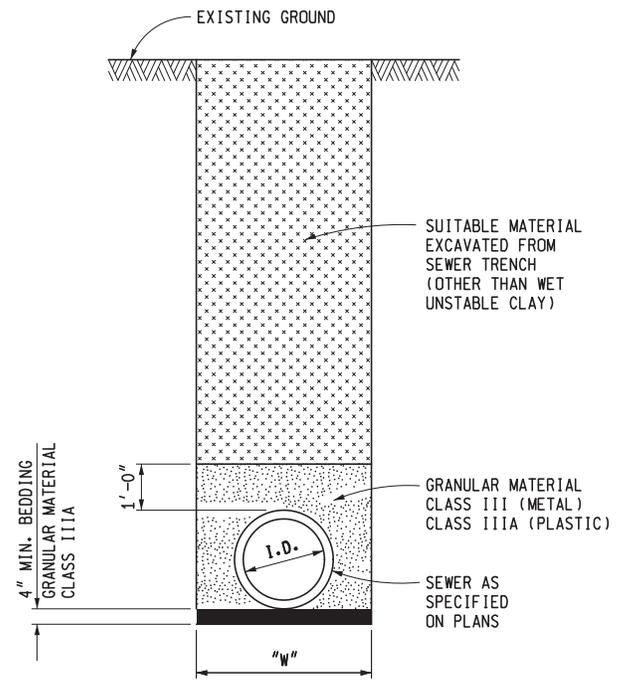


**SEWER NOT UNDER ROADBED
CONCRETE**

NOTE: FOR "W" SEE NOTES ON SHEET 5

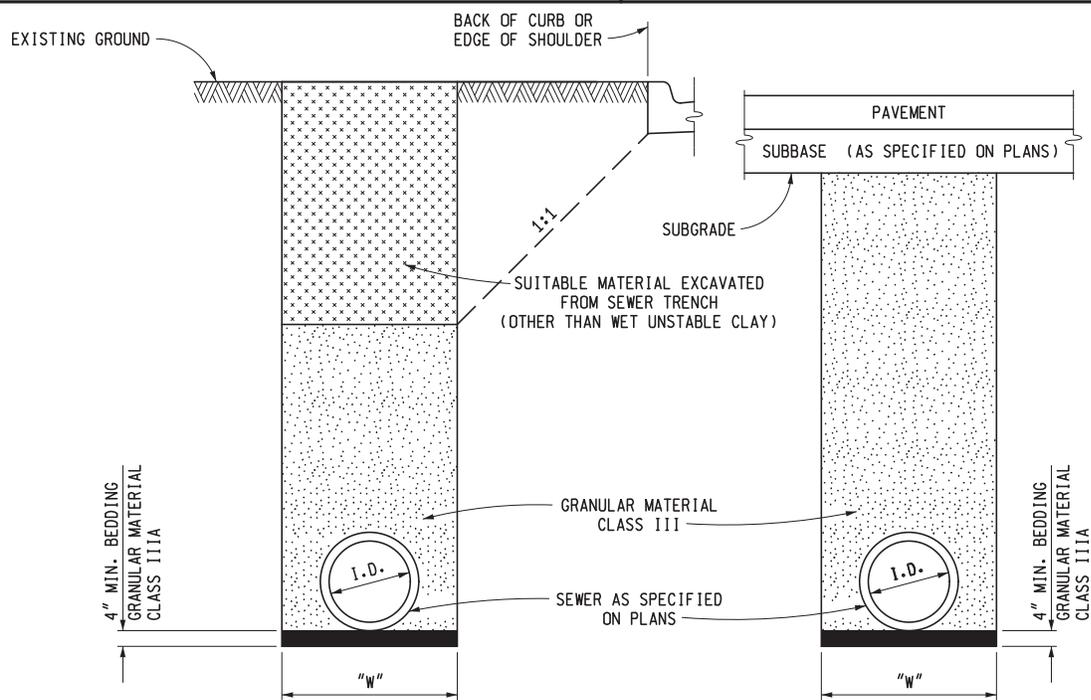
A1



**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

Digitally signed by Kimberly Avery
DN: cn=Kimberly Avery, o=MDOT,
ou=Bureau of Field Services,
email=averyk@michigan.gov, c=US
Date: 2016.12.15 09:45:44 -0500

Digitally signed by Bradley C. Wieferich
DN: cn=Bradley C. Wieferich, o=Michigan
Department of Transportation, ou=Design
Division, email=wieferich@michigan.gov, c=US
Date: 2016.12.15 09:45:44 -0500

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

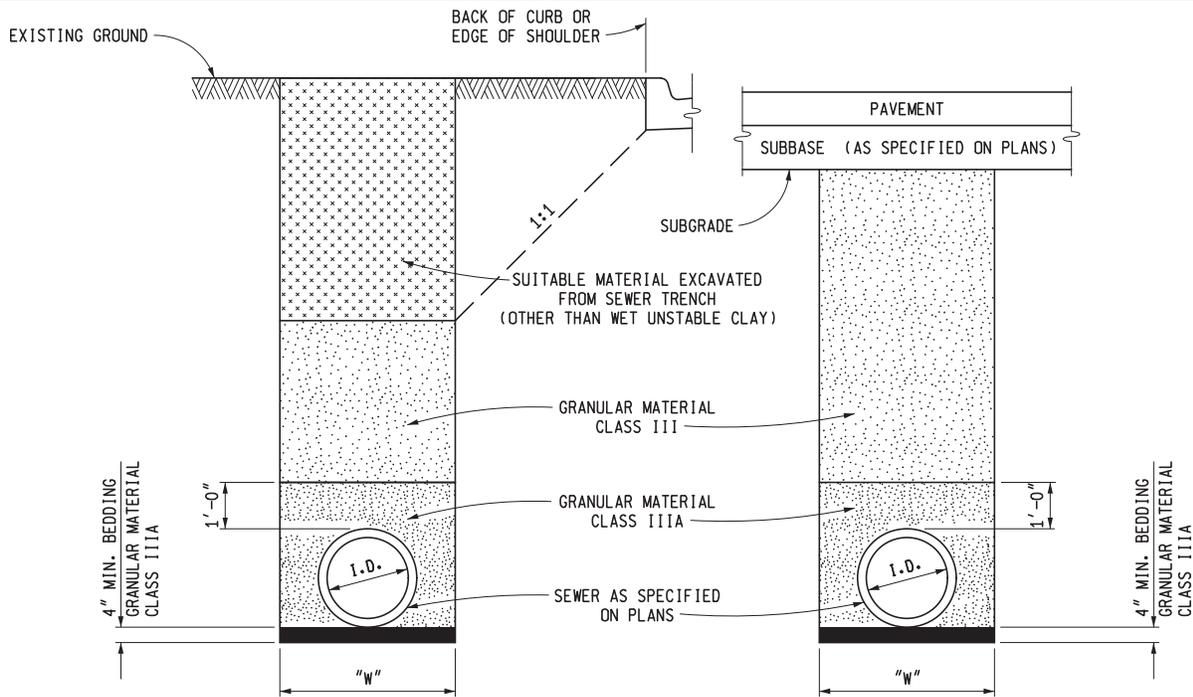
UTILITY TRENCHES

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

2-8-2016
PLAN DATE

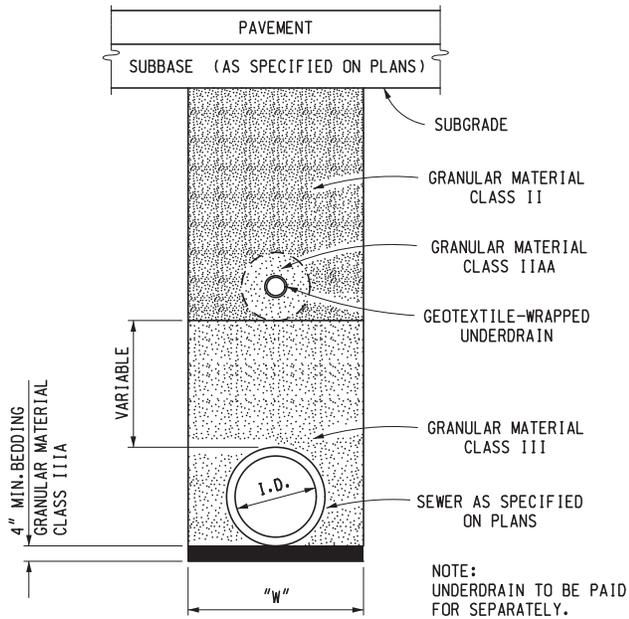
R-83-C

SHEET
1 OF 5



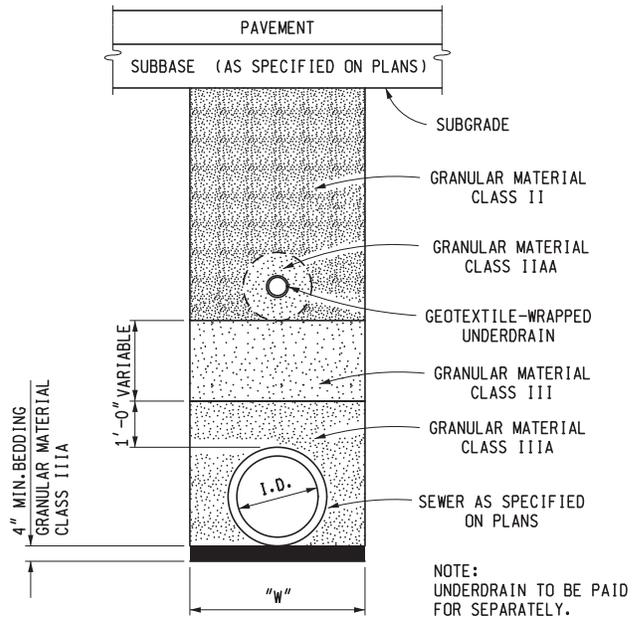
**SEWER UNDER ROADBED OR
WITHIN INFLUENCE OF ROADBED
PLASTIC PIPE**

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

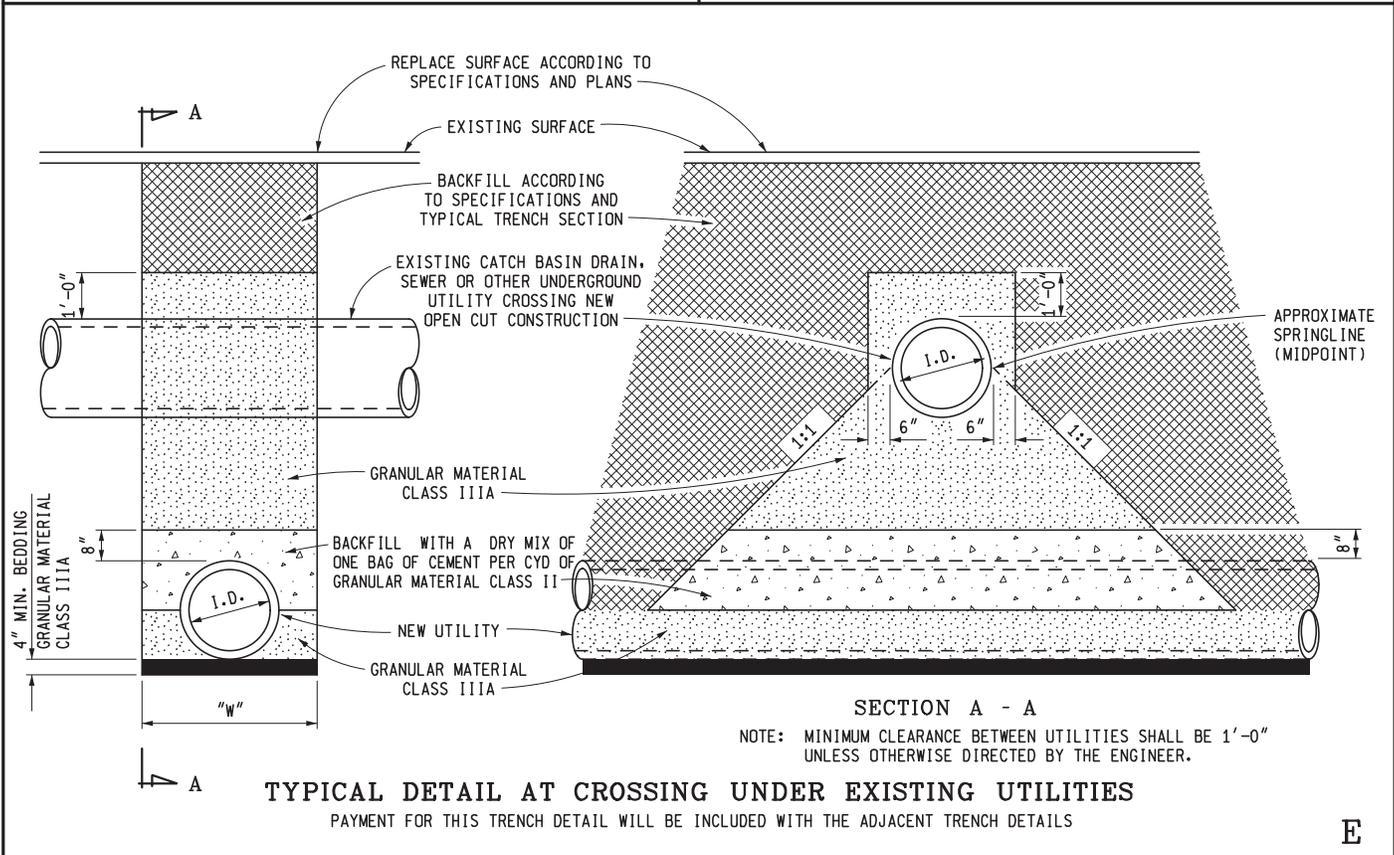
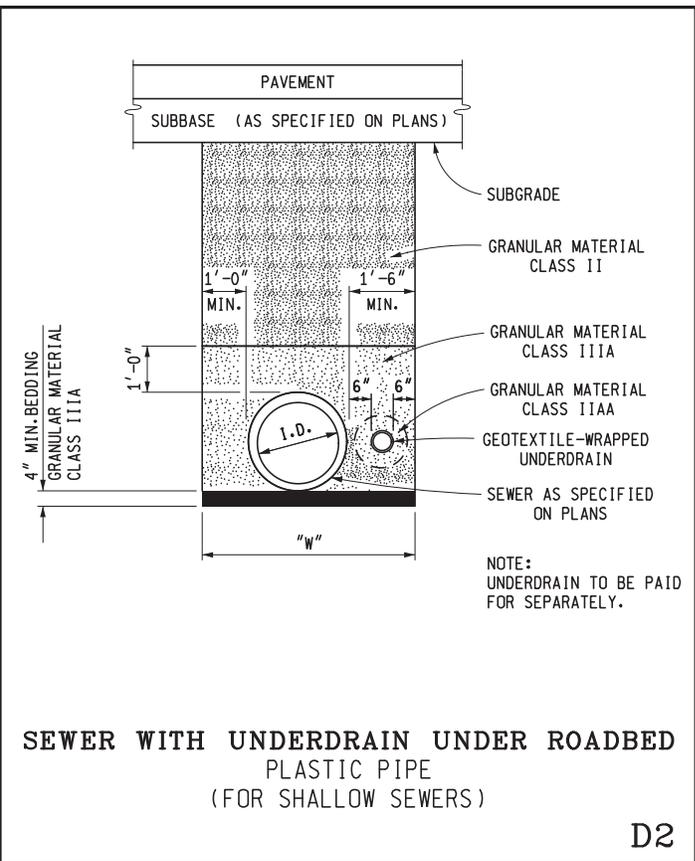
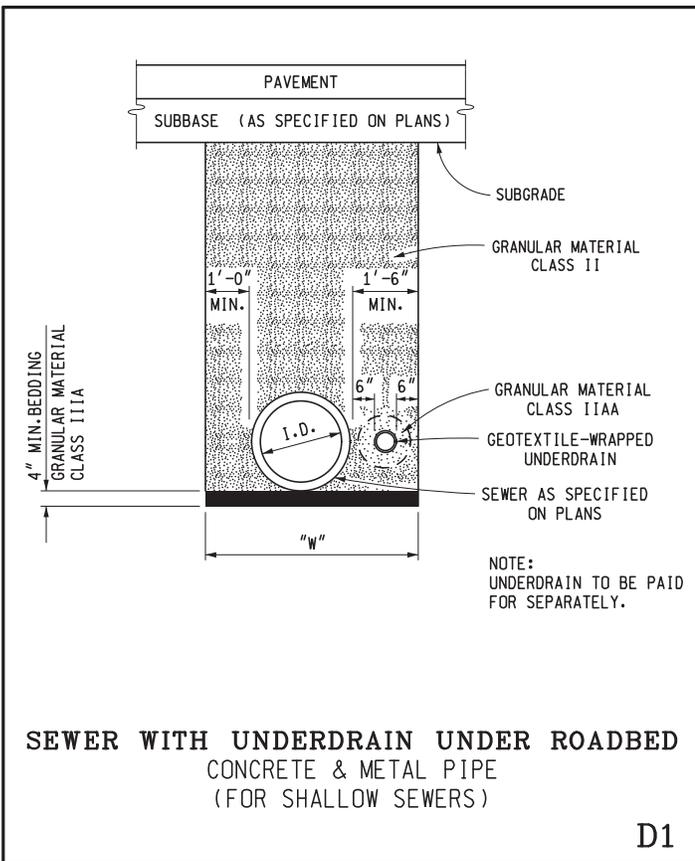
UTILITY TRENCHES

7-25-2017
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2-8-2016
PLAN DATE

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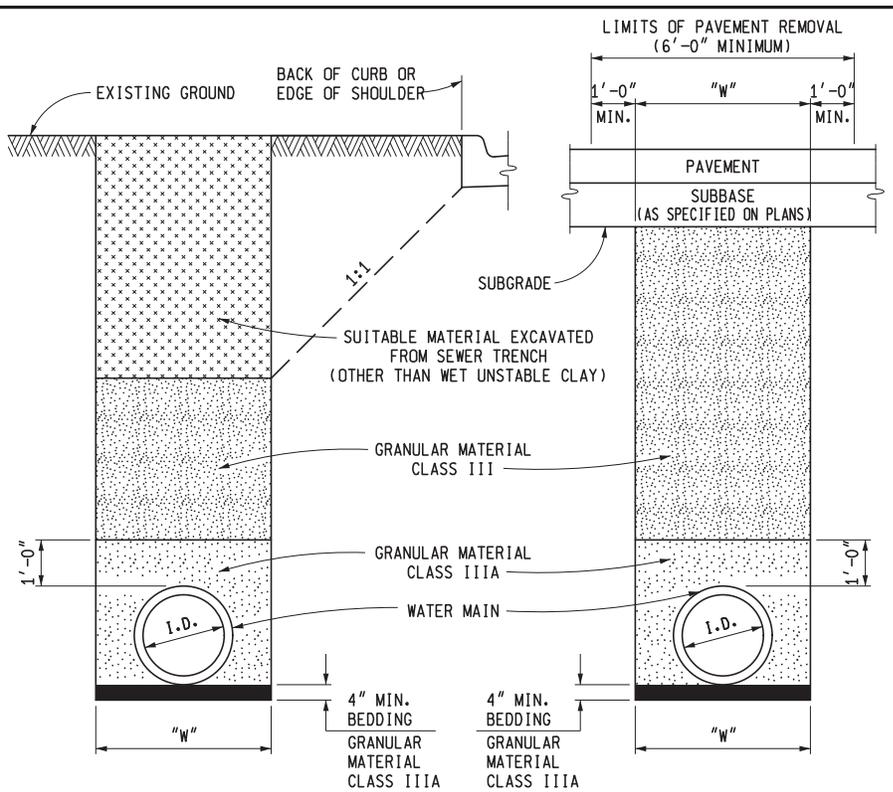
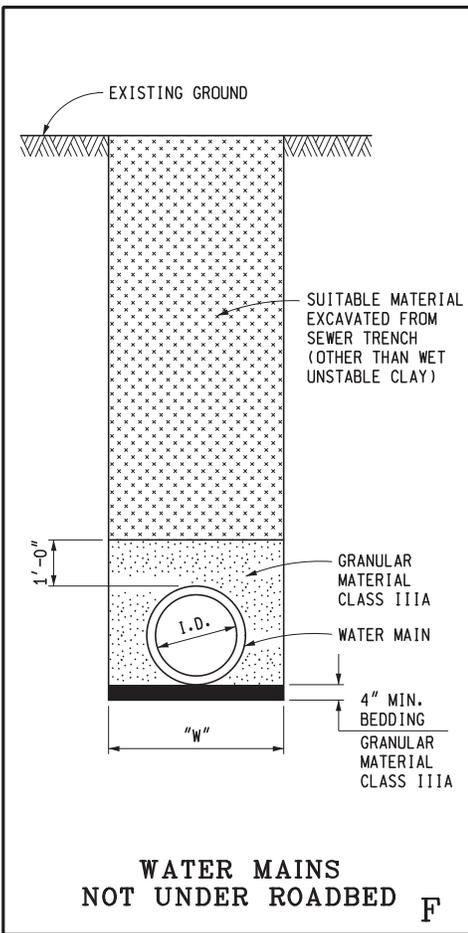
SHEET
2 OF 5



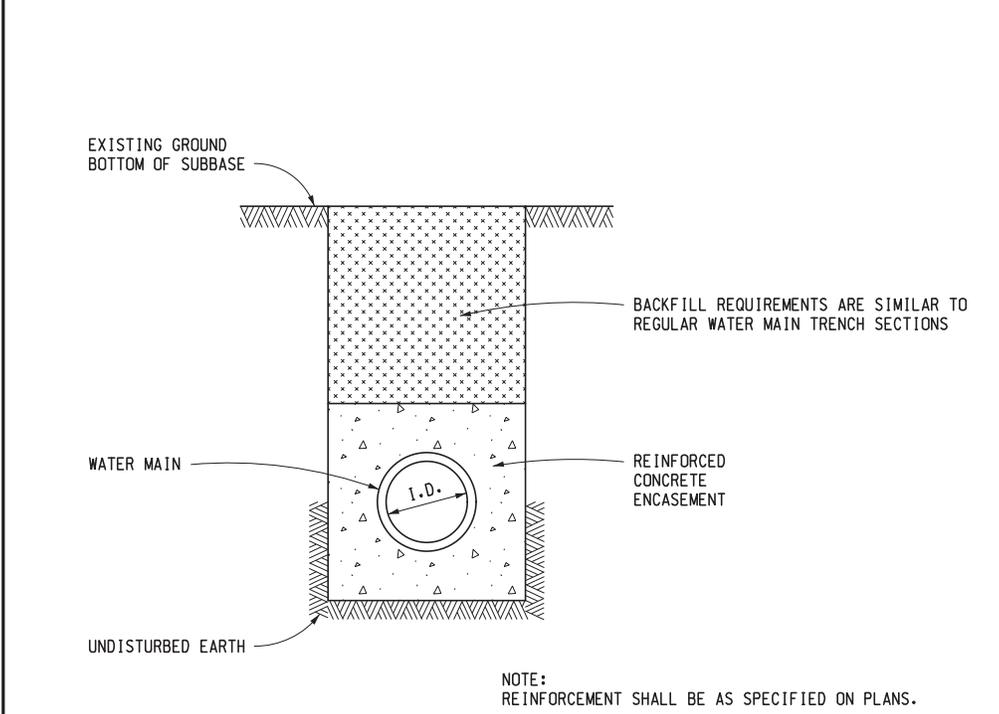
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

UTILITY TRENCHES

| | | | |
|--------------------------------|-----------------------|---------------|-----------------|
| 7-25-2017 F.H.W.A. APPROVAL | 2-8-2016 PLAN DATE | R-83-C | SHEET 3 OF 5 |
|--------------------------------|-----------------------|---------------|-----------------|



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.



NOTE: REINFORCEMENT SHALL BE AS SPECIFIED ON PLANS.

| 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
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UTILITY TRENCHES

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

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