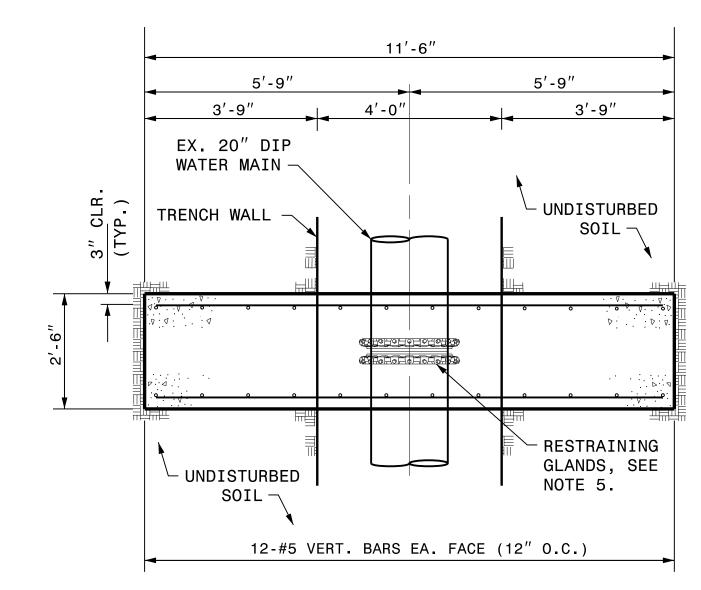
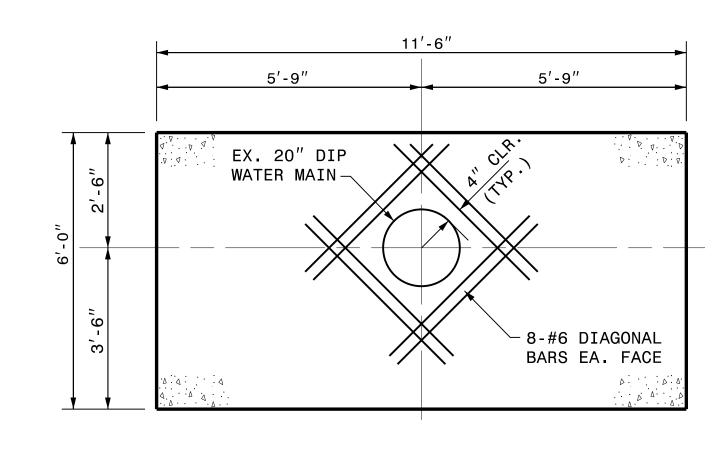
PROJECT REFERENCE NO. SHEET NO. R-4707 UC-3C DESIGNED BY: APL DRAWN BY: RDL CHECKED BY: APL APPROVED BY: REVISED: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC PHONE: (919)707-6690 UTILITY CONSTRUCTION FAX: (919)250-4151 PLANS ONLY

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



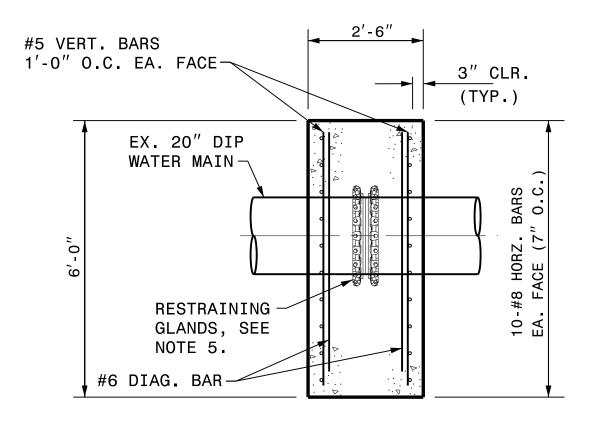
<u>PLAN VIEW</u>



ELEVATION VIEW (HORIZ. & VERT. BARS NOT SHOWN FOR CLARITY)

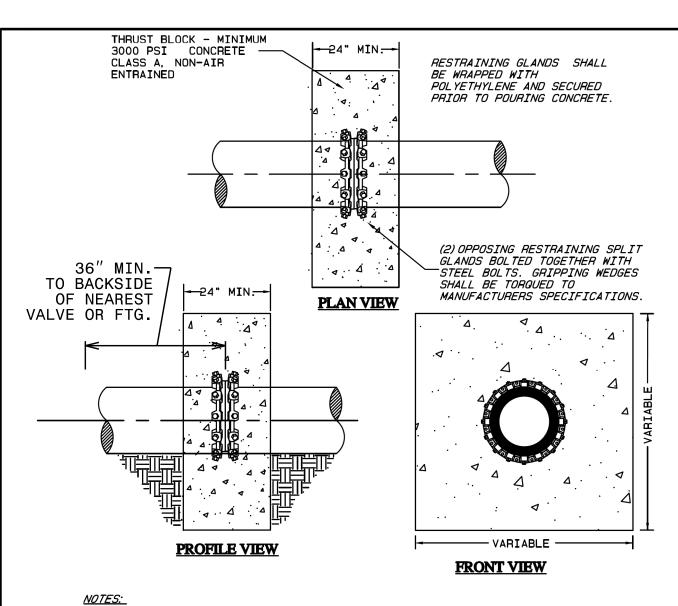
NOTES:

- 1. CONCRETE FOR THRUST COLLAR SHALL BE MIN. 3,000 PSI CLASS A, NON-AIR ENTRAINED. REINFORCING STEEL FOR THRUST WALL SHALL BE GRADE 60.
- 2. DESIGN IS BASED ON TEST PRESSURE OF 200 PSI WITH A SAFETY FACTOR = 1.25 AND ASSUMED SOIL BEARING CAPACITY OF 2,000 LBS/SF.
- 3. DIAGONAL BARS SHALL BE PLACED INSIDE VERTICAL BARS AS SHOWN. DIAGONAL BARS SHALL BE 5'-0" ± LONG.
- 4. THRUST COLLAR SHALL BE ORIENTED APPROXIMATELY AT THE CENTER OF PIPE JOINT.
- 5. TWO (2) OPPOSING SPLIT RESTRAINING GLANDS BOLTED TOGETHER WITH STAINLESS STEEL BOLTS. GRIPPING WEDGES SHALL BE TORQUED TO MANUFACTURERS SPECIFICATIONS. RESTRAINING GLANDS SHALL BE WRAPPED WITH POLYETHELENE AND SECURED PRIOR TO POURING CONCRETE.
- 6. ANY PROPOSED MODIFICATIONS TO THIS DETAIL, BASED ON THE FIELD CONDITIONS, MUST BE APPROVED BY THE CITY OF GREENSBORO FIELD INSPECTOR AND/OR THE ENGINEER OF RECORD.



END SECTION VIEW

CONCRETE THRUST COLLAR FOR 20" DIAMETER D.I. WATER PIPE



1. SEE CITY OF GREENSBORO - WATER LINE AND SEWER LINE STANDARD CONSTRUCTION SPECIFICATIONS, SUB-ARTICLE 3.02 & 3.03 FOR (TRENCH AND BACKFILL) AND (TRENCH STABILIZATION) REQUIREMENTS.

2. THRUST BLOCK SHALL BE ORIENTED APPROXIMATELY CENTER OF PIPE JOINT.

3. *OPTIONAL* A WELDED COLLAR (INSTALLED BY PIPE MANUFACTURER) MAY BE USED IN LIEU OF RESTRAINING GLANDS. ALL OTHER DESIGN REQUIREMENTS SHALL APPLY AS SHOWN.

4. FOR PIPES LARGER THAN 16" DIAMETER, THE DEADMAN THRUST RESTRAINT WITH BLOCKING MUST BE DESIGNED AND SEALED BY A N.C. PROFESSIONAL ENGINEER.

5. ANY PROPOSED MODIFICATIONS TO THIS STANDARD BASED ON THE FIELD CONDITIONS MUST BE PRE-APPROVED BY THE CITY OF GREENSBORO FIELD INSPECTOR AND/OR THE ENGINEER OF RECORD. 6. QUANTITIES SHOWN BELOW ARE TO THE NEAREST QUARTER YARD AND ARE BASED ON MINIMUM MASS WEIGHT REQUIREMENTS OF THE TEST PRESSURES SHOWN.

MI	MINIMUM CUBIC YARDS OF CONCRETE REQUIRED				
PIPE DIAME	TER 150 PSI TEST	T PRES. 200 PS	SI TEST PRES.	250 PSI TEST PRES.	
6"	0.75		1.0	1.25	
8*	1.5		2.0	2.25	
10*	2.0		3.0	3.5	
12"	3.0		4.0	5.0	
16"	5.5		7.25	9.0	

CITY OF GREENSBORO

DEADMAN THRUST RESTRAINT WITH MASS WEIGHT BLOCKING

STD. NO. REV. 118

Davis • Martin • Poweli 6415 OLD PLANK RD, HIGH POINT, NC 27265 PHONE: (336)886-4821 FAX: (336)886-4458 WWW.DMP-INC.COM LICENSE: F-0245