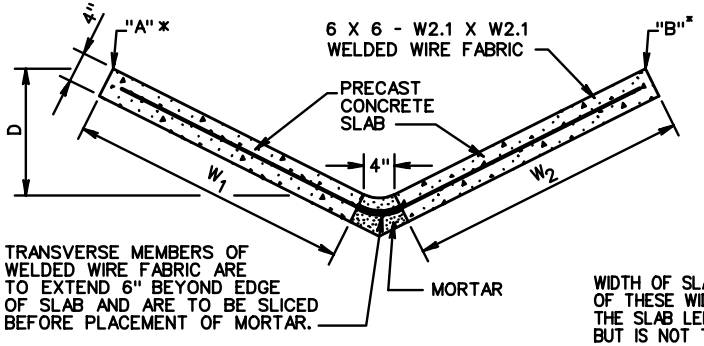
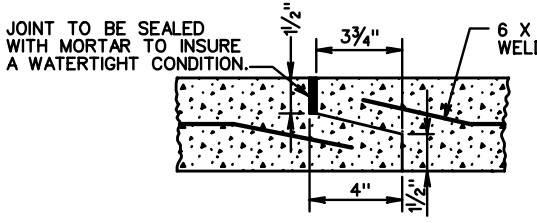
PG-6A, 6B

* POINT B TO BE AT LEAST AS HIGH OR HIGHER THAN POINT A. WHEN LOCATED IN ROADSIDE DITCH POINT A TO BE LOCATED ON SHOULDER SIDE.



W1	W2	D	K
3'-0"	2'-0"	10"	112
3'-0"	2'-0"	12"	145
3'-0"	3'-0"	10"	137
3'-0"	3'-0"	12"	181
2'-0"	2'-0"	10"	87
2'-0"	2'-0"	12"	111
3'-0"	2'-0"	8"	80
3'-0"	3'-0"	8"	96
2'-0"	2'-0"	8"	64

WIDTH OF SLABS (W) IS TO BE 2'-0" OR 3'-0". ANY COMBINATION OF THESE WIDTHS MAY BE USED DEPENDING ON REQUIREMENTS. THE SLAB LENGTH IS TO BE AT THE OPTION OF THE FABRICATOR BUT IS NOT TO EXCEED LIMITS THAT WOULD FACILITATE EASY HANDLING.

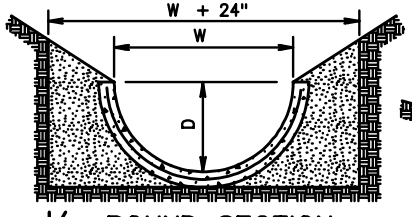


JOINT DETAIL SHOWN IS SUGGESTED ONLY. OTHER FABRICATOR'S DESIGN MEETING THE APPROVAL OF THE ENGINEER MAY BE SUBSTITUTED.

PRECAST CONCRETE VEE DITCH

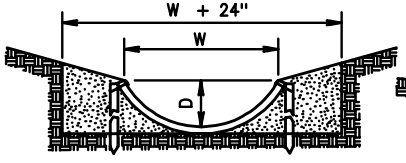
PG-6B

TRENCH IS TO BE EXCAVATED, PIPE SECTIONS PLACED, AND TRENCH REFILLED. THE MATERIAL PLACED AROUND THE PIPE IS TO BE FREE OF ROCK AND IS TO BE FIRMLY TAMPED.



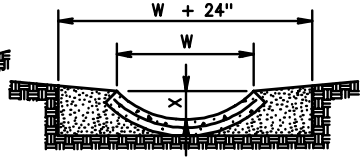
1/2 ROUND SECTION FOR USE ON SLOPES AND FOR FLUMES ONLY.

PIPE SIZE	D	W	K SMOOTH	K C.M.
12"	6"	1'-0"	15	10
15"	7 1/2"	1'-3"	28	17
18"	9"	1'-6"	46	28
21"	10 1/2"	1'-9"	69	43



1/3 ROUND SECTION

PIPE SIZE	D	W	K SMOOTH	K C.M.
24"	6"	1'-8 13/16"	27	17
30"	7 1/2"	2'-2"	49	31
36"	9"	2'-7 3/16"	79	49
42"	10 1/2"	3'-3/8"	118	74
48"	1'-0"	3'-5 9/16"	173	108
54"	1'-1 1/2"	3'-10 3/4"	234	146
60"	1'-3"	4'-3 15/16"	309	193



1/4 ROUND SECTION

PIPE SIZE	D	W	K SMOOTH	K C.M.
54"	7 7/8"	3'-2 1/4"	83	52
60"	8 3/4"	3'-6 1/2"	109	68
66"	9 5/8"	3'-10 3/4"	142	88
72"	10 1/2"	4'-3"	179	112
78"	11 3/8"	4'-7 1/4"	235	147
84"	1'-0 1/4"	4'-11 1/2"	269	168
90"	1'-1 1/8"	5'-5 3/4"	325	203

PIPE DRAIN DITCH LINER

CONCRETE VEE DITCH

ALL CONCRETE TO BE 4000 PSI.
LIFTING DEVICES OF THE FABRICATOR'S DESIGN ARE TO BE FURNISHED WHEN REQUIRED.

BASIS OF PAYMENT TO BE SQUARE YARDS OF SURFACE MEASURE WHICH IS TO INCLUDE FURNISHING AND PLACING CONCRETE SLABS AND MORTARING JOINTS.

PIPE DRAIN DITCH LINER

PIPE SECTIONS MAY BE USED IN ROADSIDE DITCHES, MEDIAN DITCHES, SLOPE DRAINS, AND FLUMES WITH THE EXCEPTION OF 1/2 ROUND SECTIONS WHICH ARE RESTRICTED TO SLOPE DRAINS AND FLUMES ONLY.

WHEN PIPE DRAIN DITCH LINER IS SUBSTITUTED FOR STANDARD PG-2A OR 4 SPECIFIED ON THE PLANS, THE CONTRACTOR MUST SELECT A "K" VALUE SHOWN HEREON THAT IS EQUAL TO OR GREATER THAN THE "K" VALUE FOR THE TYPE AT STANDARD PAVED DITCH SHOWN BELOW.

"K" IS THE CONVEYANCE FACTOR AS CALCULATED BY THE MANNING'S FORMULA FOR FLOW IN OPEN CHANNELS.

PIPE DRAIN DITCH LINERS ARE TO BE CONSTRUCTED FROM SECTIONS OF CONCRETE PIPE OR REGULAR REINFORCED CONCRETE PIPE, BITUMINIZED FIBER PIPE, CORRUGATED ALUMINUM PIPE, OR CORRUGATED STEEL PIPE. NON-REINFORCED SECTIONS MAY BE USED FOR CONCRETE PIPE SIZES 24" OR LESS.

JOINTS TO BE OF STANDARD MANUFACTURER'S DESIGN FOR REGULAR CONCRETE PIPE AND MAY BE LAPPED, BUTTED WITH A COLLAR, OR BELL AND SPIGOT FOR BITUMINIZED FIBER PIPE. JOINTS FOR CORRUGATED METAL PIPE MAY BE BOLTED OR RIVETED. ALL JOINTS TO BE SEALED TO INSURE A WATER TIGHT BOND.

BITUMINIZED FIBER AND CORRUGATED METAL PIPE TO BE ANCHORED WITH 1" X 4" X 30" PRESSURE PRESERVATIVE TREATED STAKES PLACED AT ALL JOINTS WITH INTERMEDIATE SPACING NOT TO EXCEED 10 FEET. #4 X 30" HOOKED DEFORMED BARS MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.

CONCRETE AND CORRUGATED METAL PIPE SECTIONS ARE TO BE AS SPECIFIED IN STANDARD PC-1 AND SPECIFICATIONS FOR MINIMUM HEIGHT OF FILL. BITUMINOUS FIBER PIPE SHALL CONFORM TO SECTION 240 OF THE SPECIFICATIONS, AND IS LIMITED TO SIZES 24" OR LESS.

INLET END OF PIPE DRAIN DITCH LINER INSTALLATION IS TO BE PROTECTED WITH ASPHALT OR CONCRETE TREATMENT AS DIRECTED BY THE ENGINEER TO PREVENT UNDERCUTTING.

COST OF PROTECTION TO BE INCLUDED IN PRICE BID FOR LINEAR FEET OF PIPE DRAIN DITCH LINER.

AT THE OPTION OF THE FABRICATOR, CONCRETE PIPE MAY BE GROOVED FOR SPLITTING.

LIFTING DEVICES OF FABRICATOR'S DESIGN ARE TO BE FURNISHED WHEN REQUIRED.

PIPE SECTIONS ARE TO BE AS SPECIFIED IN PIPE STANDARD PC-1 FOR MINIMUM HEIGHT OF FILL.

STANDARD PRECAST PAVED DITCHES DITCHES

(CONCRETE, CORRUGATED METAL & BITUMINOUS FIBER PIPES)

VIRGINIA DEPARTMENT OF TRANSPORTATION

109.04

SPECIFICATION REFERENCE

232
502