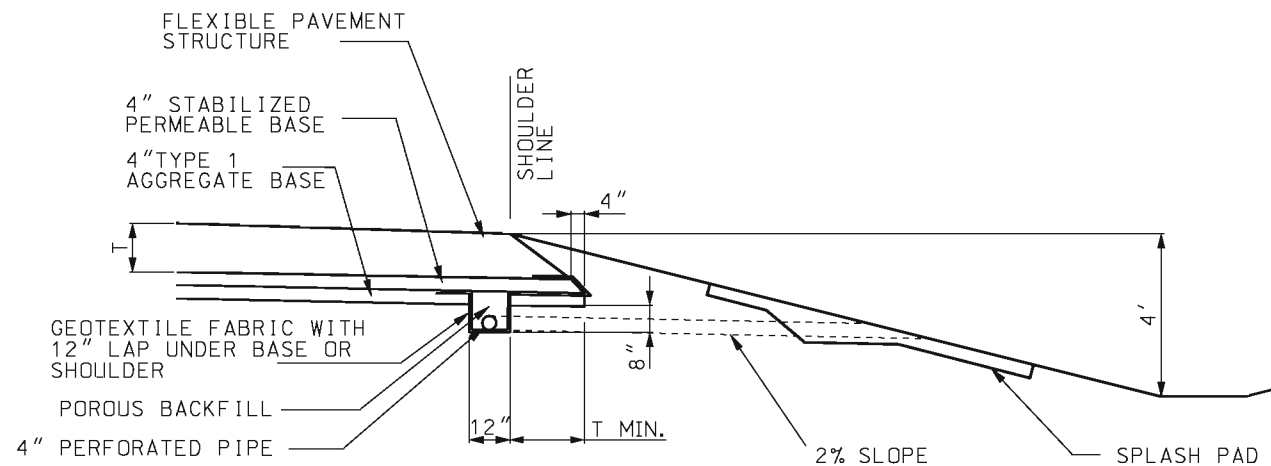
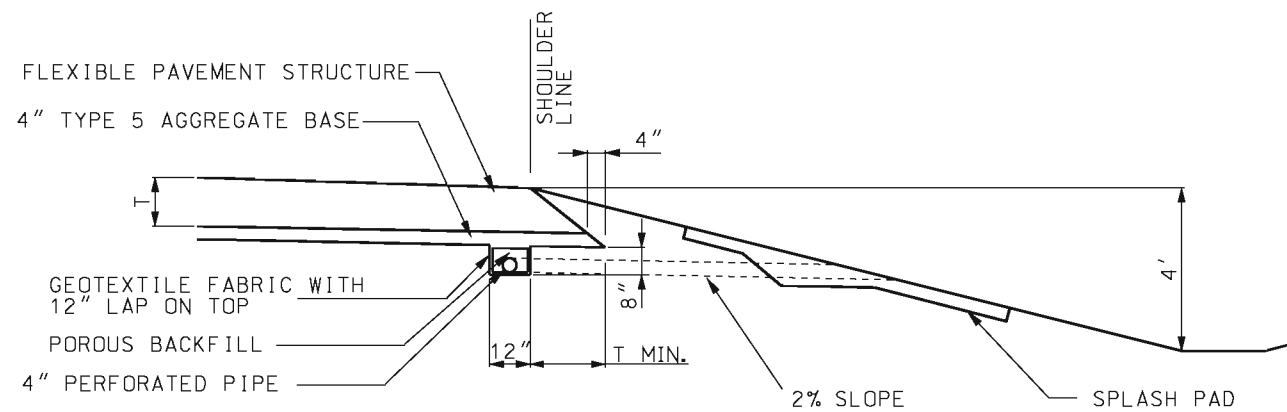
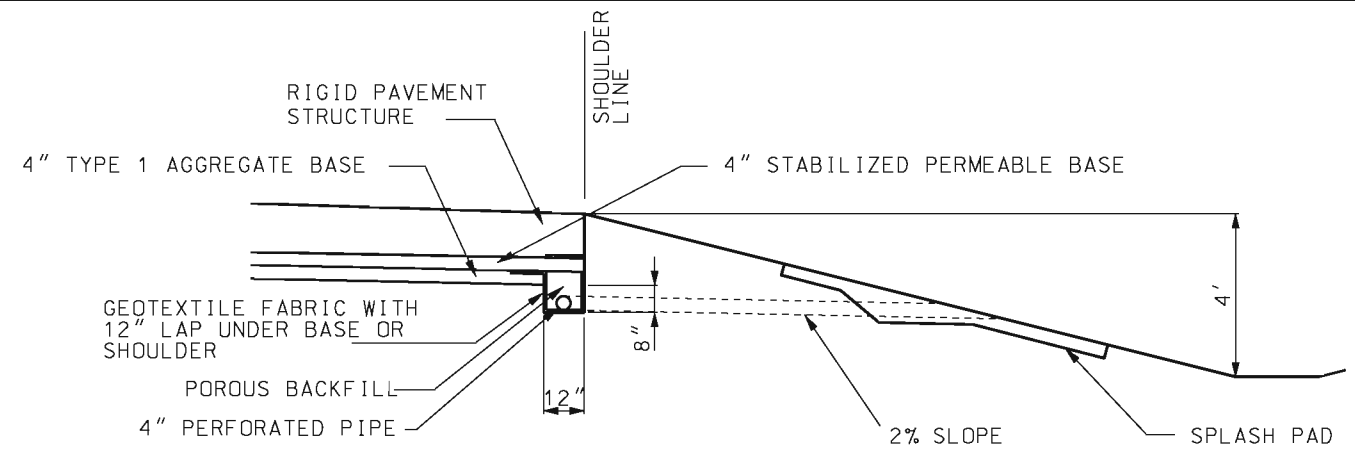
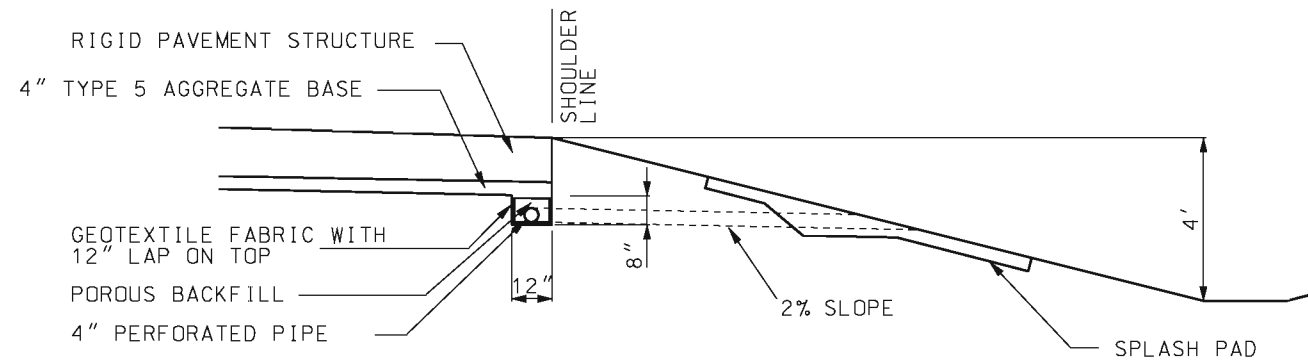
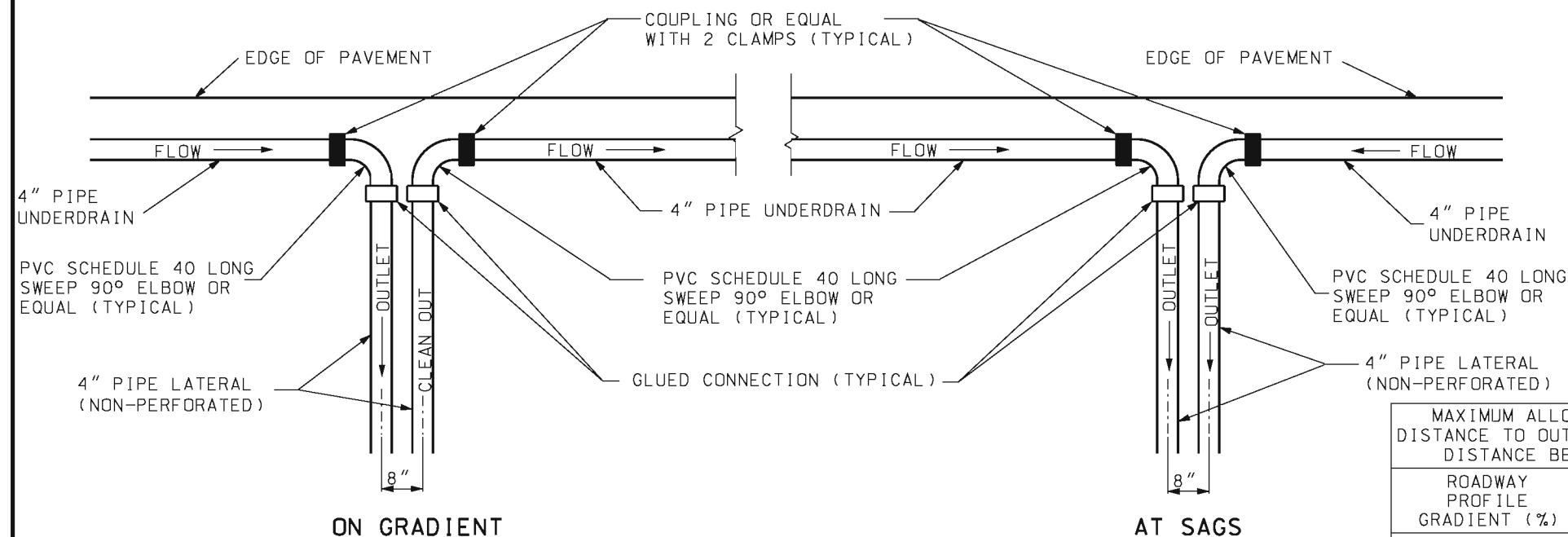


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MEDIUM DUTY

HEAVY DUTY



DETAIL OF PIPE AGGREGATE DRAIN OUTLETS

MAXIMUM ALLOWABLE DRAINAGE DISTANCE TO OUTLET OR SEPARATION DISTANCE BETWEEN OUTLETS

ROADWAY PROFILE GRADIENT (%)	DISTANCE
≤ 1	250 FT.
> 1 AND ≤ 2	375 FT.
> 2	500 FT.

GENERAL NOTES:

ON SUPERELEVATED CURVES PLACE LONGITUDINAL UNDERDRAIN ON LOW SIDE ONLY.

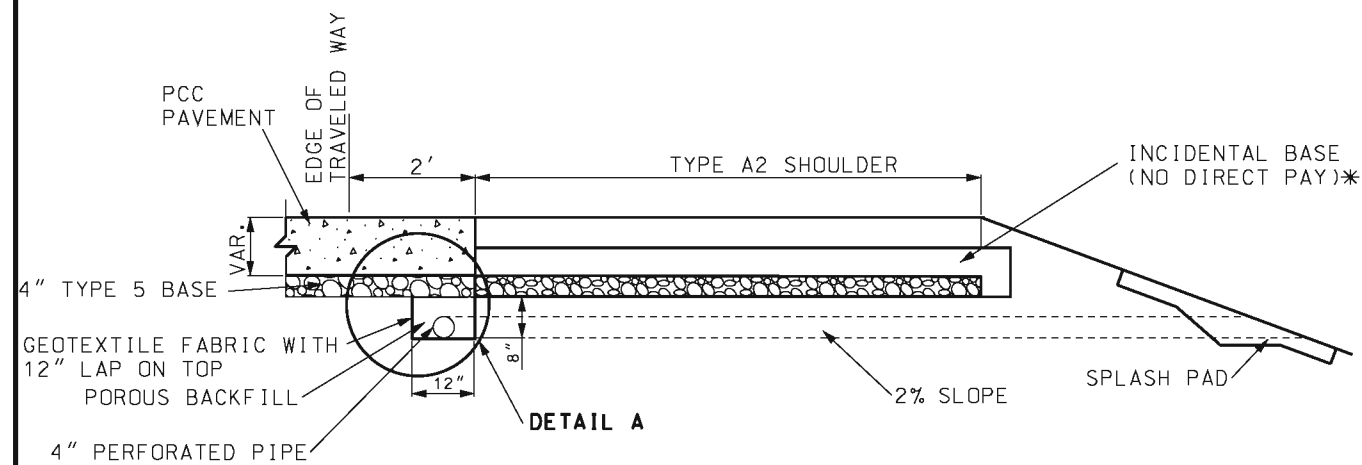
CONSTRUCT OUTLETS AT LOW POINT OF SAG CURVE.

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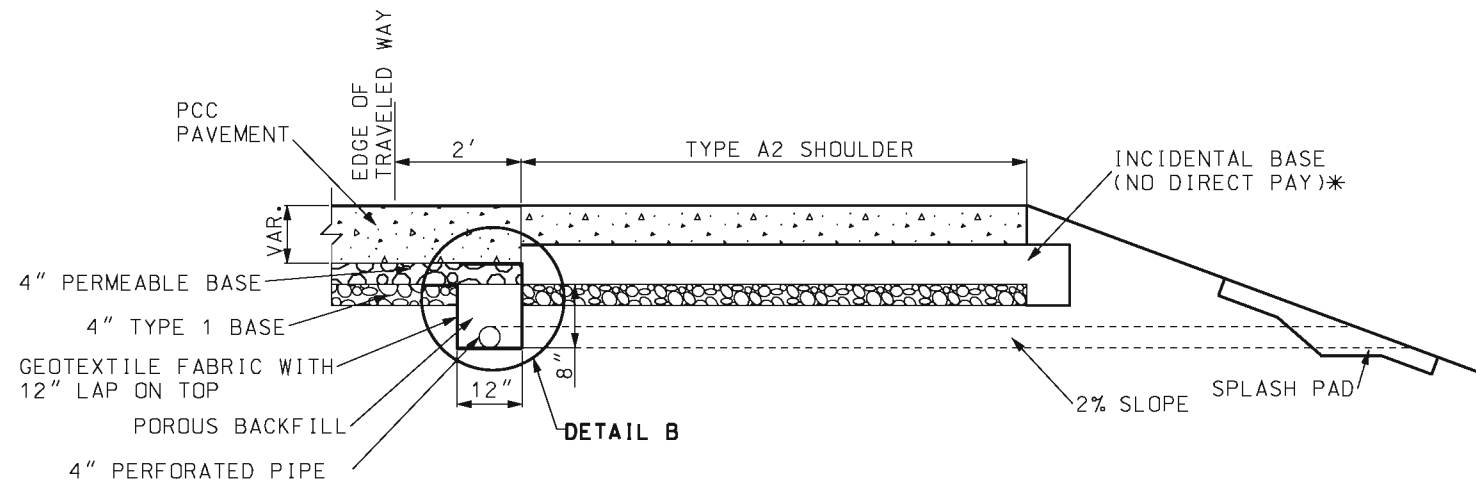
STATE OF MISSOURI
 KATHRYN PHILLIPS HARVEY
 NUMBER PE-23751
 PROFESSIONAL ENGINEER
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PAVEMENT UNDERDRAINAGE
 PIPE AGGREGATE PAVEMENT
 EDGE DRAINS FOR
 FULL DEPTH SHOULDERS

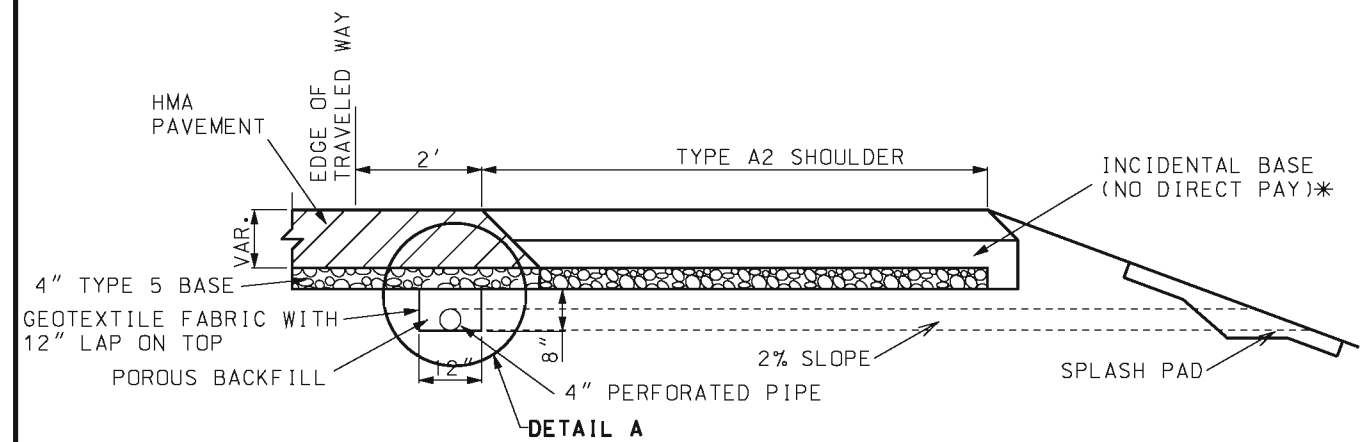
DATE EFFECTIVE: 06/01/2013
 DATE PREPARED: 4/1/2013
605.101
 SHEET NO. 1 OF 4



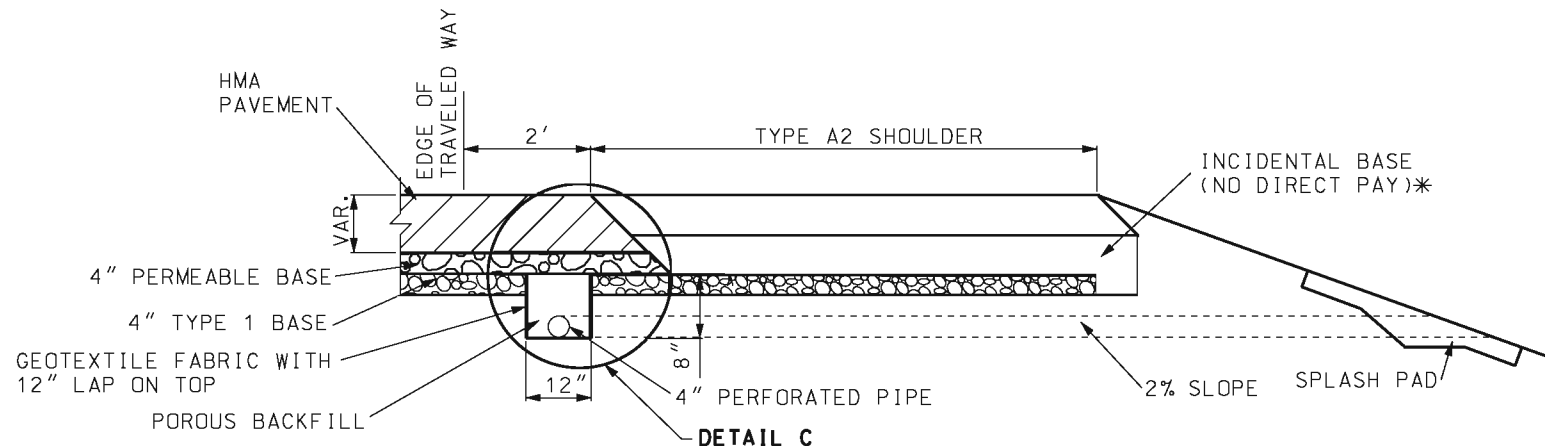
RIGID PAVEMENT WITH TYPE 5 BASE






RIGID PAVEMENT WITH PERMEABLE BASE



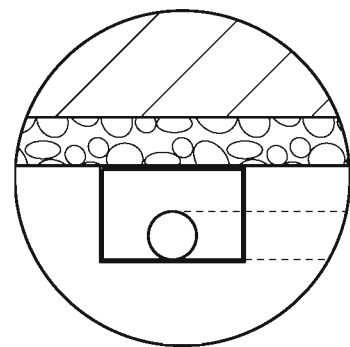
FLEXIBLE PAVEMENT WITH TYPE 5 BASE



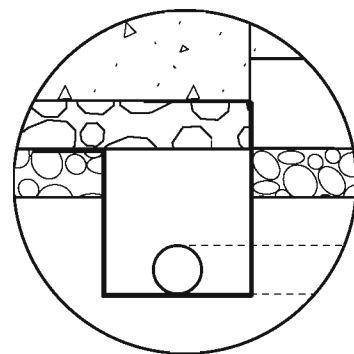
FLEXIBLE PAVEMENT WITH PERMEABLE BASE

-  PCC (PORTLAND CEMENT CONCRETE)
-  HMA (HOT MIX ASPHALT)
-  BASE

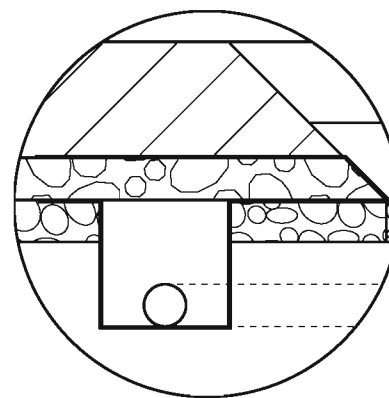
* BASE MATERIAL (ASPHALT MILLINGS, RECYCLED CONCRETE, TYPE 1 BASE, ETC.) APPROVED BY THE ENGINEER.



DETAIL A





DETAIL B



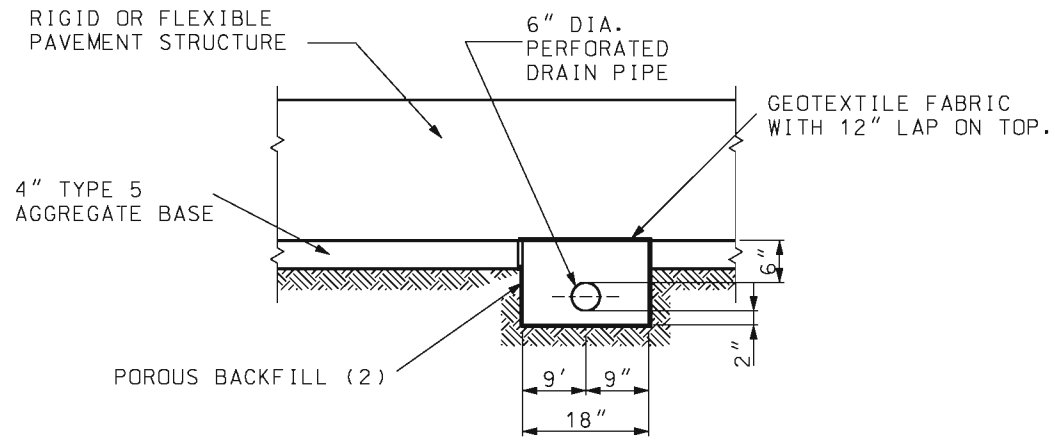
DETAIL C

GENERAL NOTES:

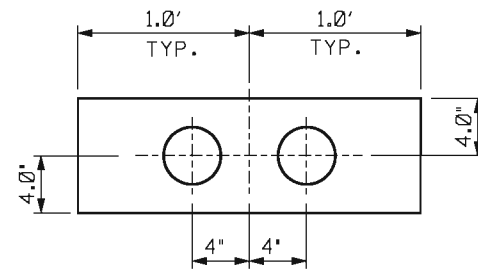
SEE DETAIL OF PIPE AGGREGATE DRAIN OUTLETS ON SHEET 1.

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		PAVEMENT UNDERDRAINAGE PIPE AGGREGATE PAVEMENT EDGE DRAINS FOR TYPE A2 SHOULDERS
DATE EFFECTIVE: 06/01/2013 DATE PREPARED: 4/1/2013	605.101	SHEET NO. 2 OF 4

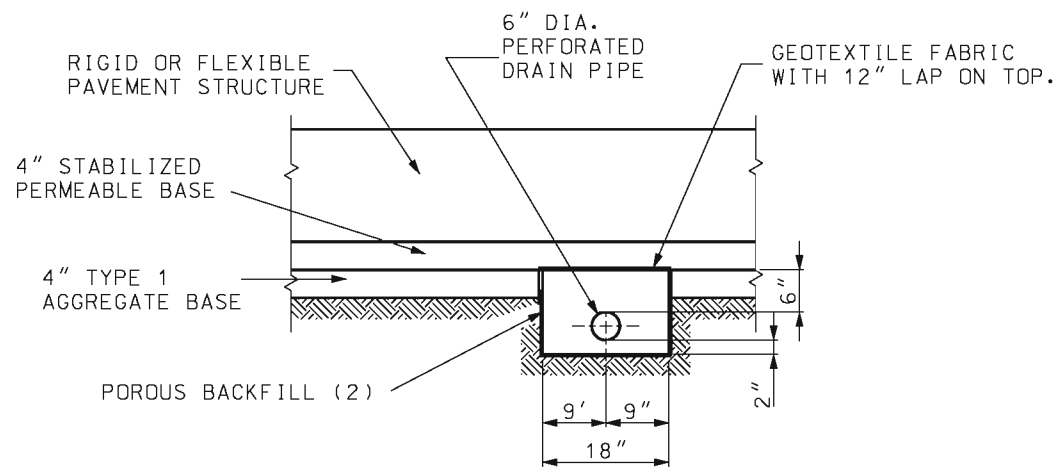
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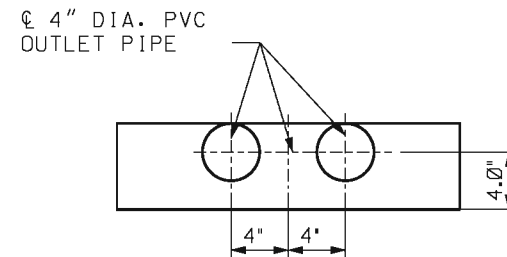
SECTION D-D
WITHOUT PERMEABLE BASE



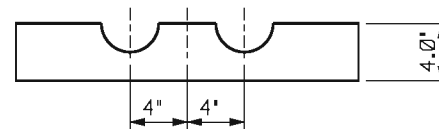
SECTION A-A



SECTION D-D
WITH PERMEABLE BASE

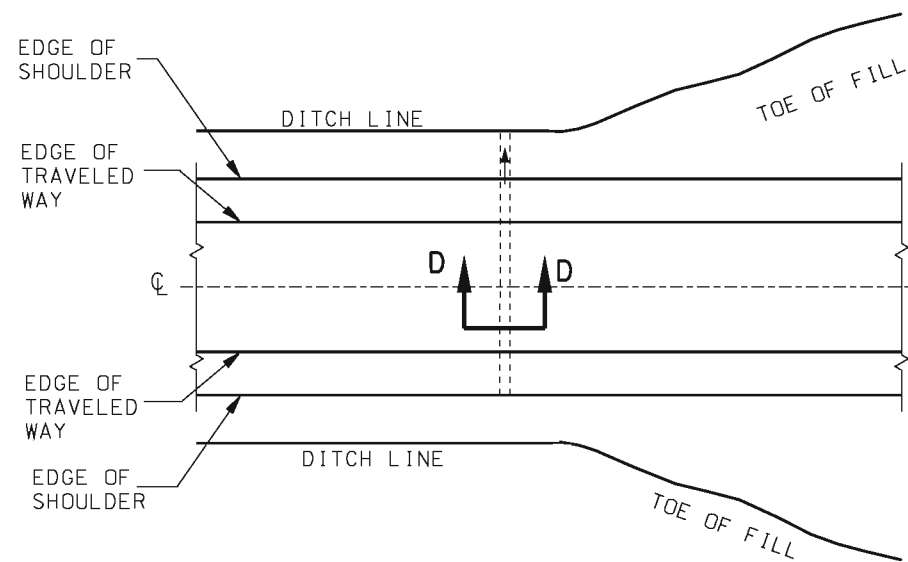


SECTION B-B

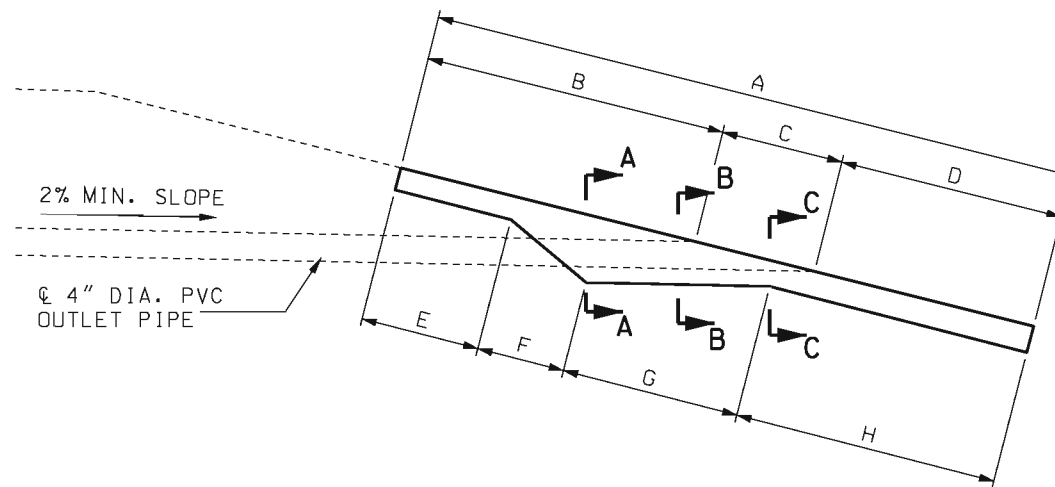


SECTION C-C

ITEM	2:1	3:1	4:1	6:1
A	5.48'	6.19'	6.95'	8.58'
B	2.70'	3.07'	3.46'	4.28'
C	0.78'	1.12'	1.49'	2.30'
D	2.00'	2.00'	2.00'	2.00'
E	2.00'	2.00'	2.00'	2.00'
F	0.46'	0.61'	0.78'	1.18'
G	0.71'	1.07'	1.46'	2.27'
H	2.31'	2.51'	2.71'	3.13'
CONC.	0.15 C.Y.	0.17 C.Y.	0.20 C.Y.	0.25 C.Y.



CROSS DRAIN



CONCRETE SPLASH PADS

GENERAL NOTES:

PRECAST CONCRETE SPLASH PADS MAY BE INSTALLED AS APPROVED BY THE ENGINEER.

TOP OF SPLASH PAD SHALL MATCH EXISTING CROSS SLOPE. CONSTRUCT BEND IN SPLASH PAD WHERE CROSS SLOPE CHANGES.

DIMENSIONS ARE APPROXIMATE AND CAN BE ADJUSTED AS DIRECTED BY THE ENGINEER.

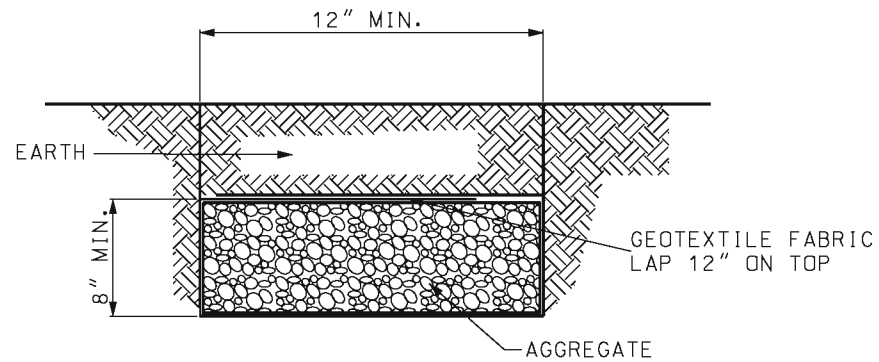
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STATE OF MISSOURI
 KATHRYN PHILLIPS HARVEY
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 PROFESSIONAL ENGINEER
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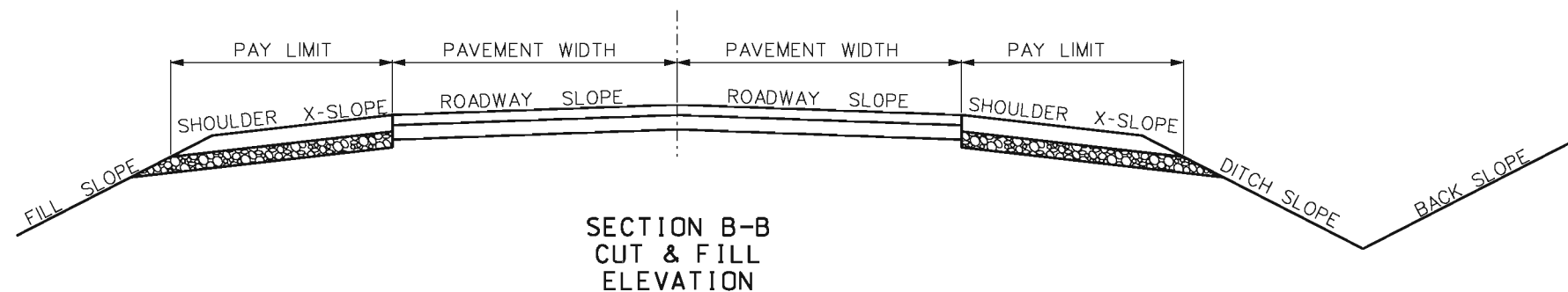
PAVEMENT UNDERDRAINAGE CROSS DRAINS

DATE EFFECTIVE: 06/01/2013	605.101	SHEET NO. 3 OF 4
DATE PREPARED: 4/1/2013		

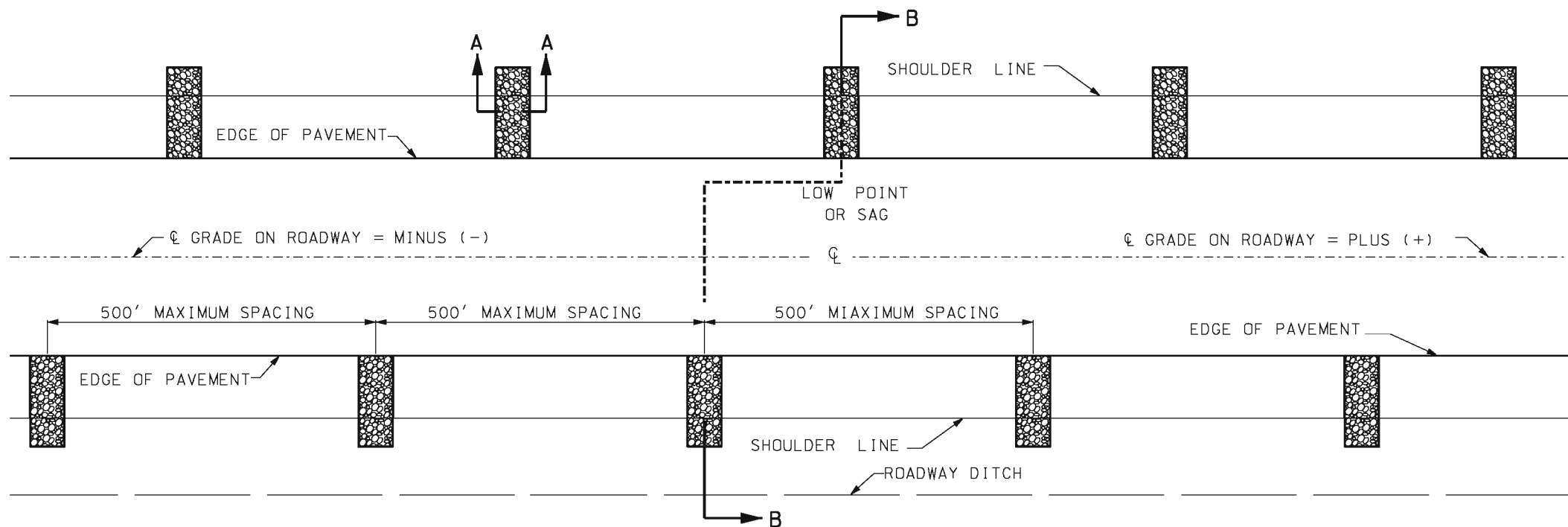
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SECTION A-A



SECTION B-B
CUT & FILL
ELEVATION



PLAN

GENERAL NOTES:

AGGREGATE UNDERDRAIN TO BE USED ONLY WHERE DESIGNATED ON PLANS.

AGGREGATE UNDERDRAIN SHALL BE PLACED AT THE LOW POINT OF THE SAG AND THE SPACING OF AGGREGATE UNDERDRAIN SHALL BE APPROX. 500'. AGGREGATE UNDERDRAINS WILL BE OMITTED ON THE CREST VERTICAL CURVES AND ON THE HIGH SIDE OF SUPERELEVATION. THE LOW SIDE OF SUPER-ELEVATION SPACING MAY BE DECREASED AS DIRECTED BY ENGINEER.

THE BOTTOM OF THE AGGREGATE DRAINS SHALL BE AT OR BELOW THE BOTTOM OF THE PAVEMENT'S AGGREGATE SUBBASE AT THE POINT OF CONTACT. THE TOP OF THE AGGREGATE DRAINS SHALL BE NO HIGHER THAN THE BOTTOM OF THE SHOULDER'S AGGREGATE BASE.

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 NUMBER PE-23751
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**PAVEMENT UNDERDRAINAGE
 AGGREGATE UNDERDRAINS**

DATE EFFECTIVE: 06/01/2013	605.101	SHEET NO. 4 OF 4
DATE PREPARED: 4/1/2013		

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