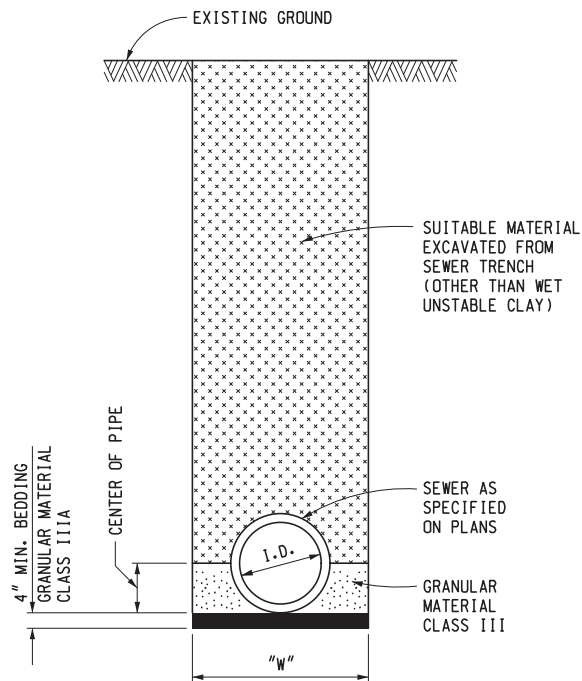
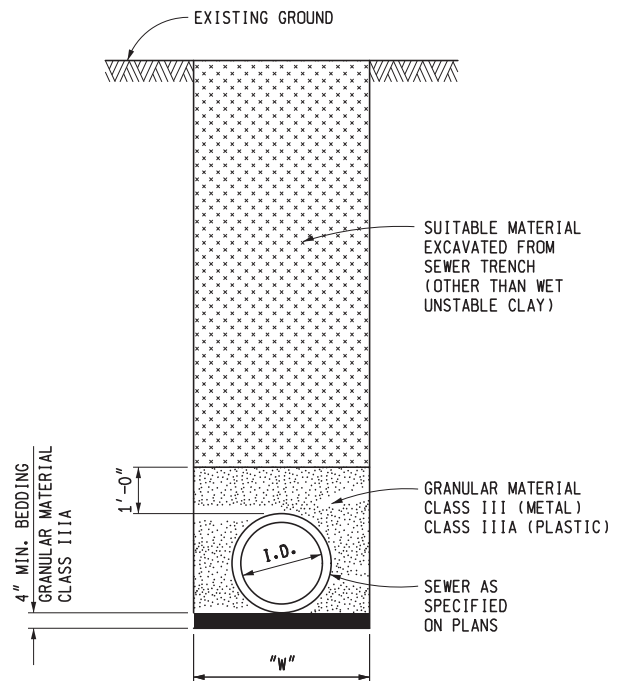




SEWER NOT UNDER ROADBED CONCRETE

NOTE: FOR "W" SEE NOTES ON SHEET 5

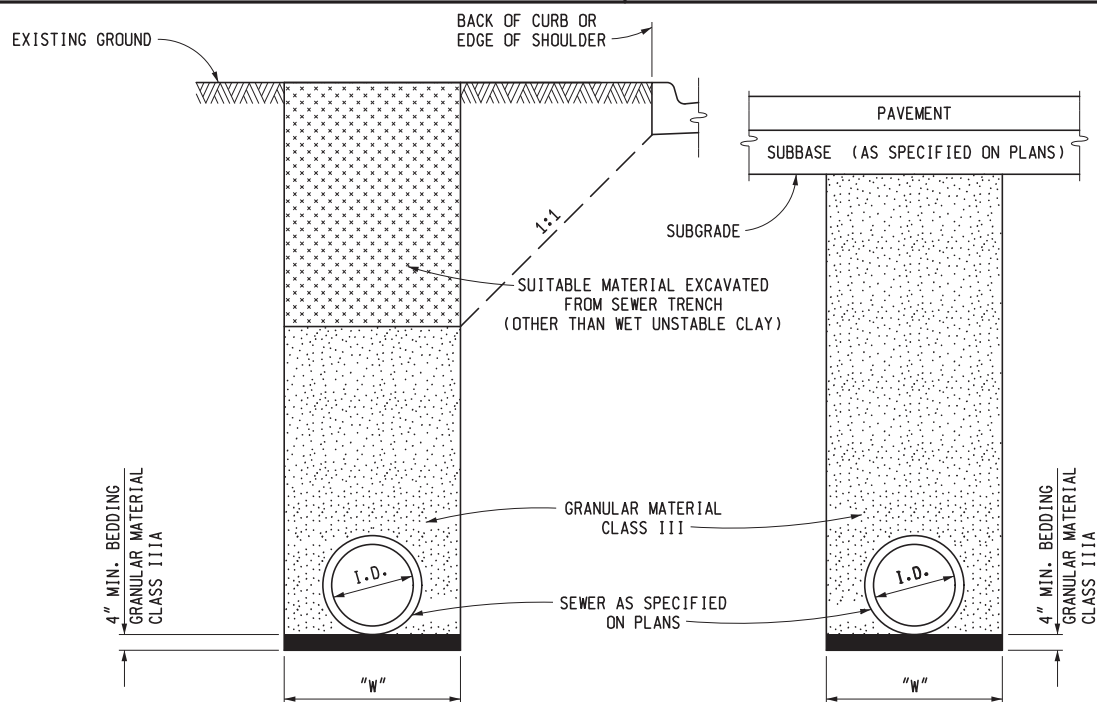
A1



SEWER NOT UNDER ROADBED METAL & PLASTIC

NOTE: FOR "W" SEE NOTES ON SHEET 5

A2



SEWER UNDER ROADBED OR WITHIN INFLUENCE OF ROADBED CONCRETE & METAL PIPE

B1



PREPARED
BY
DESIGN DIVISION

DRAWN BY: B.L.T.

CHECKED BY: W.K.P.

DEPARTMENT DIRECTOR
Kirk T. Steudle

APPROVED BY: Kimberly Avery
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: Bradley C. Wieferich
DIRECTOR, BUREAU OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

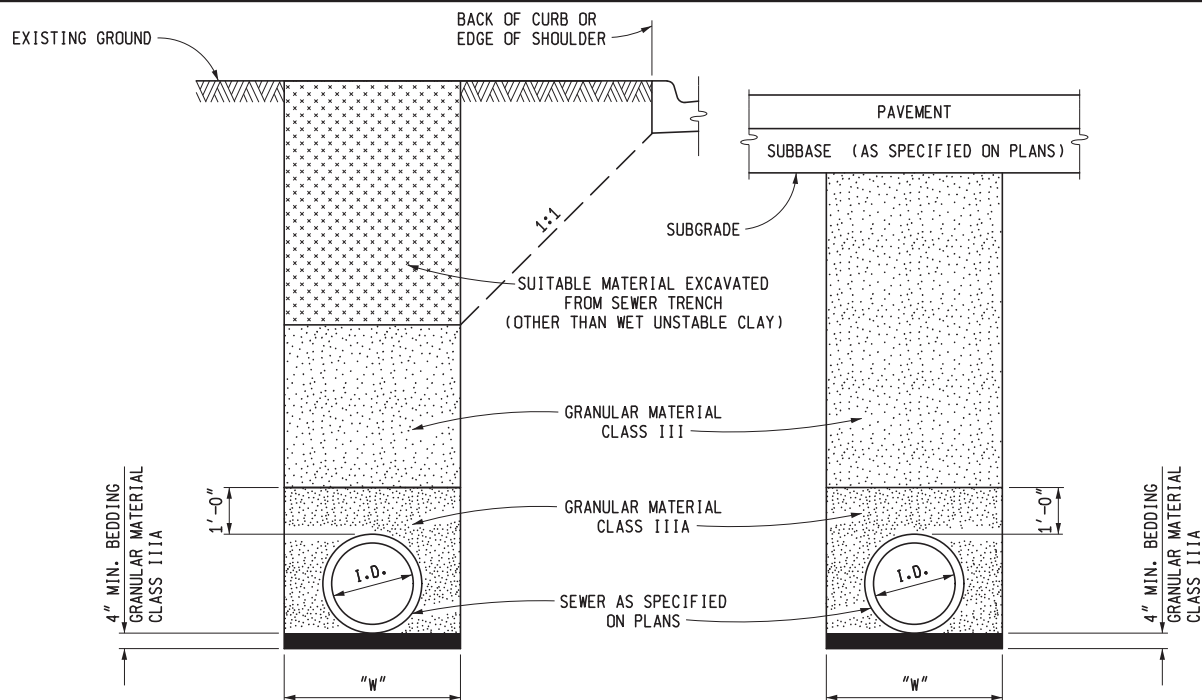
UTILITY TRENCHES

7-25-2017
F.H.W.A. APPROVAL

2-8-2016
PLAN DATE

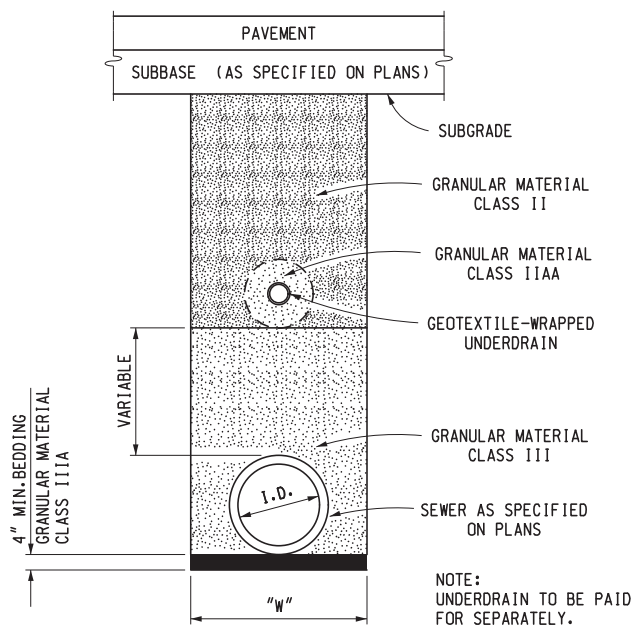
R-83-C

SHEET
1 OF 5



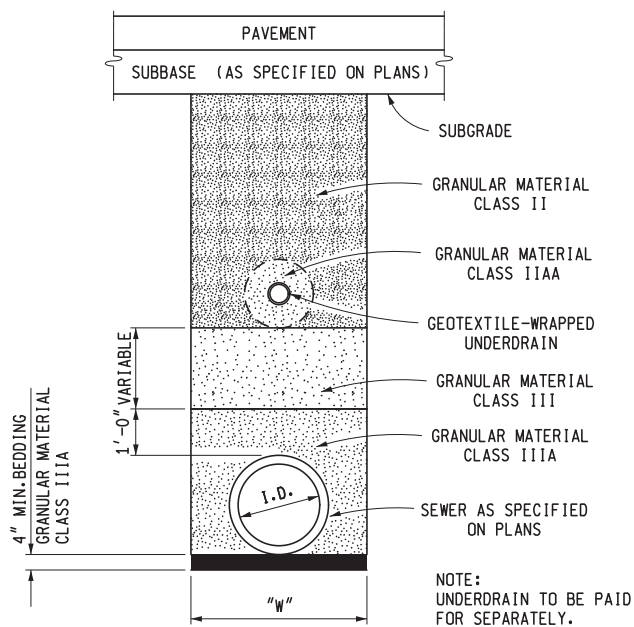
**SEWER UNDER ROADBED OR
WITHIN INFLUENCE OF ROADBED
PLASTIC PIPE**

B2



**SEWER WITH UNDERDRAIN UNDER ROADBED
CONCRETE & METAL PIPE**

C1



**SEWER WITH UNDERDRAIN UNDER ROADBED
PLASTIC PIPE**

C2

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

UTILITY TRENCHES

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R-83-C

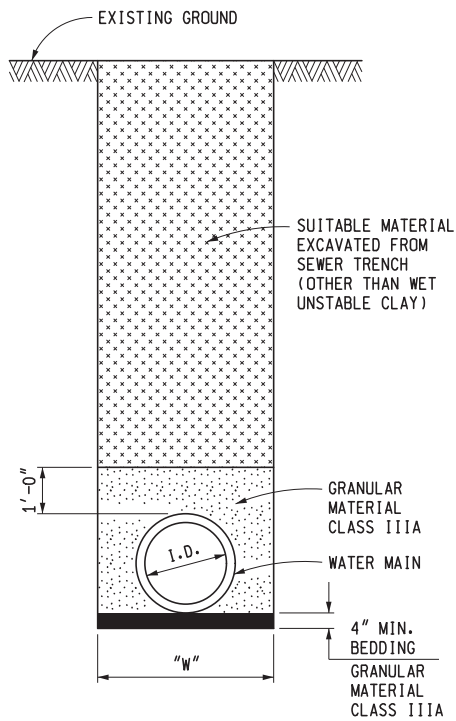
SHEET
2 OF 5



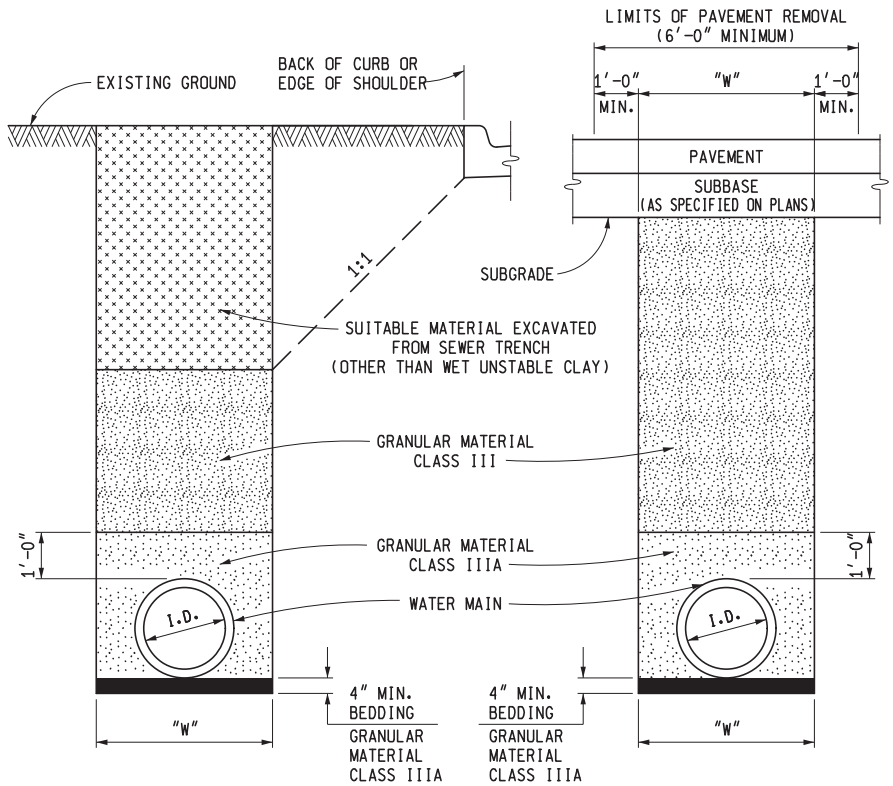
SEWER WITH UNDERDRAIN UNDER ROADBED PLASTIC PIPE (FOR SHALLOW SEWERS)

E

SHEET
3 OF 5

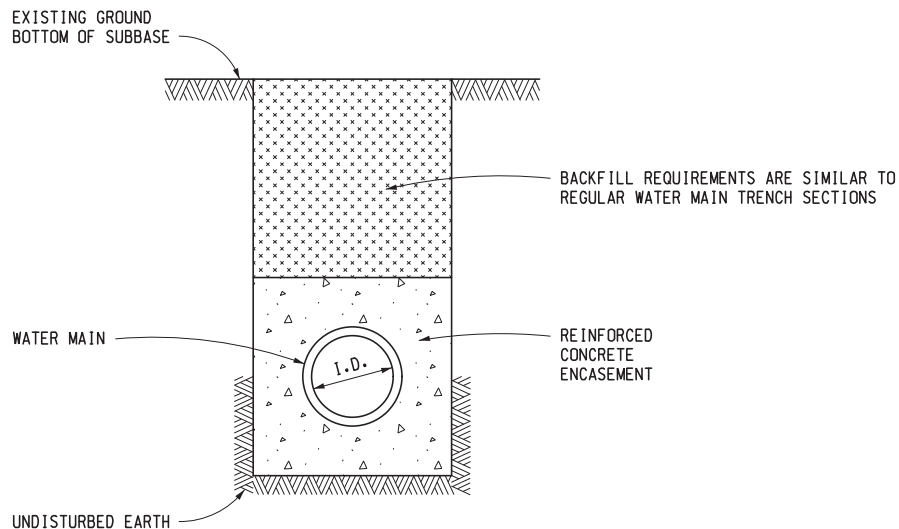


**WATER MAINS
NOT UNDER ROADBED** F



NOTE: WHEN WATER MAIN IS PLACED IN PROPOSED ROADBED AREA, IT SHALL BE BACKFILLED WITH SELECTED EXCAVATION MATERIAL ABOVE FUTURE SUBGRADE TO EXISTING GROUND LINE.

**WATER MAINS UNDER ROADBED
OR WITHIN INFLUENCE OF ROADBED** G



NOTE:
REINFORCEMENT SHALL BE AS SPECIFIED ON PLANS.

WATER MAINS IN REINFORCED CONCRETE ENCASEMENT H

**REQUIRED ENCASEMENT
SIZE FOR RESPECTIVE
PIPE SIZES**

DIAMETER OF PIPE	ENCASEMENT SIZE AND TRENCH WIDTH
6" - 12"	3'-0"
16"	3'-6"
24"	4'-6"
30"	5'-0"
36"	5'-6"
42"	6'-0"
48"	7'-0"
54"	7'-6"
60"	8'-0"
66"	8'-6"
72"	9'-0"

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

UTILITY TRENCHES

7-25-2017
F.H.W.A. APPROVAL

2-8-2016
PLAN DATE

R-83-C

SHEET
4 OF 5

NOTES:

BACKFILLING SHALL BE ACCORDING TO THE STANDARD SPECIFICATION.

SUFFICIENT TRENCH WIDTH SHALL BE PROVIDED TO ALLOW FREE WORKING SPACE AND TO PERMIT COMPACTING THE BACKFILL AROUND THE PIPE.

THE FOLLOWING ARE MINIMUM TRENCH WIDTHS:

I.D. PIPE SIZE (INCHES)	LESS THAN 18	21	24	30	36
"W" TRENCH WIDTH (FEET)	3.0	3.5	4.0	5.0	6.0

I.D. PIPE SIZE (INCHES)	42	48	54	60	66	72
"W" TRENCH WIDTH (FEET)	7.0	8.0	9.5	10.0	10.5	11.0

I.D. PIPE SIZE (INCHES)	78	84	90	96	102	108
"W" TRENCH WIDTH (FEET)	11.5	12.0	12.5	13.0	13.5	14.0

ESTIMATED PAVEMENT REMOVAL WIDTH IS TO BE TRENCH WIDTH "W" PLUS 1'-0" EACH SIDE OF THE TRENCH (6'-0" MINIMUM).

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

UTILITY TRENCHES

7-25-2017
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PLAN DATE

R-83-C

SHEET
5 OF 5