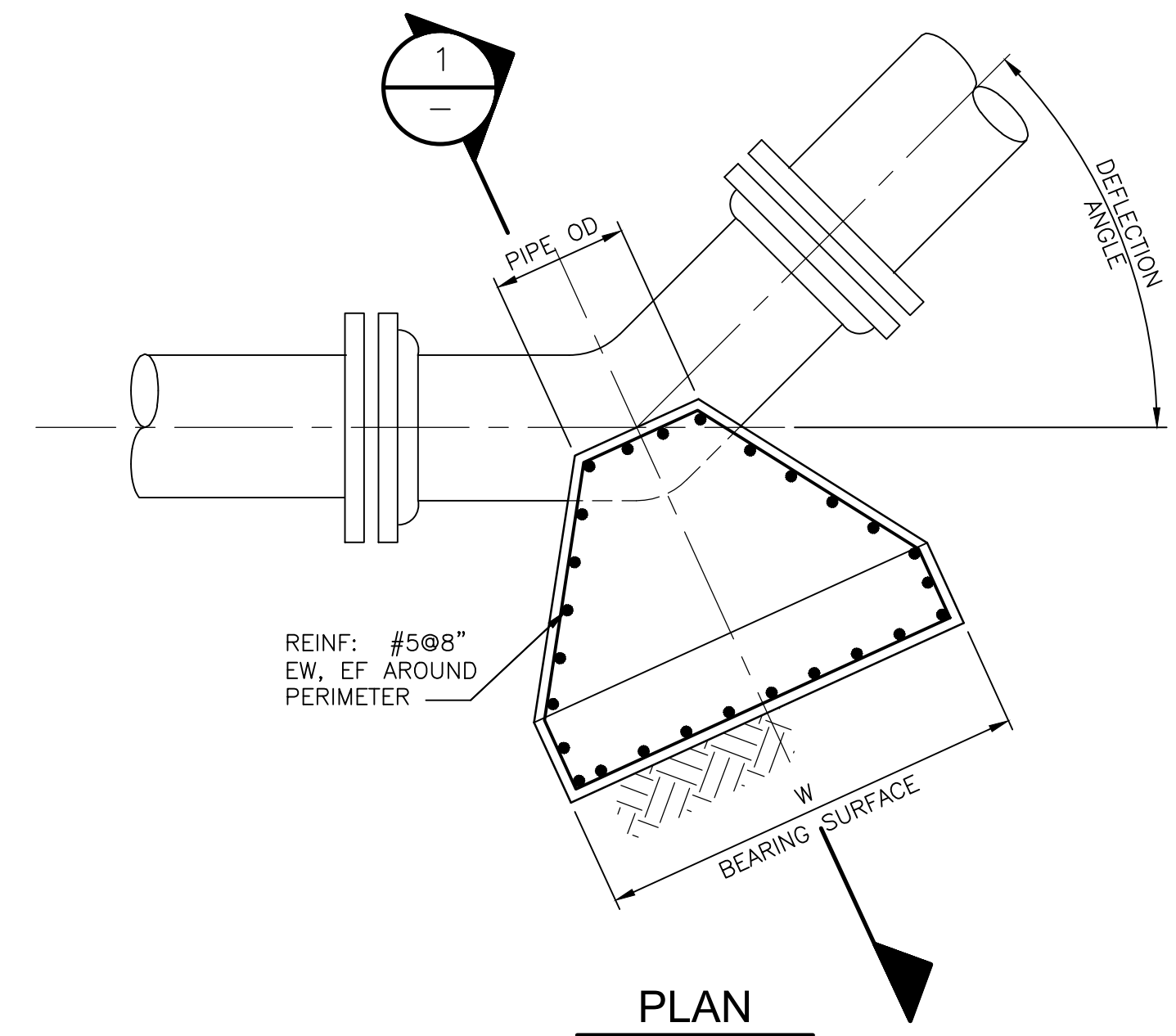
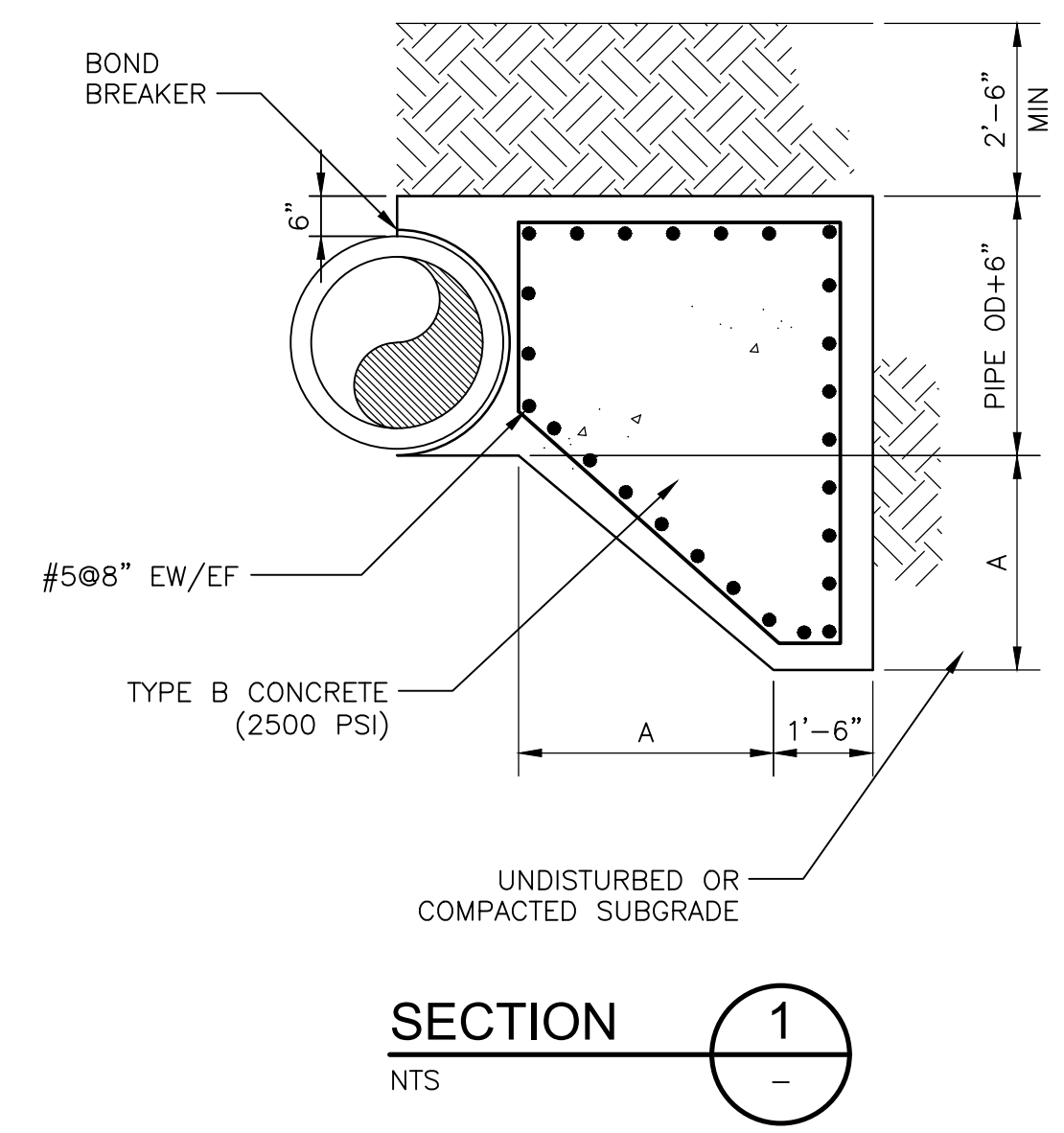


**THRUST COLLAR**  
**DETAIL A**  
 NTS

NOMINAL PIPE SIZE	H	W
6"	5'-3"	5'-3"
8"	6'-3"	6'-0"
12"	8'-0"	7'-6"

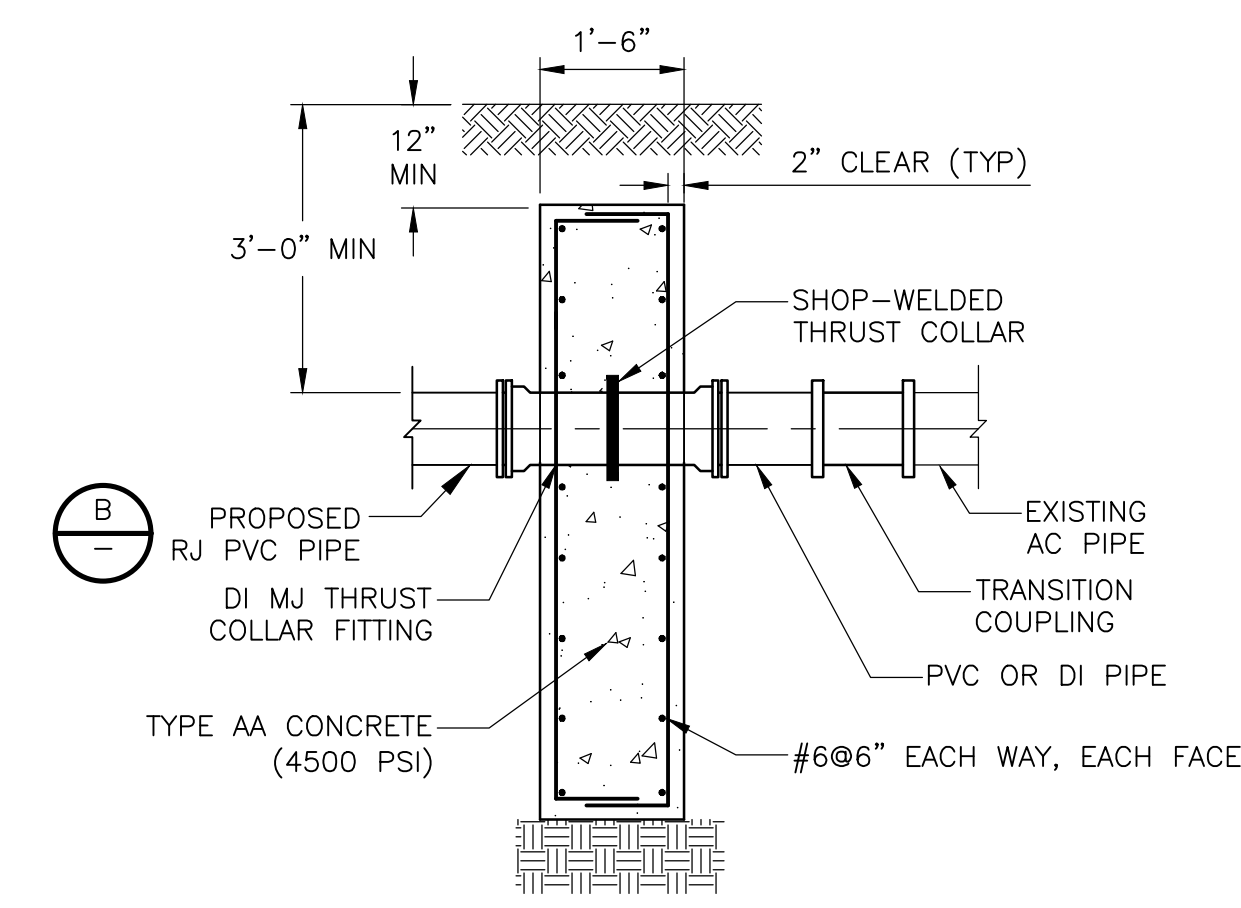


**THRUST BLOCKS**  
**DETAIL B**  
 NTS

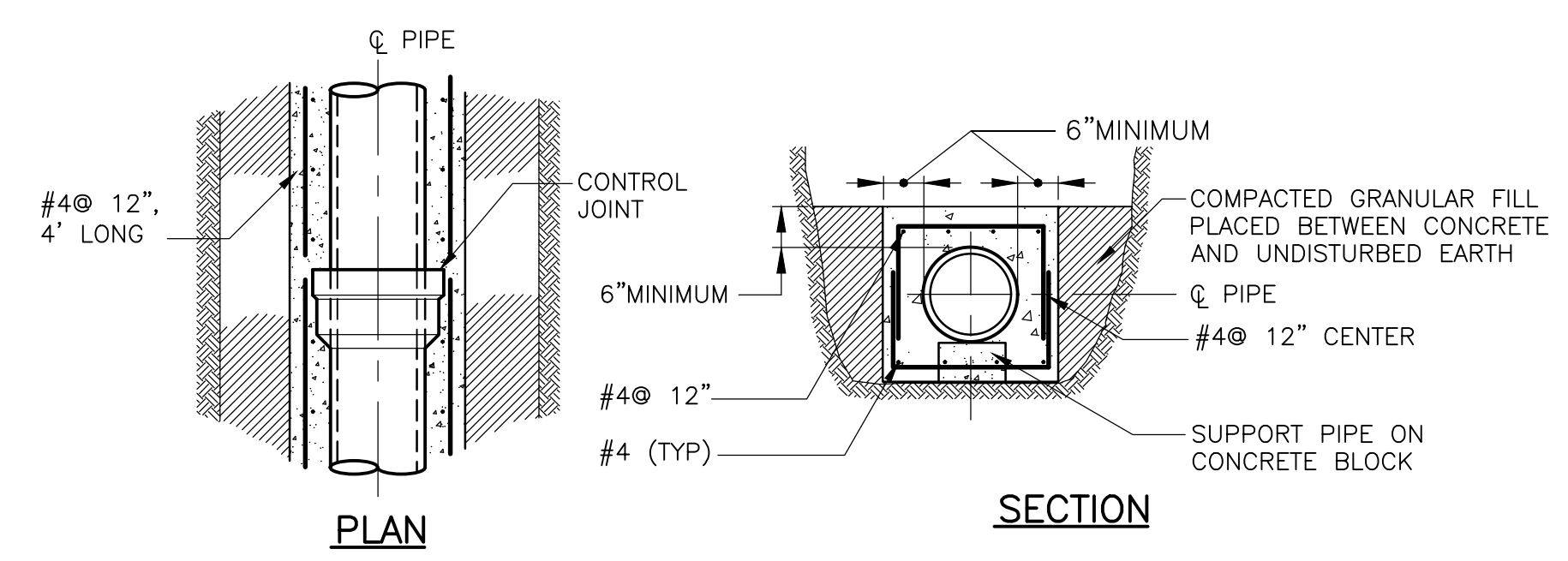


**SECTION 1**  
 NTS

NOMINAL PIPE SIZE	11.25 DEG		22.5 DEG		45 DEG		90 DEG		TEE/DEAD END	
	A	W	A	W	A	W	A	W	A	W
4"	1'-5"	2'-0"	1'-11"	2'-9"	2'-8"	3'-3"	3'-5"	4'-0"	2'-11"	3'-6"
6"	1'-9"	2'-9"	2'-6"	3'-3"	3'-6"	4'-3"	4'-6"	5'-3"	3'-9"	4'-6"
8"	2'-0"	3'-3"	3'-0"	4'-0"	4'-0"	5'-0"	5'-3"	6'-3"	4'-6"	5'-6"
12"	2'-8"	4'-0"	3'-8"	5'-3"	5'-2"	6'-6"	6'-8"	8'-3"	5'-11"	7'-3"

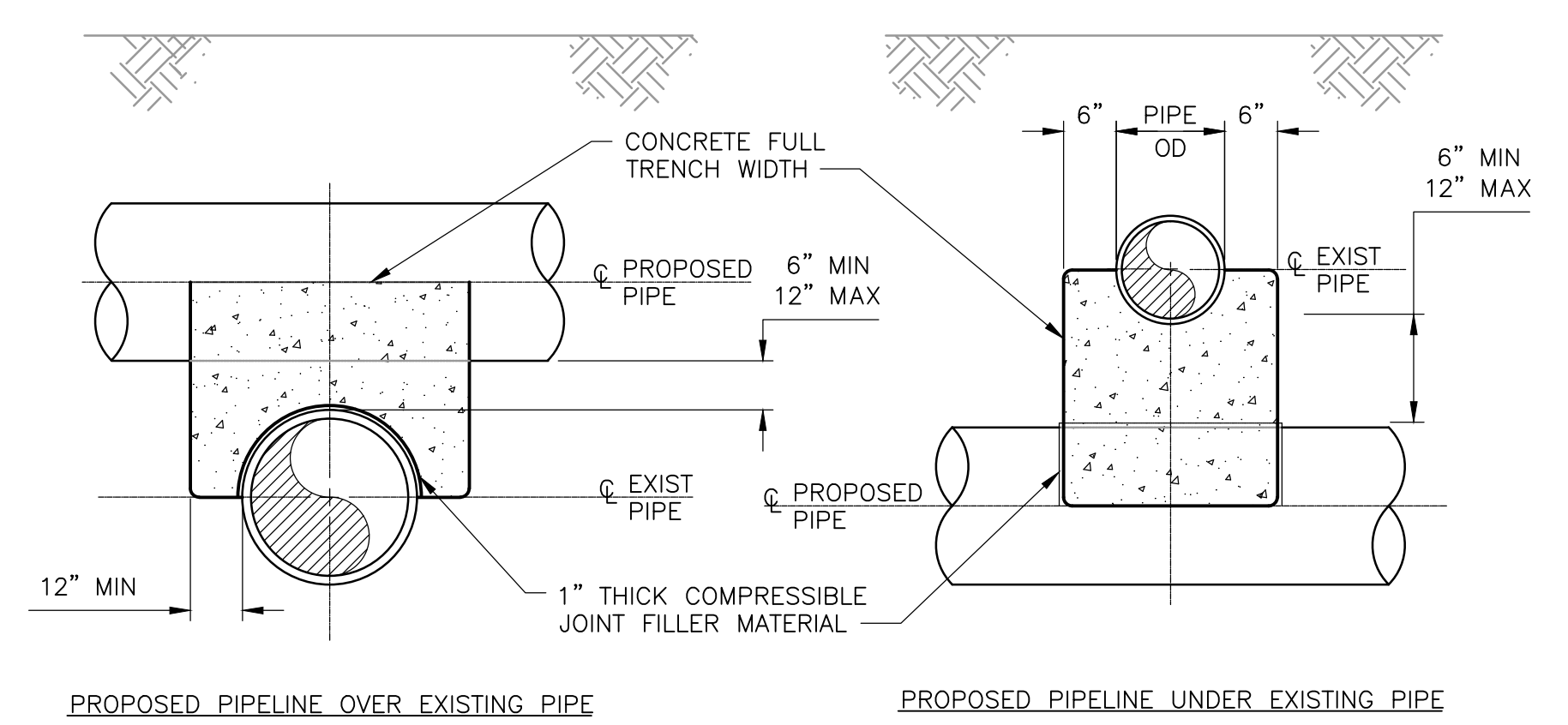


**SECTION 1**  
 NTS



- NOTES:**
- CONTROL JOINTS SHALL COINCIDE WITH PIPE JOINTS, MAXIMUM DISTANCE BETWEEN CONTROL JOINTS SHALL BE 24' +/-
  - CONCRETE BLOCK SUPPORT SIZE AND SPACING SHALL BE PER MANUFACTURERS RECOMMENDATIONS.
  - ENCASUREMENT SHALL BE CAST IN NO LESS THAN TWO POURS. INITIAL CAST SHALL BE CURED FOR 12 HOURS BEFORE CASTING THE NEXT POUR.
  - DEPTH OF INITIAL POUR SHALL BE SELECTED TO PREVENT FLOTATION OF THE PIPE. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT FLOTATION OF THE PIPE DURING CASTING.

**CONCRETE ENCASEMENT**  
**DETAIL C**  
 NTS



**CONCRETE PIPE CRADLE**  
**DETAIL D**  
 NTS

**THRUST COLLAR AND THRUST BLOCK NOTES**

- IF OPEN-CUT EXCAVATION IS TO BE USED FOR THE CONSTRUCTION OF A THRUST BLOCK OR COLLAR, ENGINEERED FILL SHALL BE USED AS THE BACKFILL MATERIAL. THE FOLLOWING BACKFILL RECOMMENDATIONS SHALL BE CONSIDERED A MINIMUM:  
 ENGINEERED FILL SHOULD BE UNIFORMLY COMPACTED IN 10-INCH MAXIMUM LIFTS TO AT LEAST 98 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D1557).  
 THE MOISTURE CONTENT OF THE FILL SOILS AT THE TIME OF COMPACTION SHOULD BE WITHIN 2 PERCENT OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698.  
 FLOWABLE FILL IS AN ACCEPTABLE ALTERNATIVE TO THE COMPACTION REQUIREMENTS ABOVE.
- ASSUMPTIONS: PVC PIPE, SAFETY FACTOR=1.5, MAX TEST PRESSURE=200 PSI, SOIL = SP,  $\gamma = 100 \text{ lb/ft}^3$ , MAX BEARING STRENGTH = 1,000 LB/FT<sup>2</sup>, TOP 2' OF SOIL NEGLECTED IN CALCULATION OF SOIL BEARING CAPACITY.
- THE ENTIRE THRUST BLOCK OR THRUST COLLAR SHALL BE A MONOLITHIC CONCRETE POUR WITH NO JOINTS IN THE STRUCTURE.
- CONTRACTOR SHALL ENGAGE A GEOTECHNICAL SERVICES FIRM LICENSED IN THE STATE OF NORTH CAROLINA AND HAVE A SOIL BORING PERFORMED WITHIN 5' OF EACH PROPOSED THRUST BLOCK OR COLLAR LOCATION. CONTRACTOR TO SUBMIT CERTIFIED BORING LOGS PERFORMED AT EACH OF THE THRUST BLOCK LOCATIONS TO THE ENGINEER. MIN DEPTH OF 20'.
- BORINGS MUST BE RECEIVED PRIOR TO APPROVAL OF CONCRETE OR REINFORCING STEEL SHOP DRAWINGS. THE TABLE SHOWN IN DETAIL A MAY NOT BE UTILIZED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
- THE DIMENSIONS AND REINFORCING SHOWN ARE THE BASE BID AND MAY BE MODIFIED BY THE ENGINEER TO SUIT FIELD CONDITIONS.
- BORINGS TO BE PERFORMED IN ACCORDANCE WITH ASTM D-1586, AND WITH THE FOLLOWING MINIMUM SAMPLING FREQUENCY: BORING SHALL BE CONTINUOUSLY SAMPLED TO 10', BORING SHALL BE SAMPLED AT 15' AND 20'.
- BORING LOGS SHALL INDICATE GROUNDWATER ELEVATION AT TIME OF DRILLING. ALSO MEASURE AND RECORD THE GROUNDWATER LEVEL AT LEAST ONE HOUR AFTER DRILLING IS COMPLETED BEFORE BACKFILLING THE BORE HOLES.
- THRUST COLLAR AND THRUST BLOCK SHALL HAVE DEVELOPED 70% OF THE SPECIFIED CONCRETE STRENGTH PRIOR TO PRESSURIZING THE PIPELINE.
- ALL PIPE JOINTS BETWEEN THRUST COLLARS OR THRUST BLOCKS AND GATE VALVE SHALL BE RETAINED, AND PIPE JOINTS PAST THE GATE VALVE SHALL BE RESTRAINED AS SPECIFIED IN DETAIL A ON SHEET UC-3C.

REVISIONS

8/17/99