

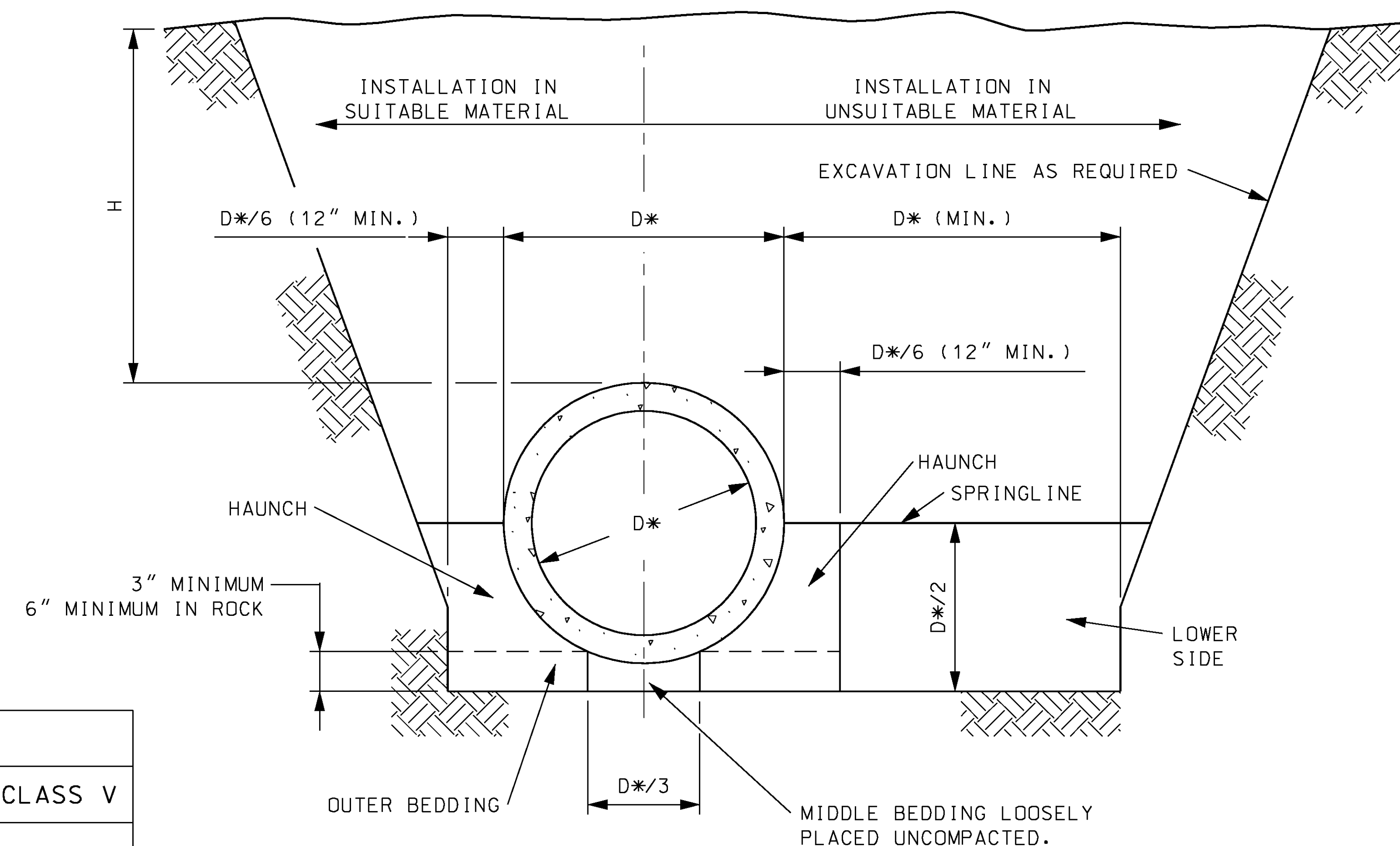
EMBANKMENT INSTALLATIONS

- CONSTRUCTION SEQUENCE**
1. PLACE BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
 2. INSTALL PIPE TO GRADE.
 3. COMPACT BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
 4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE SPRINGLINE.
 5. COMPLETE BACKFILL ACCORDING TO SPECIFICATIONS.

MAXIMUM HEIGHT OF FILL OVER R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE				
	CLASS I	CLASS II	CLASS III	CLASS IV	CLASS V
	FEET				
TYPE 1	14	18	21	33	50
TYPE 2	9	12	16	25	38
TYPE 3	7	10	12	19	30
TYPE 4	5	7	8	13	19

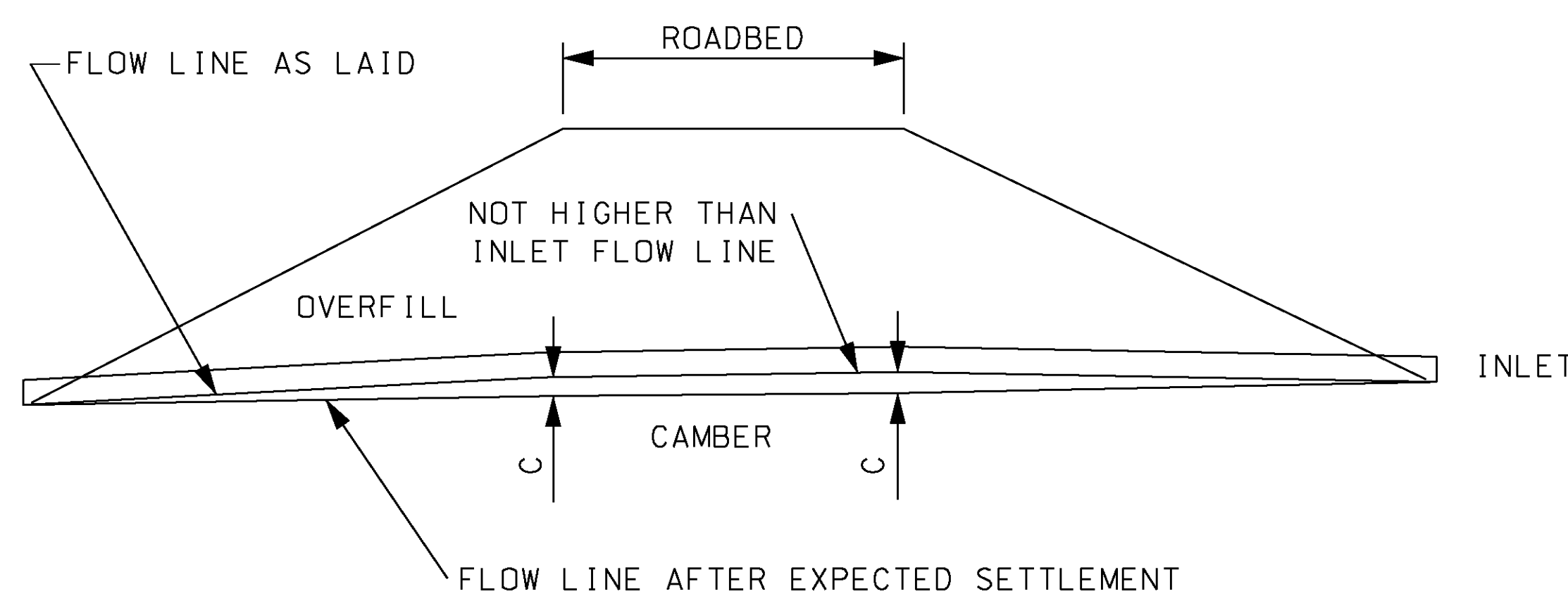
NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.



TRENCH INSTALLATION

- LEGEND -

D* = NORMAL INSIDE DIAMETER OF PIPE.
D* = OUTSIDE DIAMETER OF PIPE.
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
= UNDISTURBED SOIL



NOTE: ON YIELDING SOIL, PIPE CULVERTS SHOULD BE PLACED ON A CAMBERED FLOW LINE. THE AMOUNT OF CAMBER WILL VARY WITH SOIL CONDITION AND SHALL BE SPECIFIED ON THE DESIGN PLANS.

TYPICAL CAMBERED FLOW LINE

BEDDING AND COMPACTION REQUIREMENTS

INSTALLATION TYPE	BEDDING THICKNESS	COMPACTION REQUIREMENTS (MIN. STANDARD PROCTOR %)					
		HAUNCH AND OUTER BEDDING			LOWER SIDE BEDDING		
		CATEGORY 1 SOIL (A)	CATEGORY 2 SOIL (B)	CATEGORY 3 SOIL (C)	CATEGORY 1 SOIL (A)	CATEGORY 2 SOIL (B)	CATEGORY 3 SOIL (C)
1	D*/24 MINIMUM, NOT LESS THAN 3". IF ROCK FOUNDATION, USE D*/12 MINIMUM, NOT LESS THAN 6".	95	N/A	N/A	90	95	100
2	D*/24 MINIMUM, NOT LESS THAN 3". IF ROCK FOUNDATION, USE D*/12 MINIMUM, NOT LESS THAN 6".	90	95	N/A	85	90	95
3	D*/24 MINIMUM, NOT LESS THAN 3". IF ROCK FOUNDATION, USE D*/12 MINIMUM, NOT LESS THAN 6".	85	90	95	85	90	95
4	D*/24 MINIMUM, NOT LESS THAN 3". IF ROCK FOUNDATION, USE D*/12 MINIMUM, NOT LESS THAN 6".	NO COMPACTION REQUIRED	NO COMPACTION REQUIRED	85	NO COMPACTION REQUIRED	NO COMPACTION REQUIRED	85

(A) GRAVELLY SAND
(B) SANDY-SILT
(C) SILTY CLAY

GENERAL NOTES:
ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER DETERMINED BY THE ENGINEER TO BE SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE BETWEEN PIPES OF 1/2 D* OR 12", WHICHEVER IS GREATER, BUT NOT TO EXCEED 36".
CLASS I AND CLASS II REINFORCED CONCRETE PIPE IS USED ONLY FOR SEWERS IN TRENCHES OUTSIDE ROADBED AND STREET LIMITS.

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION			
		RIGID CULVERT INSTALLATION METHODS	
		REINFORCED CONCRETE PIPE CULVERTS	
DATE: _____	EFFECTIVE: 01-01-2002	726.30E	1/2