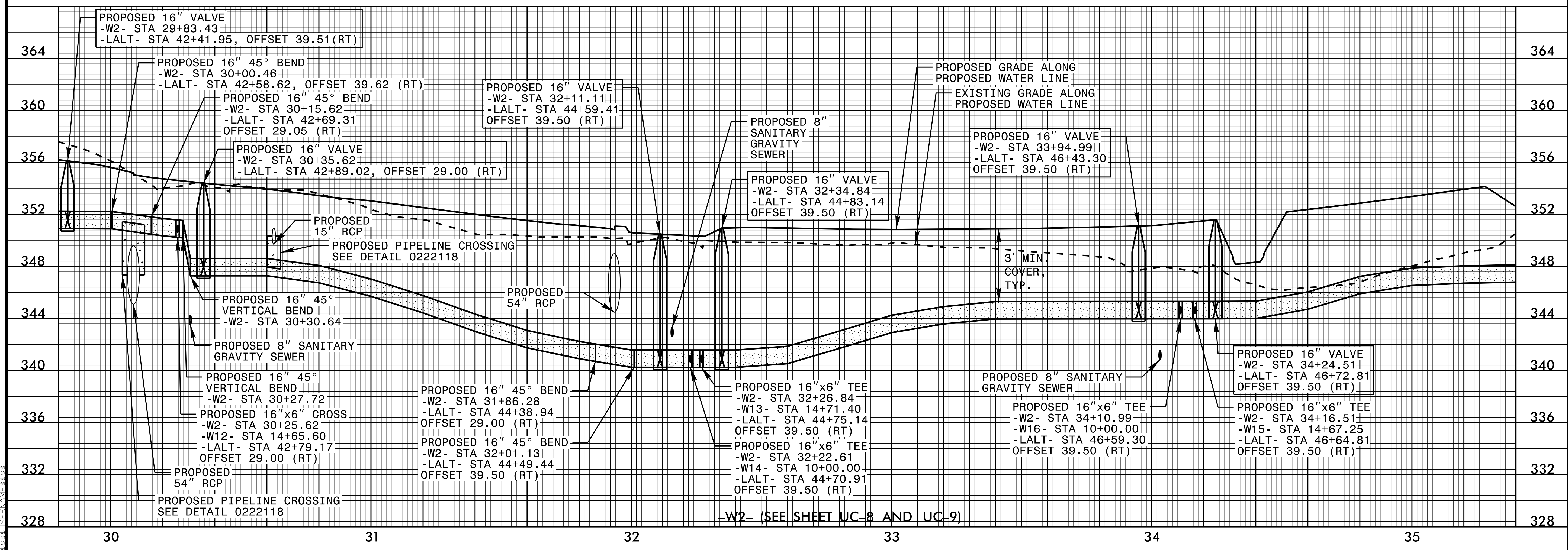
PREPARED IN THE OFFICE OF:

**Kimley»Horn**

P.O. BOX 33068 RALEIGH, NORTH CAROLINA 27636-3068  
PHONE: (919) 677-2000  
FAX: (919) 677-2050  
PE NO. F-0102

NORTH CAROLINA PROFESSIONAL SEAL  
030056  
JEFFREY J. HORN

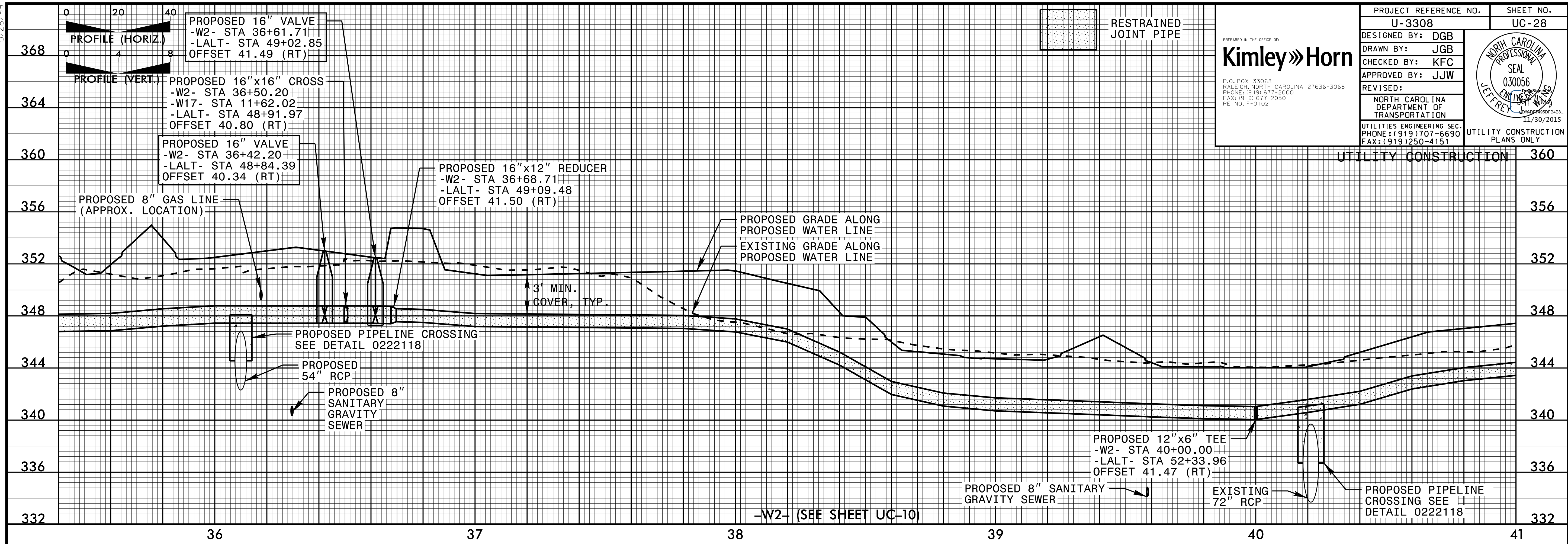
11/30/2015



5/28/99

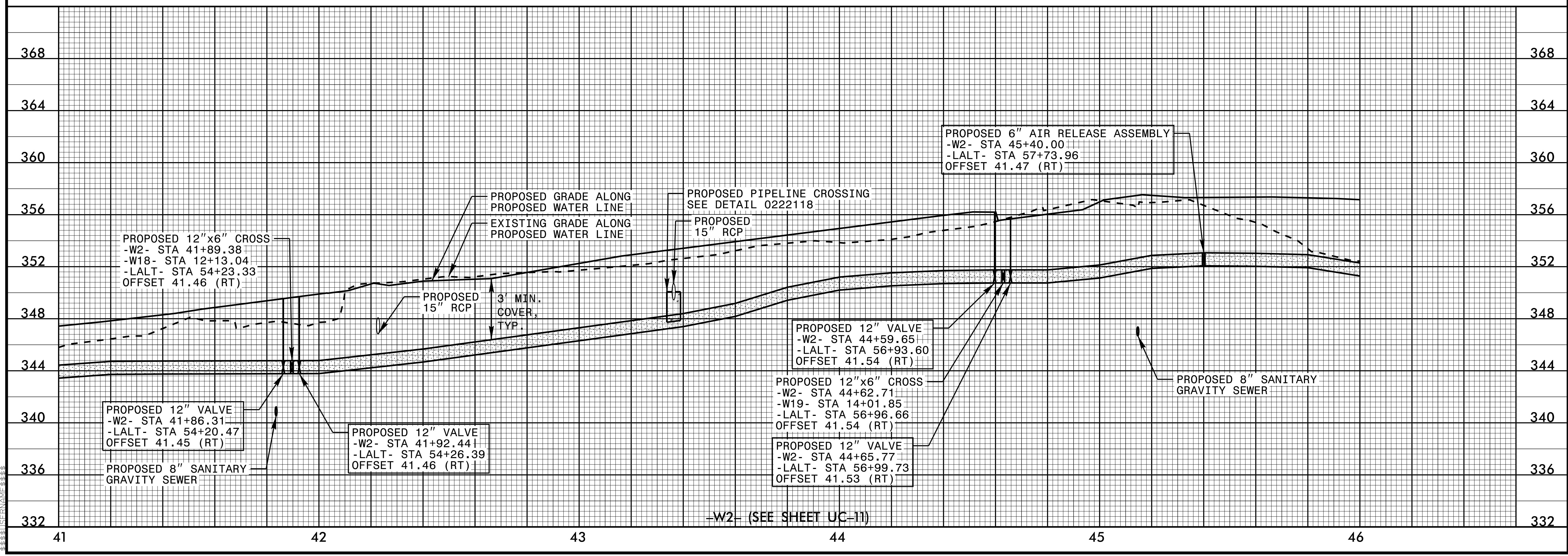


5/28/99

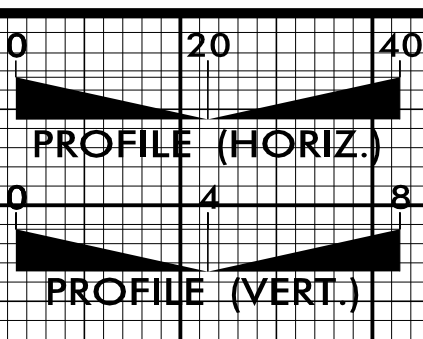


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| PROJECT REFERENCE NO.<br>U-3308 |   | SHEET NO.<br>UC-28 |   |
| DESIGNED BY: DGB                | <br>P.O. BOX 33068<br>RALEIGH, NORTH CAROLINA 27636-3068<br>PHONE: (919) 677-2000<br>FAX: (919) 677-2050<br>PE NO. P-0102 |                    |   |
| DRAWN BY: JGB                   |   |                    |   |
| CHECKED BY: KFC                 |   |                    |   |
| APPROVED BY: JJW                |   |                    |   |
| REVISED:                        |   |                    | NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION<br>UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |
| UTILITY CONSTRUCTION            |   |                    | 360   |

5/28/99



5/28/99

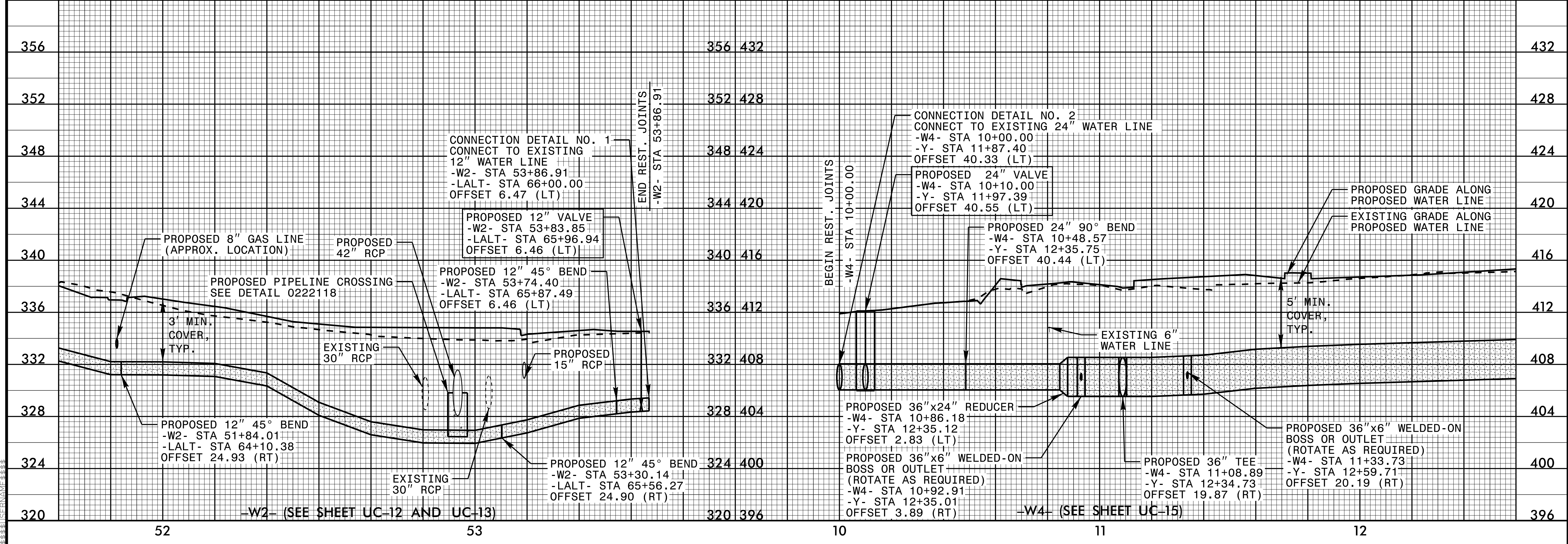
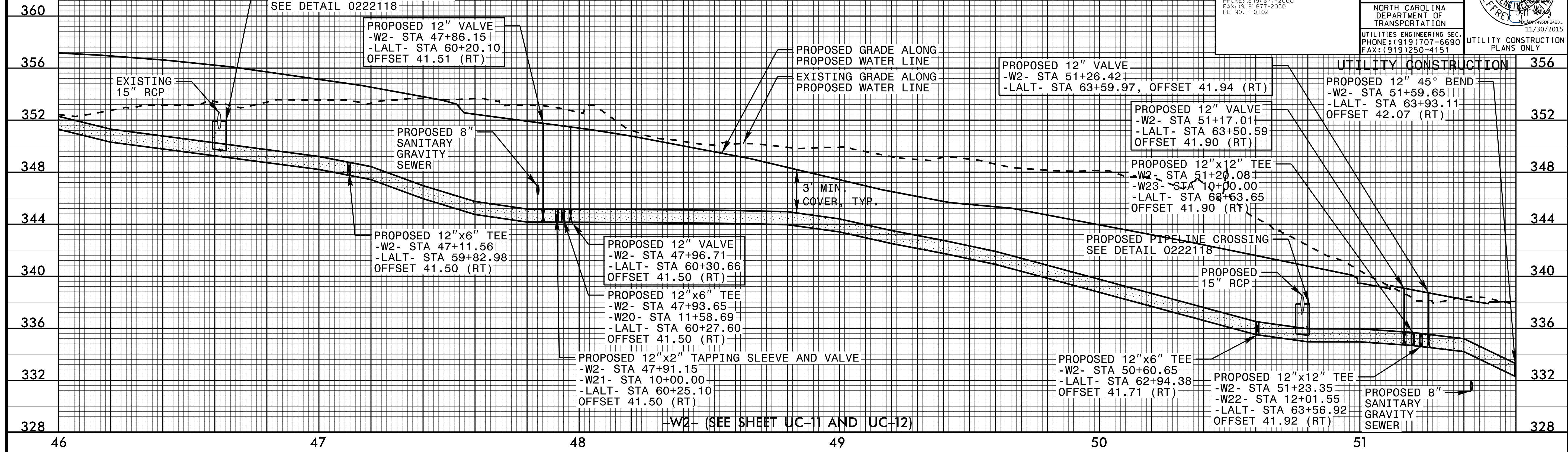


RESTRAINED JOINT PIPE

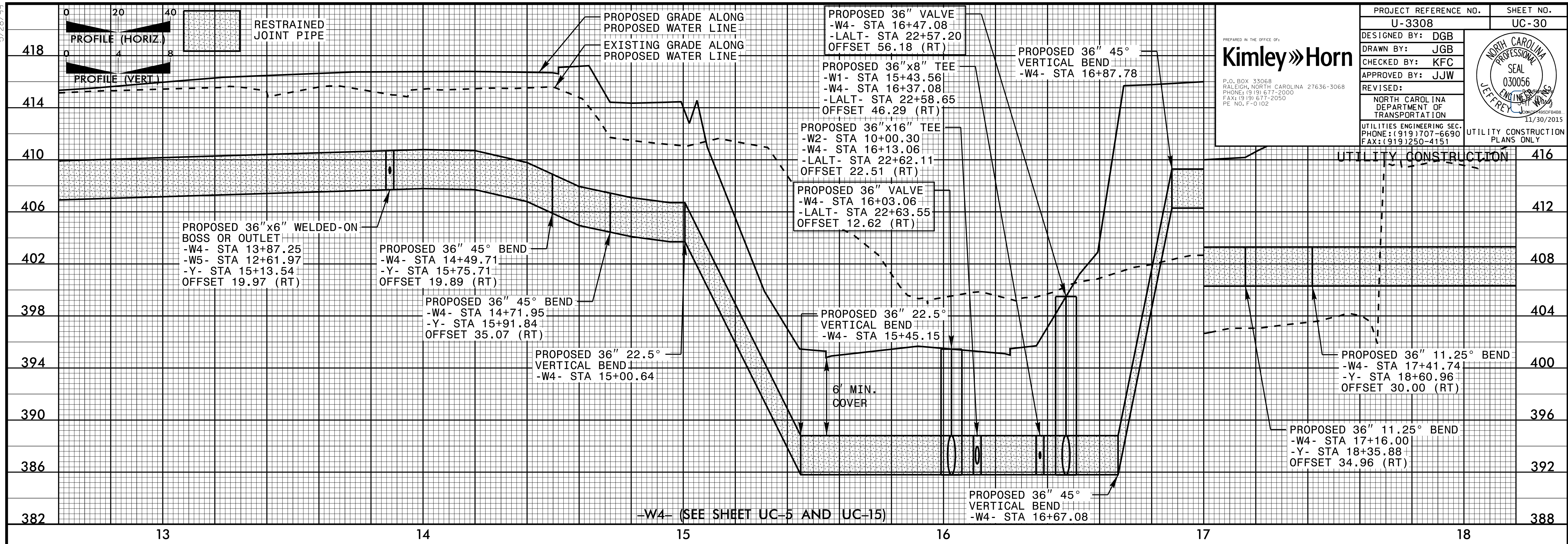
Kimley Horn

P.O. BOX 33068  
RALEIGH, NORTH CAROLINA 27636-3068  
PHONE: (919) 677-2000  
FAX: (919) 677-2050  
PE NO. F-0102

|  |   |
|--|---|
| PROJECT REFERENCE NO.<br>U-3308  | SHEET NO.<br>UC-29                          |
| DESIGNED BY: DGB   |   |
| DRAWN BY: JGB  |   |
| CHECKED BY: KFC  |   |
| APPROVED BY: JJW   | REVISIONS:                                  |
|  | NORTH CAROLINA DEPARTMENT OF TRANSPORTATION |
| UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 | UTILITY CONSTRUCTION PLANS ONLY             |



5/26/99



**PROJECT REFERENCE NO.**  
U-3308

**SHEET NO.**  
UC-30

**DESIGNED BY:** DGB

**DRAWN BY:** JGB

**CHECKED BY:** KFC

**APPROVED BY:** JJW

**REVISIONS:**

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**

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

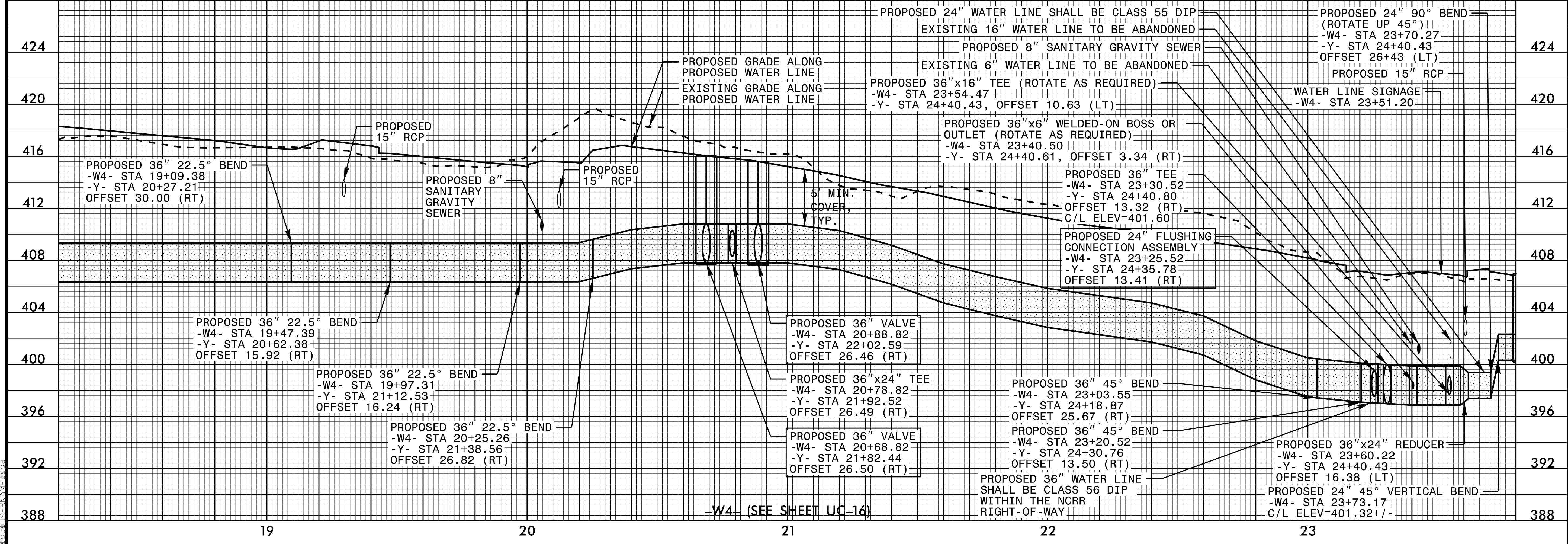
**UTILITY CONSTRUCTION PLANS ONLY**

**Kimley Horn**

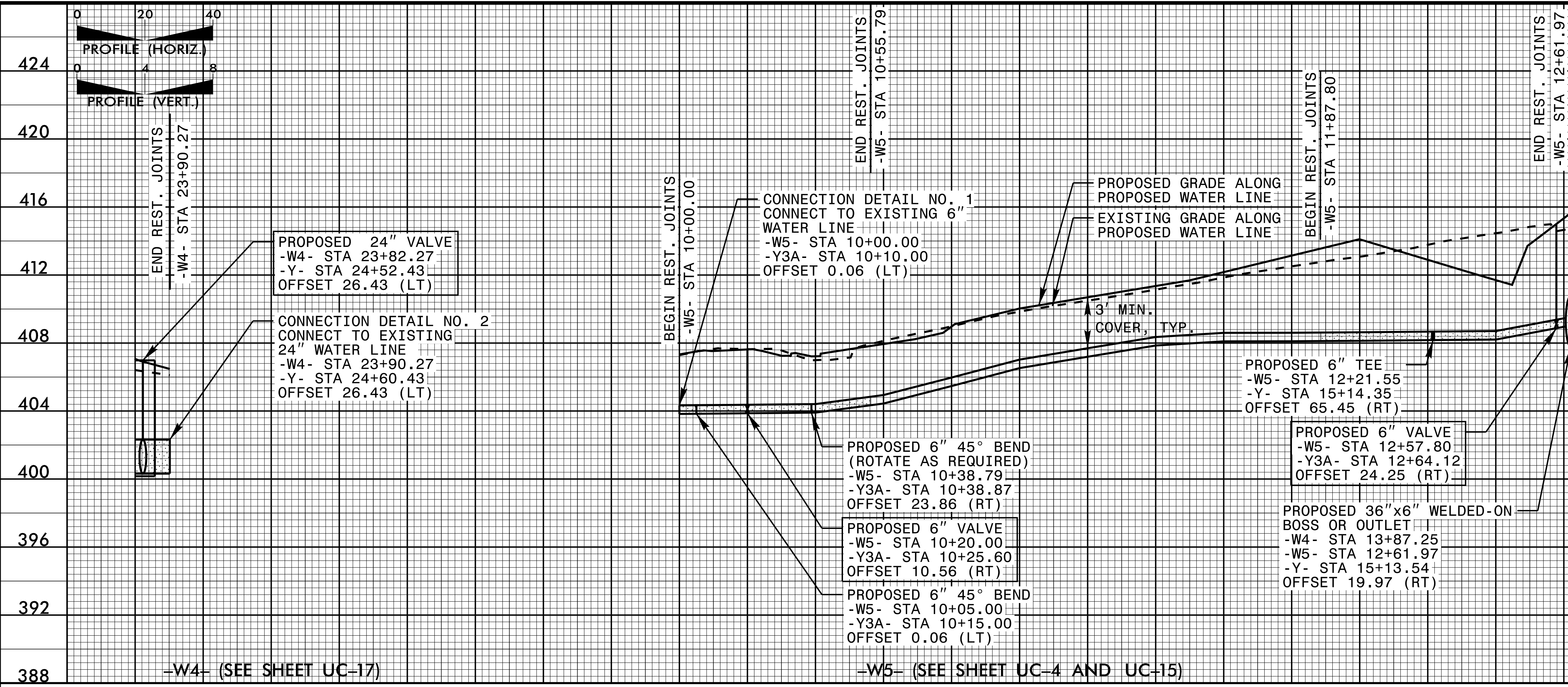
P.O. BOX 33068  
RALEIGH, NORTH CAROLINA 27636-3068  
PHONE: (919) 617-2000  
FAX: (919) 617-2050  
PE NO. P-0102

**NORTH CAROLINA PROFESSIONAL SEAL**  
030056  
JEFFREY J. HORN  
11/30/2015

5/26/99

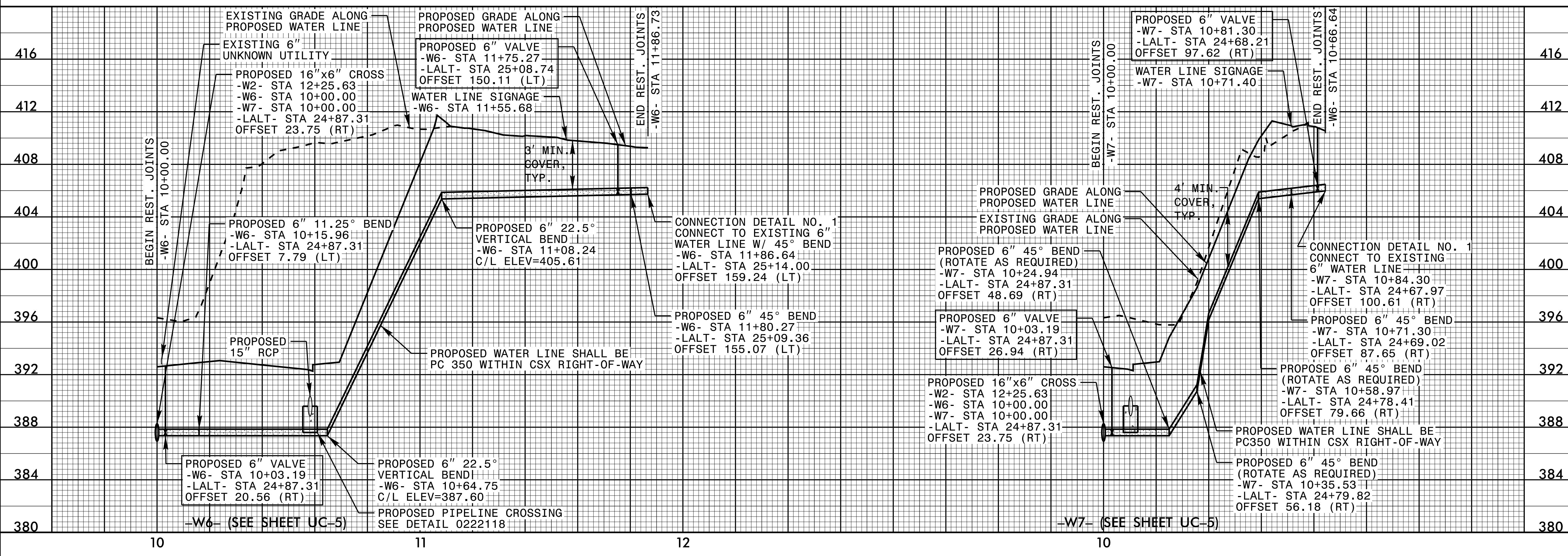


5/26/99

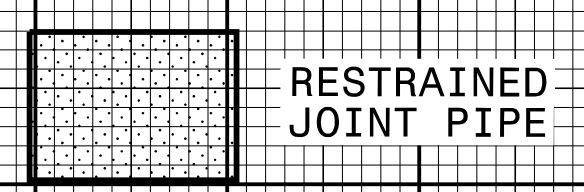
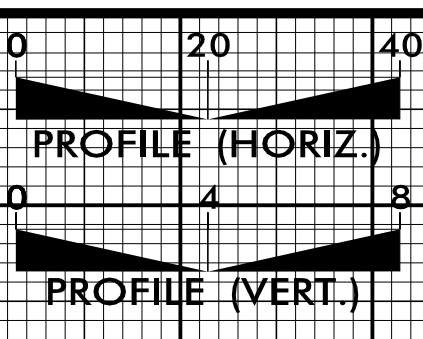


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| PROJECT REFERENCE NO.             | SHEET NO.   |
| U-3308                            | UC-31   |
| DESIGNED BY: DGB                  |   |
| DRAWN BY: JGB                     |   |
| CHECKED BY: KFC                   |   |
| APPROVED BY: JJW                  |   |
| REVISED:                          | NORTH CAROLINA DEPARTMENT OF TRANSPORTATION<br>UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |
| UTILITIES CONSTRUCTION PLANS ONLY |   |

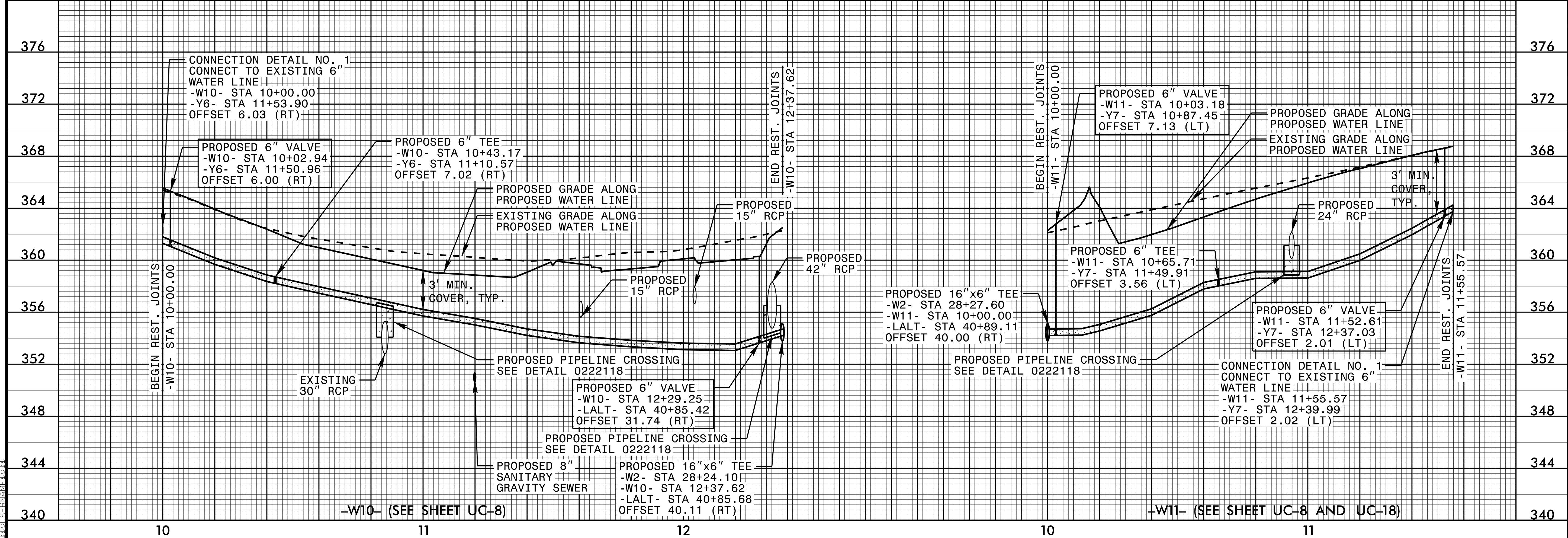
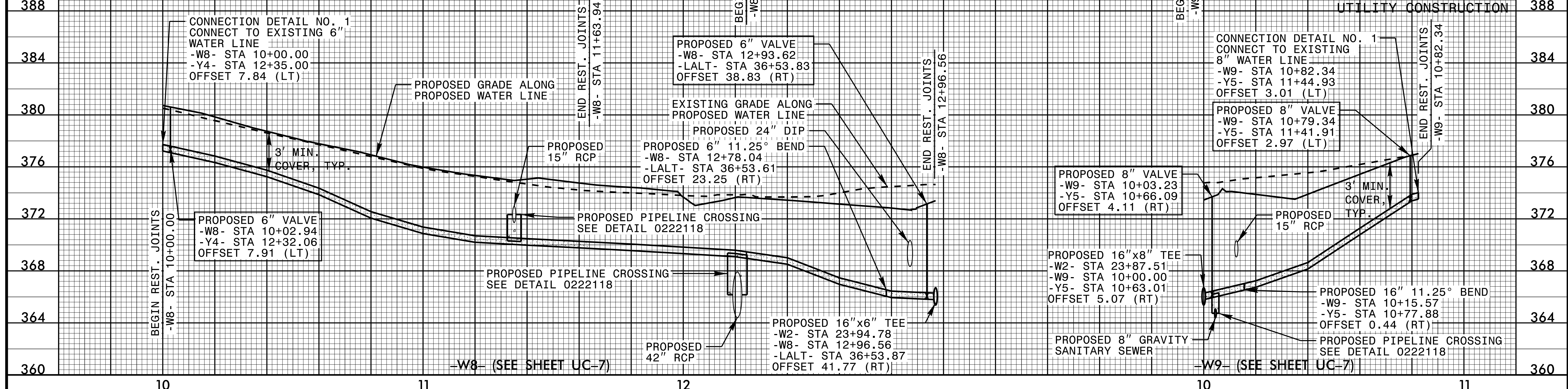
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 PE NO. P-0102



5/28/99



|                                 |   |
|---------------------------------|---|
| PROJECT REFERENCE NO.<br>U-3308 | SHEET NO.<br>UC-32  |
| DESIGNED BY: DGB                |   |
| DRAWN BY: JGB                   |   |
| CHECKED BY: KFC                 |   |
| APPROVED BY: JJW                | DATE: 12/2/2015   |
| REVISIONS:                      | NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION<br>UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |
| UTILITY CONSTRUCTION            |   |

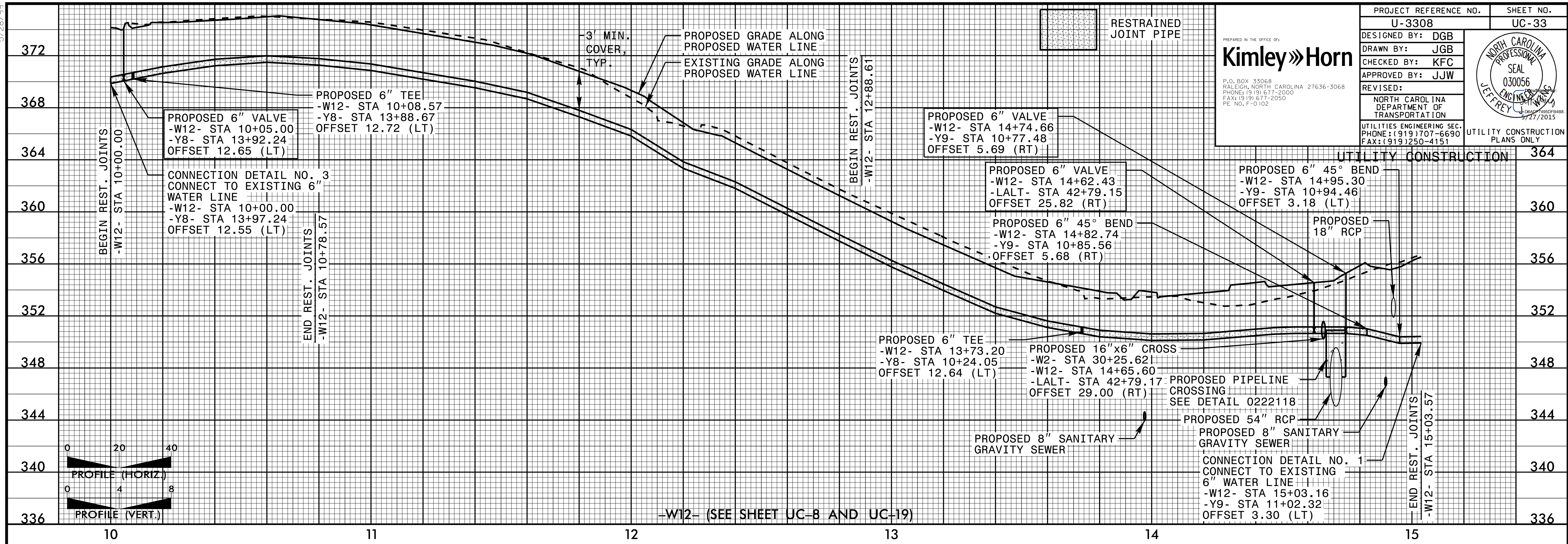


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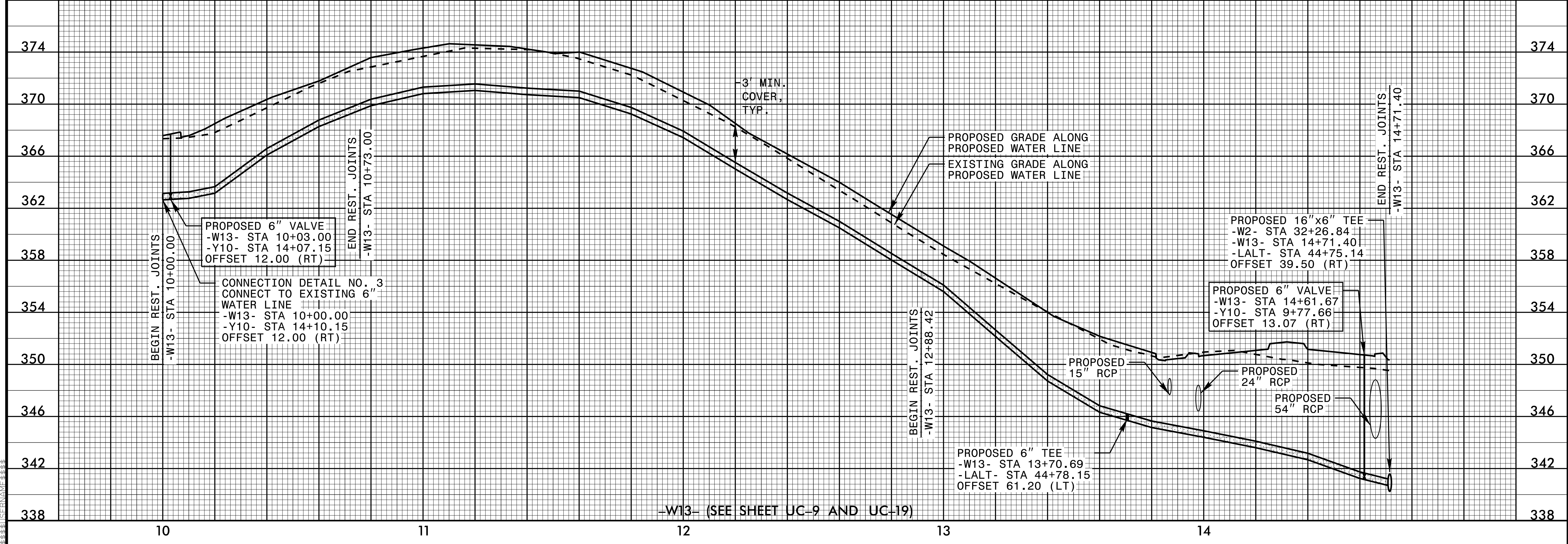
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| PROJECT REFERENCE NO.<br>U-3308  | SHEET NO.<br>UC-33              |
| DESIGNED BY: DGB   |                                 |
| DRAWN BY: JGB  |                                 |
| CHECKED BY: KFC  |                                 |
| APPROVED BY: JJW   | REVISIONS:                      |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION                                |                                 |
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-W12- (SEE SHEET UC-8 AND UC-19)



-W13- (SEE SHEET UC-9 AND UC-19)

5/28/99