

PROJECT LOCATION:  
CALHOUN COUNTY, MI

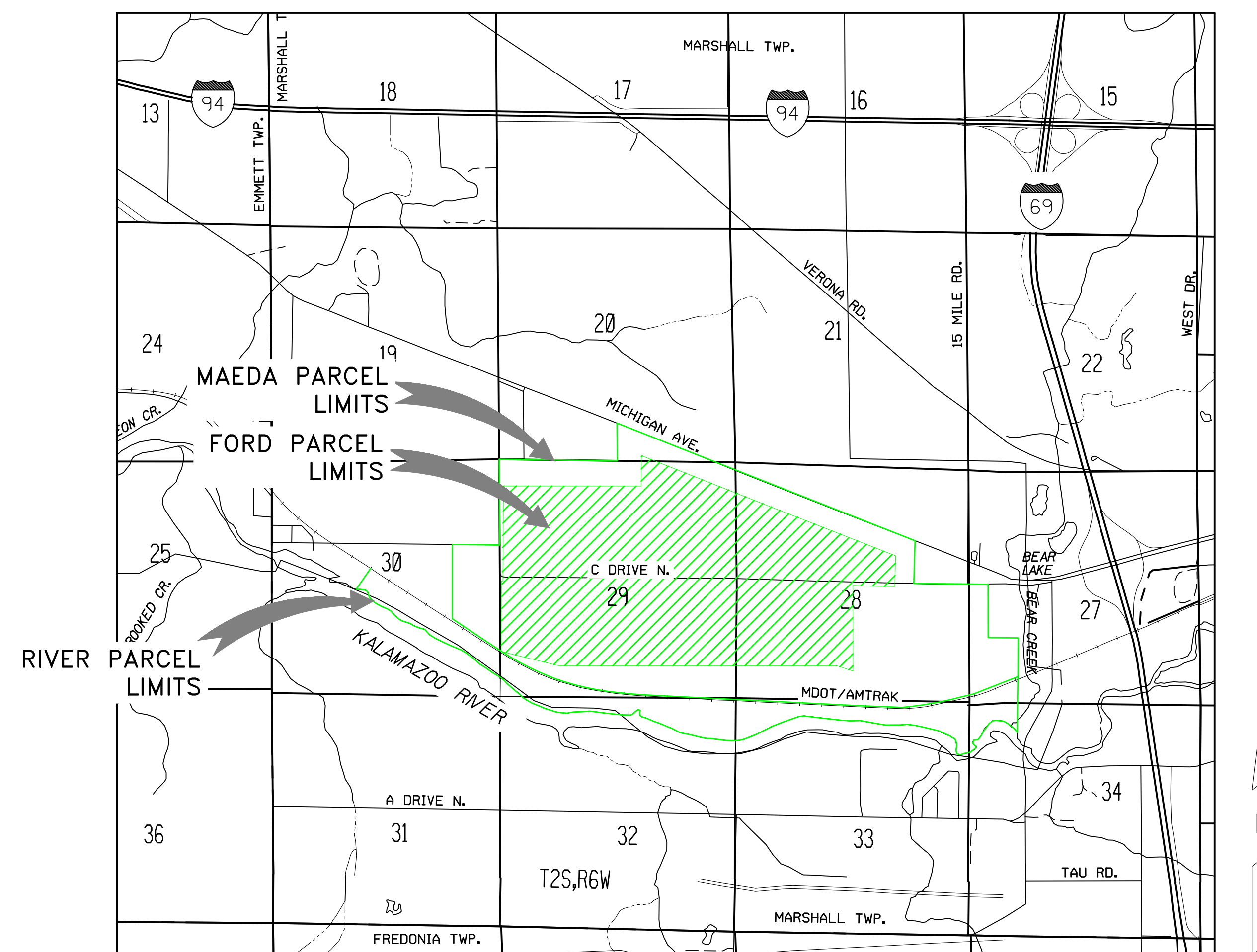
PROJECT LOCATION:  
CALHOUN COUNTY, MI

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BEGINNING AT THE W 1/4 CORNER SECTION 29, T2S, R6W MARSHALL TOWNSHIP, CALHOUN COUNTY, MICHIGAN,

THENCE S 89°58'17" E 33.00 FEET ALONG THE E-W 1/4 LINE OF SAID SECTION 29 TO THE EAST RIGHT-OF-WAY LINE OF 13 MILE ROAD;  
THENCE N 00°22'04" E 213.32 FEET ALONG SAID EAST RIGHT-OF-WAY;  
THENCE S 89°55'40" E 312.20 FEET;  
THENCE N 00°25'58" E 695.21 FEET;  
THENCE S 68°23'07" E 324.571 FEET;  
THENCE S 68°35'27" E 2960.81 FEET;  
THENCE S 01°39'06" W 699.69 FEET;  
THENCE N 88°20'54" W 954.00 FEET ALONG THE E-W 1/4 LINE OF SECTION 28, T2S, R6W, MARSHALL TOWNSHIP, CALHOUN COUNTY, MICHIGAN & THE CENTERLINE OF C DRIVE NORTH (66.00 FEET WIDE) TO THE CENTER OF SAID SECTION 28;  
THENCE S 00°08'50" E 1947.49 FEET ALONG THE N-S 1/4 LINE OF SAID SECTION 28;  
THENCE N 71°18'28" W 397.60 FEET;  
THENCE N 90°00'00" W 6312.27 FEET;  
THENCE N 76°09'31" W 1337.71 FEET;  
THENCE N 00°16'51" E 1599.81 FEET ALONG THE WEST LINE OF SAID SECTION 29 TO THE POINT OF BEGINNING. BEING A PART SECTIONS 20, 28 & 29, T2S, R6W, MARSHALL TOWNSHIP, CALHOUN COUNTY, MICHIGAN AND CONTAINING 731.40 ACRES OF LAND, MORE OR LESS, BEING SUBJECT TO THE RIGHTS OF THE PUBLIC OVER THAT PORTION OF LAND AS OCCUPIED BY C DRIVE NORTH (66.00 FEET WIDE). BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD, IF ANY.


CONTACTS	
LAND OWNER	FORD MOTOR COMPANY 17000 ROTUNDA DR, 1ST FLOOR S. DEARBORN, MI 48120
OWNER	MAEDA
ARCHITECT	SSOE GROUP 1050 WILSHIRE DR. STE. 260, TROY, MI JOHN HEIDT JHEIDT@SSOE.COM
ELECTRIC	CONSUMERS ENERGY BRENDA BRACE BRENDA.BRACE@CMSENERGY.COM
SURFACE WATER MANAGEMENT	CITY OF MARSHALL – STORMWATER MARGUERITE DAVENPORT, PE 269-781-5183 MDAVENPORT@CITYOFMARSHALL.COM
SOIL EROSION CONTROL	CALHOUN COUNTY ROAD DEPARTMENT 13300 15 MILE RD., MARSHALL, MI 269-781-9841
MUNICIPALITY	CITY OF MARSHALL – PUBLIC SERVICES MARGUERITE DAVENPORT, PE 269-781-5183 MDAVENPORT@CITYOFMARSHALL.COM
RAILROAD	AMTRAK – UTILITIES DARRELL HORN & JOSEPH COMDEN 517-750-8547 DARRRELL.HORN@AMTRAK.COM JOSEPH.COMDEN@AMTRAK.COM





LOCATION MAP  
NOT TO SCALE

  
**FORDLAND**

17000 ROTUNDA DR, 1ST FLOOR SOUTH  
DEARBORN, MICHIGAN 48120-1168  
USA




**WADE TRIM**  
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11/10/23	• REVISION 7
11/03/23	• REVISION 6
10/12/23	• REVISION 5
10/05/23	• REVISION 4
09/27/23	• REVISION 3
09/11/23	• REVISION 2
06/28/23	• REVISION 1
06/09/23	• ISSUED FOR PERMITTING
05/23/23	• ISSUED FOR PERMITTING
05/16/23	• PERMANENT STORMWATER SET
DATE	ISSUED FOR

IN CHARGE:	J CIESIELSKI
DRAWN BY:	M TILLEY
DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	E SMITH

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SHEET TITLE

**COVER SHEET**

FORD DWG NO.	REV	#
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SHEET NUMBER

**C100.0**



Know what's below.  
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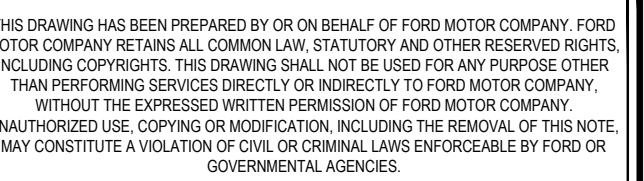








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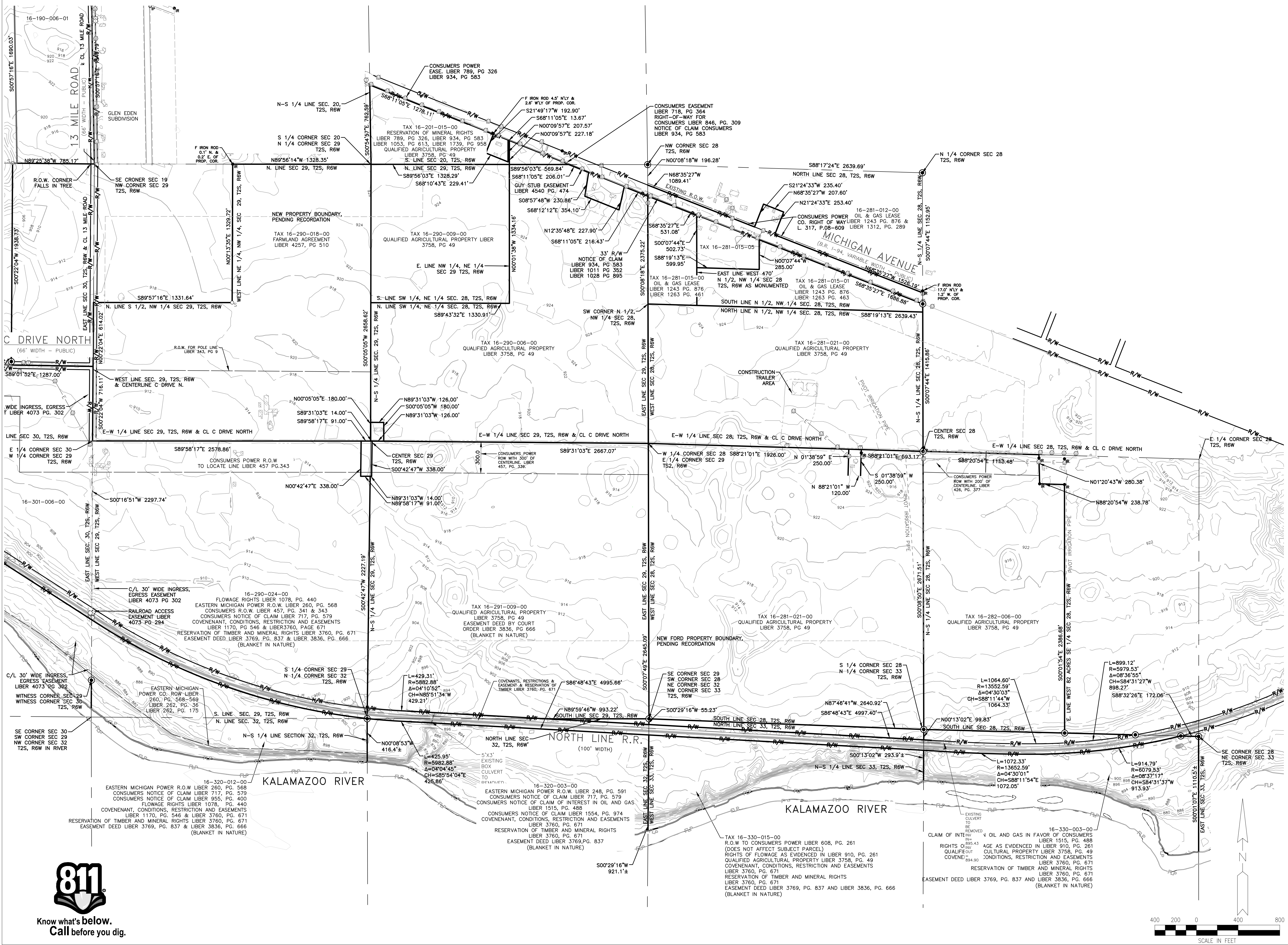
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SHEET NUMBER \_\_\_\_\_

## C1.0

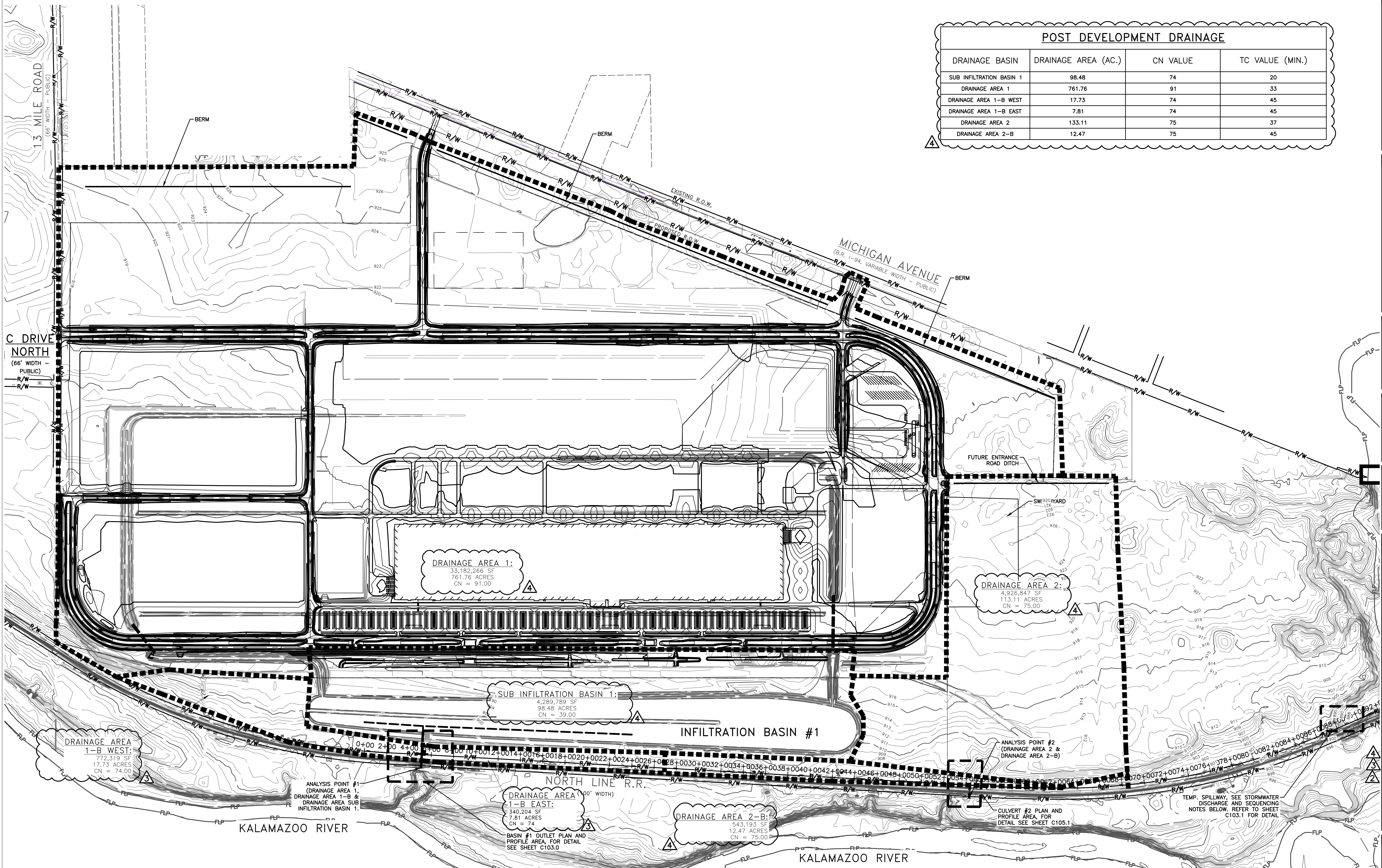
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POST DEVELOPMENT DRAINAGE			
DRAINAGE BASIN	DRAINAGE AREA (AC.)	CN VALUE	TC VALUE (MIN.)
SUB INFILTRATION BASIN 1	98.48	74	20
DRAINAGE AREA 1	761.76	91	33
DRAINAGE AREA 1-B WEST	17.73	74	45
DRAINAGE AREA 1-B EAST	7.81	74	45
DRAINAGE AREA 2	133.11	75	37
DRAINAGE AREA 2-B	12.47	75	45

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PROJECT NUMBER: WAB2004 01H

STATE OF MICHIGAN  
ERICA VINCENT  
SMITH  
ENGINEER  
NO. 45067  
LAND PROFESSIONAL SEAL

10/05/23	REVISION 4
09/27/23	REVISION 3
09/11/23	REVISION 2
06/09/23	ISSUED FOR PERMITTING
05/23/23	ISSUED FOR PERMITTING
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DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	E SMITH

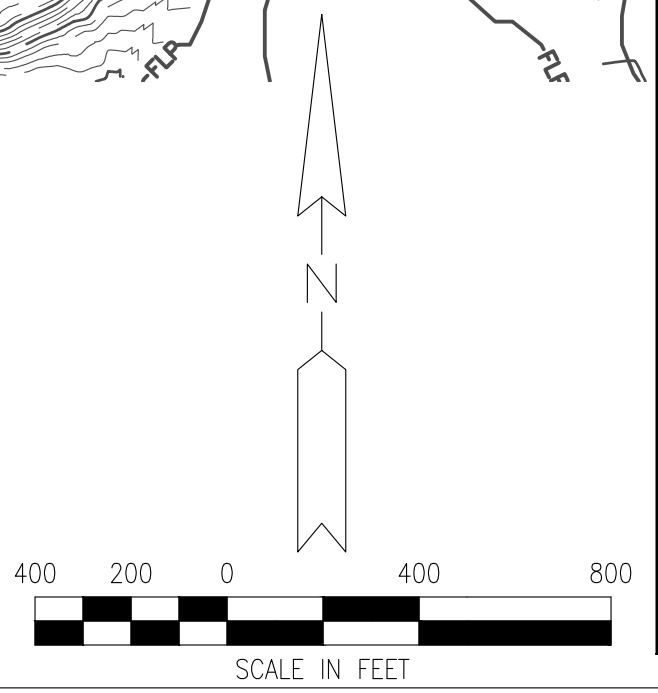
POST CONSTRUCTION DRAINAGE AREAS

FORD DWG NO.	REV. #
SHEET NUMBER	

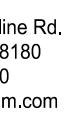
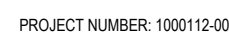
C101.1

- STORMWATER DISCHARGE AND SEQUENCING NOTES:
- THE CONNECTING CHANNEL FROM INFILTRATION BASIN #1 TO #2 IS BEING PROVIDED ONLY DURING THE TEMPORARY GRADING CONDITION TO ALLOW EMERGENCY OVERFLOW BEYOND THE 100-YEAR STORM EVENT TO DISCHARGE TOWARDS BEAR CREEK
  - APPROVAL AND PERMITTING TO REPLACE TWO EXISTING CULVERTS WITHIN THE RAIL ROAD ROW AND INSTALL TWO NEW CULVERTS IS IN PROGRESS TO CONVEY STORMWATER RUNOFF TOWARDS KALAMAZOO RIVER.
  - ONCE CONSTRUCTION OF THE NEW CULVERTS #1 AND #2 IS COMPLETED, INSPECTED, AND APPROVED, THE TEMPORARY CONNECTING CHANNEL WILL BE REMOVED.
  - UPON REMOVAL OF THE TEMPORARY CONNECTING CHANNEL, AN EMERGENCY SPILLWAY AT INFILTRATION BASIN #1 WILL BE PROVIDED TO ALLOW FOR OVERFLOW DISCHARGE TO CULVERT #2. SEE PLANS FOR SPILLWAY LOCATION.
  - UPON REMOVAL OF THE TEMPORARY CONNECTING CHANNEL A SPILLWAY AT INFILTRATION BASIN #2 WILL BE PROVIDED TO CONVEY OVERFLOW DISCHARGE TO CULVERT #2. THE TEMPORARY SPILLWAY AT INFILTRATION BASIN #2 WILL BE REMOVED AT THIS STAGE AND INFILTRATION BASIN #2 SHALL NO LONGER DISCHARGE STORMWATER RUNOFF TOWARDS BEAR CREEK.

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2

SHEET TITLE

FORD DWG NO.

SHEET NUMBER

## C101.2







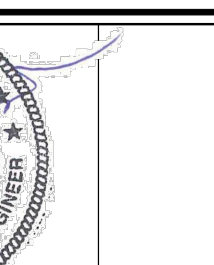




PROJECT NUMBER: 1000112-00



PROJECT NUMBER: WAB2004 01H

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DATE	ISSUED FOR

IN CHARGE:	J CIESIELSKI
DRAWN BY:	M TILLEY
DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	F SMITH

SHEET TITLE

OVERALL SITE PLAN

FORD DWG NO. \_\_\_\_\_ REV. # \_\_\_\_\_

SHEET NUMBER

C102.0

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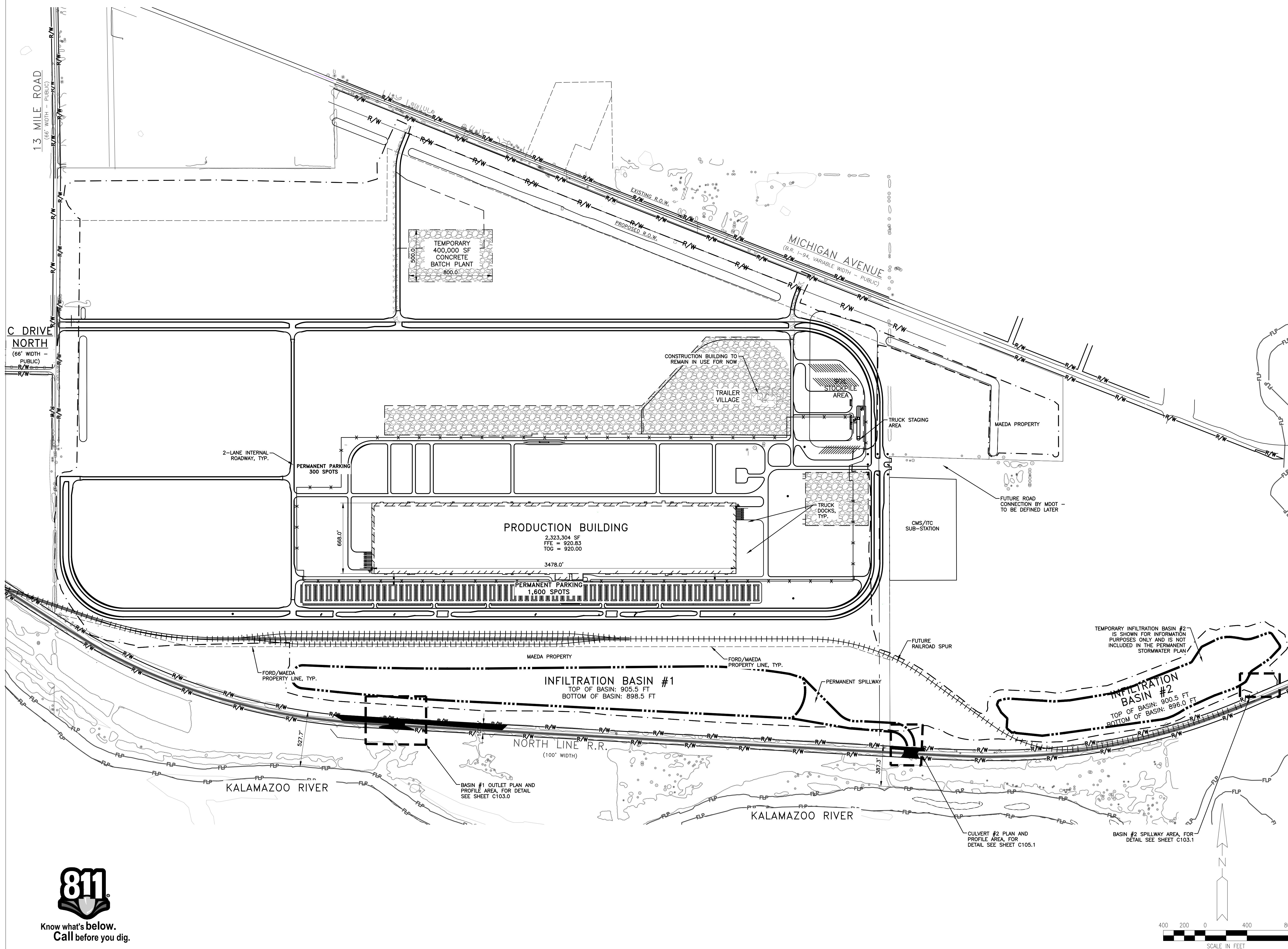
https://doi.org/10.1016/j.cad.2020.102001

JULIE MIKAYLA

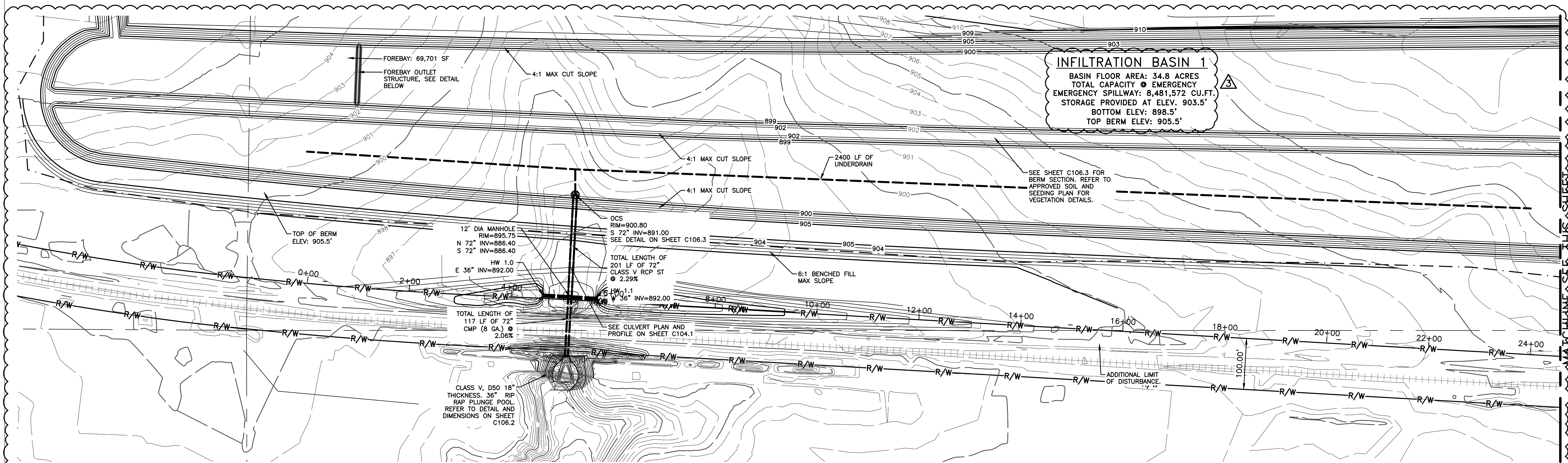
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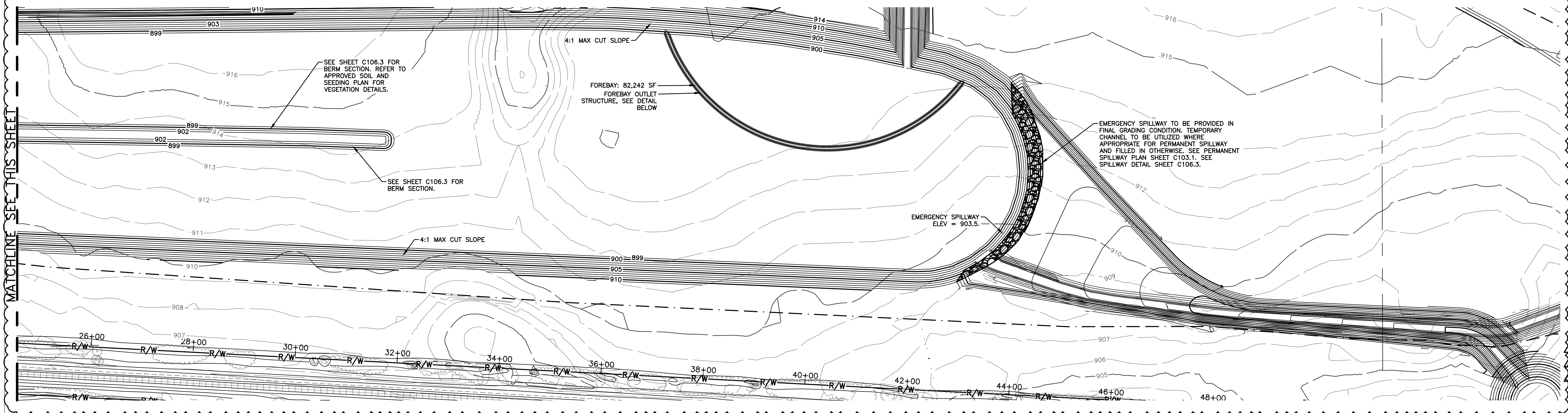
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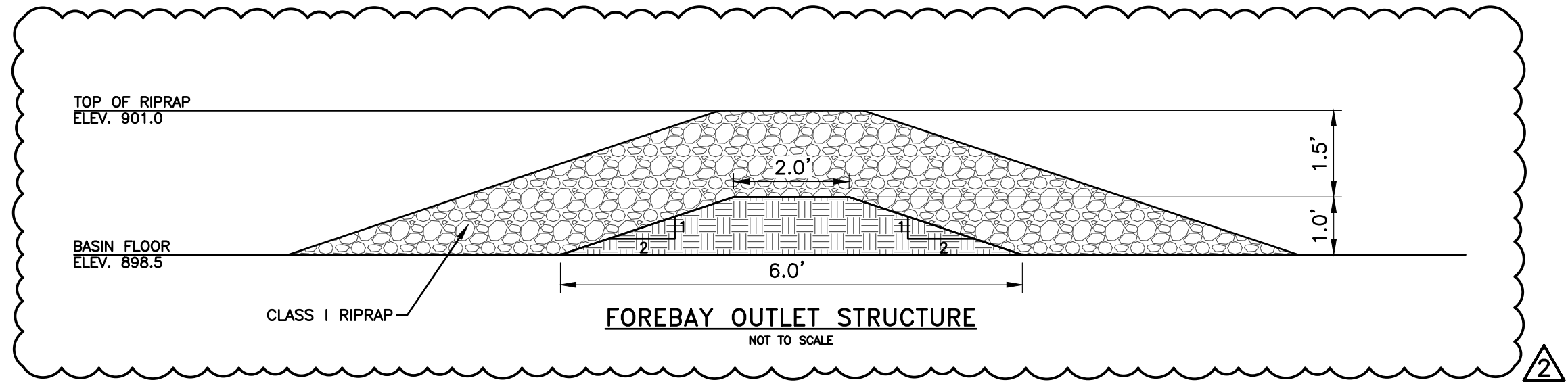




INFILTRATION BASIN #1 WEST SIDE



INFILTRATION BASIN #1 EAST SIDE



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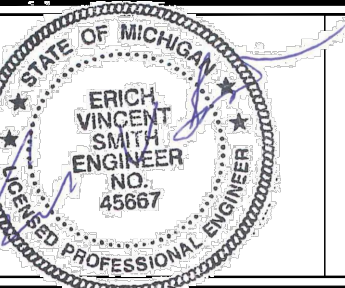
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PROJECT NUMBER: WAB2004 01H



09/27/23	• REVISION 3
09/11/23	• REVISION 2
06/28/23	• REVISION 1
06/09/23	• ISSUED FOR PERMITTING
05/23/23	• ISSUED FOR PERMITTING
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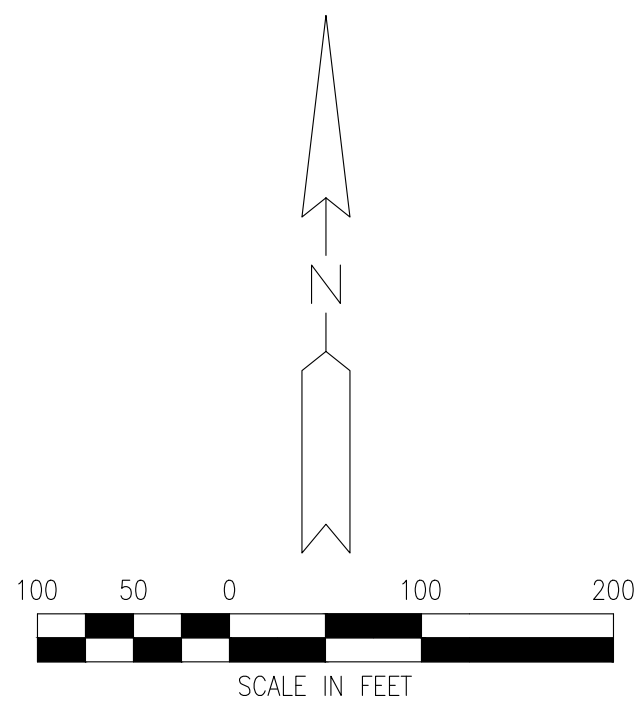
SHEET TITLE

**INFILTRATION BASIN 1 PERMANENT CONDITION PLAN VIEW**

FORD DWG NO. REV. #

SHEET NUMBER

**C103.0**







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6	11/03/23	• REVISION 6
5	09/27/23	• REVISION 3
2	9/11/23	• REVISION 2
1	06/28/23	• REVISION 1
	06/09/23	• ISSUED FOR PERMITTING
	05/23/23	• ISSUED FOR PERMITTING
	05/16/23	• PERMANENT STORMWATER SET
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SHEET TITLE

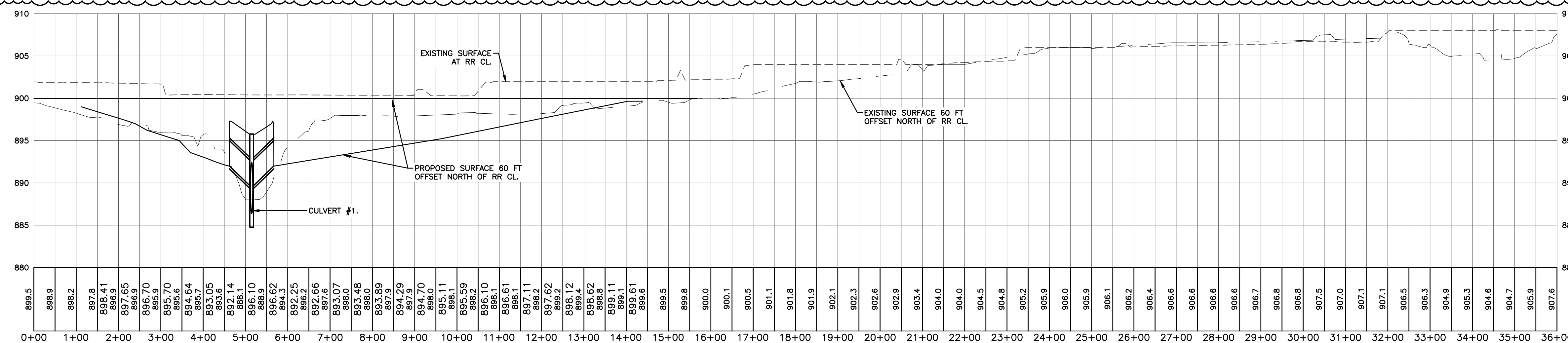
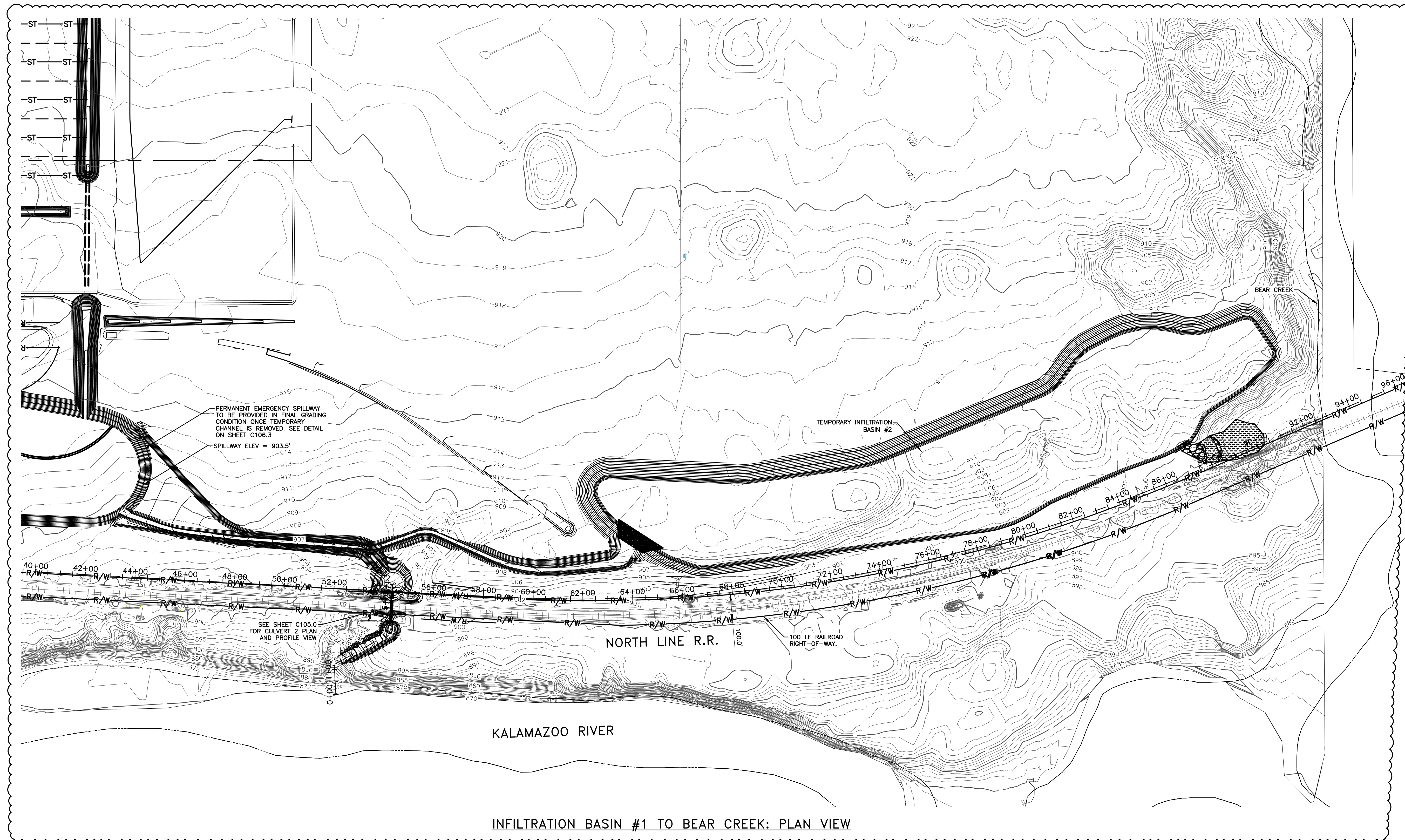
**INFILTRATION BASIN #1 TO BEAR CREEK**

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QUEST NUMBER:

**0100 1**

### C103.1



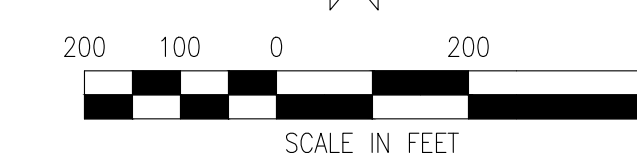
PROFILE OF RAILROAD COMPARED TO PROFILE PARALLEL TO RAILROAD AT CULVERT #2:

STA. 0+00 TO STA. 36+00

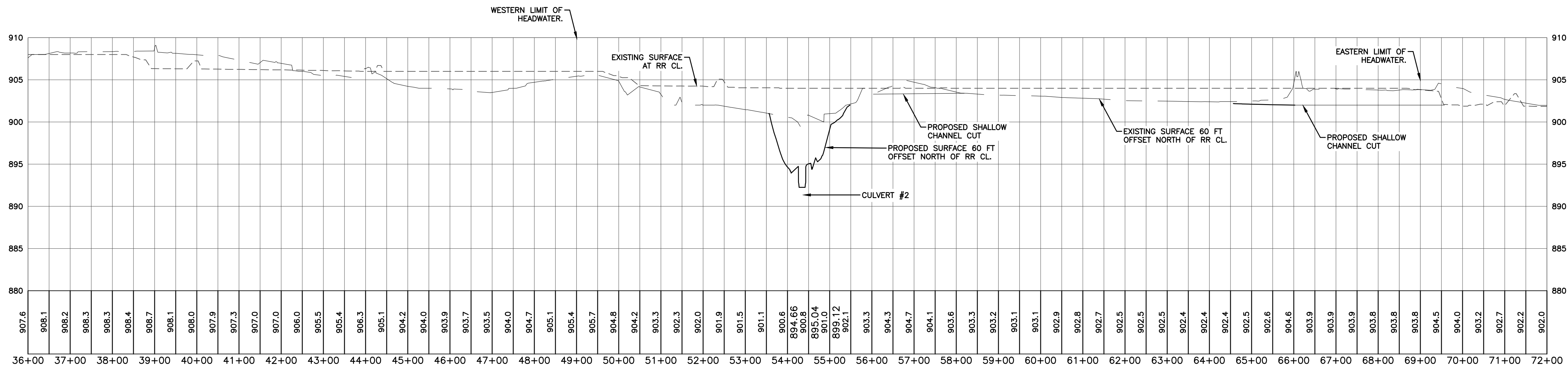
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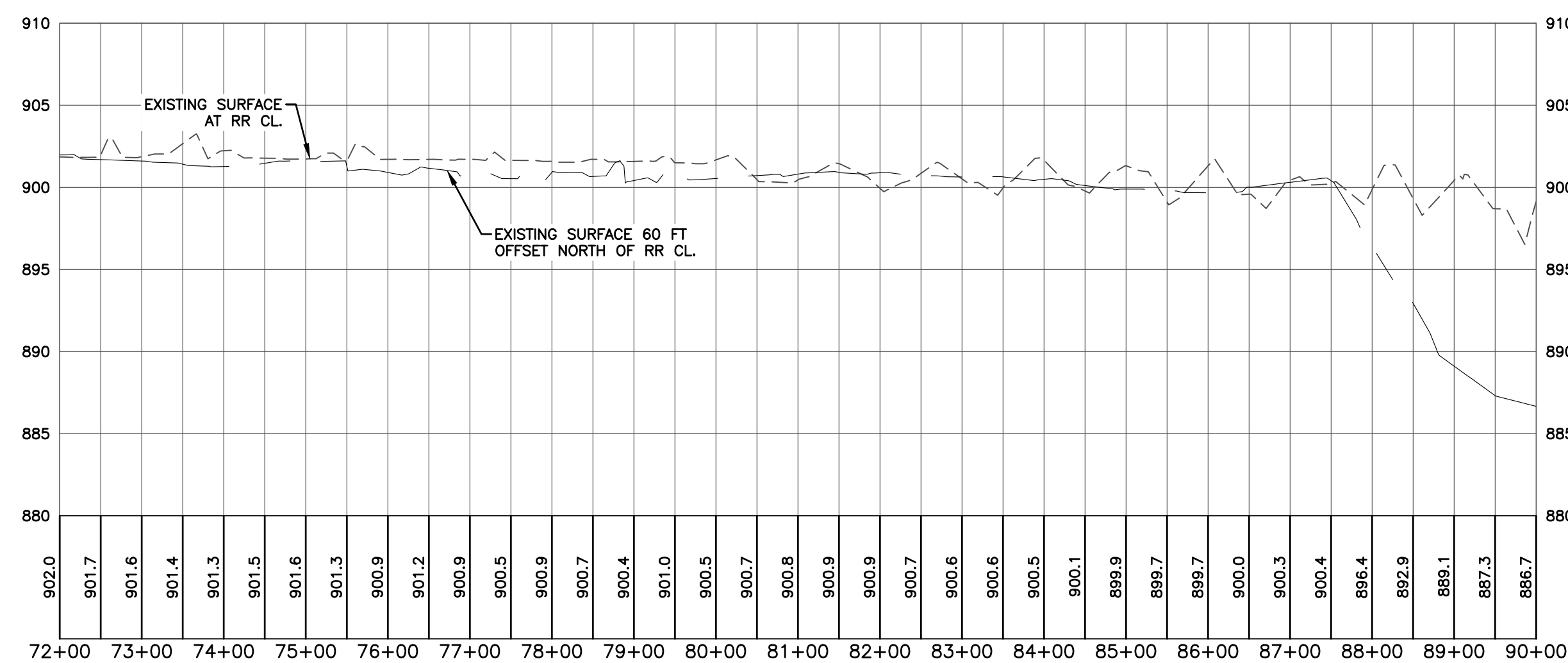






PROFILE OF RAILROAD COMPARED TO PROFILE PARALLEL TO RAILROAD AT CULVERT #2:  
STA. 36+00 TO STA. 72+00

SCALE: HOR: 1"=200' VERT: 1"=20'



PROFILE OF RAILROAD COMPARED TO PROFILE PARALLEL TO RAILROAD AT CULVERT #2:  
STA. 72+00 TO STA. 90+00

SCALE: HOR: 1"=200' VERT: 1"=20'



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11/10/23	• REVISION 7
11/03/23	• REVISION 6
09/27/23	• REVISION 3
9/11/23	• REVISION 2
06/28/23	• REVISION 1
06/09/23	• ISSUED FOR PERMITTING
05/23/23	• ISSUED FOR PERMITTING
05/18/23	• PERMANENT STORMWATER SET
DATE	ISSUED FOR

IN CHARGE:	J CIESIELSKI
DRAWN BY:	M TILLEY
DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	E SMITH

SHEET TITLE	<b>RAILROAD PROFILE 1</b>
FORD DWG NO.	REV. #
SHEET NUMBER	<b>C103.1A</b>



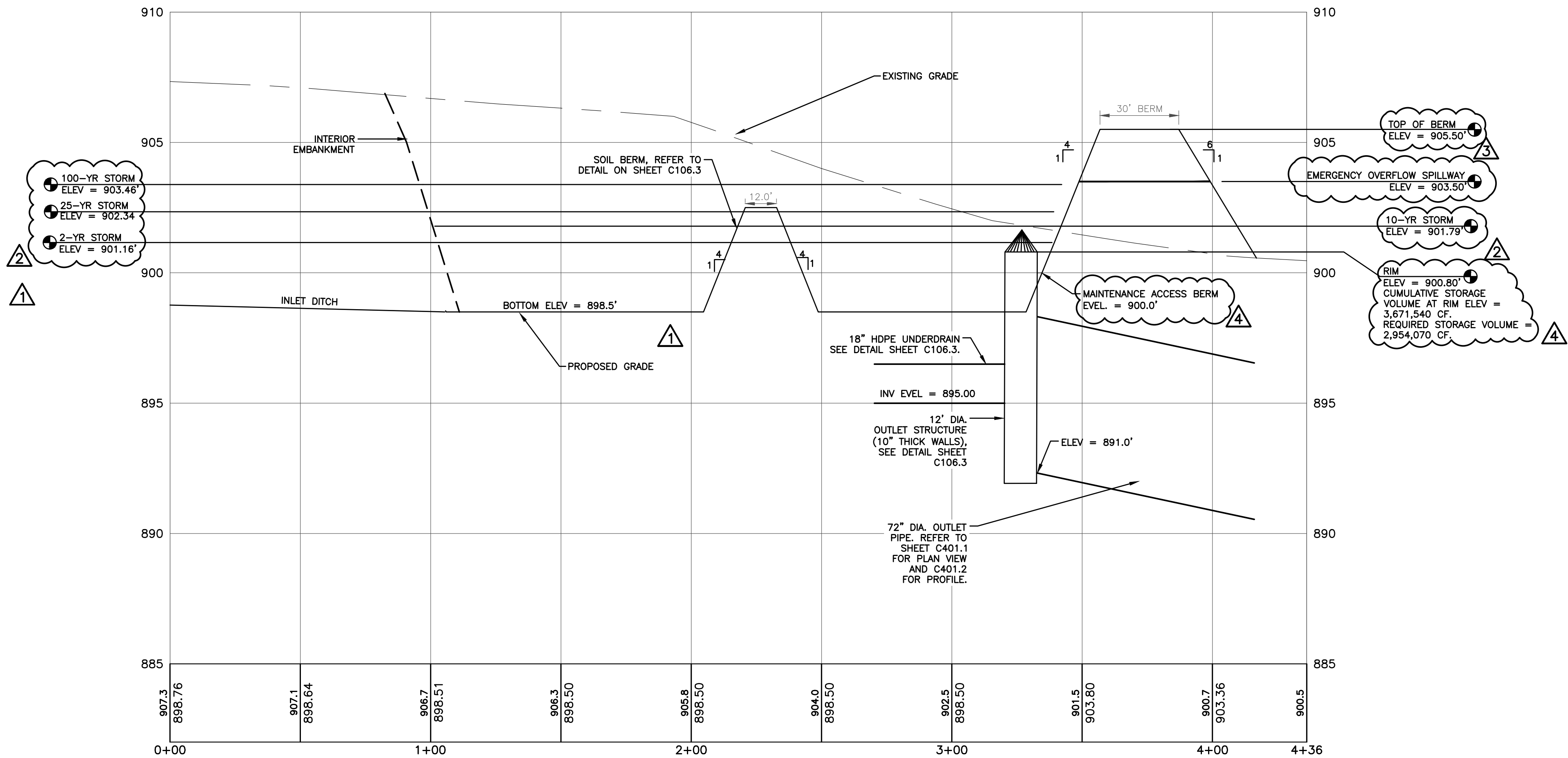
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INFILTRATION BASIN – CONTOURS AND VOLUMES				
CONTOUR (FT)	DEPTH (FT)	AREA (SF)	INCREMENTAL VOLUME (CF)	CUMULATIVE VOLUME (CF)
898.50	0.0	1,512,370	0	0
899.00	0.5	1,547,431	764,950.25	764,950.25
900.00	1.5	1,618,709	1,583,070.00	2,348,020.25
901.00	2.5	1,690,091	1,654,400.00	4,002,420.25
902.00	3.5	1,761,575	1,725,833.00	5,728,253.25
903.00	4.5	1,862,035	1,811,805.00	7,540,058.25
904.00	5.5	1,904,021	1,883,028.00	9,423,086.25
905.00	6.5	1,946,087	1,925,054.00	11,348,140.25
905.50	7.0	1,966,758	978,211.25	12,326,351.50

STORM EVENT OUTFLOW DATA			
STORM EVENT (YR)	VOLUME (CF)	BASIN OUTFLOW (CFS)	CULVERT 1 OUTFLOW (CFS)
2	4,278,553.53	22.43	23.32
10	5,365,828.32	102.16	105.81
25	6,344,266.95	199.86	206.38
100	8,406,251.13	453.97	448.17

GENERAL NOTES:  
DRAINAGE AREA 1–B EAST AND DRAINAGE AREA 1–B WEST ARE INCLUDED IN THE CULVERT 1 OUTFLOW, BUT ARE EXCLUDED FROM THE BASIN OUTFLOW.



INFILTRATION BASIN #1 SECTION VIEW  
HORZ:1"=30', VERT:1"=2'

INFILTRATION BASIN MIX		
BOTANICAL NAME	COMMON NAMEP	LS LBS/ACRE
GRASSES		
BOUTELOUA HIRSUTA	BLUE GRAMA GRASS	1
FESTUCA OVINA	SHEEPS FESCUE	1
HELICTOTRICHON SEMPERVIRENS	BLUE OAT GRASS	0.50
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1.50
SPOROBOLUS HETEROLEPIS	PRARIE DROPSEED	2

SOIL PREPARATION: ROUGH GRADED  
DISTRIBUTION TYPE: BROADCAST SEEDING  
COVER CROP: AVENA SATIVA – COMMON OATS AT 30 LBS/ACRE

SEEDING NOTE:  
1) INFILTRATION BASIN #1 BOTTOM AND SIDE SLOPES TO BE HYDROSEEDED WITH PROGRANICS AND SPECIFIED SEED MIX.  
2) AT THE DISCRETION AND DIRECTION OF THE CITY OF MARSHALL, THE SLOPE STABILIZATION SEED MIX APPLICATION MAY BE REQUIRED AS AN ALTERNATIVE TO THE INFILTRATION BASIN SEED MIX. APPLICATION AND PERFORMANCE STANDARD SPECIFICATIONS FOR SEEDING SHALL APPLY.

SLOPE STABILIZATION MIX		
BOTANICAL NAME	COMMON NAMEP	LS LBS/ACRE
GRASSES, SEDGES & RUSHES		
ANDROPOGON GERARDII	BIG BLUESTEM	12.00
BOUTELOUA CURTIPENDULA	SIDE–OATS GRAMA	12.00
CAREX MOLESTA	FIELD OVAL SEDGE	1.0
CAREX VULPINOIDEA	FOX SEDGE	1.0
DESCHAMPSIA CESPITOSA	TUFTED HAIRGRASS	4.0
ELYMUS CANADENSIS	CANADA WILD RYE	16.0
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	16.0
JUNCUS TENUIS	PATH RUSH	5.0
CHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1.0
SORGHASTRUM NUTANS	INDIAN GRASS	4.0
SPOROBOLUS CRYPTANDRUS	SAND DROPSEED	4.0
TEMPORARY GRASS COVER		
LOLIUM MULTIFLORUM	ANNUAL RYEGRASS	128.0
AVENA SATIVA	SEED OATS	512.0

TOTAL SEEDING RATE: 49.69 LBS PER ACRE  
6.69 LBS GRASSES – 40 LBS NURSE CROP  
71 NATIVE SEEDS PER SQ FT.

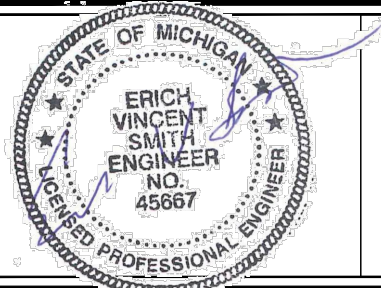
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PROJECT NUMBER: 100012.001

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11/03/23	• REVISION 6
10/05/23	• REVISION 4
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09/11/23	• REVISION 2
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SHEET TITLE  
INFILTRATION BASIN 1 SECTION VIEW

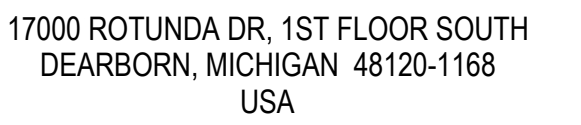
FORD DWG NO. REV. #  
SHEET NUMBER  
C103.2



Know what's below.  
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1. WETLAND BOUNDARY LINE CALLED OUT ON PLANS SHOWS AREA DELINEATED BY BURNS & McDONNELL REPORT PROJECT NO. 134707 DATED OCTOBER 8, 2021.
2. TEMPORARY INFILTRATION SPILLWAY IS SHOWN FOR EGLE REVIEW ONLY. REFER TO GRADING PLANS FOR RESTORATION OF TEMPORARY BASIN.



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ET TITLE

### TEMPORARY INFILTRATION BASIN 2 ENLARGED VIEW (BY SME)

DWG NO. \_\_\_\_\_ REV. # \_\_\_\_\_

PROJECT NUMBER \_\_\_\_\_

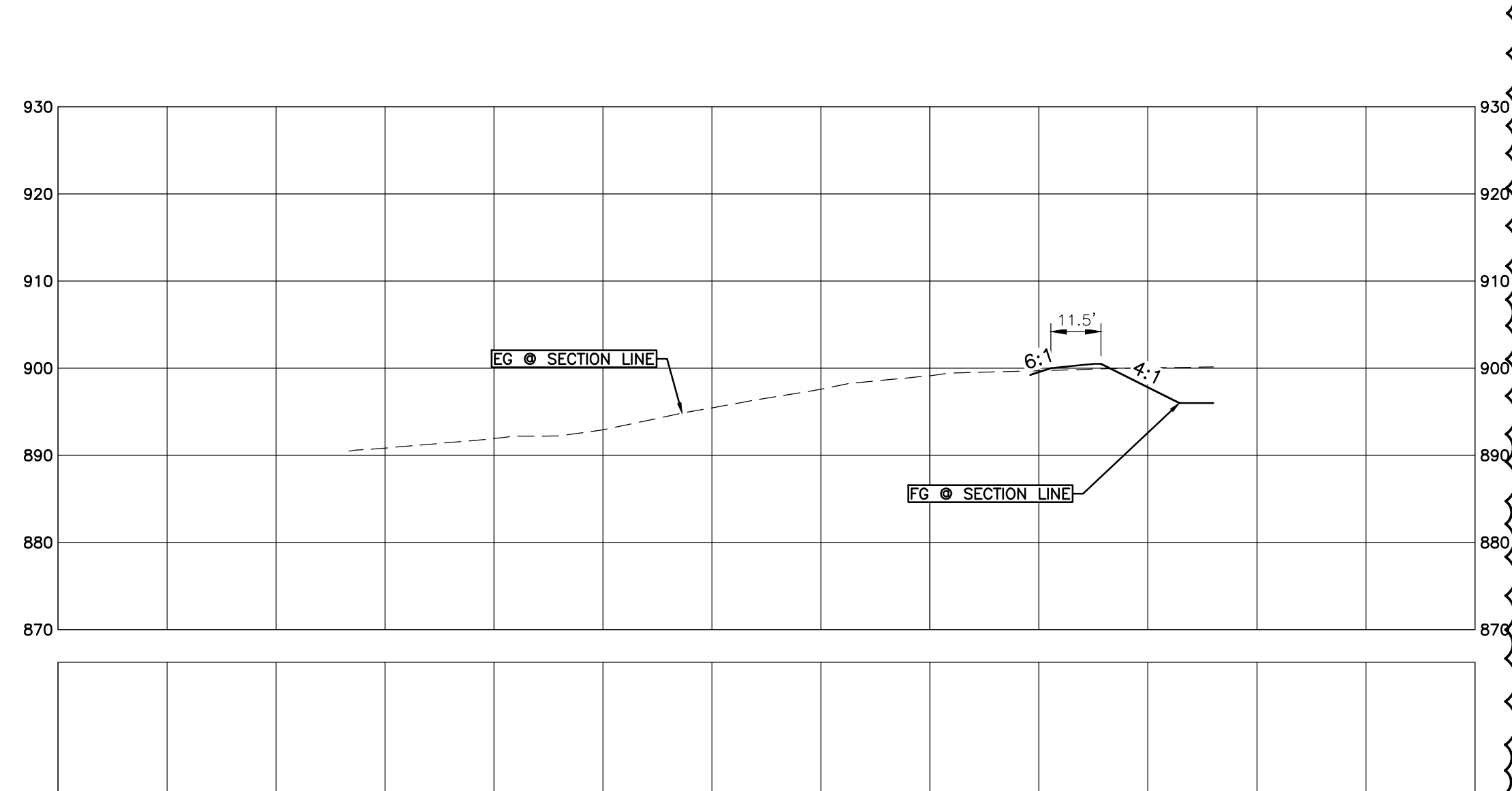
**C103 3**

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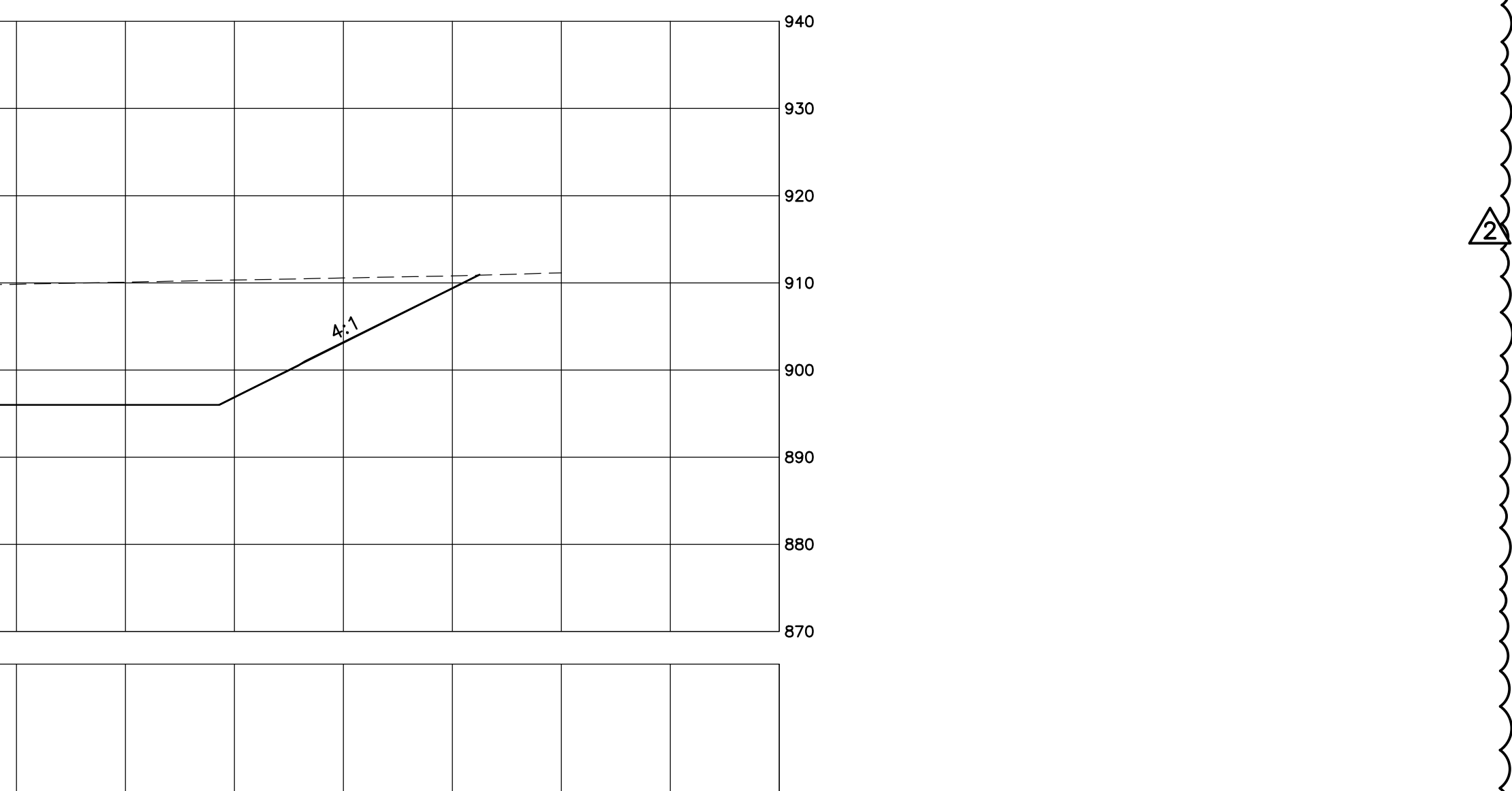




INFILTRATION BASIN #2 SECTION VIEW: A-A  
HORIZ:1"=30', VERT:1"=2'



INFILTRATION BASIN #2 SECTION VIEW: B-B  
HORZ:1"=30', VERT:1"=2'



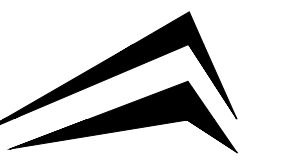
INFILTRATION BASIN #2 SECTION VIEW: C-C  
HORZ:1"=30', VERT:1"=2'



Know what's **below**.  
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SCALE IN FEET



# FORDLAND

17000 ROTUNDA DR, 1ST FLOOR SOUTH  
DEARBORN, MICHIGAN 48120-1168  
USA



BUILDING SITE CODE:  
FORD PROJECT NUMBER:



PROJECT NUMBER:	WAB2004 01H
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[illegible]

IN CHARGE:	J CIESIELSKI
DRAWN BY:	M TILLEY
DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	E SMITH

SHEET TITLE	
<b>TEMPORARY INFILTRATION BASIN SECTION VIEWS</b>	
FORD DWG NO.	REV. <b>#</b>
SHEET NUMBER	

**C104.0**

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Border version 2014.0





PROJECT NUMBER: 1000112-00



PROJECT NUMBER: WAB2004 01H



NORTH LINE R.R.  
(100' WIDTH)

CLASS V, D50 18" THICKNESS.  
36" RIP RAP PLUNGE POOL.  
REFER TO DETAIL AND  
DIMENSIONS ON SHEET C106.2

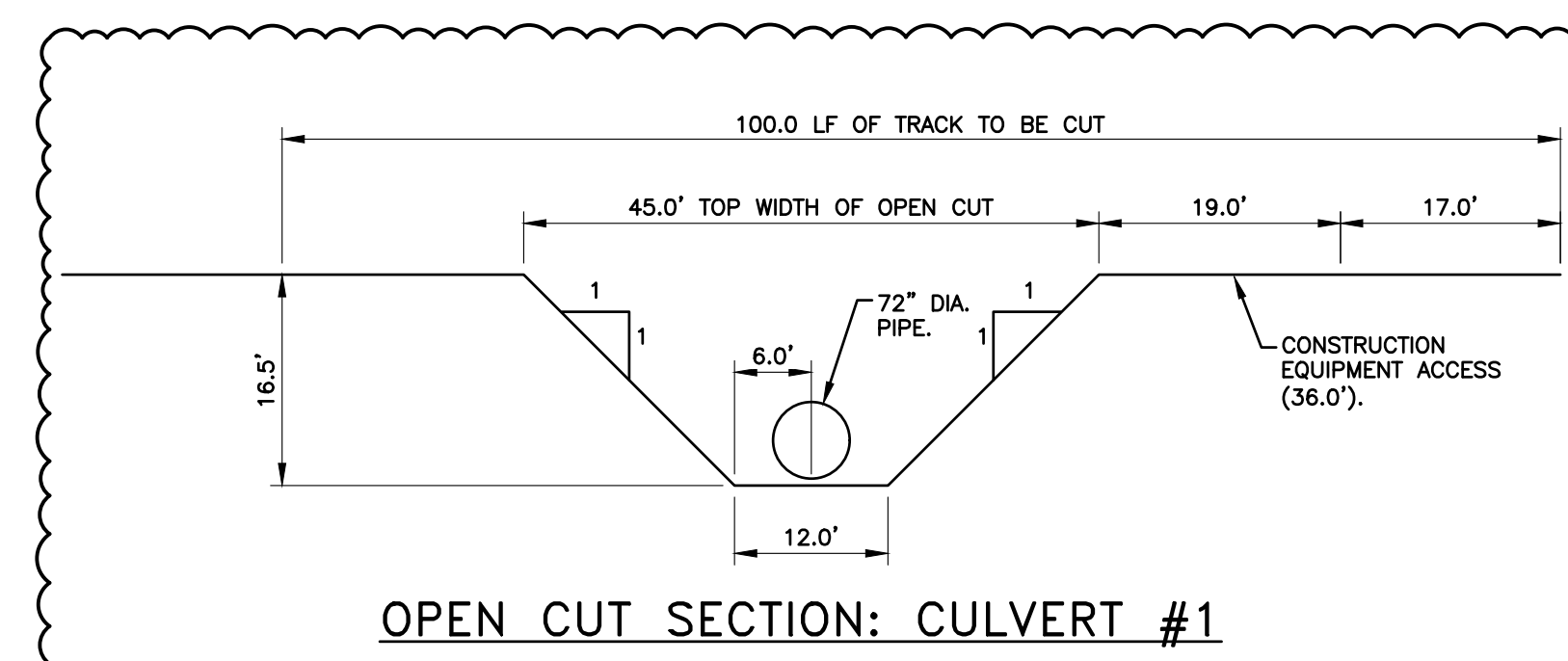
TREES TO BE CUT OR THAT ARE  
ALREADY DOWN IN RAILROAD ROW  
WILL BE CHIPPED AND UNIFORMLY  
SPREAD ACROSS THE RAILROAD  
ROW. NO DEBRIS SHALL BE  
DISPOSED OF ON RAILROAD BALLAST.

APPROXIMATE LOCATION  
OF EXISTING 36" PIPE TO  
BE REMOVED

CLASS 1, D50 10", THICKNESS.  
24" RIP RAP DITCH. REFER TO  
DETAIL SHEET C106.0.

— LIMIT OF TREE DISTURBANCE  
AND GRADING NECESSARY FOR  
CULVERTS IN RAILROAD ROW.  
TOTAL ADDITIONAL DISTURBED AREA: 0.80 AC  
DISTURBED AREA IN RAILROAD ROW: 0.31 AC

INFILTRATION BASIN #1 OUTLET & CULVERT  
#1 PLAN:  
(MP 111.12, 6,790 LF EAST OF AML - 112.40)


$$\begin{array}{c} \triangle \\ \hline 5 \\ \hline \triangle \\ \hline 4 \\ \hline \triangle \\ \hline 3 \\ \hline \triangle \\ \hline 2 \\ \hline \triangle \\ \hline 1 \end{array}$$

10/12/23	• REVISION 5
10/05/23	• REVISION 4
09/27/23	• REVISION 3
09/11/23	• REVISION 2
06/28/23	• REVISION 1
06/09/23	• ISSUED FOR PERMITTING
05/23/23	• ISSUED FOR PERMITTING
05/16/23	• PERMANENT STORMWATER SET
DATE	ISSUED FOR

IN CHARGE:	J CIESIELSKI
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DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	E SMITH

SHEET TITLE

**INFILTRATION BASIN 1 OUTLET & CULVERT 1 PLAN**

FORD DWG NO. \_\_\_\_\_ REV. # \_\_\_\_\_

SHEET NUMBER \_\_\_\_\_

## C104.1



Know what's **below**.  
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[illegible]

JILL EY MIKAWA

NAME DATE 4420003 6-22-2011

0.47 A18

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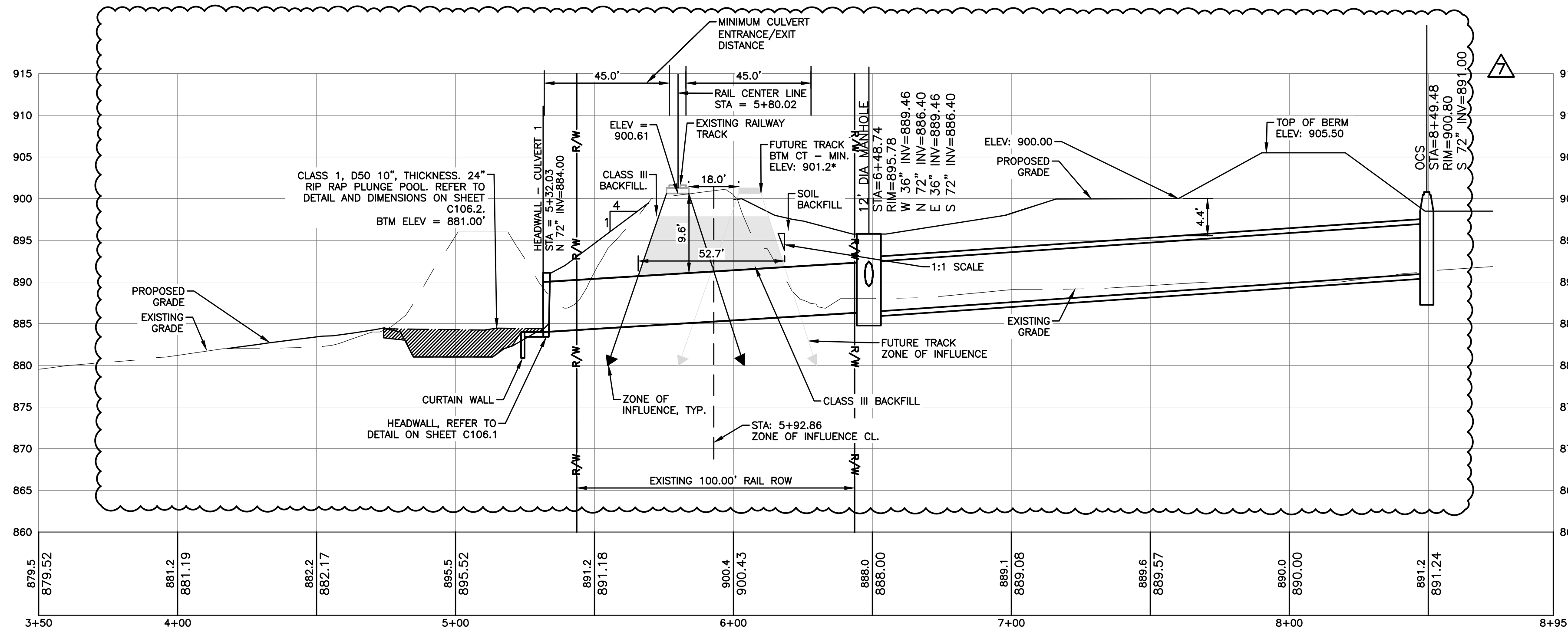


11/12/23	• REVISION 7
11/03/23	• REVISION 6
10/12/23	• REVISION 5
10/05/23	• REVISION 4
09/27/23	• REVISION 3
09/11/23	• REVISION 2
06/28/23	• REVISION 1
06/09/23	• ISSUED FOR PERMITTING
05/23/23	• ISSUED FOR PERMITTING
05/16/23	• PERMANENT STORMWATER SET
DATE	ISSUED FOR

IN CHARGE: J CIESIELSKI  
DRAWN BY: M TILLEY  
DESIGNED BY: S DODSON  
CHECKED BY: B NARTKER  
APPROVED BY: E SMITH

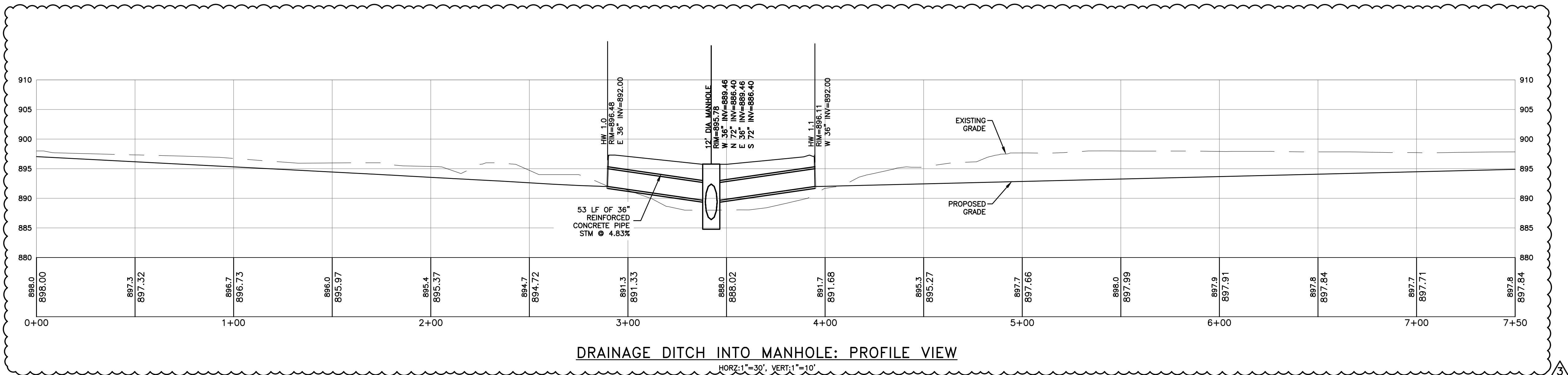
SHEET TITLE:  
**INFILTRATION BASIN 1 OUTLET & CULVERT PROFILE**

FORD DWG NO. REV #  
SHEET NUMBER  
**C104.2**



INFILTRATION BASIN #1 OUTLET AND CULVERT #1: PROFILE VIEW

HORZ:1"=30', VERT:1"=10'



DRAINAGE DITCH INTO MANHOLE: PROFILE VIEW

HORZ:1"=30', VERT:1"=10'



Know what's below.  
Call before you dig.





LENEND

**SILT FENCE**

STORM PIPE

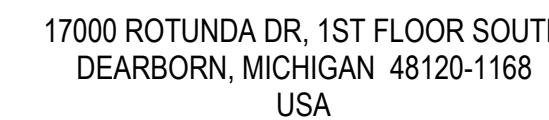
### LIMITS OF DISTURBANCE

CHECK DAM

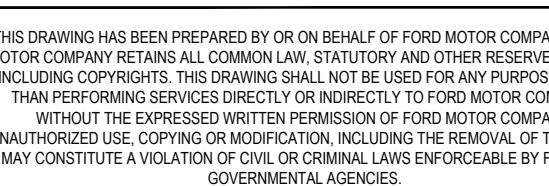
SILT FENCE OUTLET

TEMP. SLOPE DRAIN

TEMPORARY DIVERSION  
DITCH



BUILDING SITE CODE:  
FORD PROJECT NUMBER:



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[illegible]

09/11/23	● REVISION 2
06/28/23	● REVISION 1
06/09/23	● ISSUED FOR PERMITTING
05/16/23	● ISSUED FOR PERMITTING
05/16/23	● PERMANENT STORMWATER SET
DATE	ISSUED FOR

IN CHARGE:	J CIESIELSKI
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DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	E SMITH

SHEET TITLE

### TEMP. INFILTRATION BASIN 2 DETAILS (BY SME)

FORD DWG NO. \_\_\_\_\_ R \_\_\_\_\_

SHEET NUMBER

**C104.3**





17000 ROTUNDA DR, 1ST FLOOR SOUTH  
DEARBORN, MICHIGAN 48120-1168  
USA



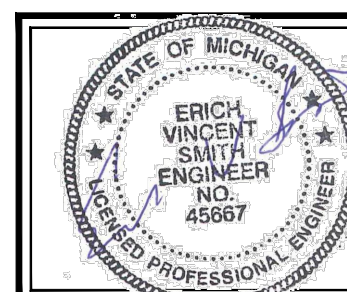
PROJECT NUMBER: 1000112-00



25251 Northline Rd  
Taylor, MI 48180  
734.947.9700  
[www.wadetrim.com](http://www.wadetrim.com)

PROJECT NUMBER:

WAB2004 01H

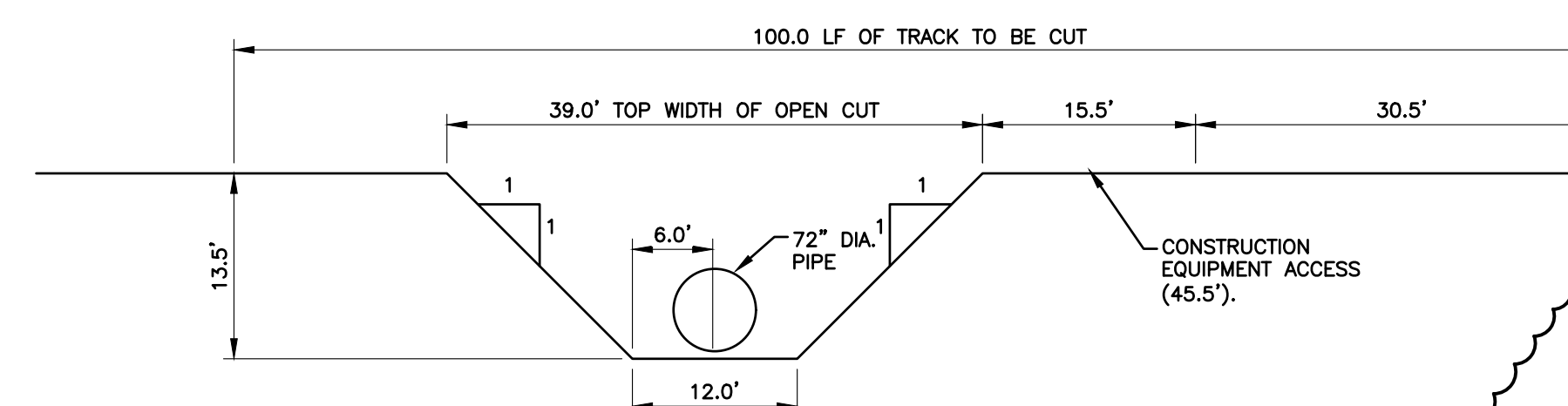


NORTH LINE R.R.  
(100' WIDTH)

TOTAL LENGTH OF  
111 LF OF 72"  
CMP (8 GA.) @  
1.45%

CLASS 1, D50 10", TH. 24"  
RIP RAP PLUNGE POOL. REFER  
TO DETAIL AND DIMENSIONS ON  
SHEET C1062

TREES TO BE CUT OR THAT ARE  
ALREADY DOWN IN RAILROAD ROW  
WILL BE CHIPPED AND UNIFORMLY  
SPREAD ACROSS THE RAILROAD  
ROW. NO DEBRIS SHALL BE  
DISPOSED OF ON RAILROAD BALLAST.



OPEN CUT SECTION: CULVERT #2

CULVERT # 2: PLAN VIEW

(MP 110.19, 4,900 LF WEST OF AML – 109.43 BEAR CREEK)



Know what's below.  
Call before you dig.



10/12/23	• REVISION 5
10/05/23	• REVISION 4
09/27/23	• REVISION 3
09/11/23	• REVISION 2
06/28/23	• REVISION 1
06/09/23	• ISSUED FOR PERMITTING
05/23/23	• ISSUED FOR PERMITTING
05/16/23	• PERMANENT STORMWATER SET
DATE	ISSUED FOR

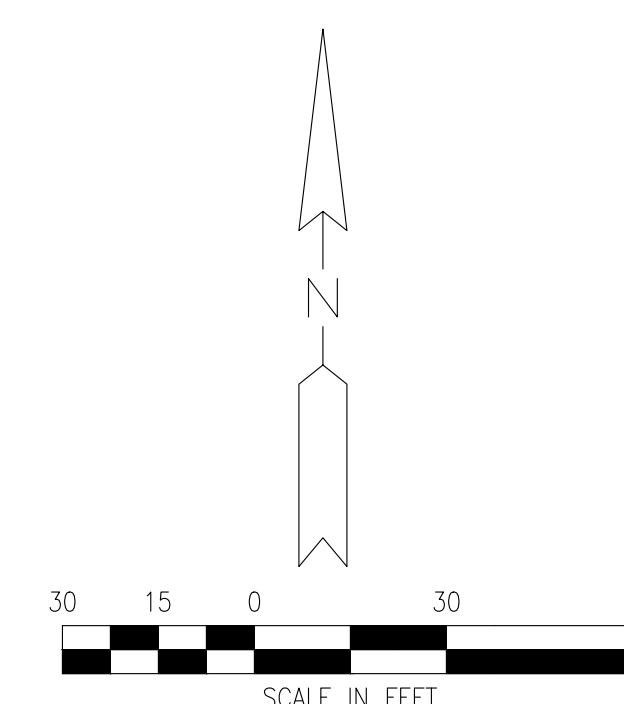
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DRAWN BY:	M TILLEY
DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	E SMITH

SHEET TITLE

**CULVERT 2 PLAN**

FORD DWG NO. \_\_\_\_\_ REV. # \_\_\_\_\_

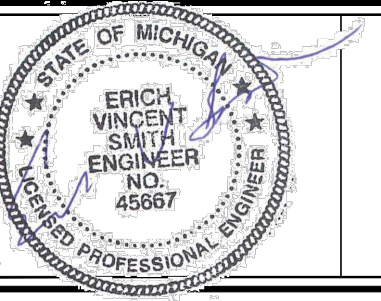
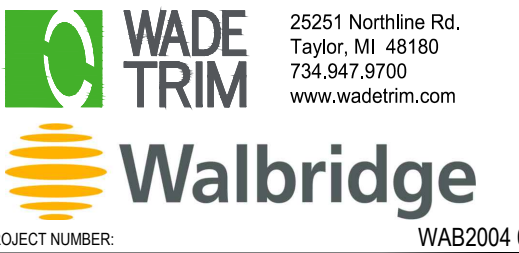
**C105.0**





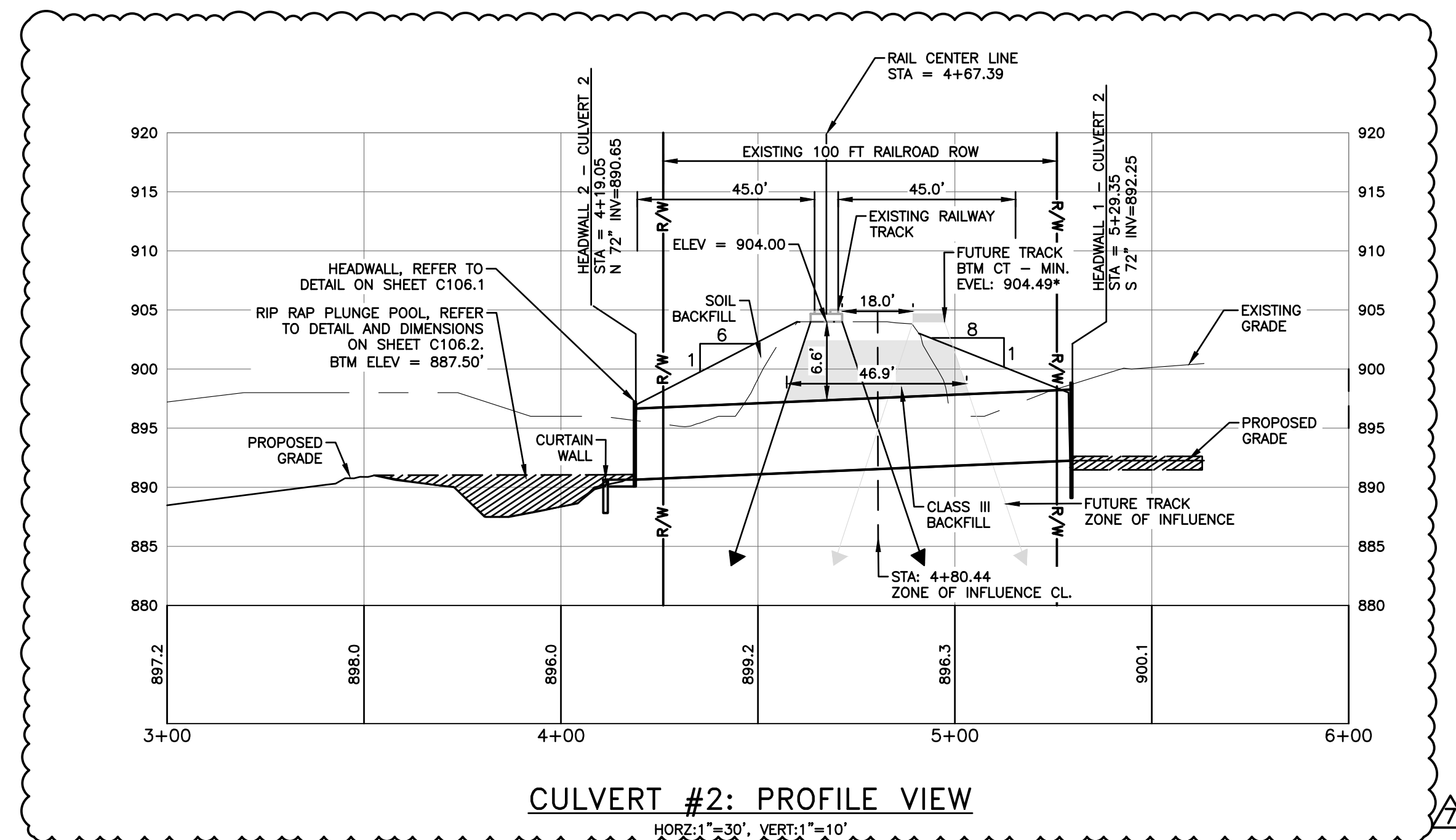


OBJECT NUMBER: 1000112-001



GENERAL NOTES:

- 1) CMP PIPE SHALL BE PLACED IN OPEN CUT TRENCH WITH A FULL LENGTH SECTION CENTERED UNDERNEATH THE RAILROAD BED.
- 2) CMP PIPE SHALL BE PROVIDED IN ACCORDANCE WITH THE MDOT 2020 STANDARD SPECIFICATION FOR CONSTRUCTION.
- 3) CMP PIPE SHALL HAVE NO JOINTS IN THE PORTION THAT FALLS UNDER THE 1:1 INFLUENCE LINE OF THE EXISTING TRACK AND THE ADDITIONAL SPACE TO THE NORTH SIDE OF THE TRACK, IN CASE A 2ND TRACK WAS TO BE RE-INSTALLED.
- 4) SHOULD A FUTURE BE CONSTRUCTED, THE MINIMUM ELEVATION OF THE BOTTOM OF CROSS-TIE IS PROVIDES SUCH THAT MINIMUM COVER IS MAINTAINED ABOVE CULVERT. PLEASE SEE PROFILE FOR THE MINIMUM ELEVATION.



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10/23	• REVISION 7
03/23	• REVISION 6
12/23	• REVISION 5
05/23	• REVISION 4
27/23	• REVISION 3
11/23	• REVISION 2
28/23	• REVISION 1
09/23	• ISSUED FOR PERMITTING
23/23	• ISSUED FOR PERMITTING
16/23	• PERMANENT STORMWATER SET
TE	ISSUED FOR

CHARGE:	J CIESIELSKI
DRAWN BY:	M TILLEY
DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	E SMITH

---

MEET TITLE

**CULVERT 2 PROFILE**

ORD DWG NO.

REV.

#

MEET NUMBER

**C105.1**



Know what's **below**.  
**Call** before you dig.



RIM ELEVATION PER PLAN

2'-0" MAX

SEE STRUCTURE TABLE FOR CASTING/COVER

1-3 ADJUSTMENT RINGS FOR ADJUSTMENT

1/2" CEMENT MORTAR PLASTER COAT

2'-0"

PRECAST CONCRETE ECCENTRIC CONE

PLASTER COAT ENTIRE INTERIOR AND EXTERIOR WITH 1/2" CEMENT MORTAR, IF CONSTRUCTED BY BLOCK

STEPS SHALL BE CAST IRON OR STEEL REINFORCED POLYPROPYLENE

MANHOLE STEPS TO BE INSTALLED AT THE PLANT BY MFR OF PRECAST M.H. SECTIONS WITH 16" C. TO C. SPACING. STEPS TO BE 45° TO CL OF MAIN SEWER

ON-SHRINK GROUT

2" MAX

16"

2'-0" MAX

2"

FORMED 3500 P.S.I. CONCRETE FILL

4" MIN

PRECAST CONC BASE

CRUSHED STONE BEDDING MATERIAL

#6 BARS AT 9" O.C. EACH WAY

3" MIN

8"

D"

FOR DETAILS OF MANHOLE  
SEE STANDARD MANHOLE

DOG HOUSE OPENING  
FOR SEWER PIPE SHALL  
BE CAST IN MANHOLE  
SECTION; AFTER PLACING  
MANHOLE SECTION, FILL  
AROUND PIPE WITH  
NON-SHRINKING GROUT

CEMENT MORTAR

BRICK TO 12"  
ABOVE  
HIGHEST PIPE

8"

3500 P.S.I.  
CONCRETE

3" MIN.

9-1/2"

CUT PIPE TO  
FORM CHANNEL  
AFTER MANHOLE  
IS CONSTRUCTED

CRUSHED STONE BEDDING  
MATERIAL TO THE SPRING  
LINE OF PIPE

4'-0"

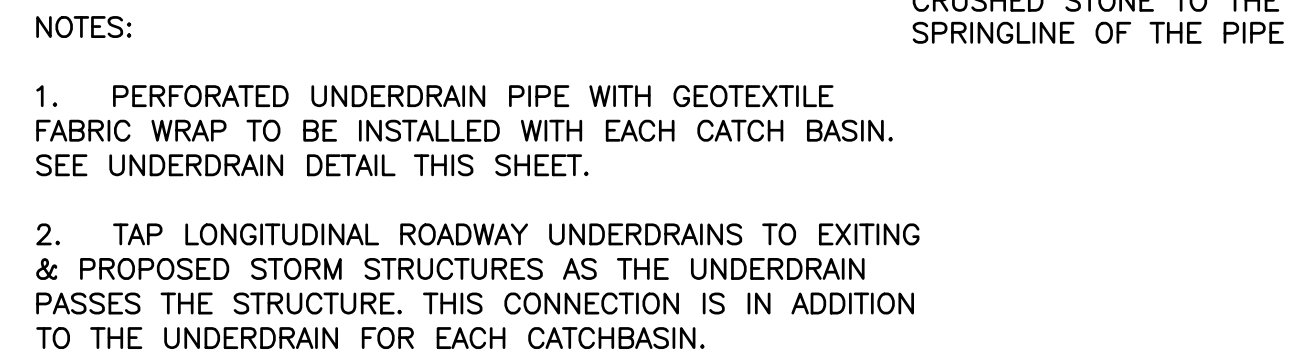
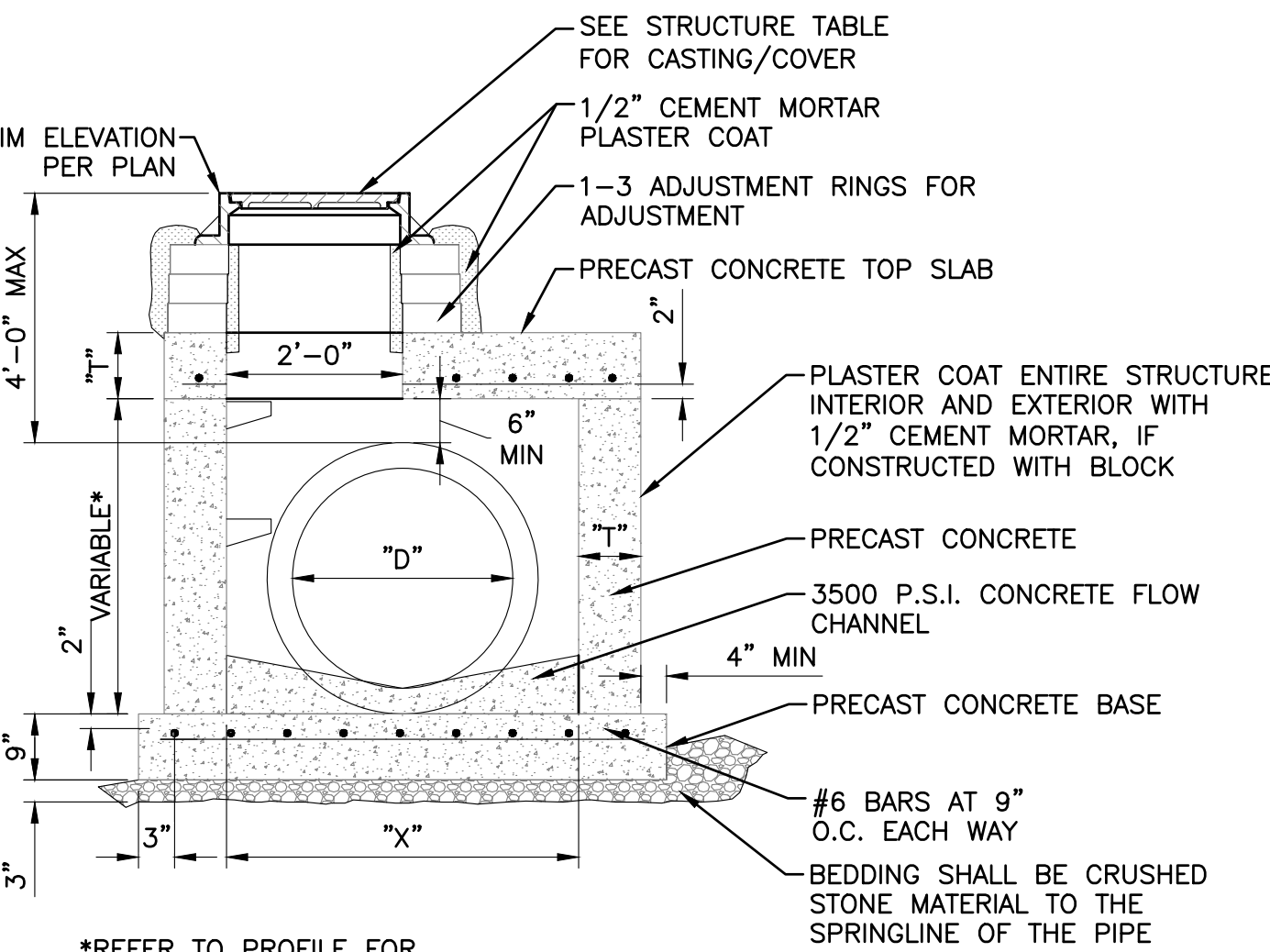
2"

CEMENT MORTAR  
PLASTER COAT 1/2"  
THICK

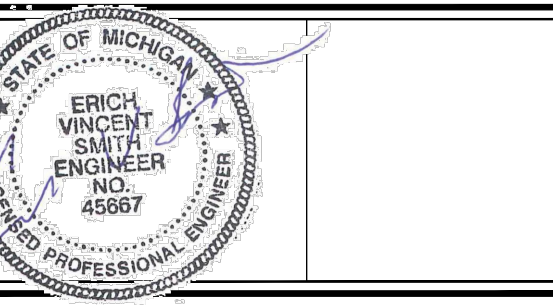
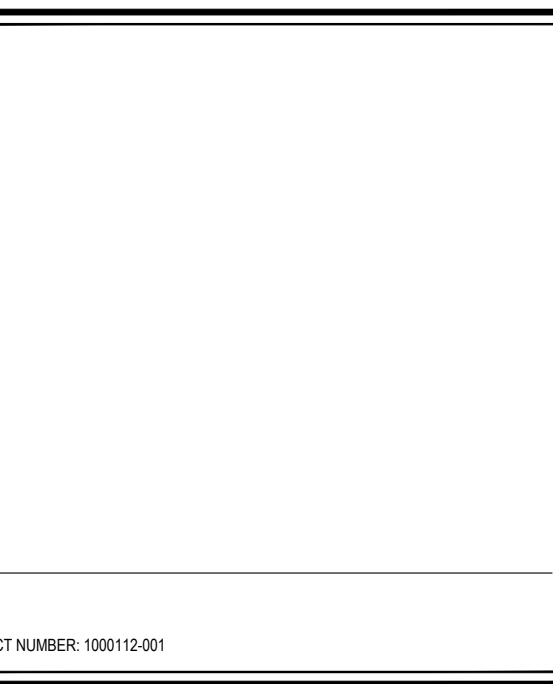
3"

PRECAST CONCRETE  
BASE

9-1/2"



1. MANHOLE DIAMETER SHOWN IN STANDARD STORM MANHOLE DETAIL ARE FOR STRUCTURES WITH NO MORE THAN TWO STORM SEWER PIPES. LARGER DIAMETER STRUCTURES MAY BE REQUIRED FOR DIFFERENT CONFIGURATIONS. SUBMIT SHOP DRAWINGS FOR ALL STRUCTURES.
2. ALL STRUCTURES REQUIRE A MINIMUM OF 6-INCHES OF WALL BETWEEN PIPE OPENINGS.
3. IF EXCAVATION DEPTH AROUND EXISTING MANHOLE EXCEEDS 6- FEET ON ANY SIDE, THE OPPOSING SIDE OF THE MANHOLE SHALL ALSO BE EXCAVATED TO A DEPTH SUCH THAT THE DIFFERENTIAL IN DEPTH AROUND THE MANHOLE AT NO TIME SHALL EXCEED 6- FEET.
4. PLACE SAND BACKFILL WITHIN THREE FEET OF ALL STRUCTURES. BACKFILL MORE THAN 3- FEET FROM STRUCTURE MAY BE IN-SITU SOIL OR SAND BACKFILL.
5. ALL MANHOLES AND CATCH BASINS SHALL BE PRECAST CONCRETE AND SHALL CONFORMING TO THE REQUIREMENTS OF ASTM C-478, UNLESS OTHERWISE APPROVED BY ENGINEER.
6. THE BOTTOM PRECAST SECTION SHALL, IN ALL CASES, BE CAST WITH THE BOTTOM END FLAT SO AS TO PROVIDE BEARING OF FULL WALL THICKNESS. BOTTOM SECTIONS SHALL BE SET IN 1:2 CEMENT MORTAR.
7. JOINTS ON PRECAST SECTIONS SHALL BE PREMIUM JOINTS.
8. REFER TO PROFILE FOR STRUCTURE DEPTH.
9. ALL STORM SEWER MANHOLE CASTINGS SHALL BE LABELED STORM



06/28/2023	● REVISION 1
06/09/23	● ISSUED FOR PERMITTING
05/23/23	● ISSUED FOR PERMITTING
05/16/23	● PERMANENT STORMWATER SET
DATE	ISSUED FOR

IN CHARGE:	J CIESIELSKI
DRAWN BY:	M TILLEY
DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	E SMITH

---

SHEET TITLE

STANDARD STORMWATER DETAILS

FORD DWG NO.

REV. #

SHEET NUMBER

C106.0









Now what's below.  
Call before you dig.

CHARGE:	J CIESIELSKI
CAVING BY:	M TILLEY
DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	E SMITH

---

HEET TITLE

**PLUNGE POOL DETAILS**

DRG NO. REV. #

HEET NUMBER

**C106.2**







*Detail A*  
*Gasket Joint with Bell*

*Detail B*  
*O-Ring Joint with Bell*

*Detail C*  
*Gasket Joint with Straight Walls*

*Detail D*  
*O-Ring Joint with Straight Wall*

*Detail E*  
*Confined Gasket Joint with Straight Wall*

*All Pipe Is Manufactured And Tested In Accordance With Current  
Required ASTM and AASHTO Specifications w/ASTM C-443 Joints.*

ASTM C-14 / AASHTO M-86 for Non-Reinforced Concrete Pipe.  
ASTM C-76 / AASHTO M-170 for Reinforced Concrete Pipe.  
ASTM C-655 / AASHTO M-242 for Reinforced D-Load Concrete Pipe.

*All Gaskets and O-Rings Meet ASTM C-443 Requirements.*  
*All Gasket and O-Ring Materials Meet ASTM C-361 Requirements.*

*Install Reinforced Concrete Pipe per ASTM C-1479 - Standard Practice for Installation of Precast Concrete Sewer.*


Pipe I.D.		Joint Details		A	B	C	D	E	F	G	H	I	Joint Details		Joint Details	
(in)	(mm)	Joint Gasket Type	Wall Class	Wall (in)	Pipe O.D.	Bell I.D.	Bell Depth	Spigot O.D.	Spigot Length	Annular Space	Bell O.D.	Bell Length	Joint Taper	Section Length	Loss / Section	Joint Style
54	1350	C 288-4-G	B	5.50	65.00	58.727	4.25	58.844	4.125	0.500	-----	-----	2°	8.2'	8781	H
54	1350	D O-Ring	B	5.50	65.00	58.727	4.25	58.844	4.25	0.420	-----	-----	2°	8.2'	8781	O
54	1350	C 288-4-G	C	6.25	66.50	58.727	4.25	58.844	4.125	0.500	-----	-----	2°	8.2'	10105	H
54	1350	D O-Ring	C	6.25	66.50	58.727	4.25	58.844	4.25	0.420	-----	-----	2°	8.2'	10105	O
54	1350	D O-Ring	C	6.25	66.50	60.564	5.394	61.100	5.394	0.500	67.30	7.394	1.83°	8.0'	9858	G
60	1500	C 288-4-G	B	6.00	72.00	64.875	4.75	64.914	4.625	0.500	-----	-----	2°	8.2'	10626	H
60	1500	D O-Ring	B	6.00	72.00	64.875	4.75	64.914	4.75	0.420	-----	-----	2°	8.2'	10626	O
60	1500	C 288-4-G	C	6.75	73.50	64.875	4.75	64.914	4.625	0.500	-----	-----	2°	8.2'	12094	H
60	1500	D O-Ring	C	6.75	73.50	64.875	4.75	64.914	4.75	0.420	-----	-----	2°	8.2'	12094	O
60	1500	D O-Ring	C	6.75	73.50	67.394	5.75	67.460	5.394	0.500	-----	-----	1.83°	8.0'	11796	G
66	1650	D O-Ring	C	7.25	80.50	71.375	5.0	71.482	5.0	0.558	-----	-----	2°	8.2'	14250	O
66	1650	D O-Ring	C	7.25	80.50	71.688	5.0	71.850	5.0	0.492	-----	-----	2°	8.0'	13903	G
72	1800	D O-Ring	C	7.75	82.50	72.875	5.0	72.983	5.0	0.558	-----	-----	2°	8.0'	16585	O
72	1800	C 288-4-G	C	7.75	82.50	72.875	5.0	72.932	4.875	0.500	-----	-----	2°	8.2'	16585	H
72	1800	D O-Ring	C	7.75	82.50	72.938	5.394	73.084	5.394	0.500	-----	-----	1.83°	8.0'	16181	G
78	1950	D O-Ring	C	8.25	94.50	84.470	5.0	84.577	5.0	0.602	-----	-----	2°	8.0'	18629	O
78	1950	D O-Ring	C	8.25	94.50	84.470	5.0	84.632	5.0	0.492	-----	-----	2°	8.0'	18629	G
84	2100	D O-Ring	C	8.75	101.50	90.875	5.0	90.982	5.0	0.558	-----	-----	2°	8.2'	21778	O
84	2100	D O-Ring	C	8.75	101.50	90.970	5.0	91.132	5.0	0.492	-----	-----	2°	8.0'	21247	G
90	2250	D O-Ring	C	9.25	108.50	97.500	5.0	97.599	5.0	0.562	-----	-----	2°	8.0'	24035	O
90	2250	D O-Ring	C	9.25	108.50	97.470	5.0	97.632	5.0	0.492	-----	-----	2°	8.0'	24035	G
96	2400	C O-Ring	B	9.00	114.00	103.875	5.0	104.070	4.875	0.558	-----	-----	2°	8.0'	24740	Q
96	2400	C O-Ring	C	9.75	115.50	103.970	5.0	104.132	5.0	0.492	-----	-----	2°	8.0'	26993	G
102	2550	D O-Ring	B	9.50	121.00	110.470	5.0	110.632	4.875	0.602	-----	-----	2°	8.0'	27731	Q
108	2700	D O-Ring	B	10.00	128.00	116.875	5.0	116.975	4.875	0.622	-----	-----	2°	8.0'	30892	O
114	2850	D O-Ring	A	9.50	133.00	122.721	6.0	122.890	5.813	0.622	-----	-----	2°	8.0'	30716	Q
120	3000	D O-Ring	A	10.00	140.00	128.721	6.0	128.890	5.813	0.622	-----	-----	2°	8.0'	34034	Q
120	3000	D O-Ring	A	10.00	140.00	129.744	6.0	129.398	6.0	0.494	-----	-----	1.83°	8.0'	33034	G
120	3000	C 288-4-G	C	11.75	160.00	139.721	6.0	139.782	6.0	0.702	-----	-----	2°	8.0'	43374	G
126	3150	D O-Ring	A	10.50	147.00	135.734	6.0	135.898	6.0	0.494	-----	-----	1.83°	8.0'	37522	Q
132	3300	E 288-4-G	C	12.75	157.50	140.889	6.0	141.649	6.0	0.500	-----	-----	2°	8.0'	48317	Q
132	3300	D O-Ring	A	11.00	154.00	141.471	6.0	141.641	5.813	0.622	-----	-----	2°	8.0'	41181	Q
132	3300	D O-Ring	A	11.00	154.00	142.234	6.0	142.398	6.0	0.494	-----	-----	1.83°	8.0'	41181	G
132	3300	D O-Ring	A	11.00	154.00	142.170	7.0	142.000	7.0	0.749	-----	-----	1.83°	8.0'	41181	V
144	3600	D O-Ring	A	12.00	168.00	154.625	8.25	155.228	8.125	0.632	-----	-----	2°	8.0'	49009	C
144	3600	D O-Ring	A	12.00	168.00	155.290	7.0	155.487	7.0	0.500	-----	-----	2°	8.0'	49009	Q


*All Pipe Is Manufactured And Tested In Accordance With Current  
Required ASTM and AASHTO Specifications w/ASTM C-443 Joints.*

ASTM C-14 / AASHTO M-86 for Non-Reinforced Concrete Pipe.  
ASTM C-76 / AASHTO M-170 for Reinforced Concrete Pipe.  
ASTM C-655 / AASHTO M-242 for Reinforced D-Load Concrete Pipe.

*All Gaskets and O-Rings Meet ASTM C-443 Requirements.*  
*All Gasket and O-Ring Materials Meet ASTM C-361 Requirements.*

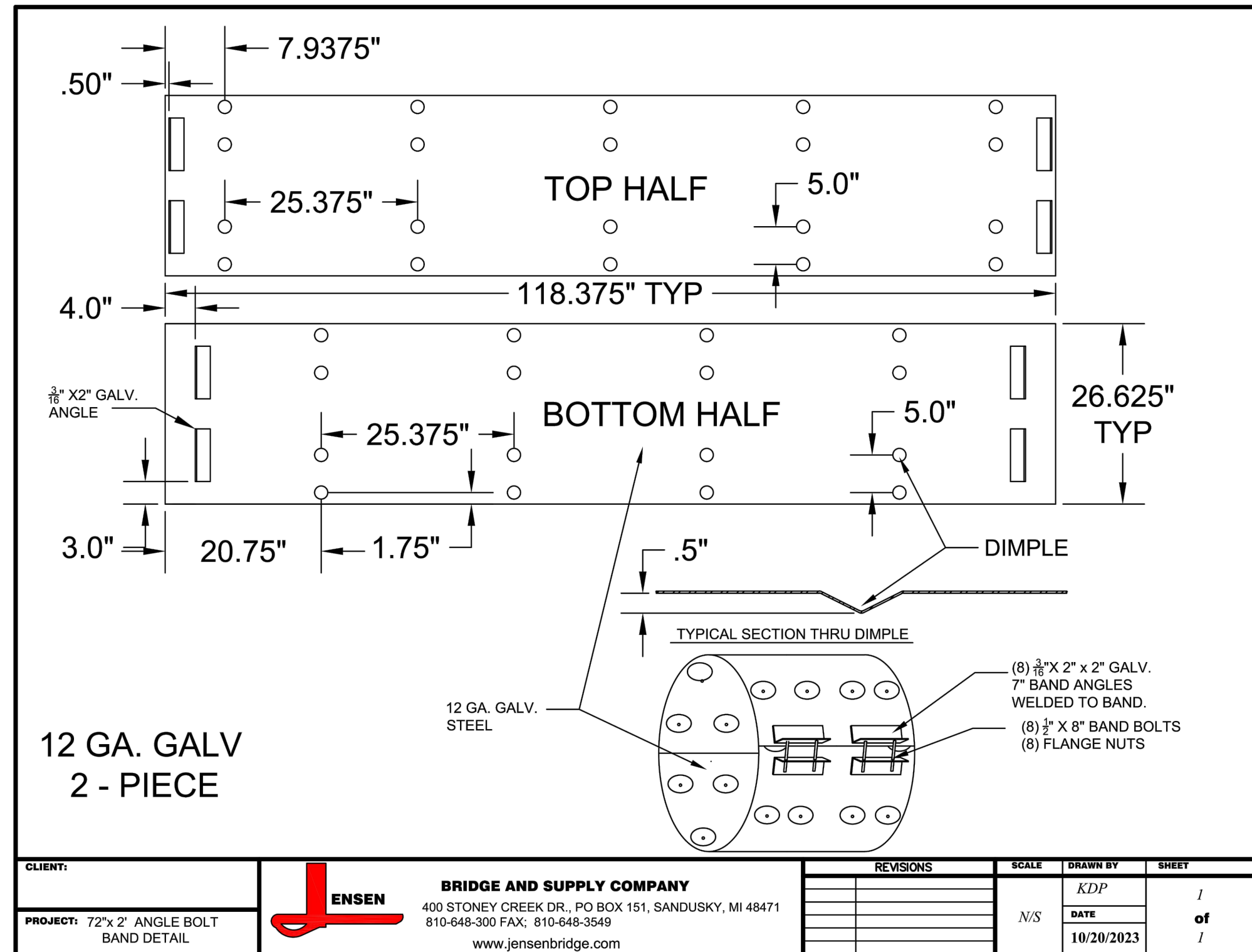
*Install Reinforced Concrete Pipe per ASTM C-1479 - Standard Practice for Installation of Precast Concrete Sewer.*

	401 Kellon St Bay City, MI 48706		12"Ø - 144"Ø Reinforced Concrete Pipe Joint Details			
	5281 Lansing Rd Charlotte, MI 48813	2701 Chicago Dr SW Wyoming, MI 48191				
	4950 White Lake Rd Clarkston, MI 48346	3756 Centennial Rd Sylvania, OH 43560				
	Date	01 Aug 22	Revised		Rev. No.	
					Drawn By	BmG
					Check	NTS
						01.01c

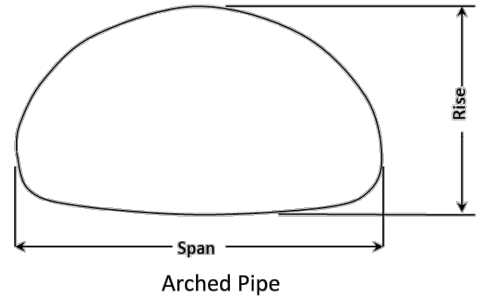
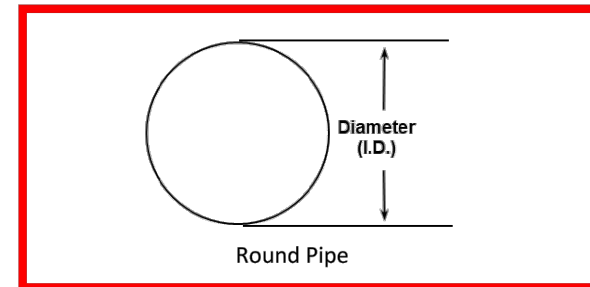
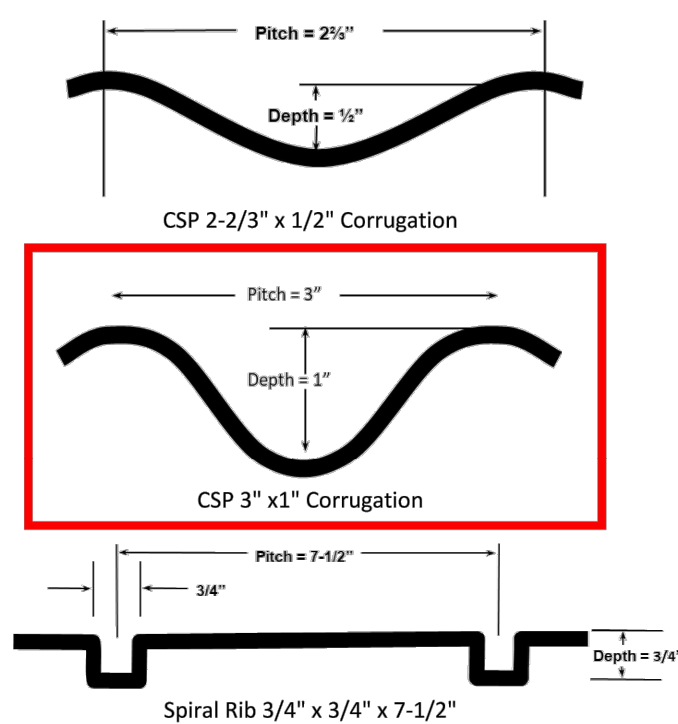
	401 Keltos St Bay City, MI 48706		12"Ø - 144"Ø Reinforced Concrete Pipe Joint Details					
	5281 Lansing Rd Charlotte, MI 48813	2701 Chicago Dr SW Wyoming, MI 49519						
	4950 White Lake Rd Clarkston, MI 48346	3756 Centennial Rd Sylvania, OH 43560	Date 01 Aug 22	Revised	Rev. No.	Chg's to BmG	Scale NTS	01.01a

GENERAL NOTES:

- 1) CULVERT 1 WILL UTILIZE REINFORCED CONCRETE PIPE FROM STA 8+49.48 TO 6+48.74. SEE SHEETS C104.1 AND C104.2 FOR PLAN AND PROFILE VIEWS.
- 2) CULVERT 2 WILL ONLY UTILIZE CORRUGATED STEEL PIPE.



### Corrugated Steel Pipe



Coating Type:	Specification	
	AASHTO	ASTM
GV - Zinc Coated (Galvanized)	M-218	A929
AL2 - Aluminum Coated (Aluminized Type II)	M-274	A929
PO - Polymer Precoat over Zinc Coated	M-246 & M-218	A742

Corrugated steel pipe and spiral rib pipe are fabricated into helically corrugated, lock seam pipe in accordance to MDOT section 909. Fabrication also meets the specification requirements of AASHTO M-36 and ASTM A760 for metallic coated or AASHTO M-245 and ASTM A762 for polymer precoat. All corrugated steel pipe, bands and end sections are manufactured at our Sandusky, Michigan Plant. All steel used in production of these products are made in the United States of America.

[illegible]

Client:	Angelo lafrate
Project Name:	Marshall Economic Development Alliance



**BRIDGE & SUPPLY COMPANY**  
Stoney Creek Drive, PO Box 151, Sandusky, MI 48471  
Phone: (810) 648-3000; Fax: (810) 648-3549  
[www.jensenbridge.com](http://www.jensenbridge.com)

Jensen contact:	Kevin Calahan - Sales Representative
Date:	9/15/2023



11/10/23	● REVISION 7
10/05/23	● REVISION 4
06/28/23	● REVISION 1
06/09/23	● ISSUED FOR PERMITTING
05/23/23	● ISSUED FOR PERMITTING
05/16/23	● PERMANENT STORMWATER SET
DATE	ISSUED FOR

IN CHARGE:	J CIESIELSKI
DRAWN BY:	M TILLEY
DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	E SMITH

SHEET TITLE

## STORMWATER CULVERT PIPE DETAILS

FORD DWG NC

SHEET NUMBER

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C106.4

REV. #



Know what's below.  
**Call** before you dig



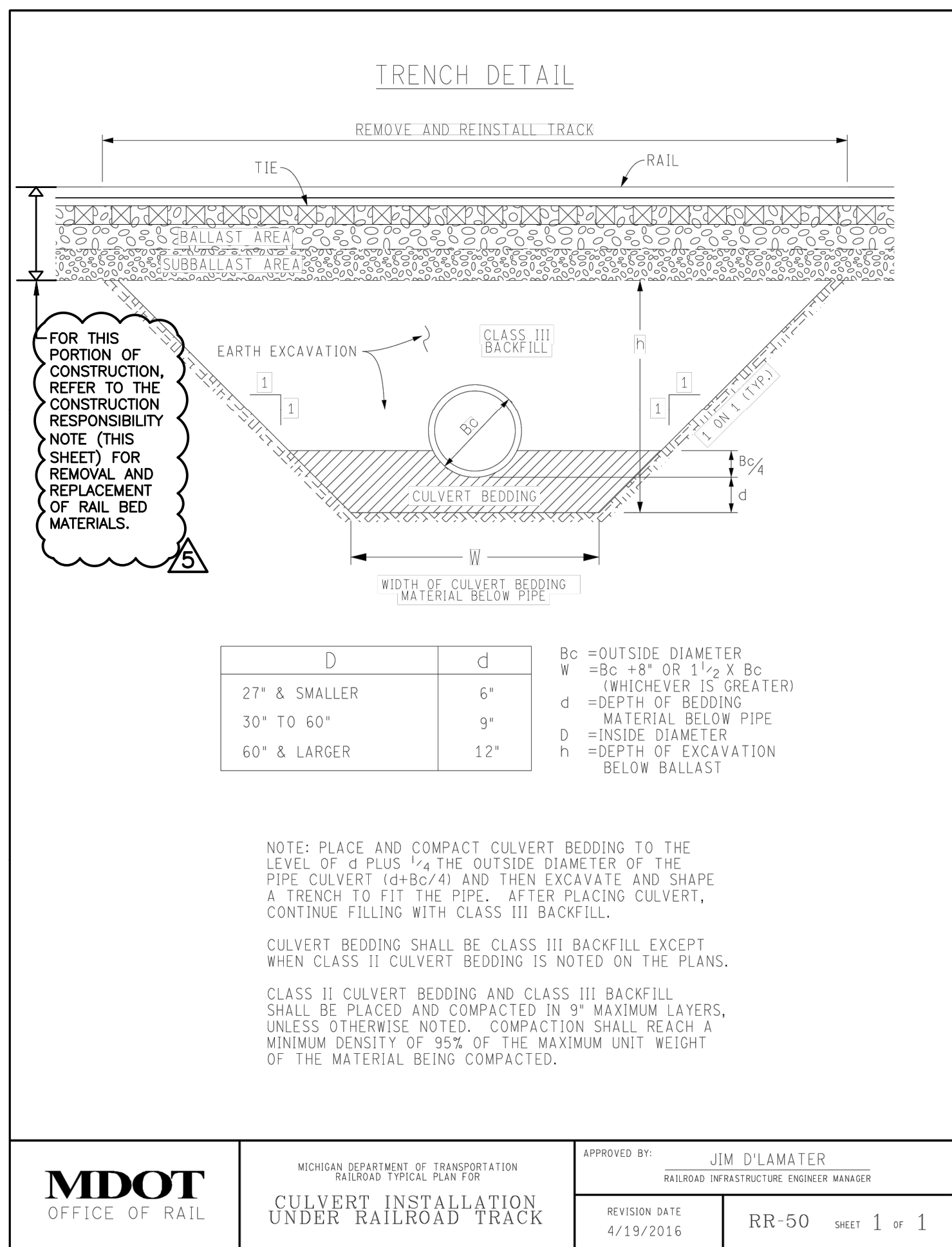
- 1) BEFORE ENTRY OF PERMITTEE AND/OR CONTRACTORS ONTO RAILROAD'S PROPERTY, A PRE-ENTRY MEETING SHALL BE HELD AT WHICH TIME PERMITTEE AND/OR CONTRACTORS SHALL SUBMIT FOR WRITTEN APPROVAL OF THE CHIEF ENGINEER, PLANS, COMPUTATIONS, AND A DETAILED DESCRIPTION OF PROPOSED METHODS FOR ACCOMPLISHING THE WORK, INCLUDING METHODS FOR PROTECTING RAILROAD'S TRAFFIC. ANY SUCH WRITTEN APPROVAL SHALL NOT RELIEVE PERMITTEE AND/OR CONTRACTOR OF THEIR COMPLETE RESPONSIBILITY FOR THE ADEQUACY AND SAFETY OF THEIR OPERATIONS.
- 2) PRIOR TO ANY CONSTRUCTION PERSONNEL ENTERING OR PERFORMING WORK IN THE RAILROAD RIGHT-OF-WAY, ALL INDIVIDUALS MUST SUCCESSFULLY COMPLETE THE AMTRAK CONTRACTOR TRAINING. THIS REQUIRED TRAINING CAN BE ACCESSED AT [WWW.AMTRAKCONTRACTOR.COM](http://WWW.AMTRAKCONTRACTOR.COM).
- 3) SAFETY AND PROTECTION MEASURES FOR ALL CONSTRUCTION ACTIVITY WITHIN RAILROAD RIGHT-OF-WAY SHALL BE EXECUTED IN ACCORDANCE TO AMTRAK ENGINEERING PRACTICES SECTION 01141a -- SAFETY AND PROTECTION OF RAILROAD TRAFFIC AND PROPERTY.
- 4) ALL OCCUPANCIES AND WORK TO BE PERFORMED WITHIN THE RAIL RIGHT-OF-WAY SHALL IN ACCORDANCE WITH THE LATEST VERSION OF AMTRAK'S UTILITY AND RIGHT-OF-WAY OCCUPATIONS, POLICIES, AND PROCEDURES DOCUMENTATION.
- 5) ANY SUPPORT AND STABILIZATION NEEDED FOR AMTRAK TRACKS DURING CONSTRUCTION AND EXCAVATION SHALL BE PROVIDED IN ACCORDANCE TO SECTION 02261a -- REQUIREMENTS FOR TEMPORARY SHEETING AND SHORING TO SUPPORT AMTRAK TRACKS.
- 6) MATERIAL USED FOR SUB-BALLAST SHALL MEET AMTRAK ENGINEERING SPEC. NO. 57.
- 7) ALL MATERIAL SPECS AND PIPE COATINGS SHALL BE IN ACCORDANCE WITH AREMA CHAPTER 1 PART 4.
- 8) ALL DESIGN AND CONSTRUCTION MUST BE IN ACCORDANCE WITH AMTRAK EP3014 -- MAINTENANCE AND PROTECTION OF RAILROAD TRAFFIC DURING CONTRACTOR OPERATIONS AND EP3016 -- STORM WATER DRAINAGE AND DISCHARGE FROM ADJACENT PROPERTY ONTO AMTRAK RIGHT-OF-WAY.
- 9) ALL UNDERGROUND UTILITIES, CABLE, AND FACILITIES MUST BE LOCATED AND PROTECTED BEFORE ANY EXCAVATING, DRILLING, BORING/DIRECTIONAL DRILLING, GROUND PENETRATING ACTIVITIES OR CONSTRUCTION TAKES PLACE. THIS INCLUDES RAILROAD AND COMMERCIAL UTILITIES, CABLE, DUCT LINES, AND FACILITIES. THESE ACTIVITIES WILL NOT BE PERFORMED IN CLOSE PROXIMITY TO THE RAILROAD DUCT LINES UNLESS MONITORED BY ON-SITE AMTRAK COMMUNICATIONS AND SIGNAL (C&S) DEPARTMENT PERSONNEL. HAND DIGGING MAY BE REQUIRED, AS DIRECTED BY THROUGH THE ON-SITE AMTRAK C&S SUPPORT PERSONNEL. AMTRAK MAINTAINS THE RIGHT TO ACCESS ALL EXISTING CABLES AND CONDUITS THROUGHOUT CONSTRUCTION. AMTRAK ALSO RESERVES THE RIGHT TO RIGHT TO UPGRADE AND INSTALL NEW CABLES AND CONDUITS IN THE AFFECTED AREA. THE "MISS DIG" PROCESS MUST BE FOLLOWED. PLEASE NOTE THAT AMTRAK IS NOT A PART OF THE MISS DIG PROCESS: CONTACT AMTRAK ENGINEERING TO HAVE ALL RAILROAD UNDERGROUND UTILITIES AND ASSETS LOCATED. IF REQUESTED BY AMTRAK, EXISTING DEPTHS OF UTILITIES BEING CROSSED MUST BE VERIFIED THROUGH TEST PITS PERFORMED BY THE CONTRACTOR AS DIRECTED BY AMTRAK UNDER THE DIRECT SUPERVISION OF AMTRAK C&S SUPPORT PERSONNEL. PRECAUTIONS MUST BE TAKEN TO PREVENT ANY INTERRUPTION TO THE MICHIGAN LINE OPERATION.
- 10) AMTRAK C&S DEPARTMENT MUST MAINTAIN ACCESS TO THE RAILROAD RIGHT-OF-WAY AND HAVE EXISTING GATE ACCESS TO REMOTE LOCATION TO PERFORM MAINTENANCE.
- 11) THE AMTRAK C&S DEPARTMENT MUST MAINTAIN ACCESS TO THE RAILROAD RIGHT-OF-WAY AND HAVE EXISTING GATE ACCESS TO REMOTE LOCATIONS TO PERFORM MAINTENANCE.
- 12) IF WORK SHALL BE DONE ON AMTRAK PROPERTY THAT INVOLVES HEAVY TRUCKS, EQUIPMENT, OR MACHINERY ALONG THE RIGHT-OF-WAY, DUCT LINES AND PULL BOXES SHALL BE INSPECTED IN INSURE THEY CAN WITHHOLD THE APPROPRIATE WEIGHT. REFER TO TIER TABLE DOCUMENT.
- 13) ANY DAMAGE TO PULL BOXES, HAND HOLES, JUNCTION BOXES, OR OTHER APPURTENANCES IN THE COURSE OF THIS WORK SHALL BE REPAIRED BY AMTRAK C&S, AT THE COST OF THE CONTRACTOR.

- 1) WORK SHALL BE DONE IN ACCORDANCE WITH MDOT 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AMTRAK STANDARD SPECIFICATIONS, AND MDOT RR TYPICAL PLANS.
- 2) CONTRACTOR SHALL COORDINATE, LOCATE, PROTECT, AND SUPPORT ALL UNDERGROUND FIBER OPTIC LINES AND RAILROAD SIGNAL CABLES PRIOR TO ANY EARTH EXCAVATION ACTIVITIES.
- 3) ALL EXCAVATED SOIL FROM MDOT PROPERTY SHALL NOT BE REMOVED FROM THE PROPERTY OR DISPOSED ON THE RAILROAD RIGHT-OF-WAY. REMOVE FROM RAILROAD RIGHT-OF-WAY, THEN DISTURBED EARTH SHALL BE DEPOSITED AT A LICENSED NON-HAZARDOUS CONTAMINATED FACILITY AND DOCUMENTATION BE PROVIDED TO MDOT. ALL DISTURBED EARTH SHALL RECEIVE 4 INCHES OF TOPSOIL WITH SEED, FERTILIZER, AND MULCH BLANKET. CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING A VIGOROUS GRASS GROWTH AS APPROVED BY MDOT. IF QUALITY IS NOT FULLY ESTABLISHED DUE TO EROSION, CONTRACTOR SHALL CONDUCT NECESSARY ACTIVITIES TO ESTABLISH VIGOROUS GRASS GROWTH.
- 4) ALL RAIL REMOVAL WORK SHALL BE COORDINATED AND CONDUCTED BY AMTRAK.
- 5) TREE CUTTING ON MDOT PROPERTY SHALL BE RESTRICTED TO THE CURRENT TIME WINDOW (OCTOBER 1 THROUGH MARCH 31) FOR THE INDIANA BAT AND NORTHERN LONG EAR BAT.
- 6) CONTRACTOR SHALL NOT FOUL RAILROAD BALLAST. IF CONTRACTOR FOULS RAILROAD BALLAST, THE BALLAST SECTION SHALL BE REMOVED BY RAILROAD FORCES AND ALL COSTS ASSOCIATED WITH REMOVAL AND RE-ESTABLISHMENT OF RAILROAD BALLAST SHALL BE PAID FOR BY CONTRACTOR.
- 7) TO CROSS TRACKS, CONTRACTOR SHALL INSTALL TIMBER CRANES MATS, AS APPROVED BY RAILROAD.
- 8) TREES TO BE CUT OR THAT ARE ALREADY DOWN IN THE RAILROAD RIGHT-OF-WAY, SHALL BE CHIPPED AND UNIFORMLY SPREAD ACROSS THE RAILROAD RIGHT-OF-WAY. NO DEBRIS SHALL BE DISPOSED OF ON RAILROAD BALLAST.

MATERIAL	6 INCH	3 INCH	2 INCH	1 INCH	1/2 INCH	3/8 INCH	NO. 4	NO.30	NO.100	LBW % PASSING NO.200(g)(b)
CLASS I	—	—	100	—	45-85	—	20-85	5-30	—	0-5
CLASS II(c)	—	100	—	60-100	—	—	50-100	—	0-30	0-7
CLASS IIA(c)	—	100	—	60-100	—	—	50-100	—	0-35	0-10
CLASS IIA	—	100-95	—	60-100	—	—	50-100	—	0-20	0-5
CLASS III	100	100	—	—	—	—	50-100	—	—	0-15
CLASS IIIA	—	—	—	—	—	100	50-100	—	0-30	0-15

- (c) EXPECT FOR USE IN GRANULAR BLANKETS, CLASS IIA GRANULAR MATERIAL MAY BE SUBSTITUTED FOR CLASS II GRANULAR MATERIAL FOR PROJECTS IN THE FOLLOWING COUNTIES: ARENAC, BAY, GENESEE, GLADWIN, HURON, LAPEER, MACOMB, MIDLAND, MONROE, OAKLAND, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, TUSCULA, AND WAYNE.

- 1) AMTRAK SHALL BE RESPONSIBLE FOR THE FOLLOWING PORTIONS OF CONSTRUCTION:
  - A) REMOVAL OF THE TRACKS
  - B) REMOVAL OF THE CROSS-TIES
  - C) PROVISION AND REPLACEMENT OF BALLAST
  - D) REPLACEMENT OF THE TRACKS
  - E) REPLACEMENT OF THE CROSS-TIES
- 2) CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING PORTIONS OF CONSTRUCTION:
  - A) REMOVAL OF BALLAST
  - B) REMOVAL OF SUB-BALLAST
  - C) REPLACEMENT OF SUB-BALLAST



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11/10/23	• REVISION 7
10/12/23	• REVISION 5
10/05/23	• REVISION 4
09/27/23	• REVISION 3
09/11/2023	• REVISION 2
06/28/2023	• REVISION 1
06/09/23	• ISSUED FOR PERMITTING
05/23/23	• ISSUED FOR PERMITTING
05/16/23	• PERMANENT STORMWATER SET
DATE	ISSUED FOR

IN CHARGE:	J CIESIELSKI
DRAWN BY:	M TILLEY
DESIGNED BY:	S DODSON
CHECKED BY:	B NARTKER
APPROVED BY:	E SMITH

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SHEET TITLE

**MDOT & AMTRAK  
STORMWATER DETAILS & SPECIFICATIONS**

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FORD DWG NO.

REV. #

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SHEET NUMBER

**C106.5**

