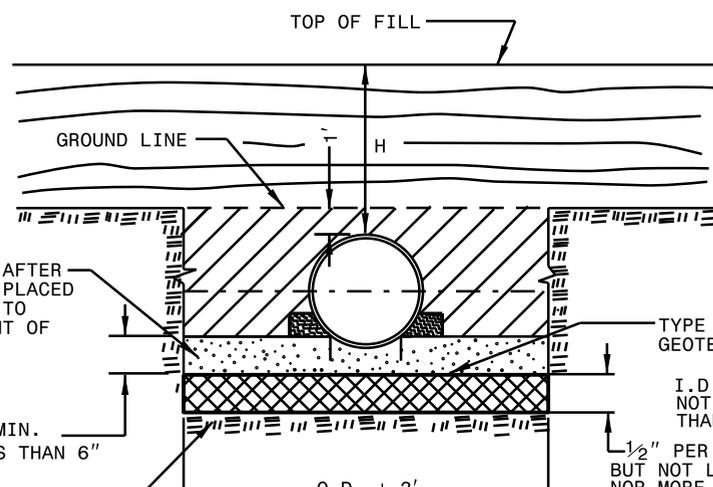
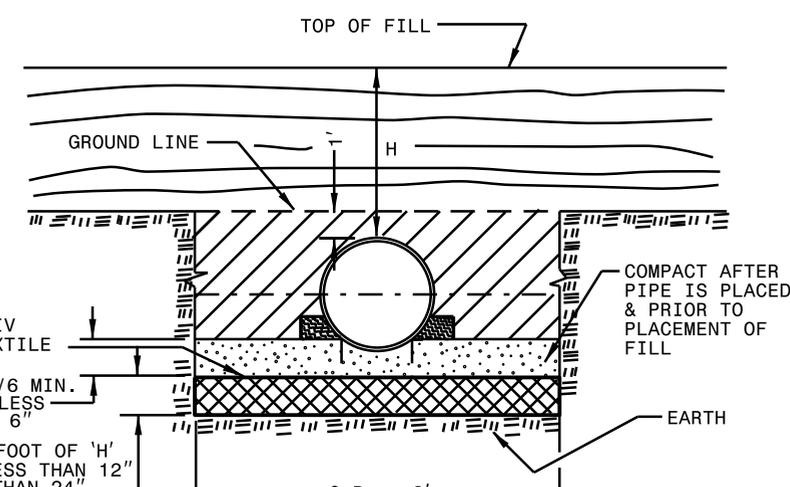


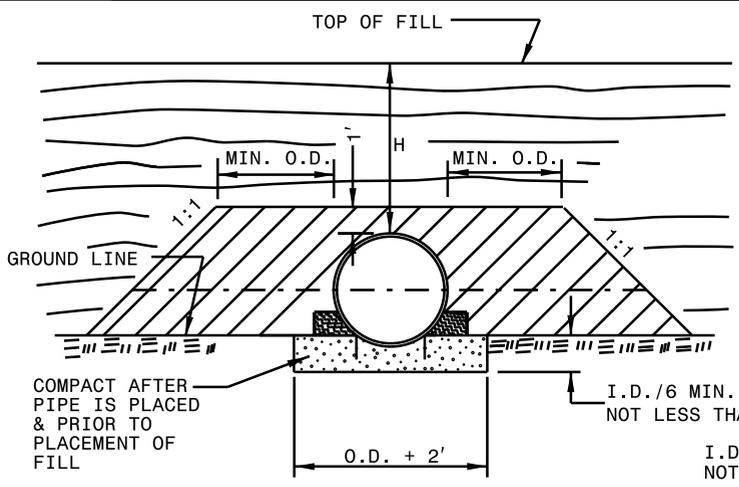
NORMAL EARTH FOUNDATION



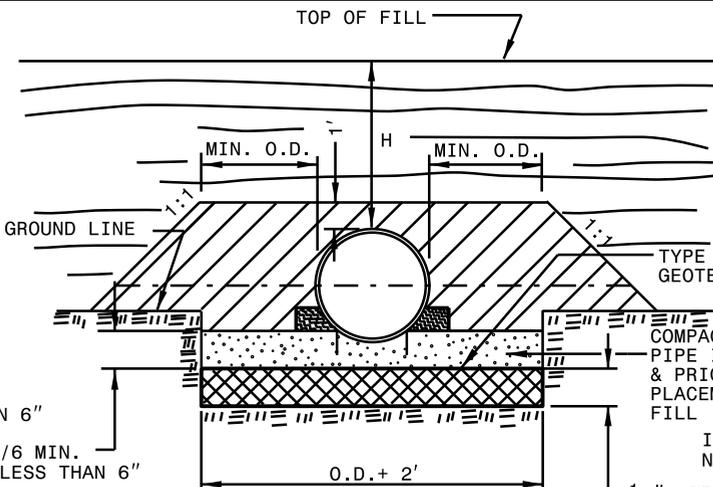
**ROCK FOUNDATION
PIPE IN TRENCH**



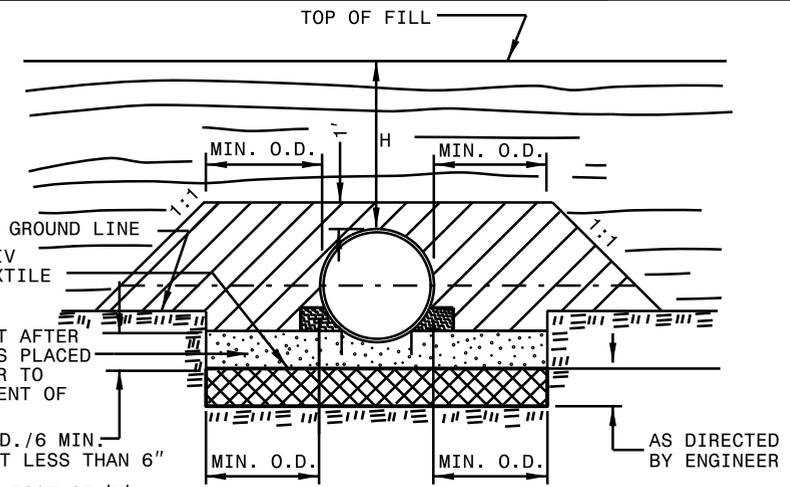
UNSUITABLE MATERIAL FOUNDATION



NORMAL EARTH FOUNDATION



**ROCK FOUNDATION
PIPE ABOVE GROUND**



UNSUITABLE MATERIAL FOUNDATION

GENERAL NOTES:

- I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
- O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
- H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.



APPROVED SUITABLE LOCAL MATERIAL.



TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.



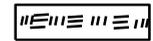
LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.



SPRINGLINE OF PIPE



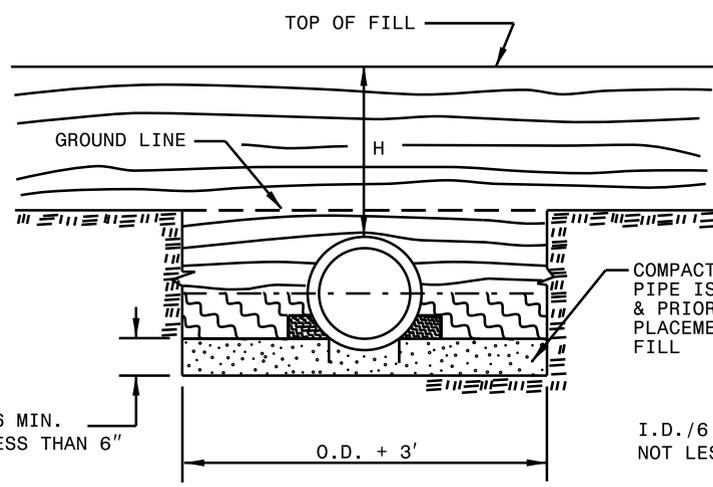
SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.



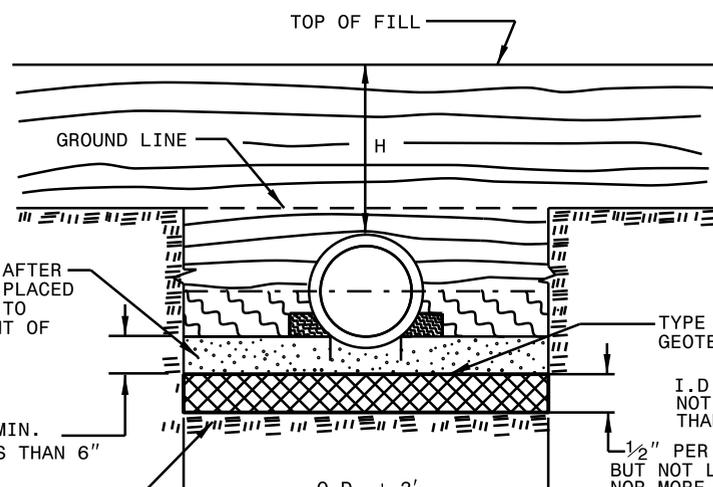
UNDISTURBED EARTH MATERIAL



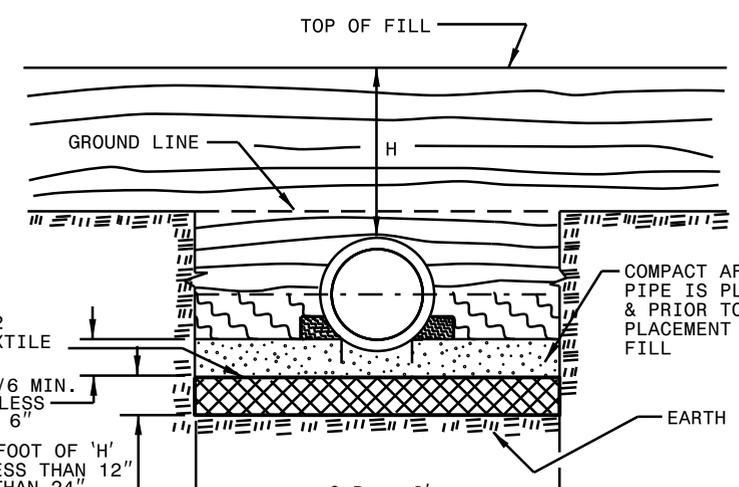
SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.



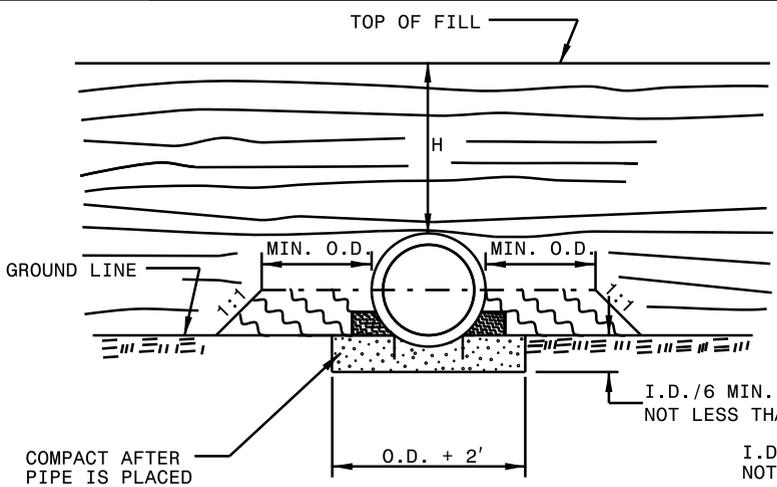
NORMAL EARTH FOUNDATION



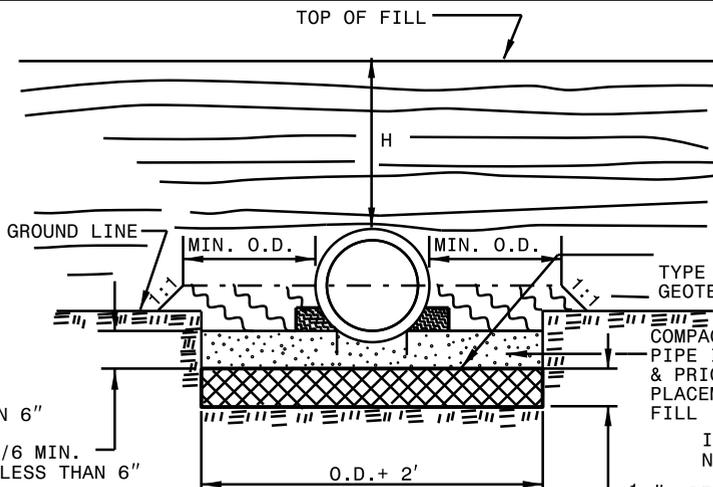
**ROCK FOUNDATION
PIPE IN TRENCH**



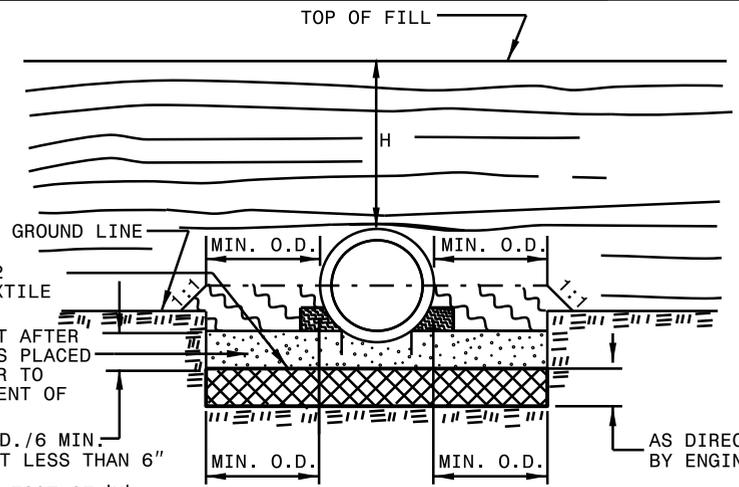
UNSUITABLE MATERIAL FOUNDATION



NORMAL EARTH FOUNDATION



**ROCK FOUNDATION
PIPE ABOVE GROUND**



UNSUITABLE MATERIAL FOUNDATION

GENERAL NOTES:

- I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
- O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
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APPROVED SUITABLE LOCAL MATERIAL.



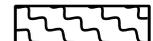
TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.



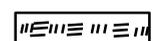
LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.



SPRINGLINE OF PIPE



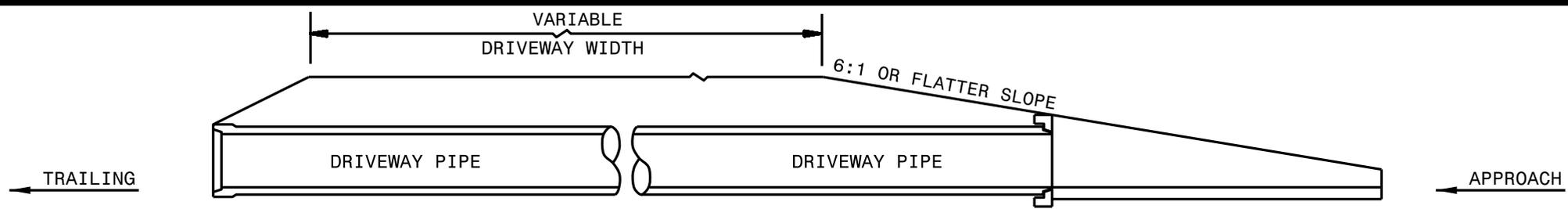
SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.



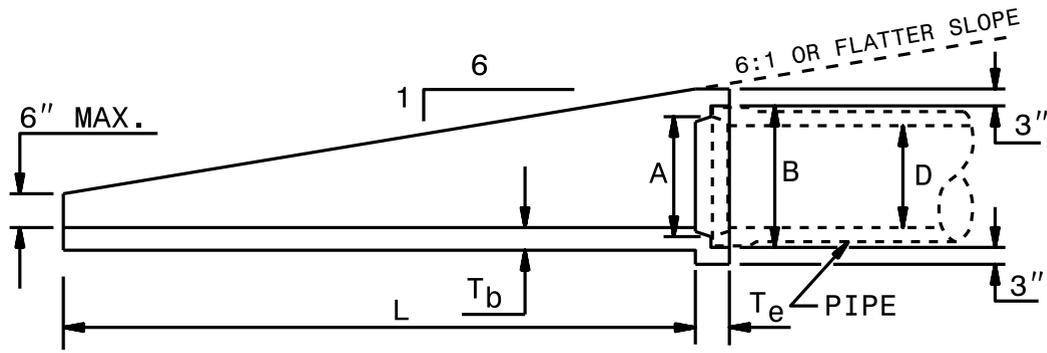
UNDISTURBED EARTH MATERIAL



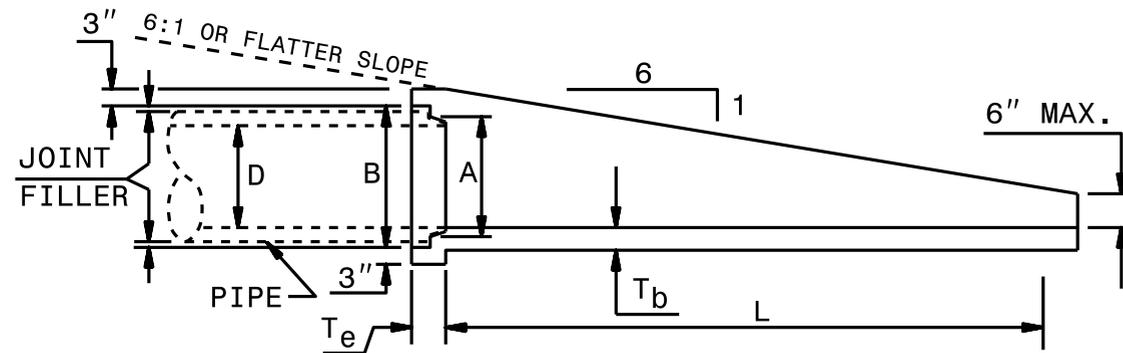
SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.



DRIVEWAY PIPE TYPICAL SECTION

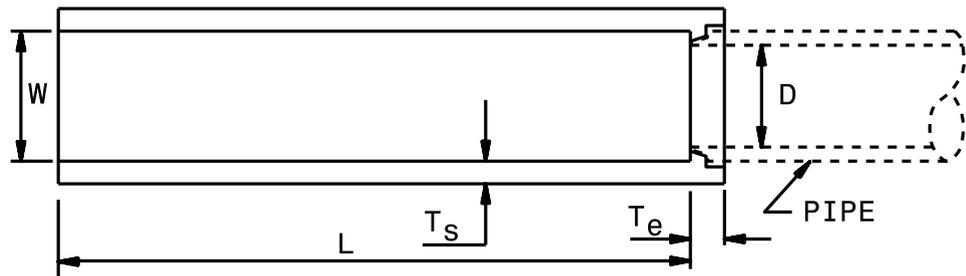


GROOVE INSTALLATION

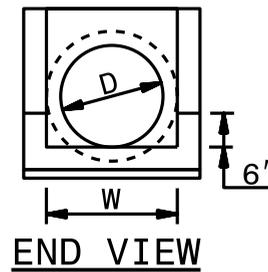


TONGUE INSTALLATION

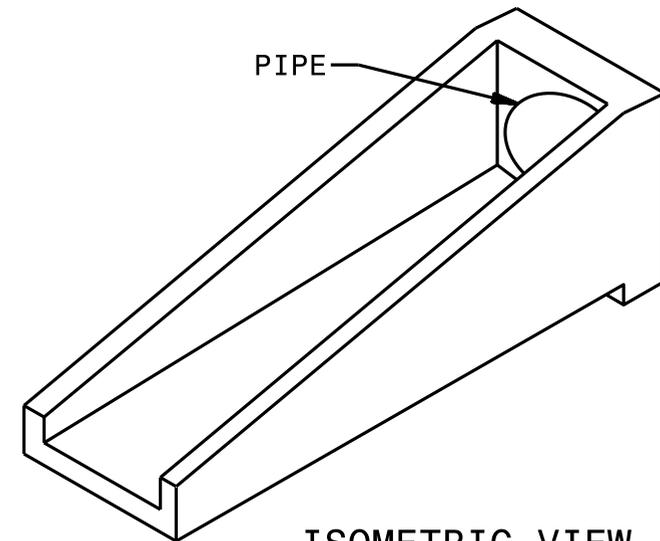
SIDE VIEW



PLAN VIEW



END VIEW



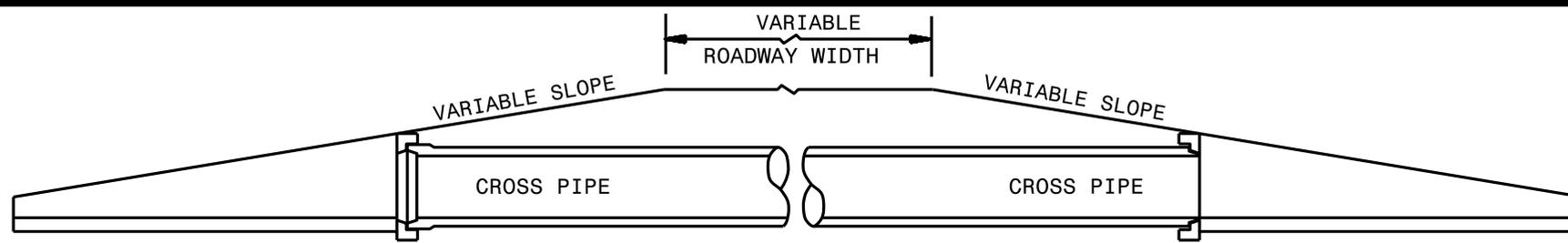
ISOMETRIC VIEW

END TREATMENT DIMENSIONS

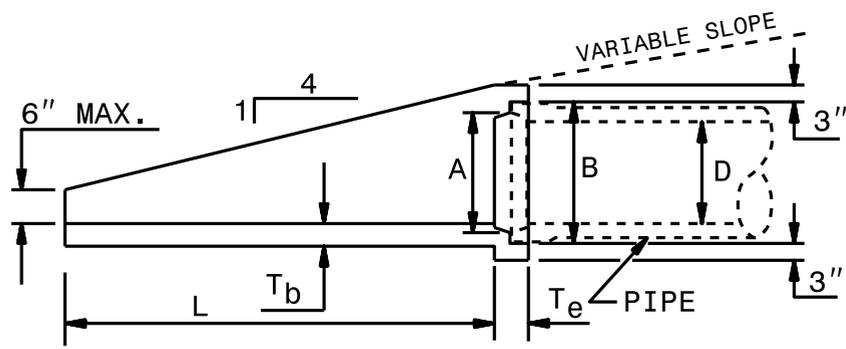
D	L	W	T _s	T _b	T _e	A	B
15"	7'-6"	19"	4"	4"	6"	17 ³ / ₄ "	20 ⁷ / ₈ "
18"	9'-0"	23"	4"	4"	6"	21 ¹ / ₄ "	25"
24"	12'-6"	30"	4"	4"	6"	27 ⁷ / ₈ "	32"

NOTES:

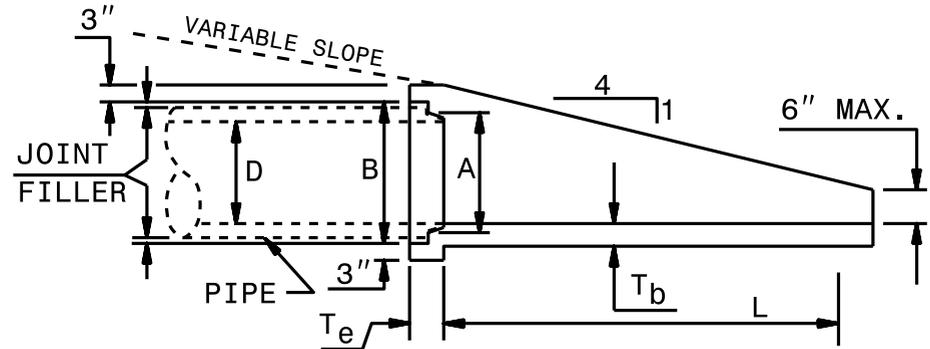
1. CONSTRUCT PIPE END SECTION USING #4 REBAR SPACED 9" EACH WAY AND MEET ALL REQUIREMENTS OF STD. SPEC. 310.
2. CHAMFER ALL EXPOSED CORNERS ³/₄".



ROADWAY CROSS PIPE TYPICAL SECTION

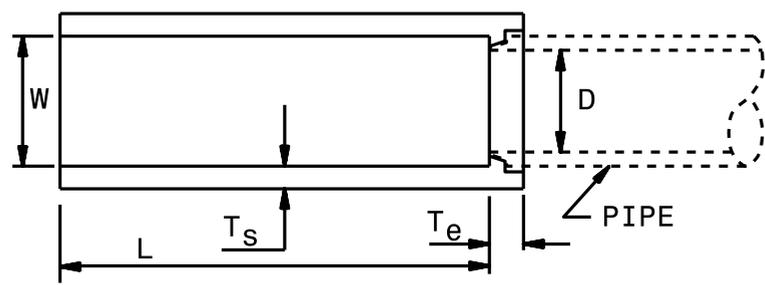


GROOVE INSTALLATION

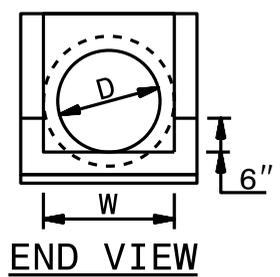


TONGUE INSTALLATION

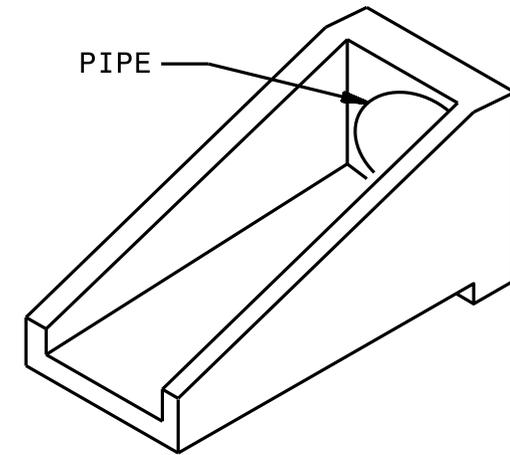
SIDE VIEW



PLAN VIEW



END VIEW



ISOMETRIC VIEW

END TREATMENT DIMENSIONS							
D	L	W	T _s	T _b	T _e	A	B
18"	6'-0"	23"	4"	4"	6"	21 1/4"	25"
24"	8'-2"	30"	4"	4"	6"	27 7/8"	32"
30"	10'-4"	37"	4"	4"	6"	33 5/8"	39"

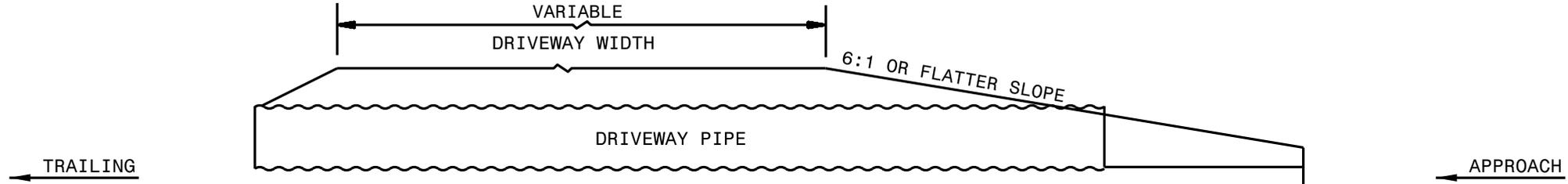
- NOTES:
1. CONSTRUCT PIPE END SECTION USING #4 REBAR SPACED 9" EACH WAY AND MEET ALL REQUIREMENTS OF STD. SPEC. 310.
 2. CHAMFER ALL EXPOSED CORNERS 3/4".

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

1-24

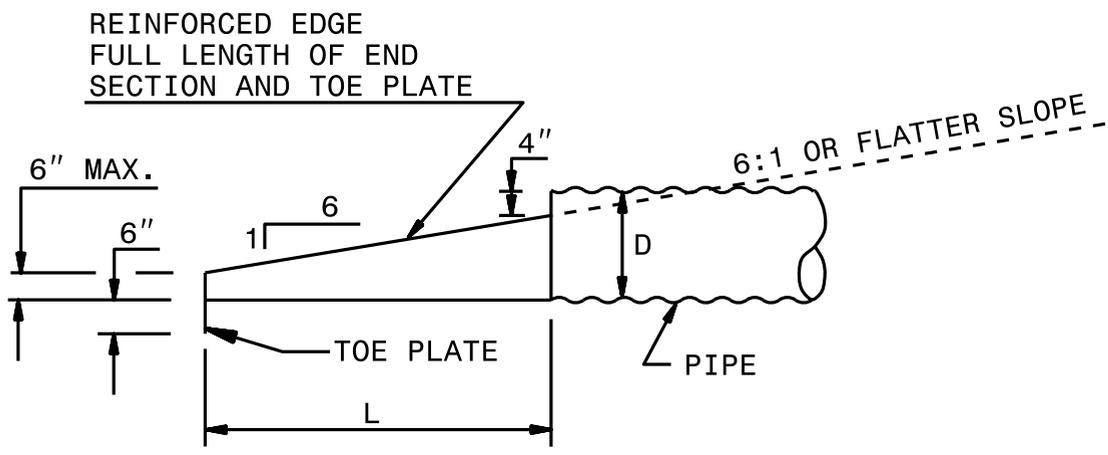
ROADWAY STANDARD DRAWING FOR
CROSS PIPE END SECTION
 PRECAST CONCRETE SECTION FOR 18" TO 30" PIPE

SHEET 1 OF 1
310.03

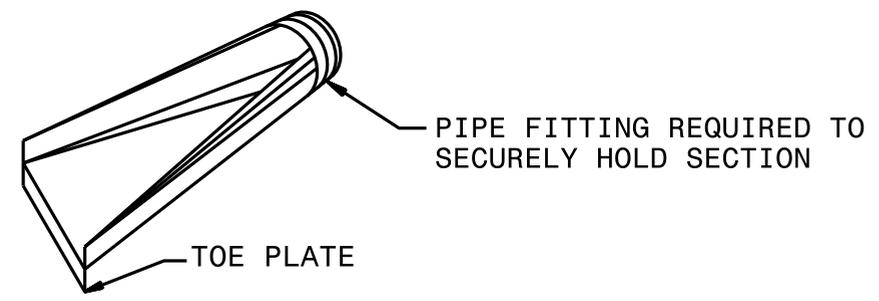


DRIVEWAY PIPE TYPICAL SECTION

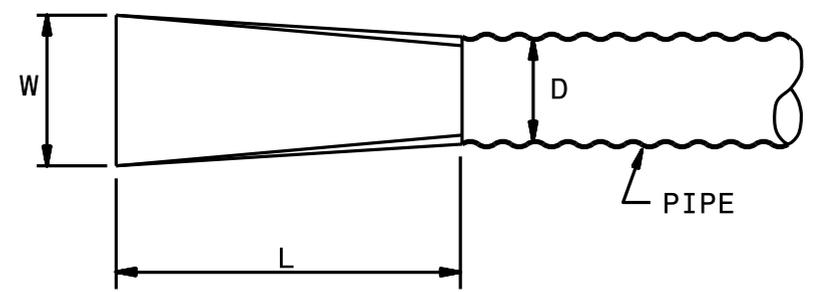
END TREATMENT DIMENSIONS			
D	L	W	THICK. GAGE
15"	2'-6"	1'-9"	16 MIN.
18"	4'-0"	2'-0"	16 MIN.
24"	7'-0"	2'-6"	16 MIN.



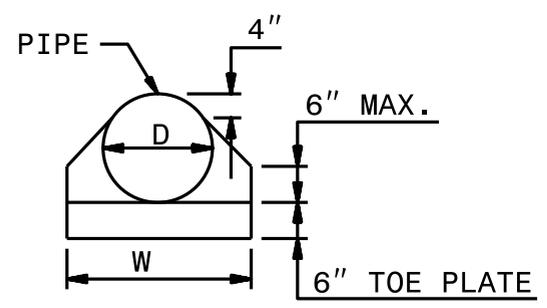
SIDE VIEW



ISOMETRIC VIEW



PLAN VIEW



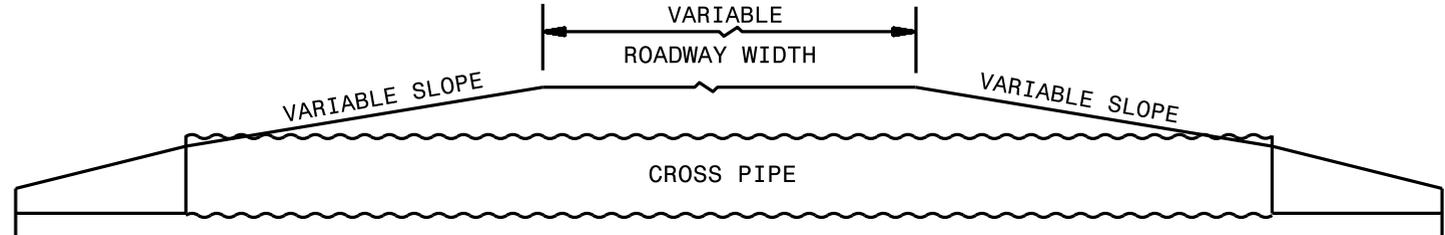
END VIEW

STEEL END SECTION

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
PARALLEL PIPE END SECTION
 PREFABRICATED STEEL SECTION FOR 15" TO 24" PIPE

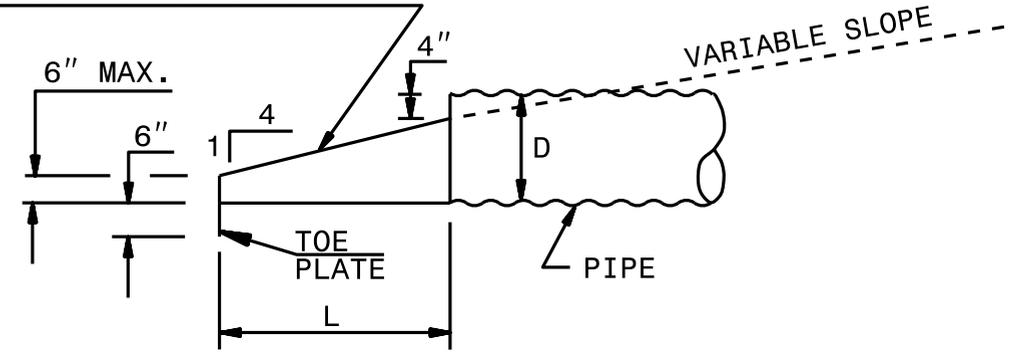
1-24



ROADWAY CROSS PIPE TYPICAL SECTION

END TREATMENT DIMENSIONS			
D	L	W	THICK. GAGE
18"	2'-8"	2'-0"	16 MIN.
24"	4'-8"	2'-6"	16 MIN.
30"	6'-8"	3'-0"	16 MIN.

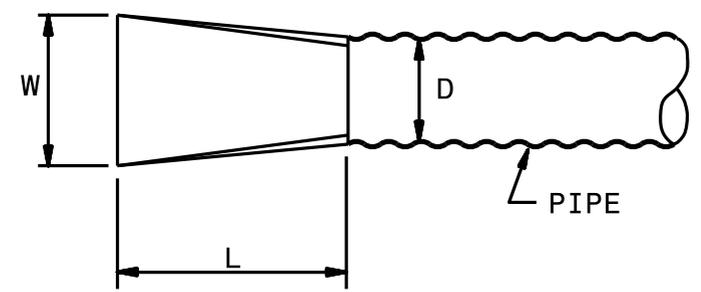
REINFORCED EDGE
FULL LENGTH OF END
SECTION AND TOE PLATE



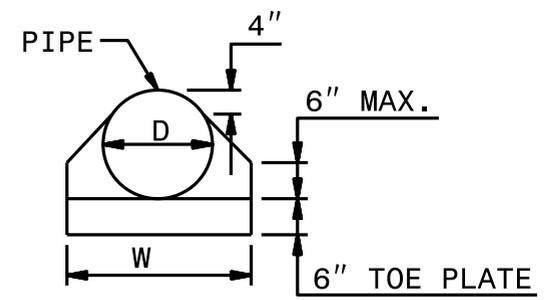
SIDE VIEW



ISOMETRIC VIEW



PLAN VIEW



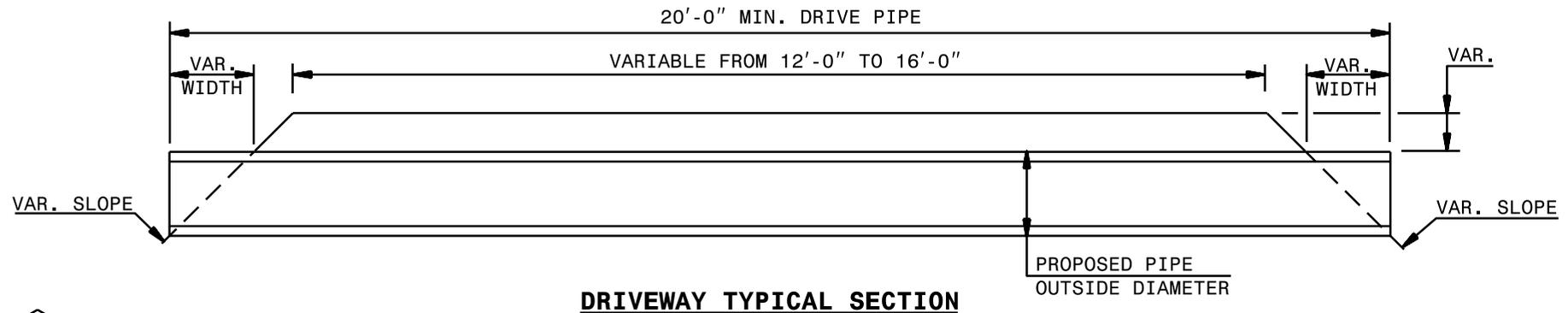
END VIEW

NOTE:
PREFABRICATED STEEL END SECTION AND ALL PARTS
WILL MEET THE REQUIREMENTS OF AASHTO M-218.

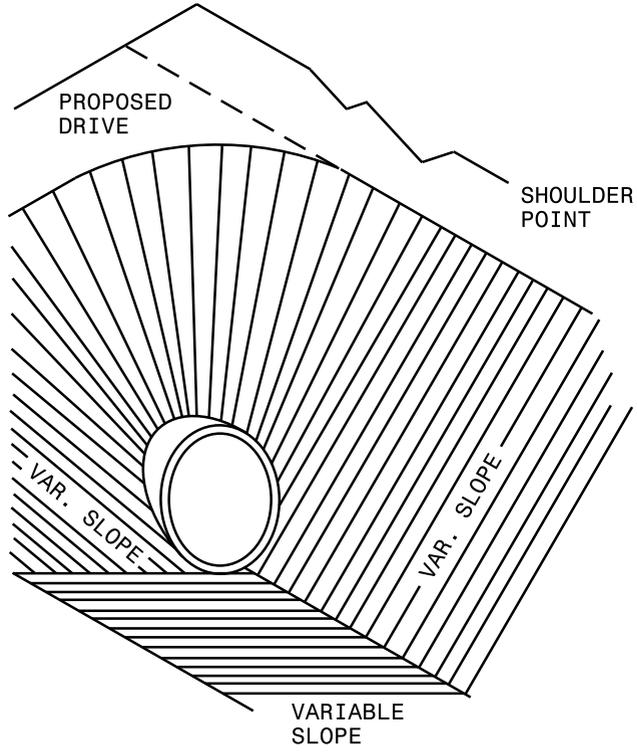
STEEL END SECTION

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
CROSS PIPE END SECTION
 PREFABRICATED STEEL SECTION FOR 18" TO 30" PIPE

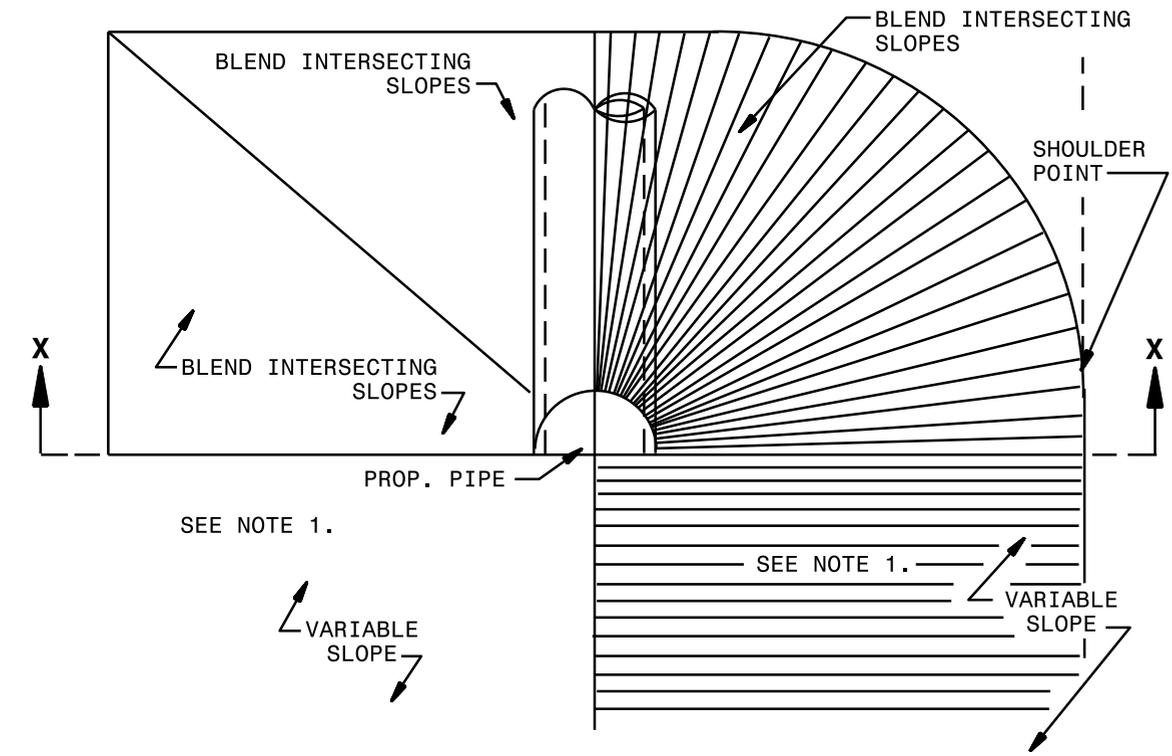


DRIVEWAY TYPICAL SECTION

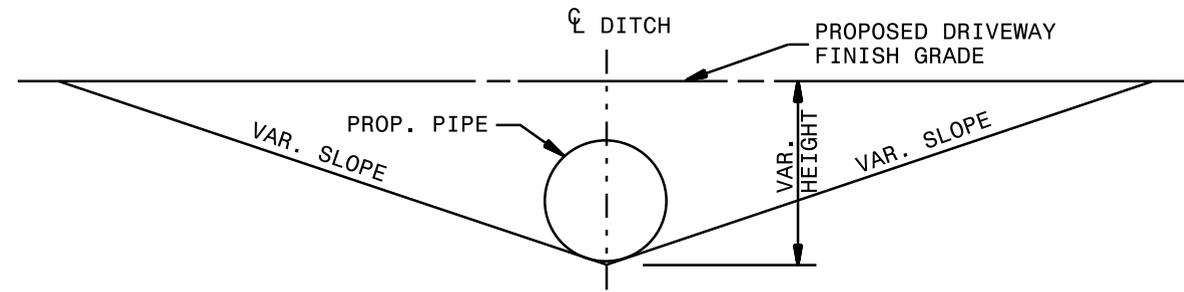


ISOMETRIC OF END PIPE TREATMENT

USE AT LOCATIONS AS DIRECTED BY THE ENGINEER



PLAN



SECTION X-X

GENERAL NOTES:

ALL DIMENSIONS GIVEN ARE FOR MINIMUM CONDITIONS. PROPER ENGINEERING JUDGEMENT MUST BE USED IN DETERMINING DRIVEWAY LOCATIONS, WIDTHS, AND PIPE LENGTHS.

FACTORS SUCH AS VEHICLE TURNING RADIUS, TRAFFIC VOLUMES, DRIVEWAY SKEW, OFFSET DISTANCE OF PIPE FROM EDGE OF PAVEMENT, PIPE DEPTHS, AND DESIGN SPEED SHOULD BE CONSIDERED IN DETERMINING DRIVEWAY WIDTHS.

NOTE:
1. THESE AREAS ARE TO BE USED TO BLEND THE INTERSECTING SLOPES TO THE PROPOSED DITCH.