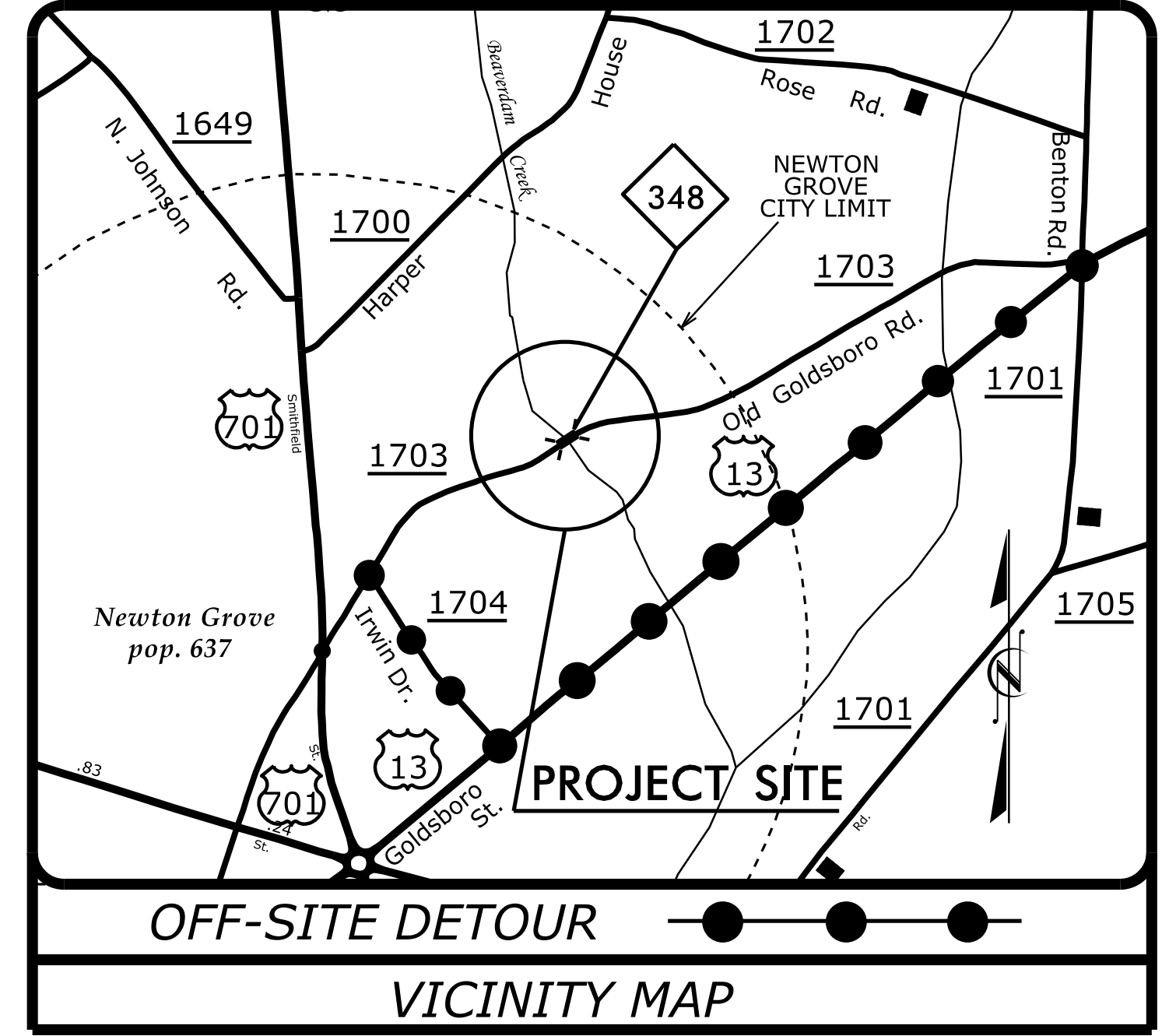


09.08/199

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols
See Sheet RW02C-1 TO RW02C-2 For Survey Control Sheets



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS SAMPSON COUNTY

**LOCATION: BRIDGE NO. 810348 OVER BEAVERDAM CREEK
ON SR 1703 (OLD GOLDSBORO RD)**

TYPE OF WORK: RELOCATION OF WATER LINE AND FORCE MAIN SEWER

T.I.P. NO.	SHEET NO.
BR-0122	UC-1

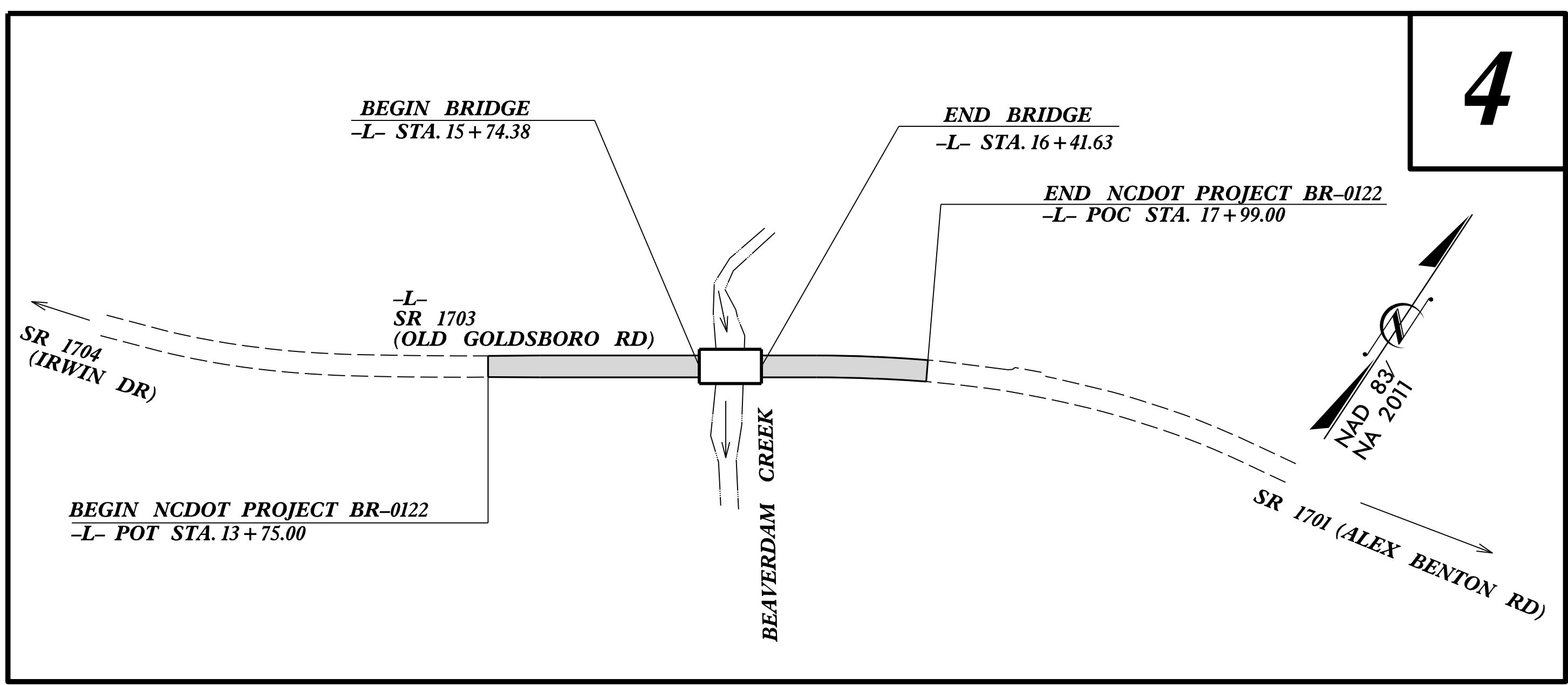
WETHERILL ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

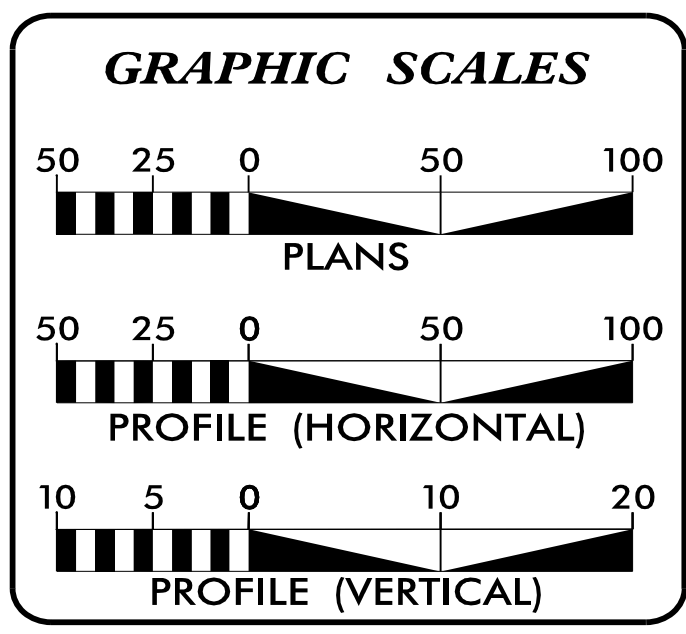
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TIP PROJECT: BR-0122



4

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SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3 THRU UC-3A	NOTES
UC-3B THRU UC-3C	DETAILS
UC-4 THRU UC-5	PLAN AND PROFILE SHEETS

WATER AND SEWER OWNERS ON PROJECT

(A) TOWN OF NEWTON GROVE
(WATER AND SEWER)

PREPARED IN THE OFFICE OF:

WETHERILL ENGINEERING

1223 Jones Franklin Rd.
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

MICHAEL V. ZACCARDO, PE UTILITY ENGINEER
SCOTT L. KENNEDY UTILITY DESIGN ENGINEER
TYRON STALLINGS PROJECT UTILITY COORDINATOR

SEAL

Designed by: *Michael V. Zaccardo*

STATE OF NORTH CAROLINA
PROFESSIONAL ENGINEER
MICHAEL V. ZACCARDO
022321
11/5/2019

UTILITY CONSTRUCTION
PLANS ONLY

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
UTILITIES UNIT

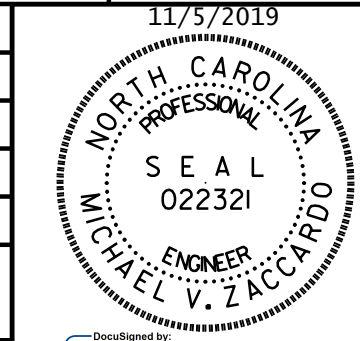
1555 MAIL SERVICES CENTER
RALEIGH, NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

NABIL HAMDAN UTILITIES REGIONAL ENGINEER
KELVIN MARTIN, EI UTILITIES ENGINEER
KYLE PLEASANT UTILITIES AREA COORDINATOR
LARRY JAMES, JR. UTILITIES COORDINATOR

11/5/2019
I:\BR-0122-ut_rdy-UC1.TSH.dgn
USER:skennedy

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROJECT REFERENCE NO. BR-0122	SHEET NO. UC-2
DESIGNED BY: SLK	
DRAWN BY: SLK	
CHECKED BY: MVZ	
APPROVED BY: MVZ	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

UTILITY CONSTRUCTION

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PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11 1/4 Degree Bend	
22 1/2 Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

EXISTING UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	
Power Manhole	
Telephone Manhole	
Sanitary Sewer Manhole	
Hand Hole for Cable	
Power Transformer	
Telephone Pedestal	
CATV Pedestal	
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	
End of Information	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

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NOTE
PAY ITEM

*Underground Power Line	
*Underground Telephone Cable	
*Underground Telephone Conduit	
*Underground Fiber Optics Telephone Cable	
*Underground TV Cable	
*Underground Fiber Optics TV Cable	
*Underground Gas Pipeline	
Aboveground Gas Pipeline	
*Underground Water Line	
Aboveground Water Line	
*Underground Gravity Sanitary Sewer Line	
Aboveground Gravity Sanitary Sewer Line	
*Underground SS Forced Main Line	
Underground Unknown Utility Line	
SUE Test Hole	
Water Meter	
Water Valve	
Fire Hydrant	
Sanitary Sewer Cleanout	

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

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 2018.
2. THE EXISTING UTILITIES BELONG TO THE TOWN OF NEWTON GROVE. CONTACT GLENN HOLLAND, PUBLIC WORKS DIRECTOR AT 919-252-9025.
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 SECTION. ALL SANITARY SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WQ PERMITTING SECTION, PERCS UNIT. 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. PROPOSED WATER LINE FROM -WL- LINE STATION 12+56 +/- TO 1300 +/- SHALL BE 6" R.J. DIP, INSTALLED BY OPEN CUT METHOD, AND FROM -WL- LINE STATION 13+00 +/- TO 17+00 +/- SHALL BE 8" DR9 (DIPS) HDPE, INSTALLED BY DIRECTIONAL DRILL METHOD, AND FROM -WL- LINE STATION 17+00 +/- TO 17+31 +/- SHALL BE 6" R.J. DIP, INSTALLED BY OPEN CUT METHOD.
2. PROPOSED SEWER LINE FROM -SL- LINE STATION 13+34 +/- TO 13+63 +/- SHALL BE 2" SDR 21 PVC, INSTALLED BY OPEN CUT METHOD, AND FROM -SL- LINE STATION 13+63 +/- TO 16+50 +/- SHALL BE 3" DR9 (IPS)HDPE, INSTALLED BY DIRECTIONAL DRILL METHOD, AND FROM -SL- LINE STATION 16+50 +/- TO 17+23 +/- SHALL BE 2" SDR 21 PVC, INSTALLED BY OPEN CUT METHOD.
3. 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.
4. 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.

PROJECT REFERENCE NO. BR-0122	SHEET NO. UC-3
DESIGNED BY: SLK	
DRAWN BY: SLK	
CHECKED BY: MVZ	
APPROVED BY: MVZ	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	


UTILITY CONSTRUCTION

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11/5/2019 11:55:00 AM UC-3.dgn

UTILITY CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BR-0122	UC-3A
DESIGNED BY: SLK	12/17/2019
DRAWN BY: SLK	
CHECKED BY: MVZ	
APPROVED BY: MVZ	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

UTILITIES CONSTRUCTION
PLANS ONLY

UTILITY CONSTRUCTION

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FOR CONSTRUCTION

WATER INSTALLATION NOTES:

- 1) CONTRACTOR SHALL COORDINATE ALL PROPOSED WORK WITH TOWN OF NEWTON GROVE PUBLIC WORKS DIRECTOR MR. GLENN HOLLAND AT 919-252-9025 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
- 2) CONTRACTOR SHALL FULLY INSTALL, PRESSURE & LEAKAGE TEST, AND CHLORINATE NEW WATER MAIN PRIOR TO CONNECTION TO EXISTING SYSTEM.
- 3) CONTRACTOR SHALL PERFORM THE CONNECTION DURING OFF PEAK HOURS WITH A MAXIMUM SHUT DOWN TIME OF FIVE HOURS. (12 PM MIDNIGHT TO 5 AM)
- 4) ANY WORK OR TEST PERFORMED WITHOUT NOTIFICATION AND CONTACT WITH TOWN OF NEWTON GROVE FIELD INSPECTORS SHALL BE PERFORMED AT THE CONTRACTOR'S RISK. TESTING SHALL BE PERFORMED IN THE PRESENCE OF TOWN OF NEWTON GROVE PERSONNEL. CONTACT MR. GLENN HOLLAND, PUBLIC WORKS DIRECTOR.
- 5) OPERATION OF EXISTING GATE VALVES SHALL BE DONE BY TOWN OF NEWTON GROVE OPERATIONS STAFF. CONTACT MR. GLENN HOLLAND, PUBLIC WORKS DIRECTOR AT 919-252-9025.
- 6) TIE NEW WATER MAIN INTO EXISTING. INSTALL THRUST BLOCKS AND RODDING AS REQUIRED.
- 7) NEW WATER MAIN SHALL NOT BE CONNECTED TO EXISTING MAIN WITHOUT PRIOR APPROVAL AND COORDINATION WITH TOWN OF NEWTON GROVE.
- 8) HDPE SIZING - THE INSIDE DIAMETER OF HDPE WATER PIPE SHALL BE EQUAL TO OR GREATER THAN THE INSIDE DIAMETER OF THE WATER PIPE IT IS CONNECTED TO.


SEWER INSTALLATION NOTES:

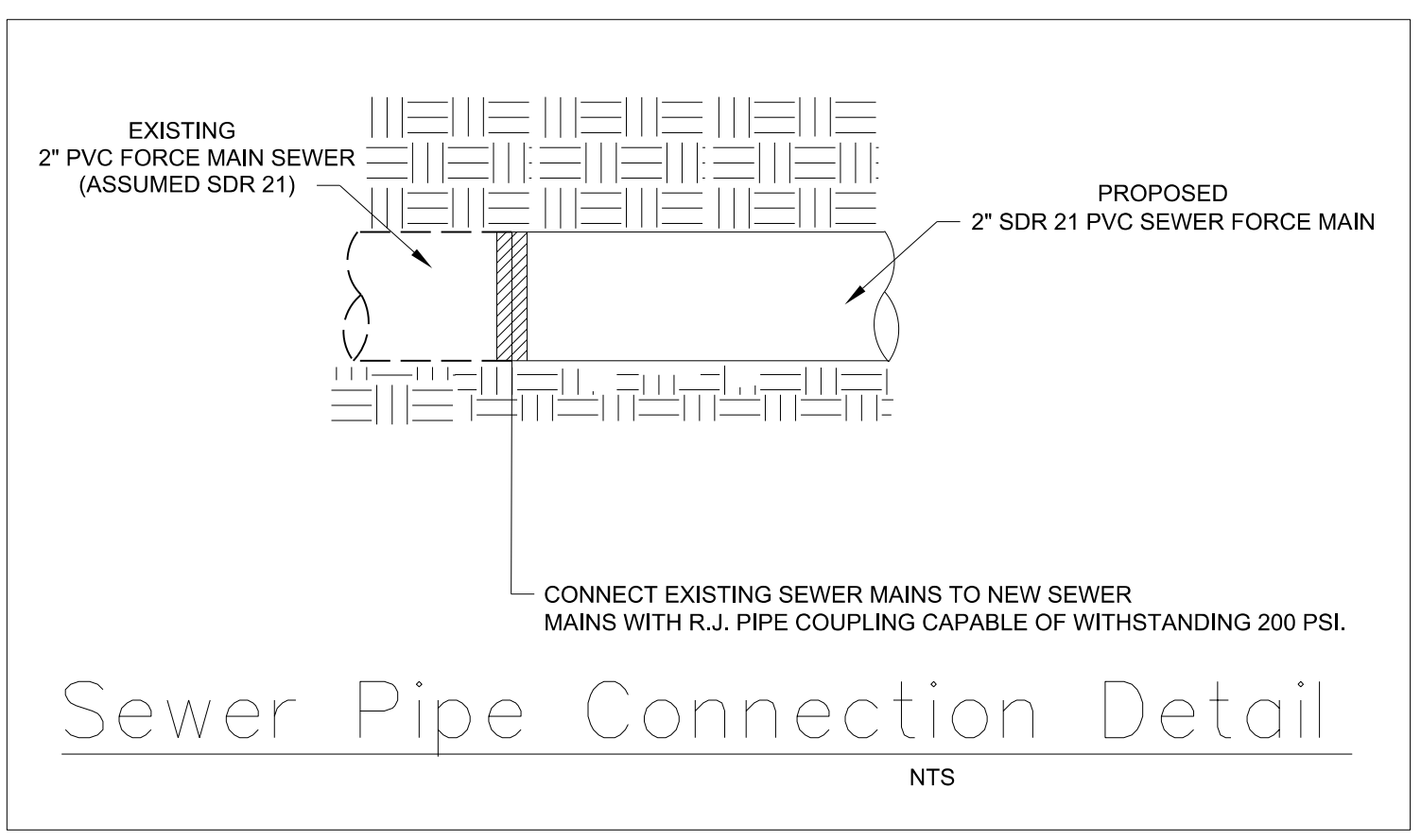
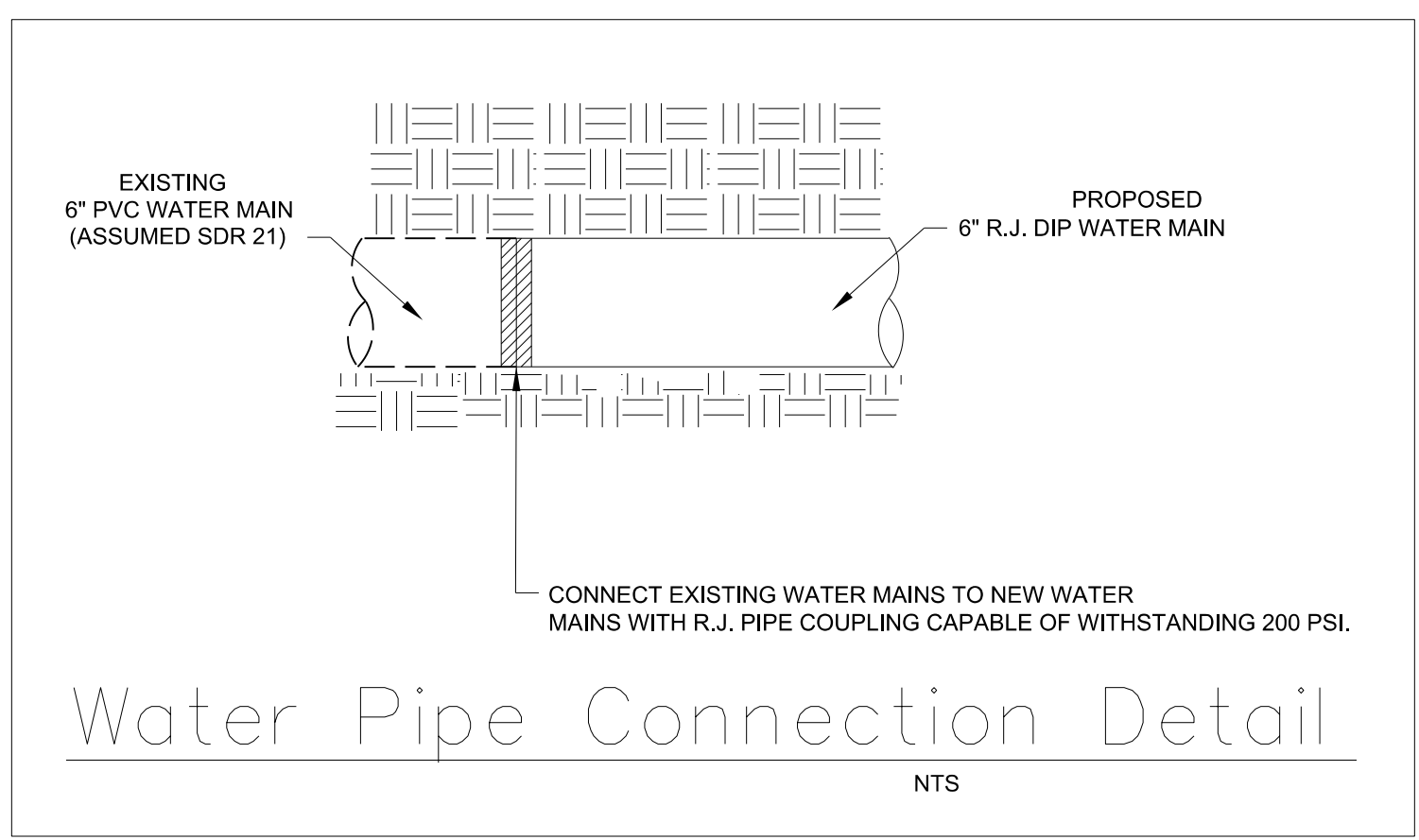
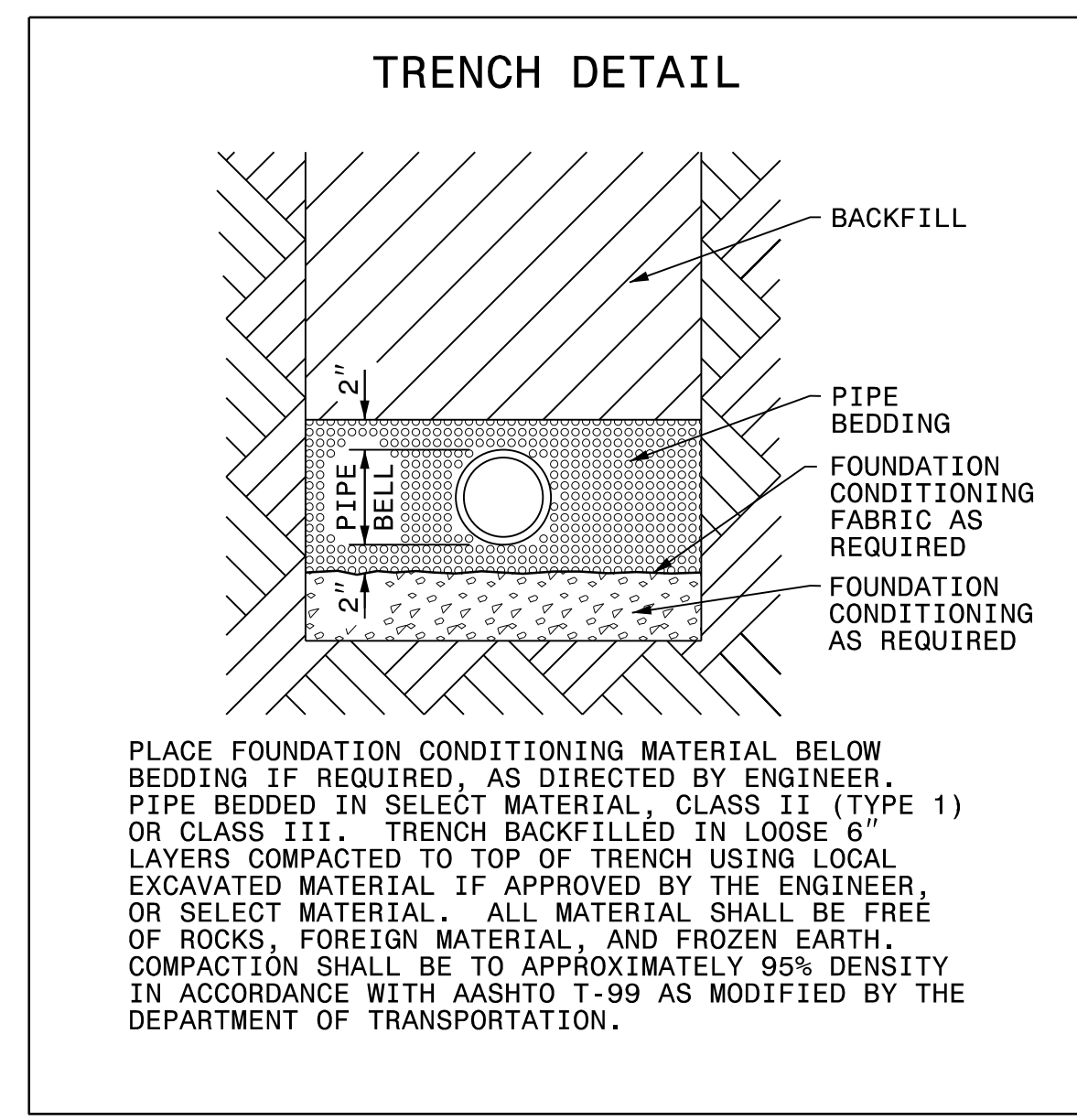
- 1) CONTRACTOR SHALL COORDINATE ALL PROPOSED WORK WITH TOWN OF NEWTON GROVE MR. GLENN HOLLAND, PUBLIC WORKS DIRECTOR AT 919-252-9025 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
- 2) CONTRACTOR SHALL FULLY INSTALL, PRESSURE & LEAKAGE TEST NEW SEWER MAIN PRIOR TO CONNECTION TO EXISTING SYSTEM.
- 3) CONTRACTOR SHALL PERFORM THE CONNECTION DURING OFF PEAK HOURS WITH A MAXIMUM SHUT DOWN TIME OF FIVE HOURS. (12 PM MIDNIGHT TO 5 AM)
- 4) ANY WORK OR TEST PERFORMED WITHOUT NOTIFICATION TO TOWN SHALL BE PERFORMED AT THE CONTRACTOR'S RISK. TESTING SHALL BE PERFORMED IN THE PRESENCE OF TOWN OF NEWTON GROVE PERSONNEL. CONTACT MR. GLENN HOLLAND, PUBLIC WORKS DIRECTOR.
- 5) OPERATION OF EXISTING ISOLATION VALVES SHALL BE DONE BY TOWN OF NEWTON GROVE OPERATIONS STAFF. CONTACT MR. GLENN HOLLAND, PUBLIC WORKS DIRECTOR AT 919-252-9025.
- 6) NEW SEWER MAIN SHALL NOT BE CONNECTED TO EXISTING MAIN WITHOUT PRIOR APPROVAL AND COORDINATION WITH TOWN OF NEWTON GROVE.
- 7) CONTRACTOR SHALL ALLOW HDPE PIPE 1 WEEK TO RELAX AFTER PULLING IS COMPLETE AND BEFORE IT IS CONNECTED TO EXISTING HDPE SANITARY SEWER FORCE MAIN.
- 8) HDPE SIZING - THE INSIDE DIAMETER OF HDPE SEWER PIPE SHALL BE EQUAL TO OR GREATER THAN THE INSIDE DIAMETER OF THE SEWER PIPE IT IS CONNECTED TO.

CONTRACTOR SHALL EVALUATE THE EXISTING SOILS BENEATH THE STREAM BED AND INSTALL THE DIRECTIONAL DRILL AT A SUFFICIENT DEPTH OF 15' OR DEEPER (AT HIS DISCRETION) BELOW THE CREEK BOTTOM TO ALLEVIATE THE POSSIBILITY OF DRILLING SLURRY LEAK DURING INSTALLATION. THE CONTRACTOR SHALL SUBMIT A SEALED BORING PLAN TO ENGINEER PRIOR TO CONSTRUCTION PER THE NCDOT STANDARD SPECIFICATIONS SUB-ARTICLE 1550-3(B).

8.17.99

PROJECT TYPICAL DETAILS

PROJECT REFERENCE NO.	SHEET NO.
BR-0122	UC-3B
DESIGNED BY: SLK	11/5/2019
DRAWN BY: SLK	
CHECKED BY: MVZ	
APPROVED BY: MVZ	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	



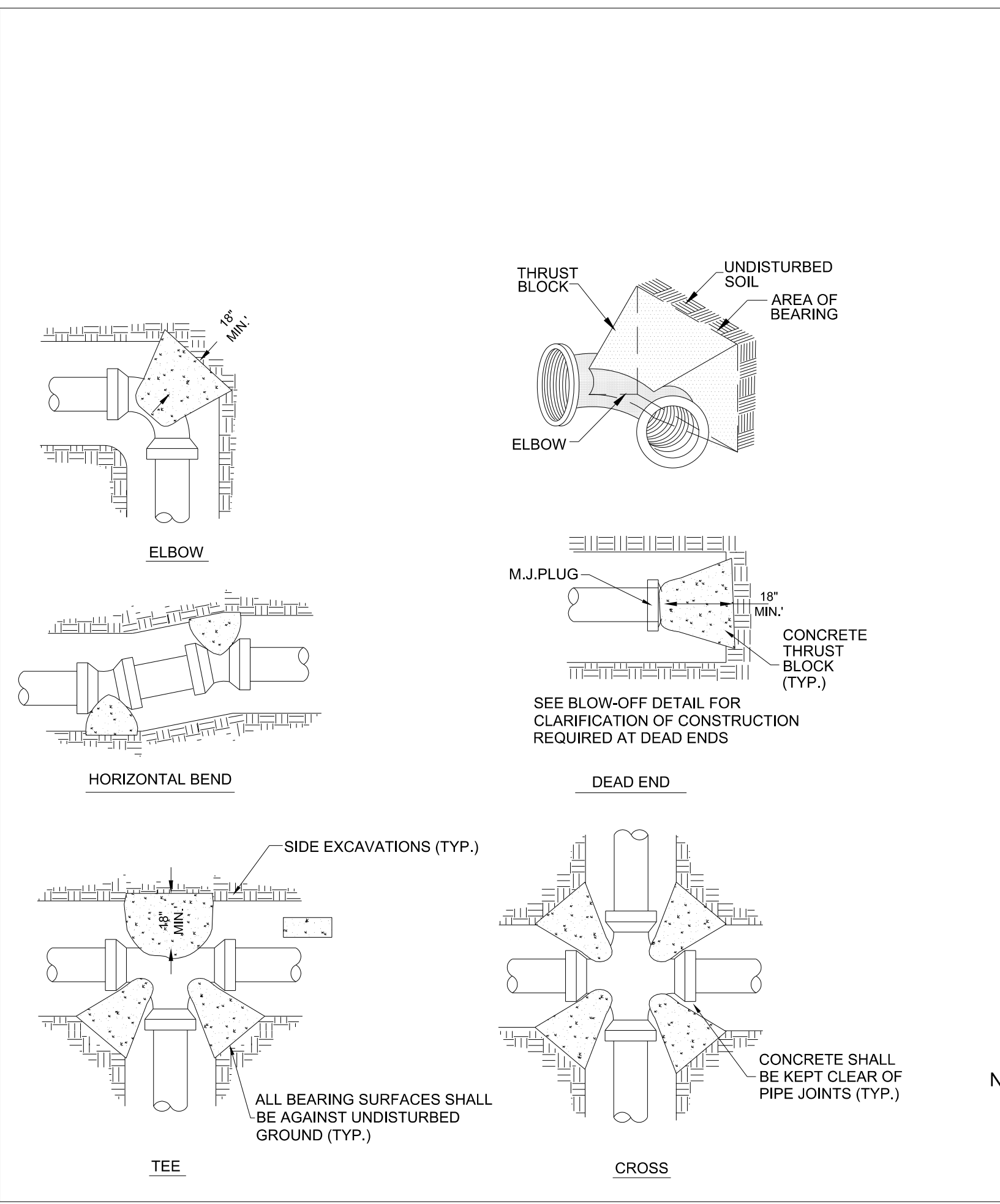
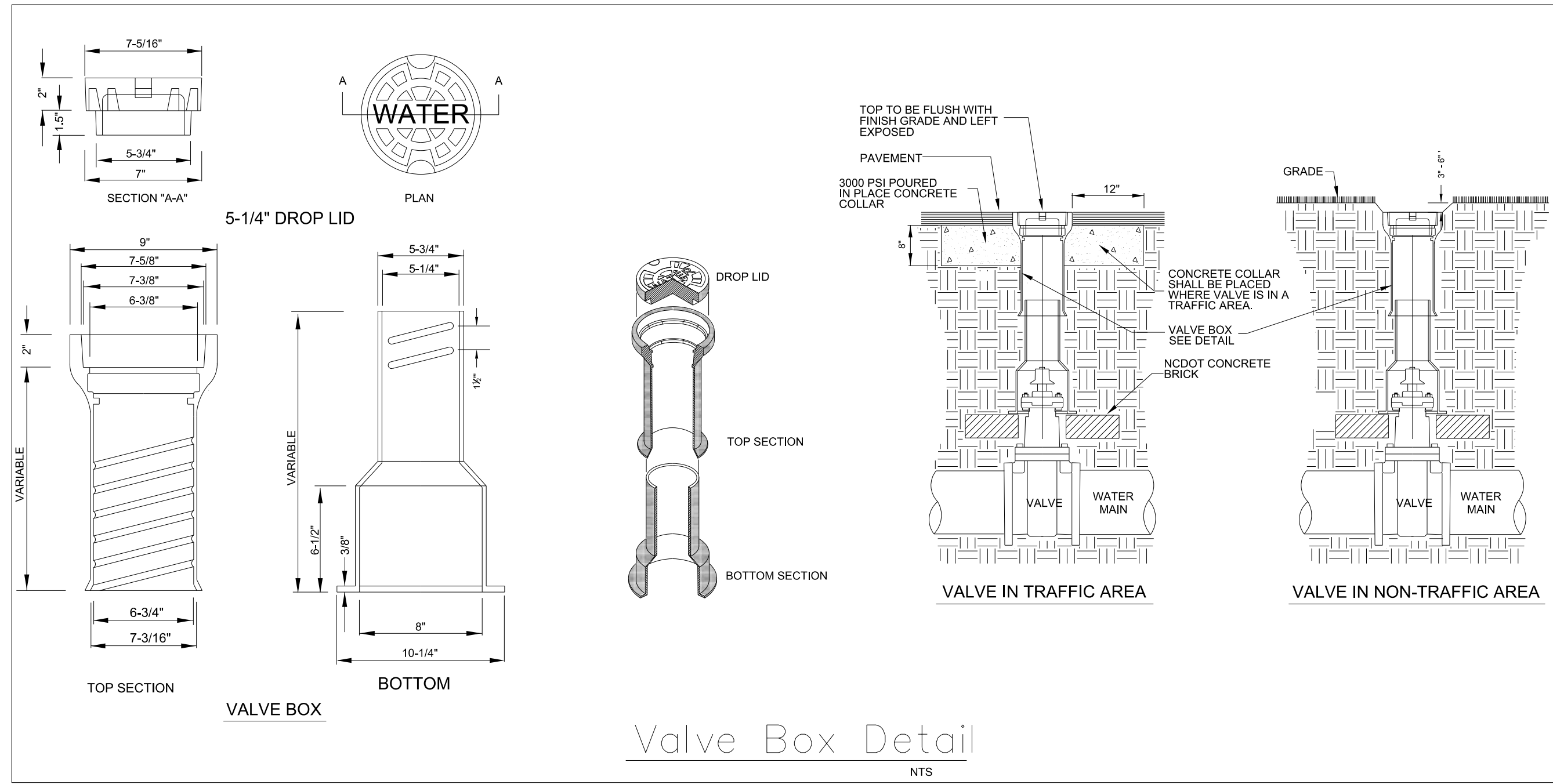
UTILITY CONSTRUCTION

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FINAL DESIGN

RELEASE FOR CONSTRUCTION

REVISIONS



- NOTES:
- THRUST BLOCKS SHALL BE INSTALLED ON PVC WATER DISTRIBUTION LINES 6" THRU 12" DIA. IN THE MANNER SHOWN.
 - PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH.
 - SAC-CRETE SHALL NOT BE ALLOWED.
 - NO CONCRETE SHALL BE PLACED ON BOLTS. WRAP JOINT FITTINGS WITH PLASTIC.
 - CONCRETE SHALL BE A MINIMUM 3,000 psi.
 - ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL.

CONCRETE THRUST BLOCK SCHEDULE


FITTING SIZE (IN.)	MINIMUM BLOCKING AREA AND VOLUME IN S.F. AND (C.Y.)					
	11 1/4"	22 1/2"	45"	90"	TEE	PLUG
2			0.23 (0.11)	0.38 (0.11)	0.30 (0.11)	0.30 (0.11)
4			0.83 (0.18)	1.35 (0.18)	0.98 (0.18)	0.98 (0.18)
6	0.40 (0.01)	0.80 (0.02)	1.73 (0.20)	3.00 (0.33)	2.17 (0.25)	2.17 (0.25)
8	0.80 (0.02)	1.50 (0.04)	3.08 (0.34)	5.40 (0.60)	3.83 (0.42)	3.83 (0.42)
10	1.20 (0.03)	2.30 (0.07)	4.72 (0.52)	8.40 (0.94)	5.92 (0.66)	5.92 (0.66)
12	1.70 (0.05)	3.30 (0.12)	6.82 (0.75)	12.00 (1.33)	8.48 (0.94)	8.48 (0.94)
16	3.00 (0.33)	5.90 (0.65)	11.60 (0.86)	21.30 (1.57)	15.00 (0.97)	15.00 (0.97)
20	4.60 (0.52)	9.20 (0.76)	18.00 (1.32)	33.30 (3.60)	23.30 (1.87)	23.30 (1.87)
24	6.70 (0.75)	13.20 (0.97)	26.00 (2.28)	48.00 (5.29)	33.60 (3.24)	33.60 (3.24)
30	10.40 (0.77)	20.70 (1.80)	40.60 (4.45)	75.00 (10.30)	52.50 (6.32)	52.50 (6.32)
36	15.00 (1.28)	29.80 (3.11)	58.40 (7.67)	108.0 (17.90)	75.60 (10.90)	75.60 (10.90)

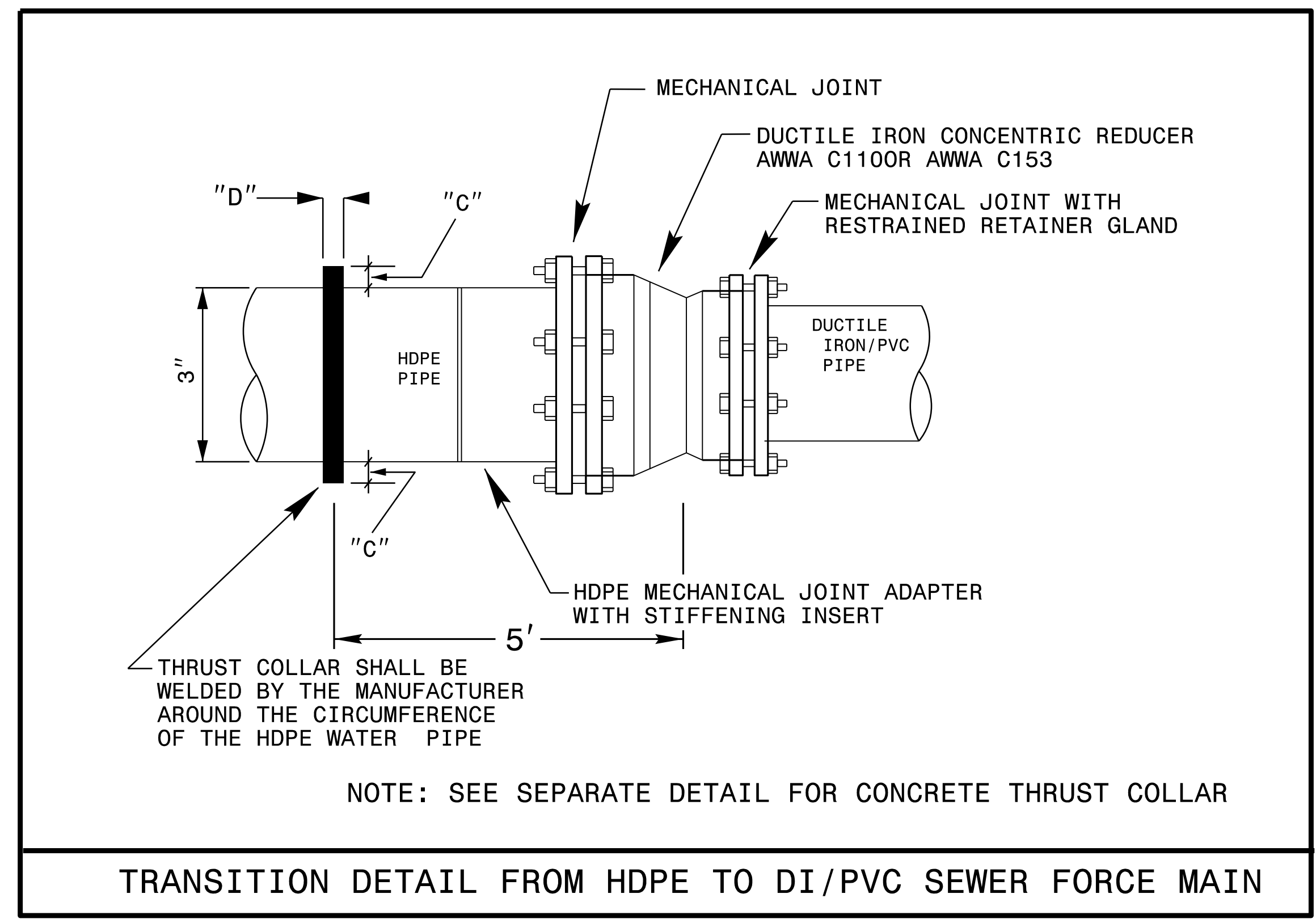
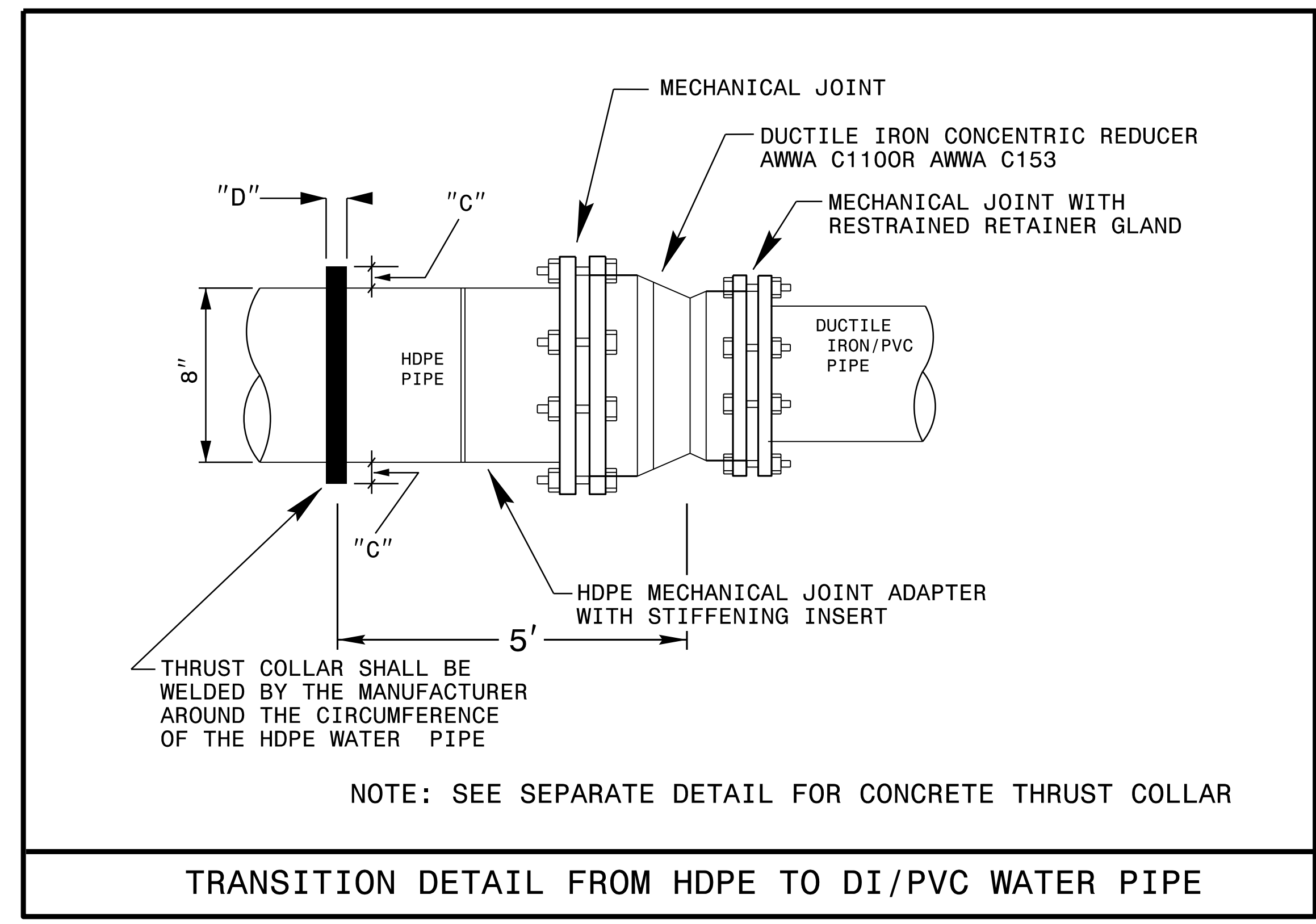
NOTE: Values given are based on 200 psi water pressure and 2000 lb/sf soil bearing capacity. Soils with less bearing capacity such as muck, peat or soft clay will require greater blocking areas and volumes.

The thrust blocking shown above is based on the use of mechanical joint as shown on plans.

11/5/2019 9:01 AM uc-3b.psh.dgn

8/17/99

PROJECT REFERENCE NO. BR-0122	SHEET NO. UC-3C
DESIGNED BY: SLK	11/5/2019
DRAWN BY: SLK	
CHECKED BY: MVZ	
APPROVED BY: MVZ	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
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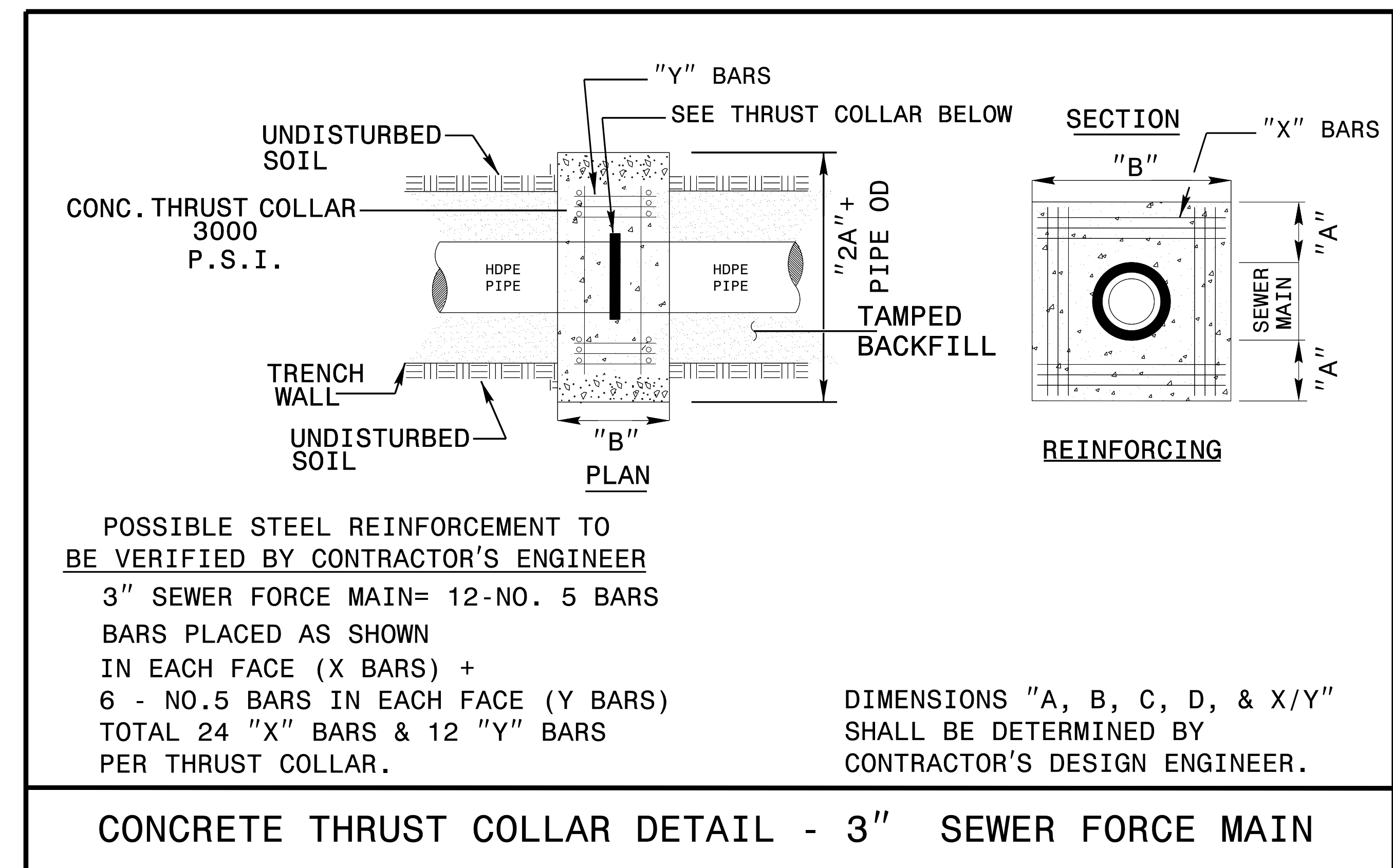
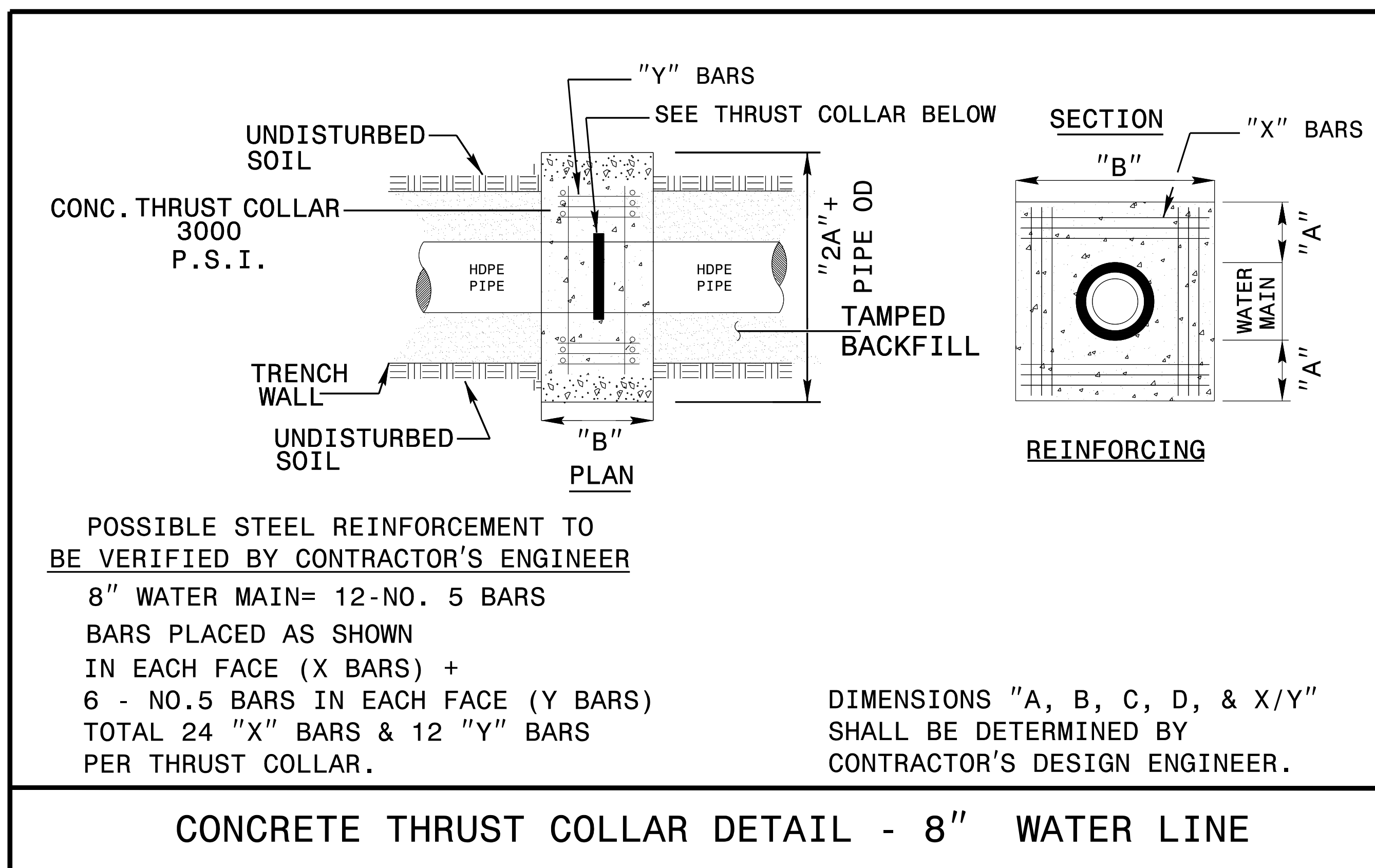
UTILITY CONSTRUCTION

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FINAL DESIGN

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NOTE:
CONTRACTOR TO PROVIDE
P.E. SEALED DESIGNED SHOP
DRAWINGS FOR THRUST
COLLARS BASED UPON ACTUAL
ON-SITE EXISTING SOILS IN
ACCORDANCE WITH THE
LATEST NCDOT STANDARDS
AND SPECIFICATIONS.

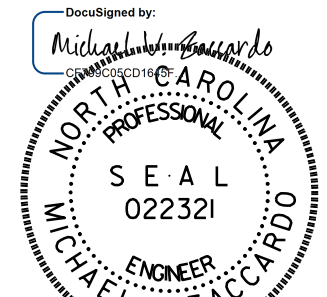


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WETHERILL ENGINEERING
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
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 Bus: 919 851 8077
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

ANNIE W. SMITH
 DB 1274 PG 941
 PB 31PG 9

PROJECT REFERENCE NO. BR-0122	SHEET NO. UC-4
DESIGNED BY: SLK	
DRAWN BY: SLK	
CHECKED BY: MVZ	
APPROVED BY: MVZ	
REVISER:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
11/6/2019 UTILITY CONSTRUCTION PLANS ONLY	

