

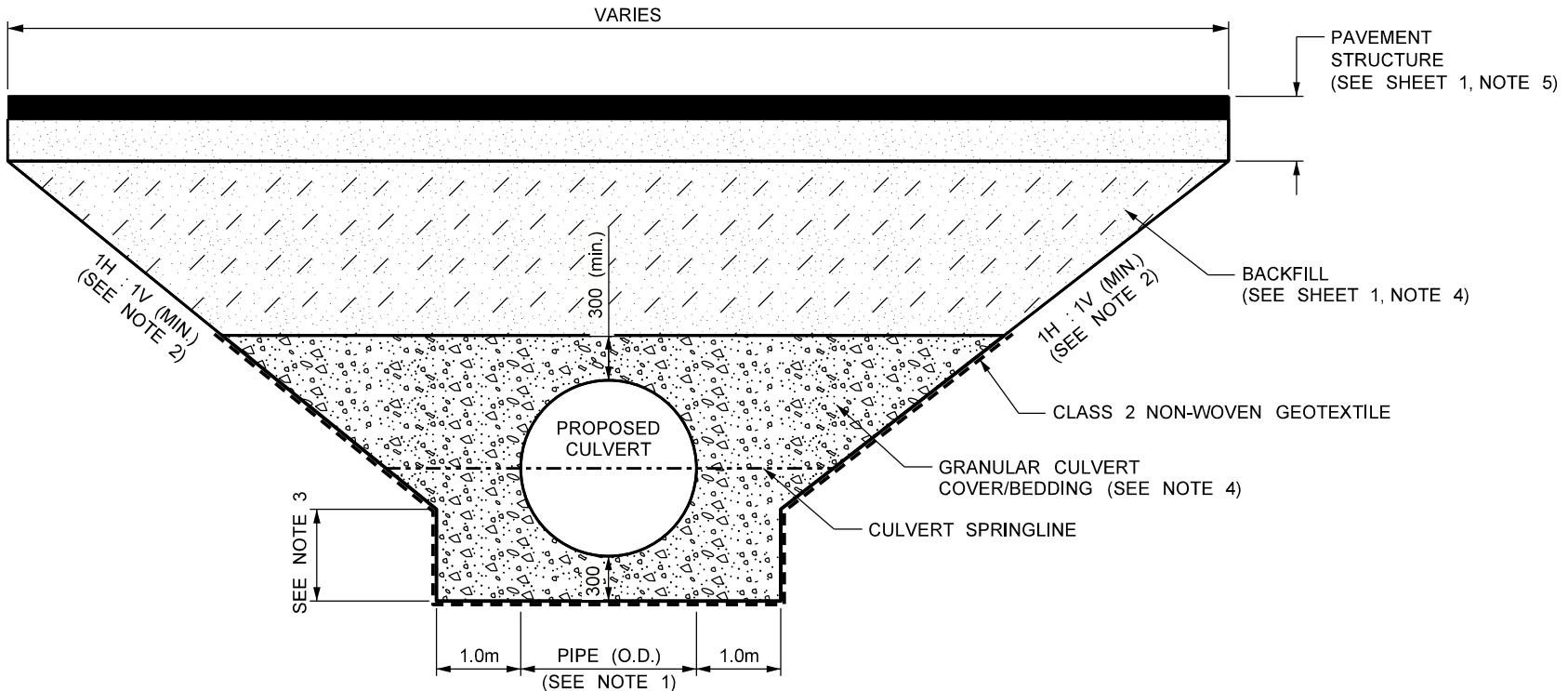
NOTES:

1. SLOPED CULVERT ENDS IF / AS SPECIFIED IN CONTRACT
2. GBC-I, GBC-II, GBC-M OR CULVERT GRAVEL
3. CULVERT EMBEDMENT (DEPTH OF CULVERT INVERT) SHALL MEET THE SITE SPECIFIC ENVIRONMENTAL OR CONTRACT REQUIREMENTS, MIN. 100
4. BACKFILL TYPE AS SPECIFIED IN CONTRACT. IF NOT SPECIFIED, BACKFILL SHALL BE GBC-I, GBC-II, GBC-M, GSB-C, GSB-F, CR-M50, CR-M100 OR CR-M125.
5. PAVEMENT STRUCTURE DIMENSIONS, MATERIALS, AND DEPTHS ARE TO MATCH EXISTING OR AS SPECIFIED IN CONTRACT / DESIGN. CR-M50 SHALL BE USED AS SUBBASE IF CR-M100 OR CR-M125 IS USED AS UNDERLYING BACKFILL MATERIAL.
6. STONE RIP-RAP CLASS/SIZE SHALL BE AS SHOWN ON SHEET 3 OR AS SPECIFIED IN CONTRACT
7. PLACE RIP-RAP AT THE END OF CULVERT SUCH THAT THE SURFACE OF THE RIP-RAP IS EVEN WITH THE GRADE OF EMBANKMENT SIDE SLOPE

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SPECIFIED OTHERWISE

SEAL	
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JEFF E. TALLIN, P.Eng. October 28, 2025	

APPROVALS		REVISIONS				MANITOBA STANDARD DRAWING		
ORIGINAL SIGNED BY:  DUSTIN BOOY EXECUTIVE DIRECTOR OF HIGHWAY ENGINEERING SERVICES	No.	DESCRIPTION	BY	DATE	DATE		OPEN CUT INSTALLATION DETAILS FOR SINGLE CSC, PCC, AND HDPE CULVERTS, ≤1800 DIA.	
	△				OCTOBER 2025			
	△				SCALE		SHEET	
	△				N.T.S.		1 OF 3	
					MSD - 400.1			



## SINGLE CULVERT INSTALLATION DETAIL

### NOTES:

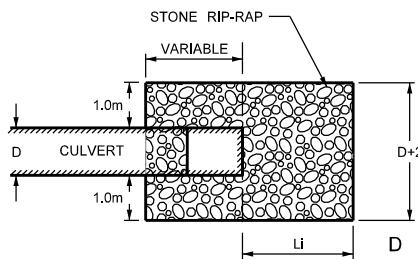
GENERAL: ALL TRENCHING AND EXCAVATION SHALL COMPLY WITH MANITOBA'S WORKPLACE HEALTH AND SAFETY REGULATIONS

1. CULVERT DIAMETER AND TYPE AS SPECIFIED IN CONTRACT
2. FOR FROST SUSCEPTIBLE SOILS, REFER TO MSD 400.5
3. DEPTH OF VERTICAL CUT SHALL NOT EXCEED 1.0m
4. GBC-I, GBC-II, GBC-M OR CULVERT GRAVEL

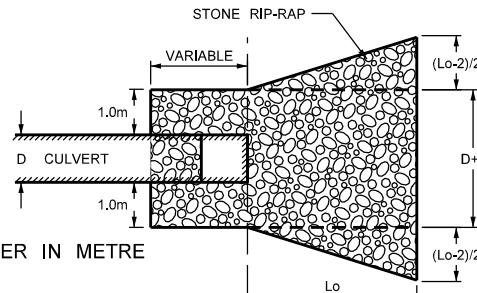
ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SPECIFIED OTHERWISE

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BRENT P.D. SELLERS P.Eng. DECEMBER 16, 2025	

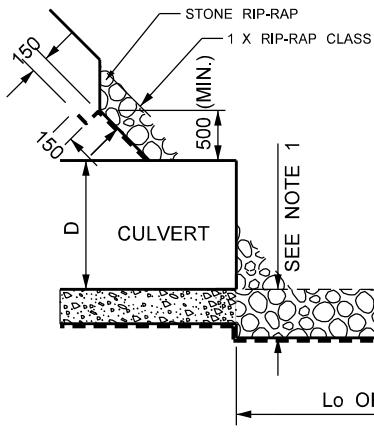
APPROVALS		REVISIONS				MANITOBA STANDARD DRAWING		
ORIGINAL SIGNED BY:  DUSTIN BOOY EXECUTIVE DIRECTOR OF HIGHWAY ENGINEERING SERVICES	No.	DESCRIPTION	BY	DATE	DATE		OPEN CUT INSTALLATION DETAILS FOR SINGLE CSC, PCC, AND HDPE CULVERTS, ≤1800 DIA.	
	▲				OCTOBER 2025			
	▲				SCALE	SHEET		
	▲				N.T.S.	2 OF 3		
					MSD - 400.1			
					Manitoba Transportation and Infrastructure			



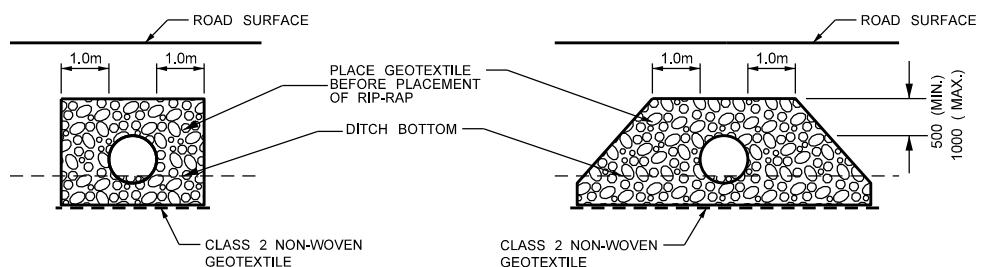
INLET DETAIL - PLAN VIEW



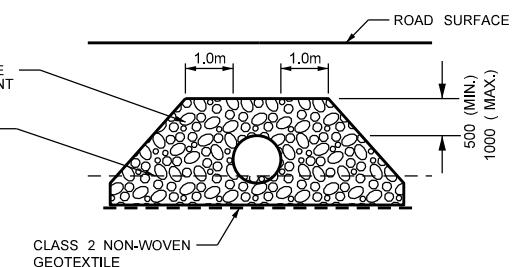
OUTLET DETAIL - PLAN VIEW



INLET & OUTLET - SIDE VIEW FOR  
EMBEDDED CULVERTS



INLET END VIEW FOR EMBEDDED CULVERTS



OUTLET END VIEW FOR EMBEDDED CULVERTS

**INLET AND OUTLET APRON DIMENSIONS  
EXTENDED - HIGH FLOW VELOCITY AND EROSION SUSCEPTIBLE SITES**

Culvert Nominal Diameter D (mm)	Rip-Rap Class (mm)	Inlet Length Li (m)	Outlet Length Lo (m)
<800	350	2	4
800 to 1200	350	3	6
1200 to 1800	450	7	14

**INLET AND OUTLET APRON DIMENSIONS  
LOW FLOW VELOCITY SITES (SEE NOTE 2)**

Culvert Nominal Diameter D (mm)	Rip-Rap Class (mm)	Inlet Length Li (m)	Outlet Length Lo (m)
<1200	350	2	3
1200 to 1800	350	4	6

NOTE:  
1. RIP-RAP THICKNESS SHALL BE THE GREATER OF 500 OR 1.5x RIP-RAP MAXIMUM SIZE  
2. MAY BE USED WHERE EXIT FLOW VELOCITY IS LESS THAN 1.2m/sec.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SPECIFIED OTHERWISE

**APPROVALS**

**REVISIONS**

**MANITOBA STANDARD DRAWING**

ORIGINAL SIGNED BY:  
**DUSTIN BOYD**  
EXECUTIVE DIRECTOR OF  
HIGHWAY ENGINEERING SERVICES  
ORIGINAL SIGNED BY:  
**TARA LISKE**  
EXECUTIVE DIRECTOR OF  
REGIONAL OPERATIONS

No. **△** DESCRIPTION BY DATE  
OCTOBER 2025  
SCALE SHEET  
N.T.S. 3 OF 3  
MSD - 400.1

OPEN CUT INSTALLATION DETAILS  
FOR SINGLE CSC, PCC, AND HDPE  
CULVERTS,  $\leq 1800$  DIA.

**Manitoba**   
Transportation and Infrastructure

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ORIGINAL SEALED BY:  
**JEFF E. TALLIN, P.Eng.**  
October 28, 2025

