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**CITY OF DETROIT
IN CO-OPERATION WITH
MICHIGAN DEPARTMENT OF TRANSPORTATION
&
FEDERAL HIGHWAY ADMINISTRATION
PLAN FOR BRIDGE REHABILITATION
PLYMOUTH ROAD OVER ROUGE RIVER
STATE BRIDGE NO. : B01 OF 82000
JOB NO. : 207699A
CONTROL SECTION NO. : BHT-82000**

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AMERICAN ASSOCIATION OF THE STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), FOR HIGHWAY BRIDGES HL 93 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED $\frac{1}{1600}$ OF THE SPAN LENGTH. THE LRFD METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS FOR CONSTRUCTION 2012 EDITION.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BELIEVED WITH $\frac{1}{4}$ " TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIALS OF THE FOLLOWING GRADES AND STRESSES.

CONCRETE: GRADE S2	$f_c = 3,000$ PSI
CONCRETE: GRADE D	$f_c = 4,500$ PSI
STEEL REINFORCEMENT:	$f_y = 60,000$ PSI

ALL DIMENSIONS ON THESE PLANS ARE IN INCHES EXCEPT AS NOTED.

THE STATIONING AS SHOWN ON THESE PLANS FOR THE INTERSECTION OF THE CENTERLINE OF BRIDGE AND BRIDGE REFERENCE LINES IS BELIEVED TO BE CORRECT. IT SHALL, HOWEVER BE CHECKED AT THE TIME OF STARTING CONSTRUCTION AND IF THE STATIONING SHOWN ON THE PLANS IS INCORRECT, IT SHALL BE REPORTED TO THE DETROIT DEPARTMENT OF PUBLIC WORKS AND THE STRUCTURE SHALL BE STAKE OUT USING THE ACTUAL INTERSECTION OF THE CENTERLINE OF BRIDGE AND BRIDGE REFERENCE LINES AS THE CONTROL POINT.

BIDDERS WILL BE FURNISHED WITH SCANNED IMAGES OF PLAN SHEETS OF THE EXISTING STRUCTURES IF REQUESTED. USE ON ALL PROJECTS WHERE EXISTING STRUCTURE PLANS ARE KNOWN TO EXIST (I.U. 2-22-2006)

CITY OF DETROIT STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED AS INCLUDED IN THE PROPOSAL.

STANDARD CURB DETAILS	C-438D
DETAIL OF ALLEY RETURN AND DRIVE APPROACH	C-438A
STANDARD SEWER AND DROP MANHOLES	C-4387
MANHOLE FRAME AND COVER	C-4391
FLAT TYPE GRATE AND FRAME	C-4392
DOMED GRATE AND FRAME	C-4394
STANDARD CATCH BASING "A" AND FLAT GRATE AND FRAME	C-5028

MICHIGAN STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

DRIVEWAY OPENING & APPROACHES AND CONCRETE SIDEWALK	R-29-F
INTEGRAL CURB AND INTEGRAL CURB & GLITTER	R-31-F
MOLDING, BEVEL, LIGHT STANDARD ANCHOR BOLT ASSEMBLY AND NAME PLATE DETAILS	B-103-E

MICHIGAN SPECIAL DETAILS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE SPECIAL DETAIL GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

SIDEWALK RAMP DETAILS	R-28-F
PLACEMENT OF TEMPORARY CONCRETE BARRIER	R-126-F
DRAIN CASTING ASSEMBLY DETAILS	B-101-G
BRIDGE RAILING, AESTHETIC PARAPET TUBE	B-25-F

*SEE W20-125-D FOR TEMPORARY TRAFFIC CONTROL DEVICE DETAILS.

UTILITIES

CITY OF DETROIT, PUBLIC LIGHTING DEPT (PLD) 9449 GRINNELL DETROIT, MI 48213 ATTN.: ASHOK PINNAMANENI PHONE NO.: (313) 804-1772	ELECTRIC, LIGHTING	CITY OF DETROIT 1301 THIRD STREET DETROIT MI 48226 ATTN.: ERIC JONES, FIRE CHIEF PHONE NO.: (313) 596-2900	FIRE
CITY OF DETROIT, DETROIT WATER & SEWERAGE DEPT (DWSD) J MADISON BLDG 1420 WASHINGTON BLVD., SUITE 100 DETROIT, MI 48226 ATTN.: RODNEY BURLETT PHONE NO.: (313) 267-4863	WATER, SEWER	DTE ENERGY MICHIGAN CONSOLIDATED GAS CO. (MCG) MAIN REPLACEMENT TEAM, 2ND FLOOR 3200 HOBSON DETROIT, MI 48201 ATTN.: LAURA FORRESTER PHONE NO.: (313) 389-7261	GAS
PUBLIC LIGHTING AUTHORITY 65 CADILLAC SQUARE, SUITE 3100 DETROIT, MI 48226 ATTN.: MUKESH PATEL PHONE NO.: (313) 324-8290	FIBER OPTIC		



TRAFFIC DATA:	YEAR 2020	YEAR 2040
ADT	12696	22930
DHV	1172	1207
COMMERCIAL %	3	3
DESIGN SPEED	40	40
POSTED SPEED	45	45

JN 207699

CS 82000

DATE:

CHECKED BY:

DATE:

CHECKED BY:

DATE: Dec. 15, 2020

DRAWN BY: S. ALTAMEEMI

FILE NAME: Plymouth -Title.dgn

CONTRACT FOR STRUCTURE REHABILITATION AND RELATED APPROACH WORK FOR PLYMOUTH ROAD BRIDGE OVER ROUGE RIVER

LOCAL AUTHORITY APPROVAL
CITY OF DETROIT
CITY ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS

APPROVED BY: *[Signature]* 11/7/21
DATE: 11/7/21

APPROVED BY: *[Signature]* 11/10/21
DATE: 11/10/21

PREPARED UNDER THE SUPERVISION OF
MAHER ELSALTI

MAHER ELSALTI
LICENSED PROFESSIONAL ENGINEER
CITY OF DETROIT
ORGANIZATION
No. 6201065111
ADDRESS: 2 WOODWARD AVE. SUITE 2000 DETROIT MI 48226

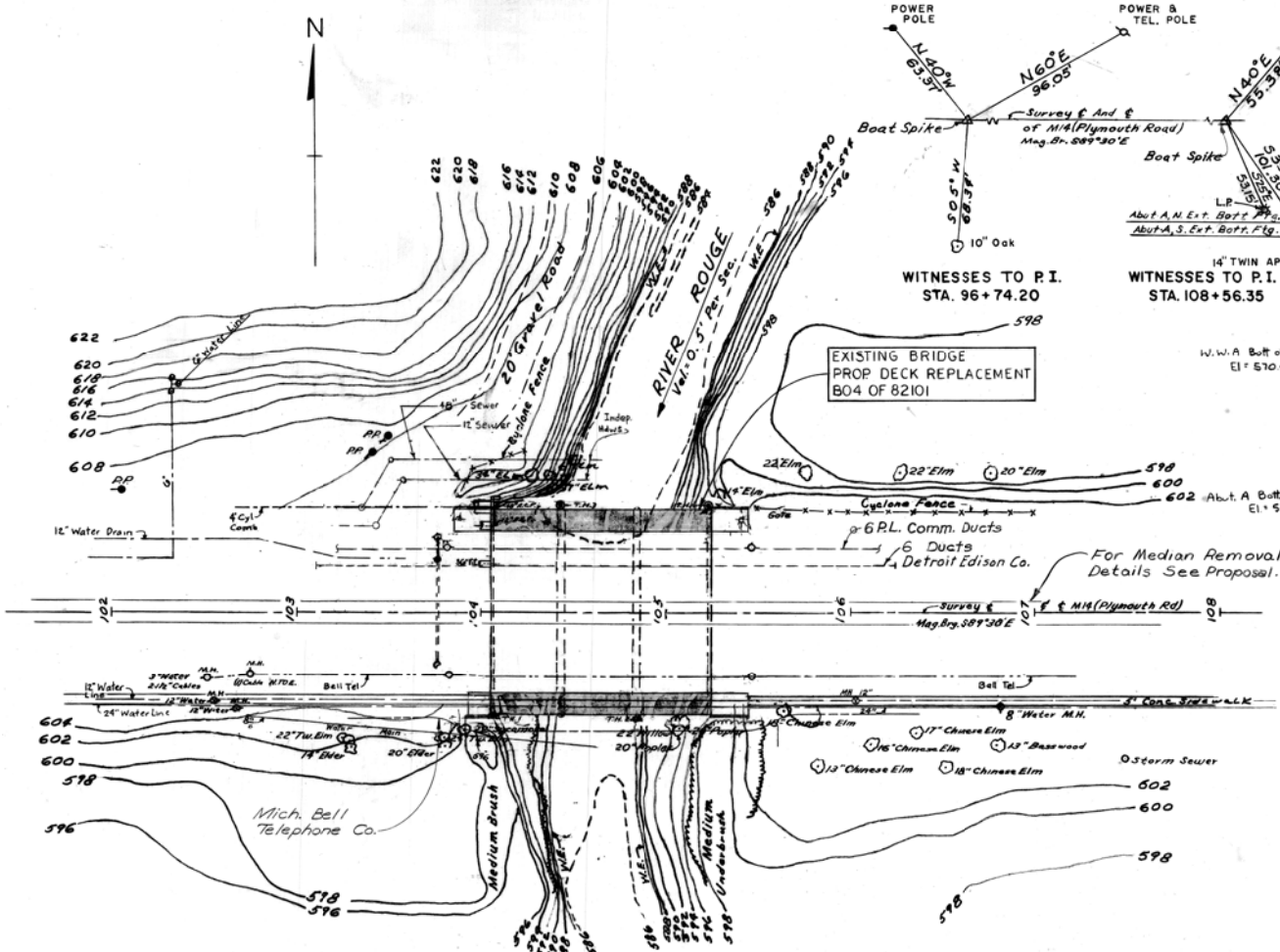
CONTROL SECTION	JOB NUMBER	FEDERAL NUMBER	SHEET NO.
BHT-82000	207699		1

BO 4 of 82101 - 12349 Sht. 4

Corrs. o.l. C.M.E. 5-2-85

BENCH MARK	
B.M. #804-4	ELEV. 605.35
BRASS DISC IN S.W. WINGWALL STAMPED "CITY OF DETROIT REF. MARK"	

UTILITIES			
Public Lighting Dept	Pole Line with 12-Wires - North Side of Plymouth Rd.	Detroit Edison Co.	12 Ducts North Side of Plymouth Rd.
Mich. Bell Telephone Co.	6 Ducts South Side of Bridge (To be abandoned) Underground Cable 65' South of Survey E	City of Detroit	6", 12" and 24" Water Lines; 12" Water Drains; 48" Comb. Sewer; and a Water Level Sensor Meter 47' North of Survey E and 30' West of Ref. Line

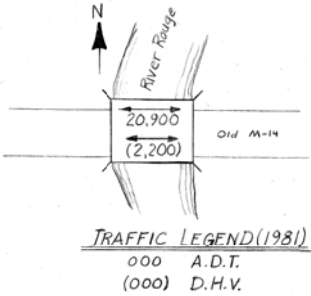
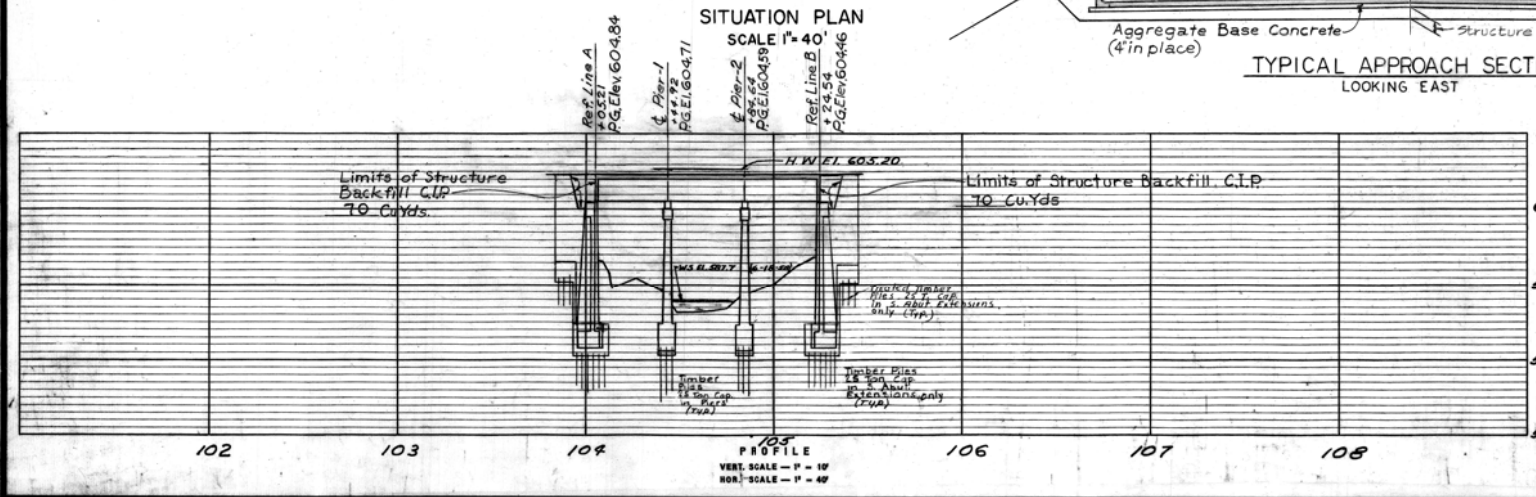
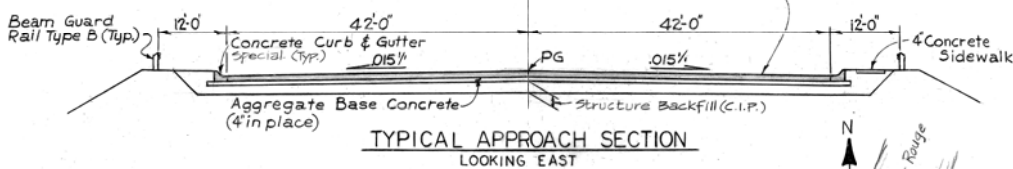


LOG OF BORING			
T.H. #1	T.H. #2	T.H. #3	T.H. #4
<p>592.03 Loose sands silt & clay (River wash)</p> <p>589.03 Gray sand & gravel (River silt)</p> <p>587.03 Loose gray sands River silt heavy tr. 583.03 wood fibers</p> <p>580.53 Loose gray sand Med & fine silty & pebbly</p> <p>576.03 Firm gray clay Silty & pebbly</p> <p>572.03 Stiff gray clay pebbly</p> <p>570.33 (Mod. comp. gray sand Med & fine)</p> <p>568.03 Firm gray clay</p> <p>566.03 (Mod. comp. gray sand Med & coarse)</p> <p>564.03 Stiff gray clay Tr. Pebble</p> <p>563.03 Stiff gray clay with lenses of coarse gray sand & granule gravel</p> <p>Boulder - End of Boring</p>	<p>587.64 587.64 Water</p> <p>586.64 (Loose gray sand fine to coarse (River Silt))</p> <p>586.64 (Mod. comp. gray sand & Gravel (Clean))</p> <p>586.64 Firm gray clay Gravelly</p> <p>586.64 (Mod. comp. gray sand & Gravel (Clean))</p> <p>586.64 Firm gray clay silty Tr. Pebble</p> <p>575.64 Stiff gray clay Tr. Pebble</p> <p>565.64 (Mod. comp. gray sand Med & coarse gravelly)</p> <p>562.64 Stiff gray clay Tr. Pebble</p> <p>560.64 Boulder - End of Boring</p>	<p>586.14 Water</p> <p>586.14 Loose sands silt & clay woody (River wash)</p> <p>583.14 Plastic gray clay pebbly</p> <p>578.64 Firm gray clay</p> <p>576.64 Firm gray clay Tr. Pebble</p> <p>572.14 Stiff gray clay Tr. Pebble</p> <p>570.14 Firm gray clay with gray sand lenses</p> <p>568.14 Hard gray clay Sandy & pebbly</p> <p>566.14 Hard gray clay with cobble stones</p> <p>End of Boring</p>	<p>599.64 Loose brown sands Silt & clay (River Wash)</p> <p>588.64 Loose gray sands Fine to Coarse Woody</p> <p>585.64 Mod. Comp. gray sands & gravel heavy tr. Wood fibers</p> <p>582.64 Firm gray clay silty & pebbly</p> <p>577.14 Stiff gray clay Tr. Pebble</p> <p>569.64 Firm gray clay Sandy & gravelly</p> <p>568.64 Hard gray clay Sandy & gravelly</p> <p>565.64 Comp. gray sand & gravel</p> <p>564.64 Hard gray clay Sandy & gravelly</p> <p>562.64 End of Boring</p>

NOTE: Consistency determined by inspection of samples and substantiated by soil resistance to casing and set rod, all T.H.'s. The soil boring logs represent point information. Presentation of this information in no way implies that subsurface conditions are the same at locations other than the exact location of the boring.

NOTE: The work covered by these plans includes Removal of Portions of Existing Structure, Construction of the Proposed Superstructure, Repairing Substructure, Miscellaneous Approach Work and Maintaining Traffic. The contractor shall locate all active underground utilities prior to starting work and shall conduct his operations in such a manner as to ensure that those utilities not requiring relocation will not be disturbed.

Topography shown hereon represents conditions existing at the time the field survey was made. However, these conditions may have been materially altered by the operations of others prior to this contract. Plymouth Road traffic is to be maintained over the existing bridge. For protection of underground utilities, the contractor shall dial 800-482-7171 a minimum of 48 hours prior to excavating in the vicinity of utility lines. All "Miss Dig" participating members will thus be routinely notified. This does not relieve the contractor of the responsibility of notifying utility owners who may not be a part of the "Miss Dig" alert system. Removal of approach median is included in the proposal.



MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
(OLD) M-14 XING RIVER ROUGE IN THE CITY OF DETROIT
GENERAL PLAN OF SITE

APPROVED: Lawrence D. Chick 6-3-85
DESIGN SUPERVISING ENGINEER

NO. DESCRIPTION DATE BY

REVISIONS

APPROVED: R.W. 271 12349 A

EXISTING

FOR INFORMATION ONLY

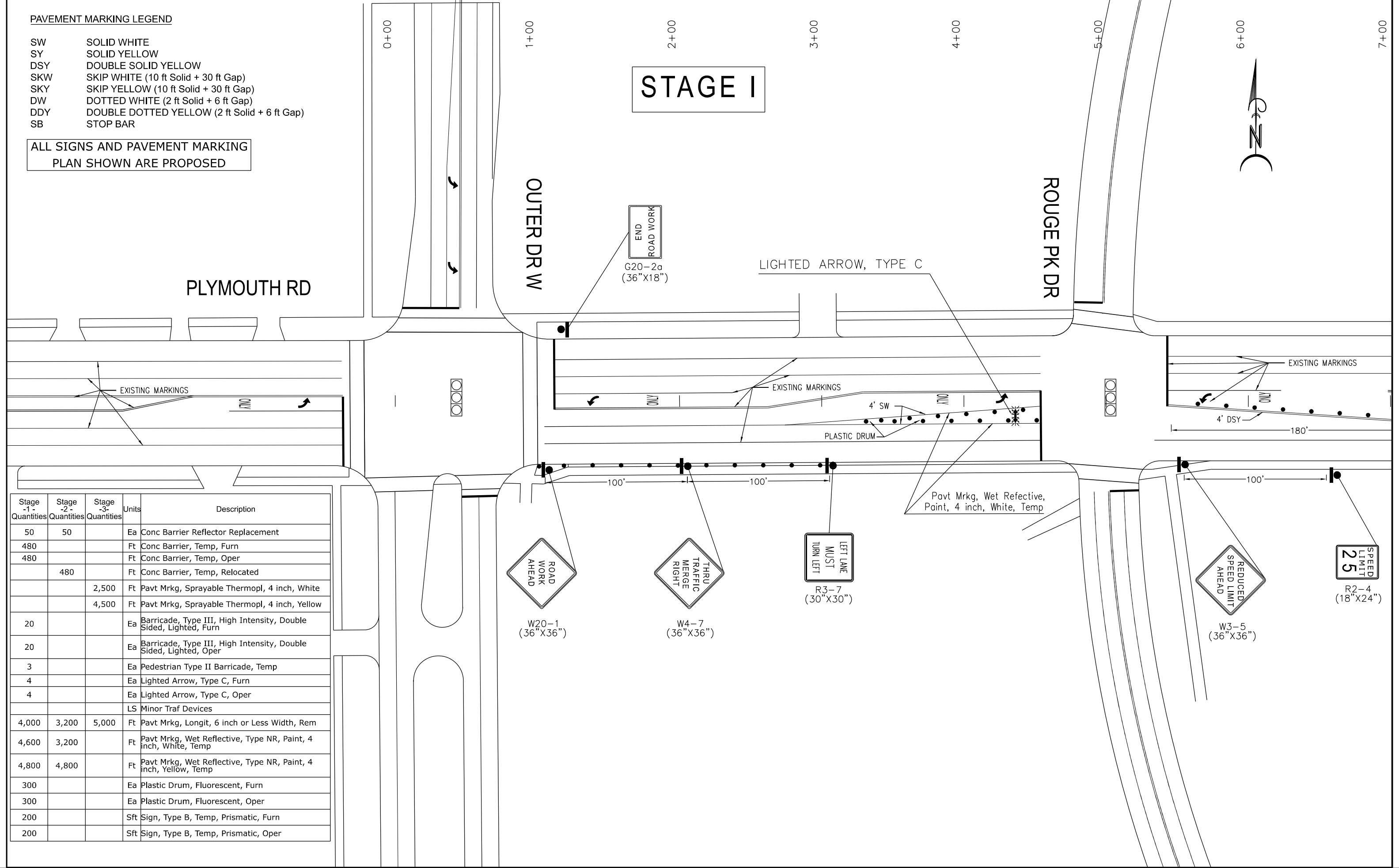
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)				DESIGNED BY: MAHER ELSALTI		APPROVED BY:		CS: BHT-82000		BW-271-PLYMOUTH		DRAWING SHEET	
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION	DATE:	11/12/2020	EXISTING SHEET		2 OF 38	
				DRAWN BY: SARMAD AL TAMEEMI									
				CHECKED BY:									

PAVEMENT MARKING LEGEND

SW	SOLID WHITE
SY	SOLID YELLOW
DSY	DOUBLE SOLID YELLOW
SKW	SKIP WHITE (10 ft Solid + 30 ft Gap)
SKY	SKIP YELLOW (10 ft Solid + 30 ft Gap)
DW	DOTTED WHITE (2 ft Solid + 6 ft Gap)
DDY	DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
SB	STOP BAR

ALL SIGNS AND PAVEMENT MARKING PLAN SHOWN ARE PROPOSED



Stage -1- Quantities	Stage -2- Quantities	Stage -3- Quantities	Units	Description
50	50		Ea	Conc Barrier Reflector Replacement
480			Ft	Conc Barrier, Temp, Furn
480			Ft	Conc Barrier, Temp, Oper
	480		Ft	Conc Barrier, Temp, Relocated
		2,500	Ft	Pavt Mrkg, Sprayable Thermopl, 4 inch, White
		4,500	Ft	Pavt Mrkg, Sprayable Thermopl, 4 inch, Yellow
20			Ea	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn
20			Ea	Barricade, Type III, High Intensity, Double Sided, Lighted, Oper
3			Ea	Pedestrian Type II Barricade, Temp
4			Ea	Lighted Arrow, Type C, Furn
4			Ea	Lighted Arrow, Type C, Oper
			LS	Minor Traf Devices
4,000	3,200	5,000	Ft	Pavt Mrkg, Longit, 6 inch or Less Width, Rem
4,600	3,200		Ft	Pavt Mrkg, Wet Reflective, Type NR, Paint, 4 inch, White, Temp
4,800	4,800		Ft	Pavt Mrkg, Wet Reflective, Type NR, Paint, 4 inch, Yellow, Temp
300			Ea	Plastic Drum, Fluorescent, Furn
300			Ea	Plastic Drum, Fluorescent, Oper
200			Sft	Sign, Type B, Temp, Prismatic, Furn
200			Sft	Sign, Type B, Temp, Prismatic, Oper

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)			
NO.	DATE	AUTH	DESCRIPTION



NO SCALE

DESIGNED BY : MAHER ELSALTI	APPROVED BY :
DRAWN BY : SARMA AL TAMEEMI	DATE: 11 / 12 / 2020
CHECKED BY :	

JN 207699

PLYMOUTH BRIDGE OVER ROUGE RIVER
MAINTENANCE OF TRAFFIC

DRAWING SHEET
3 OF 38

8+00

9+00

10+00

11+00

12+00

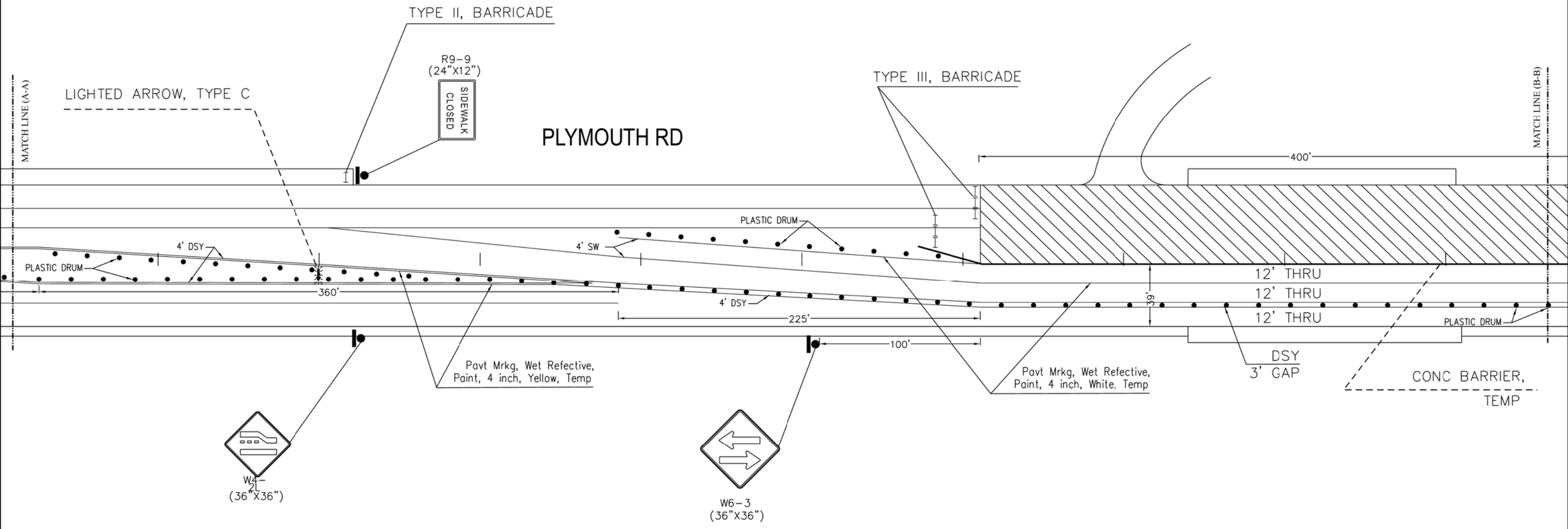
13+00

14+00

15+00

16+00

STAGE I



PAVEMENT MARKING LEGEND

SW	SOLID WHITE
SY	SOLID YELLOW
DSY	DOUBLE SOLID YELLOW
SKW	SKIP WHITE (10 ft Solid + 30 ft Gap)
SKY	SKIP YELLOW (10 ft Solid + 30 ft Gap)
DW	DOTTED WHITE (2 ft Solid + 6 ft Gap)
DDY	DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
SB	STOP BAR

ALL SIGNS AND PAVEMENT MARKING PLAN SHOWN ARE PROPOSED

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
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NO SCALE

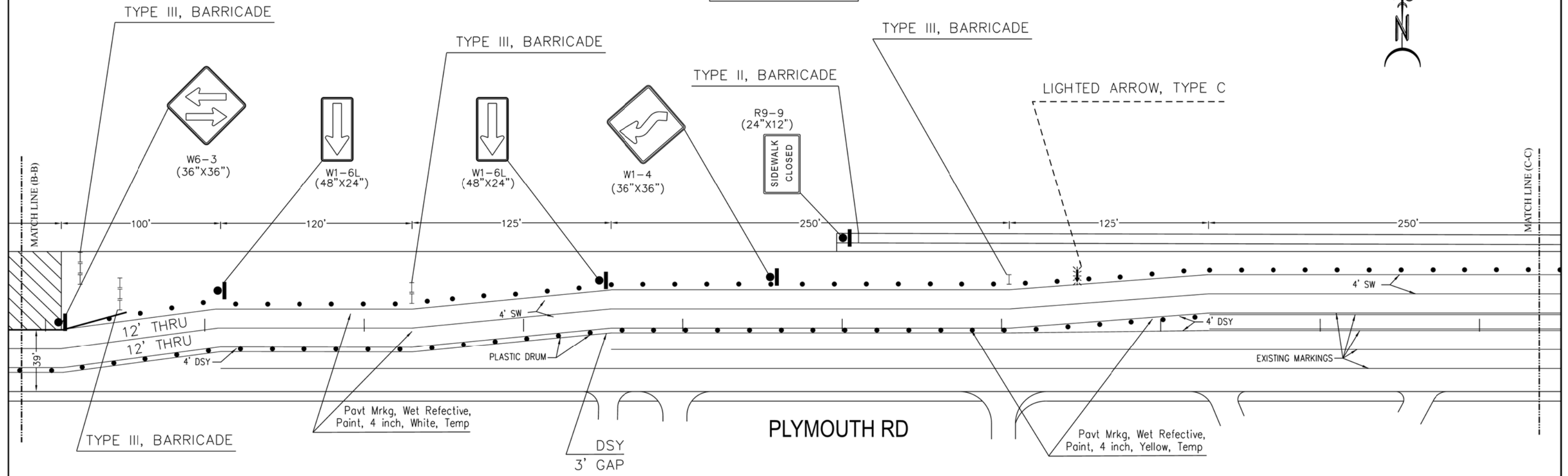
DESIGNED BY:	MAHER ELSALTI	APPROVED BY:	
DRAWN BY:	SARMAD AL TAMEEMI	DATE:	11 / 12 / 2020
CHECKED BY:			

JN 207699

PLYMOUTH BRIDGE OVER ROUGE RIVER		DRAWING	SHEET
MAINTENANCE OF TRAFFIC			4 OF 38

17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00

STAGE I



PAVEMENT MARKING LEGEND

- SW SOLID WHITE
- SY SOLID YELLOW
- DSY DOUBLE SOLID YELLOW
- SKW SKIP WHITE (10 ft Solid + 30 ft Gap)
- SKY SKIP YELLOW (10 ft Solid + 30 ft Gap)
- DW DOTTED WHITE (2 ft Solid + 6 ft Gap)
- DDY DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
- SB STOP BAR

ALL SIGNS AND PAVEMENT MARKING PLAN SHOWN ARE PROPOSED

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
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NO SCALE

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CHECKED BY:	

JN 207699

PLYMOUTH BRIDGE OVER ROUGE RIVER		DRAWING	SHEET
MAINTENANCE OF TRAFFIC			5 OF 38

27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00

STAGE I



LIGHTED ARROW, TYPE C



W4-2R
(36" X 36")

Pavt Mrkg, Wet Reflective,
Paint, 4 inch, White, Temp



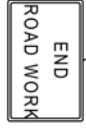
R2-4
(18" X 24")



W3-5
(36" X 36")



W20-1
(36" X 36")



G20-2a
(36" X 18")

PLYMOUTH RD

PAVEMENT MARKING LEGEND

- SW SOLID WHITE
- SY SOLID YELLOW
- DSY DOUBLE SOLID YELLOW
- SKW SKIP WHITE (10 ft Solid + 30 ft Gap)
- SKY SKIP YELLOW (10 ft Solid + 30 ft Gap)
- DW DOTTED WHITE (2 ft Solid + 6 ft Gap)
- DDY DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
- SB STOP BAR

ALL SIGNS AND PAVEMENT MARKING
PLAN SHOWN ARE PROPOSED

MATCH LINE (C-C)

MATCH LINE (D-D)

160'

100'

200'

200'

200'

4' SW

EXISTING MARKINGS

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

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JN 207699

BW-271-PLYMOUTH		DRAWING	SHEET
MAINTENANCE OF TRAFFIC			6 OF 38

37+00

38+00

39+00

40+00

STAGE I



R9-11a
(24"X12")



TYPE II, BARRICADE

BURT RD

PLYMOUTH RD

MATCH LINE (D-D)

EXISTING MARKINGS

PAVEMENT MARKING LEGEND

- SW SOLID WHITE
- SY SOLID YELLOW
- DSY DOUBLE SOLID YELLOW
- SKW SKIP WHITE (10 ft Solid + 30 ft Gap)
- SKY SKIP YELLOW (10 ft Solid + 30 ft Gap)
- DW DOTTED WHITE (2 ft Solid + 6 ft Gap)
- DDY DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
- SB STOP BAR

ALL SIGNS AND PAVEMENT MARKING
PLAN SHOWN ARE PROPOSED

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

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CHECKED BY:			

JN 207699

BW-271-PLYMOUTH
MAINTENANCE OF TRAFFIC

DRAWING	SHEET
	7 OF 38

PAVEMENT MARKING LEGEND

SW	SOLID WHITE
SY	SOLID YELLOW
DSY	DOUBLE SOLID YELLOW
SKW	SKIP WHITE (10 ft Solid + 30 ft Gap)
SKY	SKIP YELLOW (10 ft Solid + 30 ft Gap)
DW	DOTTED WHITE (2 ft Solid + 6 ft Gap)
DDY	DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
SB	STOP BAR

ALL SIGNS AND PAVEMENT MARKING PLAN SHOWN ARE PROPOSED

STAGE II



0+00

1+00

2+00

3+00

4+00

5+00

6+00

7+00

PLYMOUTH RD

OUTER DR W

ROUGE PK DR

MATCH LINE (A-A)

END ROAD WORK
G20-2a
(36"X18")

EXISTING MARKINGS

EXISTING MARKINGS

EXISTING MARKINGS

PLASTIC DRUM

PLASTIC DRUM

PLASTIC DRUM

Pavt Mrkg, Wet Reflective, Paint, 4 inch, White, Temp

LIGHTED ARROW, TYPE C

ROAD WORK AHEAD
W20-1
(36"X36")

THRU TRAFFIC MERGE RIGHT
W4-7
(36"X36")

SIDEWALK CLOSED
R9-9
(24"X12")

W1-6L
(48"X24")

TYPE II, BARRICADE

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
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DRAWN BY: SARMAD AL TAMEEMI	DATE: 11 / 12 / 2020
CHECKED BY:	

JN 207699

BW-271-PLYMOUTH		DRAWING	SHEET
MAINTENANCE OF TRAFFIC			8 OF 38

8+00

9+00

10+00

11+00

12+00

13+00

14+00

15+00

16+00

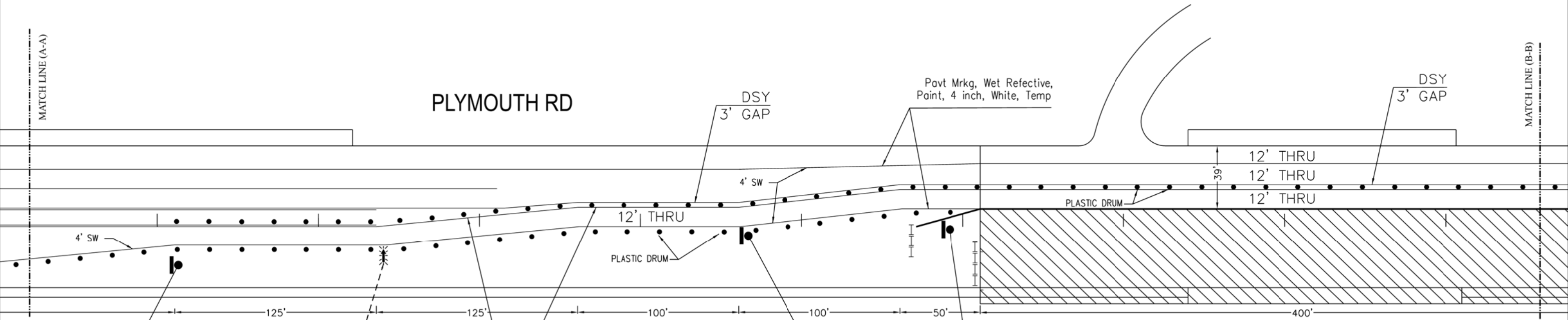
STAGE II



PLYMOUTH RD

MATCH LINE (A-A)

MATCH LINE (B-B)



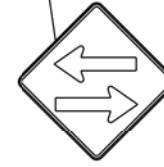
W1-4
(36"X36")

LIGHTED ARROW, TYPE C

Pavt Mrkg, Wet Reflective,
Paint, 4 inch, Yellow, Temp



W1-6L
(48"X24")



W6-3
(36"X36")

PAVEMENT MARKING LEGEND

- SW SOLID WHITE
- SY SOLID YELLOW
- DSY DOUBLE SOLID YELLOW
- SKW SKIP WHITE (10 ft Solid + 30 ft Gap)
- SKY SKIP YELLOW (10 ft Solid + 30 ft Gap)
- DW DOTTED WHITE (2 ft Solid + 6 ft Gap)
- DDY DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
- SB STOP BAR

ALL SIGNS AND PAVEMENT MARKING
PLAN SHOWN ARE PROPOSED

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

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 DRAWN BY: SARMAD AL TAMEEMI
 CHECKED BY:

APPROVED BY:
 DATE: 11 / 12 / 2020

JN 207699

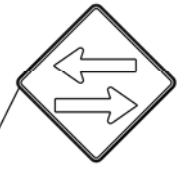
BW-271-PLYMOUTH
 MAINTENANCE OF TRAFFIC

DRAWING SHEET
 9 OF 38

17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00

STAGE II

PLYMOUTH RD



W6-3
(36"X36")



W4-2
(36"X36")



R2-4
(18"X24")



LIGHTED ARROW, TYPE C

Pavt Mrkg, Wet Refectve,
Point, 4 inch, White, Temp

Pavt Mrkg, Wet Refectve,
Point, 4 inch, Yellow, Temp



R9-9
(24"X12")

PLASTIC DRUM

PLASTIC DRUM

EXISTING MARKINGS

CONC BARRIER,
TEMP

TYPE II, BARRICADE

11' THRU
11' THRU

4' SW

4' DSY

4' DSY

PAVEMENT MARKING LEGEND

- SW SOLID WHITE
- SY SOLID YELLOW
- DSY DOUBLE SOLID YELLOW
- SKW SKIP WHITE (10 ft Solid + 30 ft Gap)
- SKY SKIP YELLOW (10 ft Solid + 30 ft Gap)
- DW DOTTED WHITE (2 ft Solid + 6 ft Gap)
- DDY DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
- SB STOP BAR

ALL SIGNS AND PAVEMENT MARKING
PLAN SHOWN ARE PROPOSED

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

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BW-271-PLYMOUTH
MAINTENANCE OF TRAFFIC

DRAWING SHEET
10 OF 38

27+00

28+00

29+00

30+00

31+00

32+00

33+00

34+00

35+00

36+00

STAGE II



MATCH LINE (C-C)

MATCH LINE (D-D)



W3-5
(36"X36")



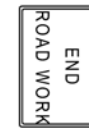
W20-1
(36"X36")

200'

200'

EXISTING MARKINGS

PLYMOUTH RD



G20-2a
(36"X18")

PAVEMENT MARKING LEGEND

- SW SOLID WHITE
- SY SOLID YELLOW
- DSY DOUBLE SOLID YELLOW
- SKW SKIP WHITE (10 ft Solid + 30 ft Gap)
- SKY SKIP YELLOW (10 ft Solid + 30 ft Gap)
- DW DOTTED WHITE (2 ft Solid + 6 ft Gap)
- DDY DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
- SB STOP BAR

ALL SIGNS AND PAVEMENT MARKING
PLAN SHOWN ARE PROPOSED

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)



NO SCALE

DESIGNED BY: MAHER ELSALTI

APPROVED BY:

DRAWN BY: SARMAD AL TAMEEMI

DATE: 11 / 12 / 2020

CHECKED BY:

JN 207699

BW-271-PLYMOUTH
MAINTENANCE OF TRAFFIC

DRAWING SHEET

11 OF 38

PAVEMENT MARKING LEGEND

- SW SOLID WHITE
- SY SOLID YELLOW
- DSY DOUBLE SOLID YELLOW
- SKW SKIP WHITE (10 ft Solid + 30 ft Gap)
- SKY SKIP YELLOW (10 ft Solid + 30 ft Gap)
- DW DOTTED WHITE (2 ft Solid + 6 ft Gap)
- DDY DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
- SB STOP BAR

ALL SIGNS AND PAVEMENT MARKING
PLAN SHOWN ARE PROPOSED

**STAGE III
RESTORATION**



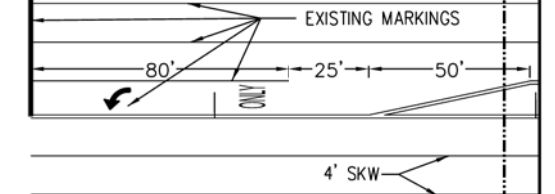
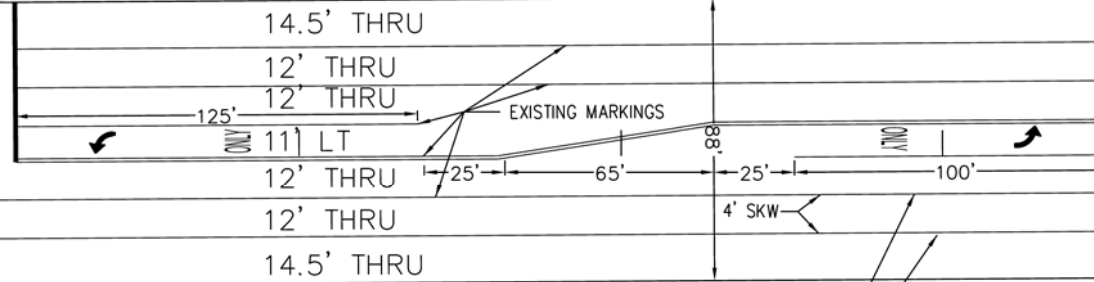
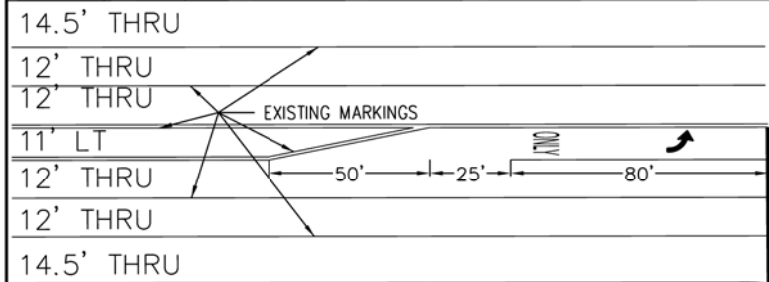
0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00

OUTER DR W

ROUGE PK DR

PLYMOUTH RD

MATCH LINE (A-A)



Pavt Mrkg, Sprayable
Thermopl, 4 inch, White

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

DESIGNED BY:	MAHER ELSALTI	APPROVED BY:	
DRAWN BY:	SARMAD AL TAMEEMI	DATE:	11 / 12 / 2020
CHECKED BY:			

JN 207699

BW-271-PLYMOUTH
MAINTENANCE OF TRAFFIC

DRAWING SHEET
12 OF 38

8+00

9+00

10+00

11+00

12+00

13+00

14+00

15+00

16+00

STAGE III RESTORATION



PLYMOUTH RD

MATCH LINE (A-A)

MATCH LINE (B-B)

14.5' THRU
12' THRU
12' THRU
11' LT
12' THRU
12' THRU
14.5' THRU

Pavt Mrkg, Sprayable
Thermopl, 4 inch, Yellow

Pavt Mrkg, Sprayable
Thermopl, 4 inch, White

4' SKW

4' SKY

4' SY

4' SY

4' SKW

PAVEMENT MARKING LEGEND

- SW SOLID WHITE
- SY SOLID YELLOW
- DSY DOUBLE SOLID YELLOW
- SKW SKIP WHITE (10 ft Solid + 30 ft Gap)
- SKY SKIP YELLOW (10 ft Solid + 30 ft Gap)
- DW DOTTED WHITE (2 ft Solid + 6 ft Gap)
- DDY DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
- SB STOP BAR

ALL SIGNS AND PAVEMENT MARKING
PLAN SHOWN ARE PROPOSED

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

DESIGNED BY: MAHER ELSALTI
 DRAWN BY: SARMAD AL TAMEEMI
 CHECKED BY:

APPROVED BY:
 DATE: 11 / 12 / 2020

CS: 82000

JN: 207699A

BW-271-PLYMOUTH
MAINTENANCE OF TRAFFIC

DRAWING

SHEET

13 OF 38

17+00

18+00

19+00

20+00

21+00

22+00

23+00

24+00

25+00

26+00

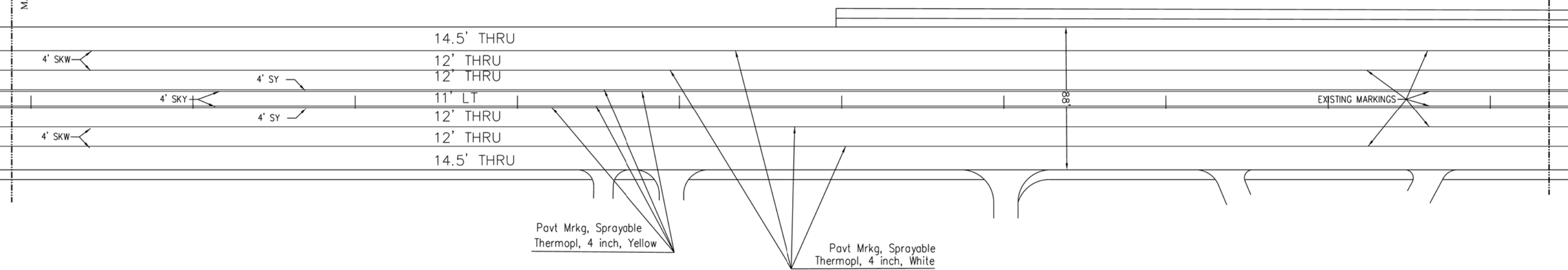
STAGE III RESTORATION



PLYMOUTH RD

MATCH LINE (B-B)

MATCH LINE (C-C)



PAVEMENT MARKING LEGEND

- SW SOLID WHITE
- SY SOLID YELLOW
- DSY DOUBLE SOLID YELLOW
- SKW SKIP WHITE (10 ft Solid + 30 ft Gap)
- SKY SKIP YELLOW (10 ft Solid + 30 ft Gap)
- DW DOTTED WHITE (2 ft Solid + 6 ft Gap)
- DDY DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
- SB STOP BAR

ALL SIGNS AND PAVEMENT MARKING
PLAN SHOWN ARE PROPOSED

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

DESIGNED BY: MAHER ELSALTI
 DRAWN BY: SARMAD AL TAMEEMI
 CHECKED BY:

APPROVED BY:
 DATE: 11/12/2020

CS: 82000

JN: 207699A

BW-271-PLYMOUTH
MAINTENANCE OF TRAFFIC

DRAWING SHEET
 14 OF 38

27+00

28+00

29+00

30+00

31+00

32+00

33+00

34+00

35+00

36+00

STAGE III RESTORATION



MATCH LINE (C-C)

MATCH LINE (D-D)

14.5' THRU
12' THRU
12' THRU
11' LT
12' THRU
12' THRU
14.5' THRU

EXISTING MARKINGS

88

PLYMOUTH RD

PAVEMENT MARKING LEGEND

- SW SOLID WHITE
- SY SOLID YELLOW
- DSY DOUBLE SOLID YELLOW
- SKW SKIP WHITE (10 ft Solid + 30 ft Gap)
- SKY SKIP YELLOW (10 ft Solid + 30 ft Gap)
- DW DOTTED WHITE (2 ft Solid + 6 ft Gap)
- DDY DOUBLE DOTTED YELLOW (2 ft Solid + 6 ft Gap)
- SB STOP BAR

ALL SIGNS AND PAVEMENT MARKING
PLAN SHOWN ARE PROPOSED

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

DESIGNED BY : MAHER ELSALTI
 DRAWN BY : SARMAD AL TAMEEMI
 CHECKED BY :

APPROVED BY :
 DATE: 11 / 12 / 2020

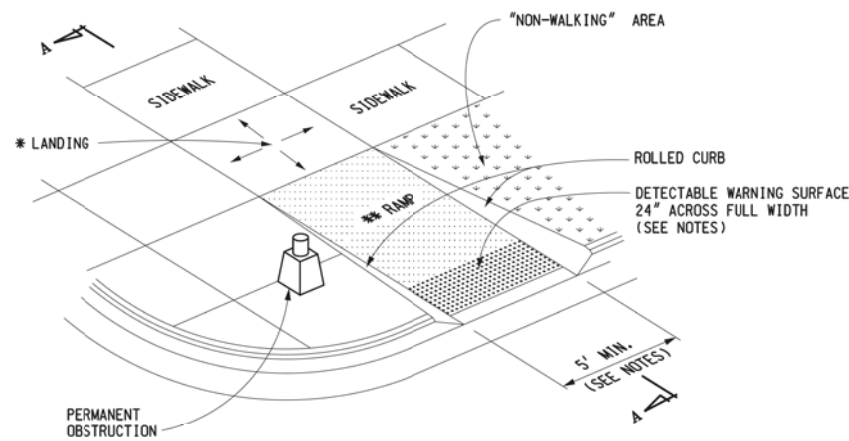
CS: BHT-82000
 JN: 207699A

BW-271-PLYMOUTH
 MAINTENANCE OF TRAFFIC

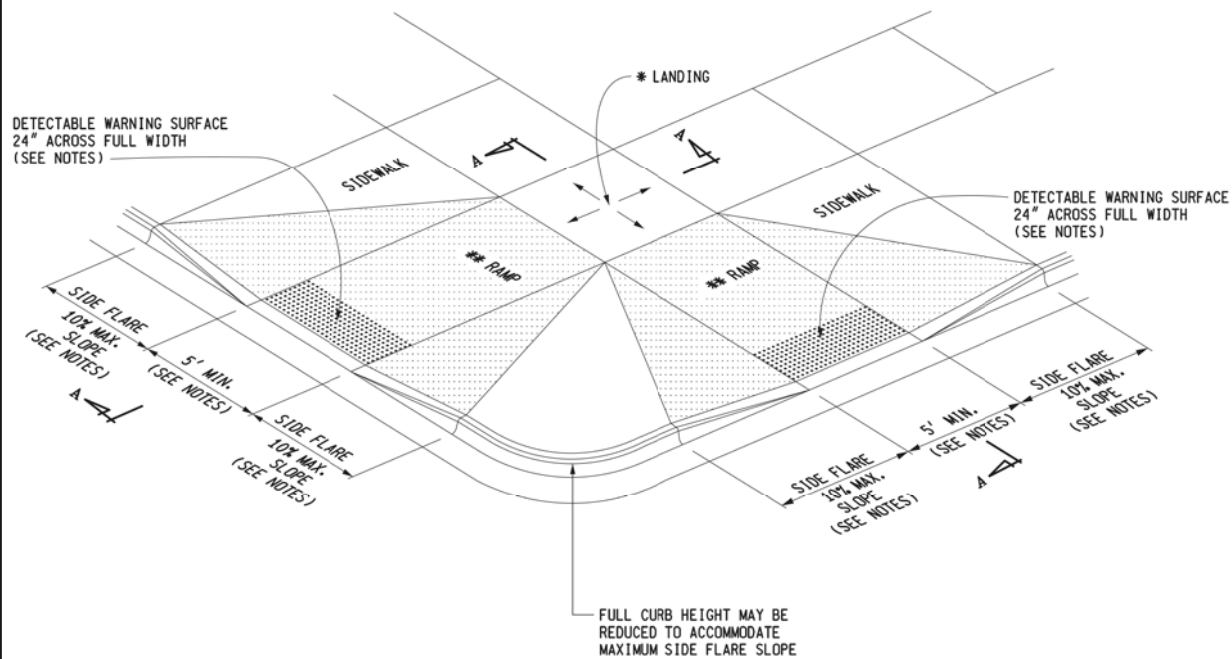
DRAWING	SHEET
	15 OF 38

* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



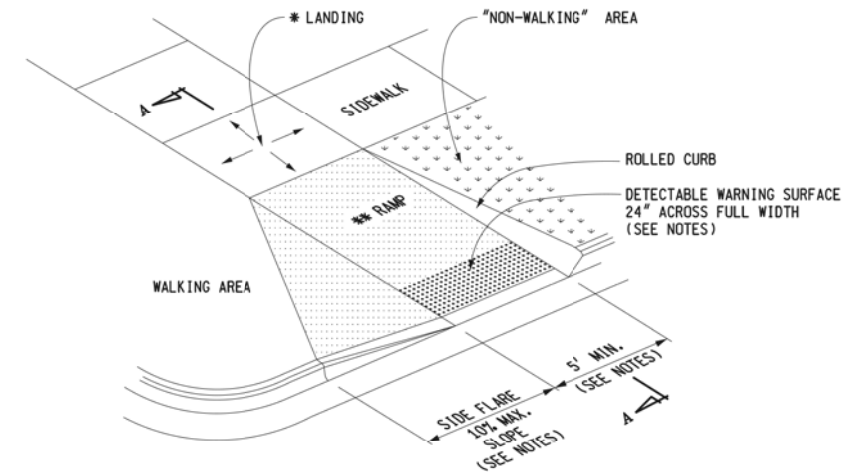
CURB RAMP TYPE R
(ROLLED SIDES)



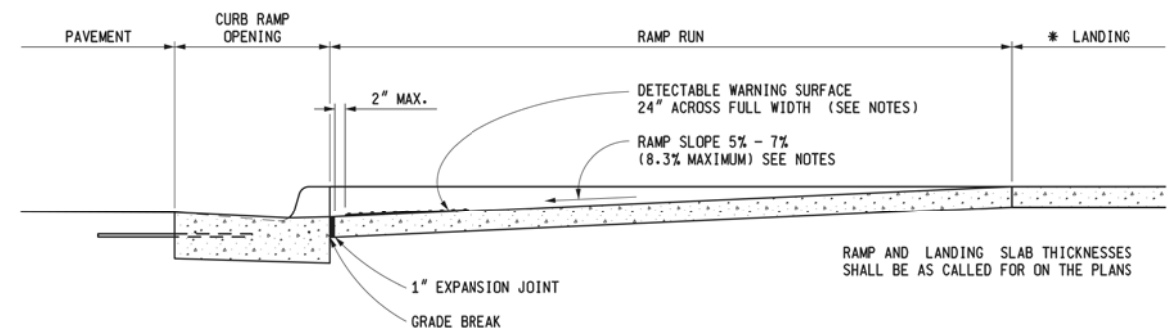
CURB RAMP TYPE F
(FLARED SIDES, TWO RAMPS SHOWN)

* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



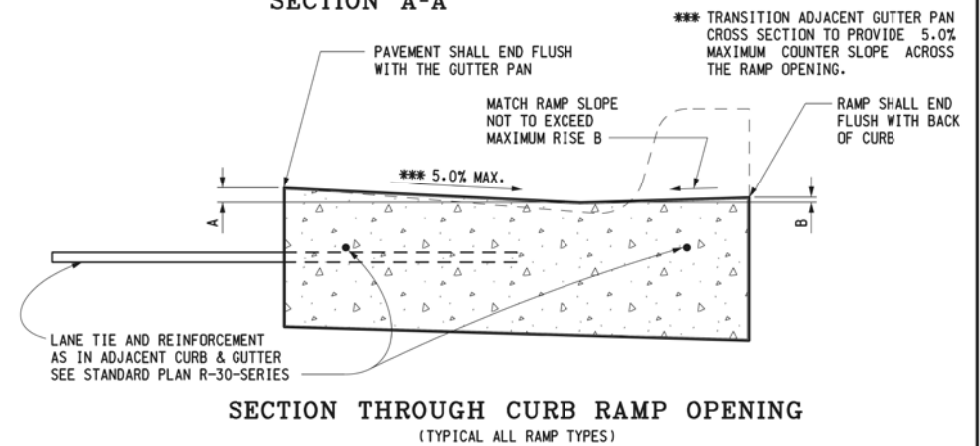
CURB RAMP TYPE RF
(ROLLED / FLARED SIDES)



SECTION A-A

CURB TYPE	MAXIMUM RISE (INCHES)	
	A	B
B1	3/4	1
B2	3/4	1
B3	3/4	1
D1	3/4	1
D2	3/4	1
D3	3/4	1
C1	1/2	1/2
C2	1/2	1/2
C3	3/4	1/2
C4	3/4	1/2
C5	1	1/2
C6	1	1/2
F1	1/2	1/2
F2	1/2	1/2
F3	3/4	1/2
F4	3/4	1/2
F5	1	1/2
F6	1	1/2

FOR CURB TYPES SEE STANDARD PLAN R-30-SERIES



SECTION THROUGH CURB RAMP OPENING
(TYPICAL ALL RAMP TYPES)

<p>PREPARED BY DESIGN DIVISION DRAWN BY: <u>B.L.T.</u> CHECKED BY: <u>W.K.P.</u></p>	<p>DEPARTMENT DIRECTOR Paul C. Ajegba</p> <p>APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES</p>	<p>MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR</p> <p>CURB RAMP AND DETECTABLE WARNING DETAILS</p>	
	<p>APPROVED BY: _____ DIRECTOR, BUREAU OF DEVELOPMENT</p>	<p>F.H.W.A. APPROVAL</p>	<p>5-8-2020 PLAN DATE</p>

<p>MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR</p> <p>CURB RAMP AND DETECTABLE WARNING DETAILS</p>	
<p>F.H.W.A. APPROVAL</p>	<p>18-812007 PLAN DATE</p>
<p>R-28-J SHEET 2 OF 7</p>	

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

DATE:	CS:	DRAWING	SHEET
DESIGN UNIT:	JN:		SECT
TSC:			

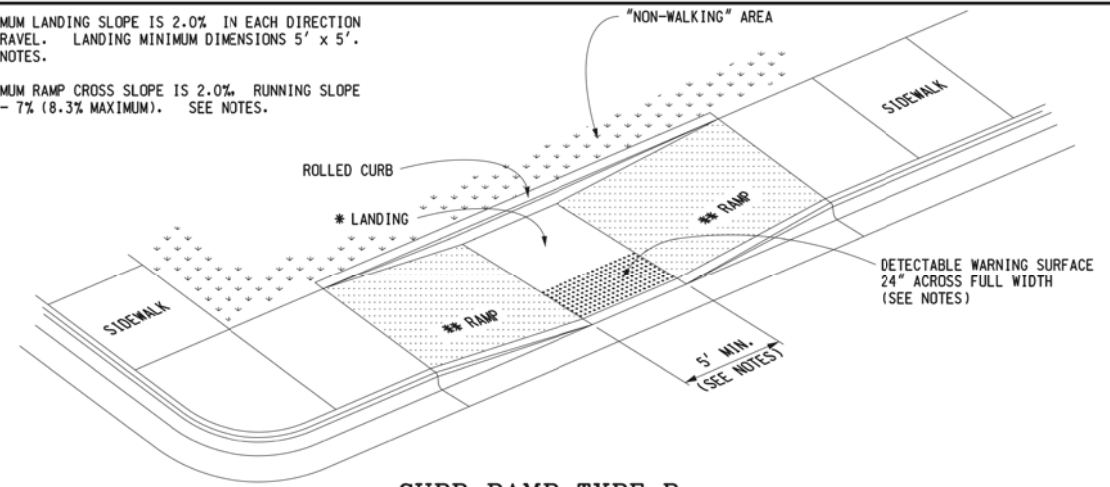
FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



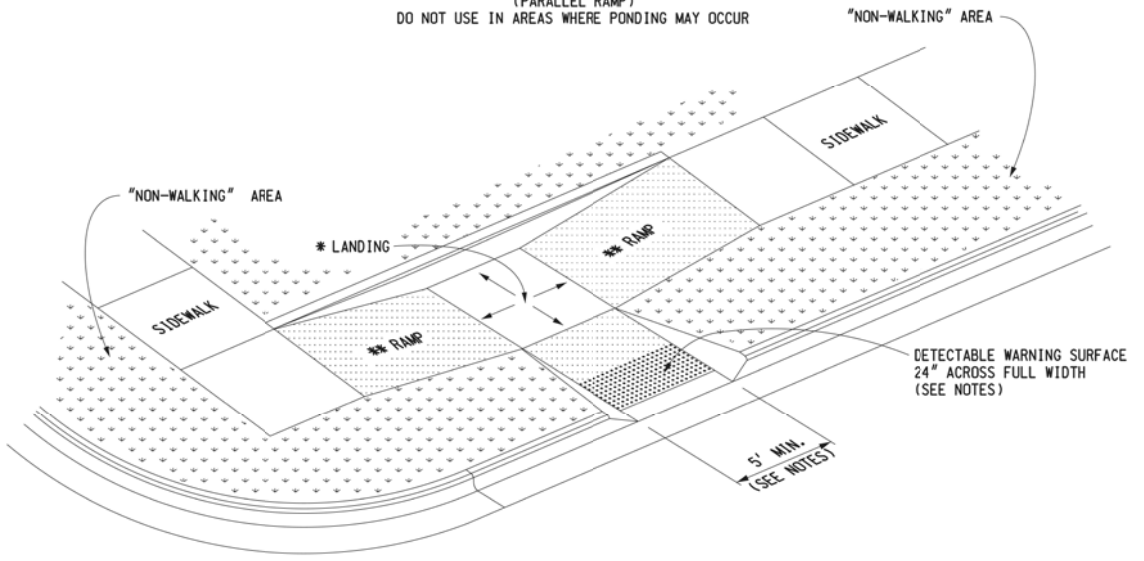
NO SCALE

DESIGNED BY: MAHER ELSALTI	APPROVED BY:	CS: BHT-82000	BW-271-PLYMOUTH	DRAWING	SHEET
DRAWN BY: SARMAD AL TAMEEMI	DATE: 11/12/2020	JN: 207699A	SPECIAL DETAILS		
CHECKED BY:					16 OF 38

* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.
 ** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.

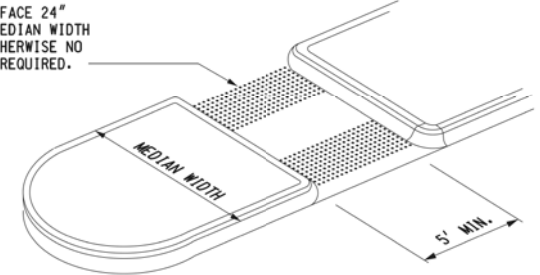


CURB RAMP TYPE P
 (PARALLEL RAMP)
 DO NOT USE IN AREAS WHERE PONDING MAY OCCUR



CURB RAMP TYPE C
 (COMBINATION RAMP)

DETECTABLE WARNING SURFACE 24" ACROSS FULL WIDTH IF MEDIAN WIDTH IS AT LEAST 6'-0". OTHERWISE NO DETECTABLE WARNING IS REQUIRED.



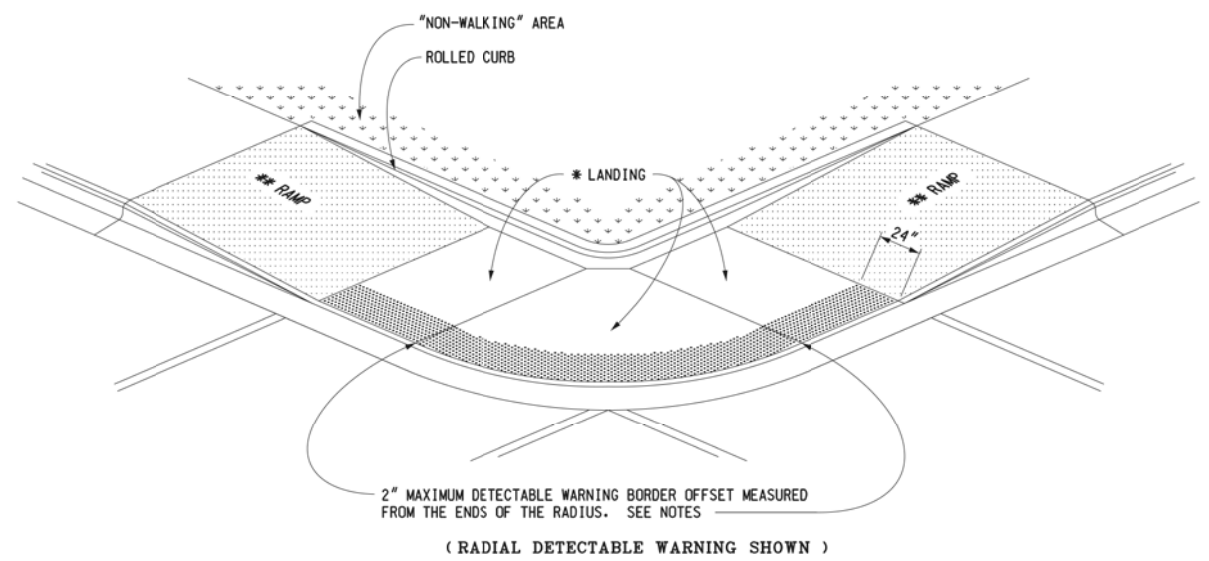
CURB RAMP TYPE M
 (MEDIAN ISLAND)

MICHIGAN DEPARTMENT OF TRANSPORTATION
 BUREAU OF DEVELOPMENT STANDARD PLAN FOR

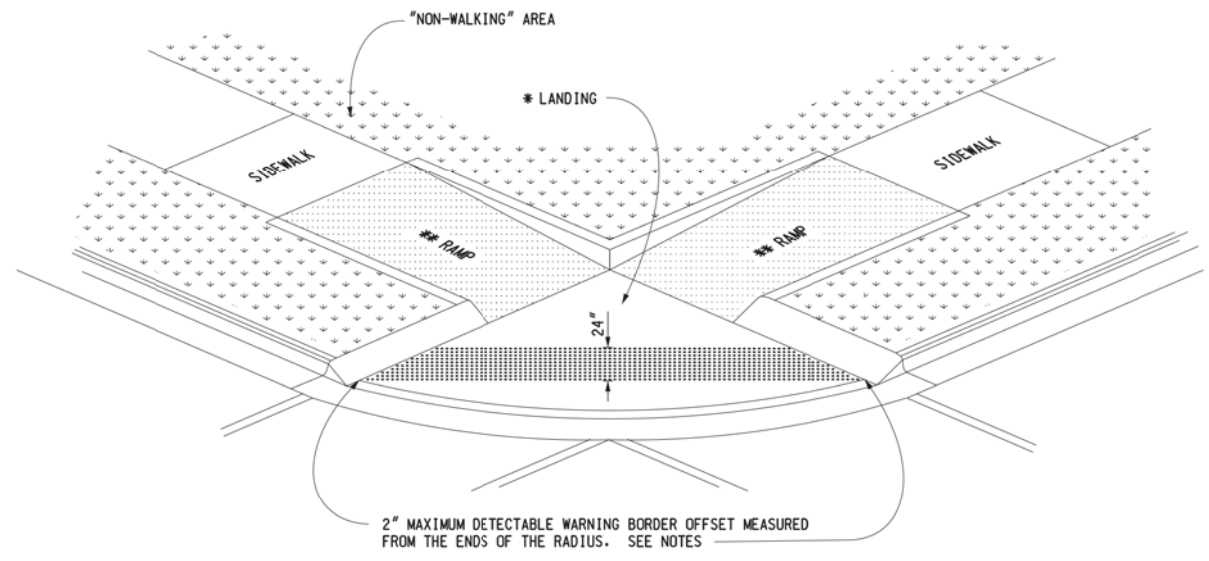
**CURB RAMP AND
 DETECTABLE WARNING DETAILS**

F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 3 OF 7
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* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.
 ** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



(RADIAL DETECTABLE WARNING SHOWN)



(TANGENT DETECTABLE WARNING SHOWN)

CURB RAMP TYPE D
 (DEPRESSED CORNER)

USE ONLY WHEN INDEPENDENT DIRECTIONAL RAMP CAN NOT BE CONSTRUCTED FOR EACH CROSSING DIRECTION

MICHIGAN DEPARTMENT OF TRANSPORTATION
 BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**CURB RAMP AND
 DETECTABLE WARNING DETAILS**

F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 4 OF 7
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FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

DATE:	CS:	DRAWING	SHEET
DESIGN UNIT:	JN:		
TSC:			

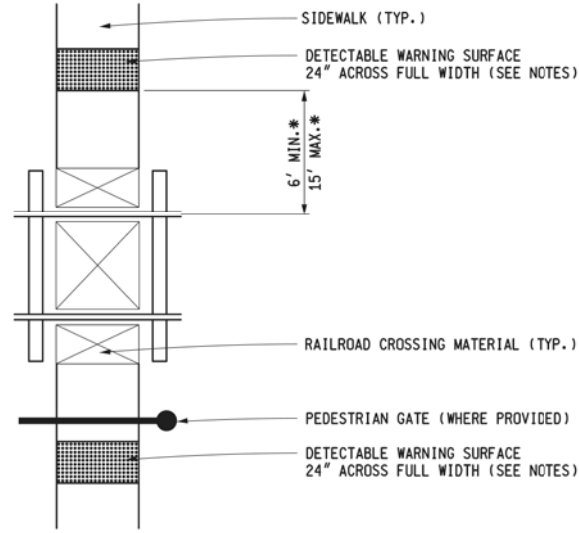
FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



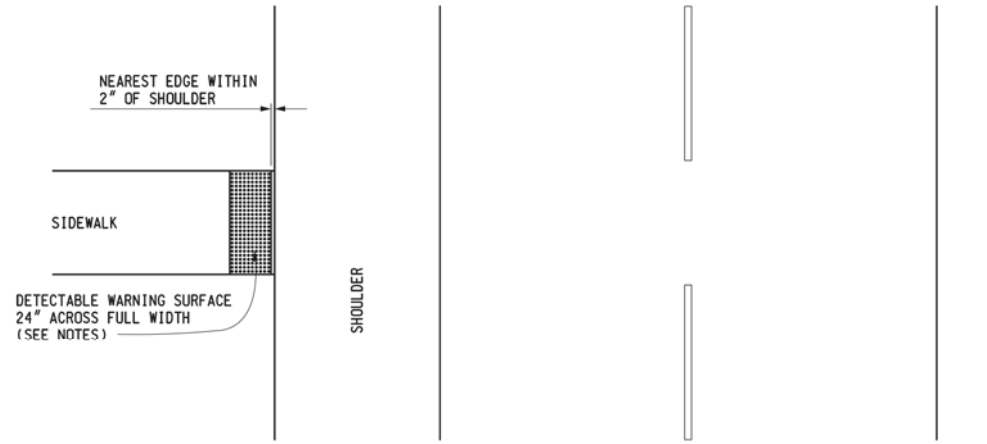
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DESIGNED BY: MAHER ELSALTI	APPROVED BY:	CS: BHT-82000	BW-271-PLYMOUTH	DRAWING	SHEET
DRAWN BY: SARMAD AL TAMEEMI	DATE: 11/12/2020	JN: 207699A	SPECIAL DETAILS		
CHECKED BY:					17 OF 38

* THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE RAIL CROSSING IS 6' MINIMUM AND 15' MAXIMUM FROM THE CENTERLINE OF THE NEAREST RAIL. DO NOT PLACE DETECTABLE WARNING ON RAILROAD CROSSING MATERIAL.



DETECTABLE WARNING AT RAILROAD CROSSING

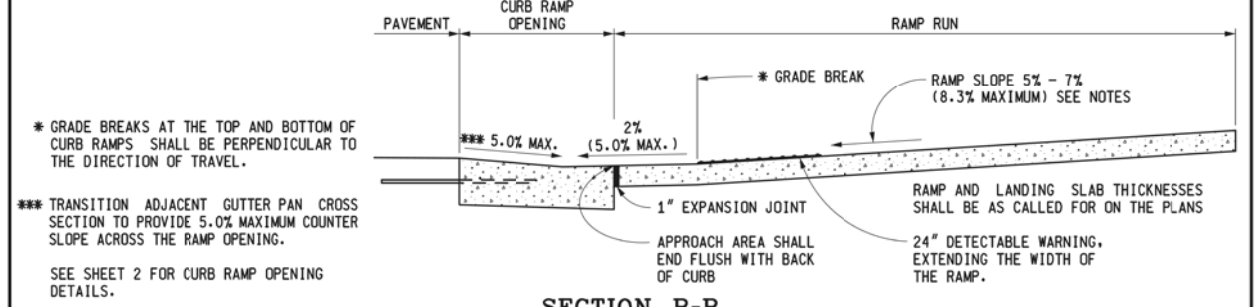
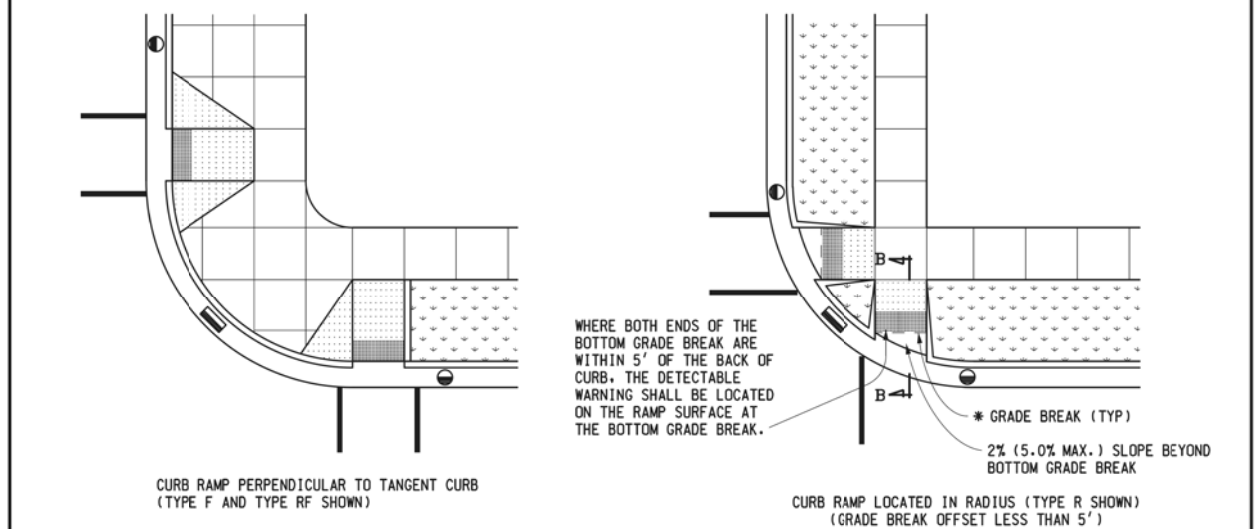
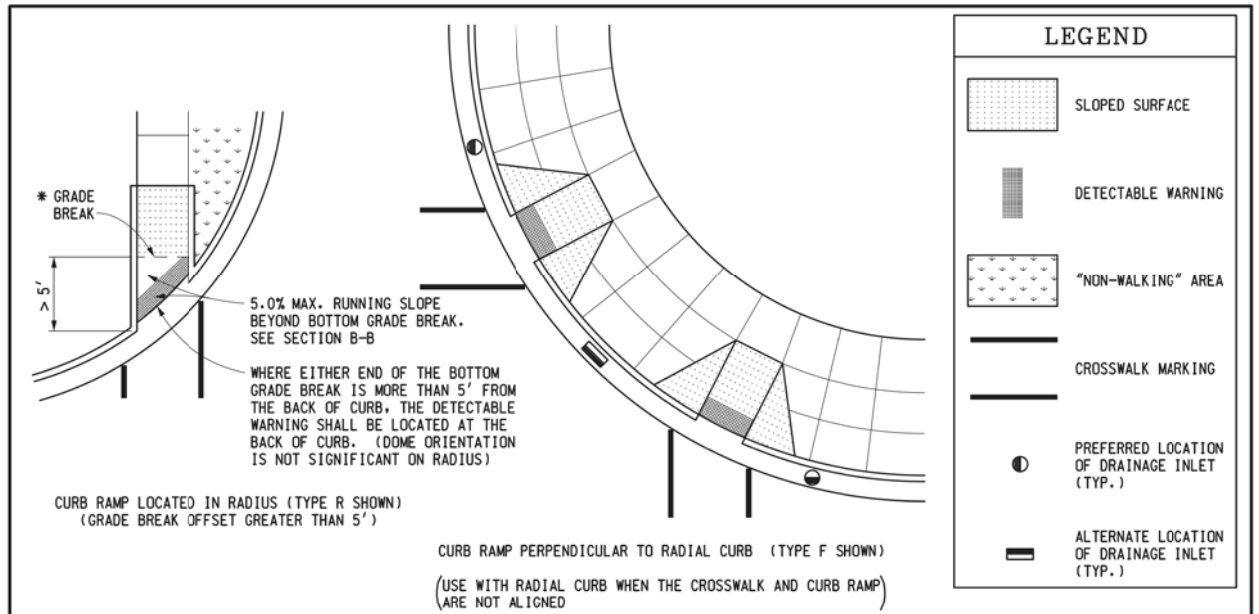


DETECTABLE WARNING AT FLUSH SHOULDER OR ROADWAY

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**CURB RAMP AND
DETECTABLE WARNING DETAILS**

F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 5 OF 7
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SECTION B-B
SIDEWALK RAMP ORIENTATION

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**CURB RAMP AND
DETECTABLE WARNING DETAILS**

F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 6 OF 7
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FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

FILE:	DATE:	CS:	DRAWING	SHEET
	DESIGN UNIT:	JN:		
	TSC:			

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

DESIGNED BY: MAHER ELSALTI	APPROVED BY:	CS: BHT-82000	BW-271-PLYMOUTH	DRAWING	SHEET
DRAWN BY: SARMAD AL TAMEEMI	DATE: 11/12/2020	JN: 207699A	SPECIAL DETAILS		
CHECKED BY:					18 OF 38

DOME SECTION

DOME SPACING

DOME ALIGNMENT

DETECTABLE WARNING DETAILS

NOTES:

DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION, RECONSTRUCTION, OR ALTERATION OF STREETS, CURBS, OR SIDEWALKS IN THE PUBLIC RIGHT OF WAY.

CURB RAMPS ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

RAMPS SHALL BE PROVIDED AT ALL CORNERS OF AN INTERSECTION WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB. RAMPS SHALL ALSO BE PROVIDED AT MARKED AND/OR SIGNALIZED MID-BLOCK CROSSINGS.

SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOMING, TRANSVERSE TO THE RUNNING SLOPE.

SIDEWALK SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.

CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP. WHERE CONDITIONS PERMIT, IT IS DESIRABLE THAT THE SLOPE OF THE RAMP BE IN ONLY ONE DIRECTION, PARALLEL TO THE DIRECTION OF TRAVEL.

RAMP WIDTH SHALL BE INCREASED, IF NECESSARY, TO ACCOMMODATE SIDEWALK SNOW REMOVAL EQUIPMENT NORMALLY USED BY THE MUNICIPALITY.

WHEN 5' MINIMUM WIDTHS ARE NOT PRACTICABLE, RAMP WIDTH MAY BE REDUCED TO NOT LESS THAN 4' AND LANDINGS TO NOT LESS THAN 4' x 4'.

CURB RAMPS WITH A RUNNING SLOPE ≤5% DO NOT REQUIRE A TOP LANDING. HOWEVER, ANY CONTINUOUS SIDEWALK OR PEDESTRIAN ROUTE CROSSING THROUGH OR INTERSECTING THE CURB RAMP MUST INDEPENDENTLY MAINTAIN A CROSS SLOPE NOT GREATER THAN 2% PERPENDICULAR TO ITS OWN DIRECTION(S) OF TRAVEL.

DETECTABLE WARNING SURFACE COVERAGE IS 24" MINIMUM IN THE DIRECTION OF RAMP/PATH TRAVEL AND THE FULL WIDTH OF THE RAMP/PATH OPENING EXCLUDING CURBED OR FLARED CURB TRANSITION AREAS. A BORDER OFFSET NOT GREATER THAN 2" MEASURED ALONG THE EDGES OF THE DETECTABLE WARNING IS ALLOWABLE. FOR RADIAL CURB THE OFFSET IS MEASURED FROM THE ENDS OF THE RADIUS.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

F.H.W.A. APPROVAL	PLAN DATE	SHEET OF
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DOME SECTION

DOME SPACING

DOME ALIGNMENT

DETECTABLE WARNING DETAILS

NOTES:

DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION, RECONSTRUCTION, OR ALTERATION OF STREETS, CURBS, OR SIDEWALKS IN THE PUBLIC RIGHT OF WAY.

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MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND
DETECTABLE WARNING DETAILS

F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J SHEET 7 OF 7
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FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

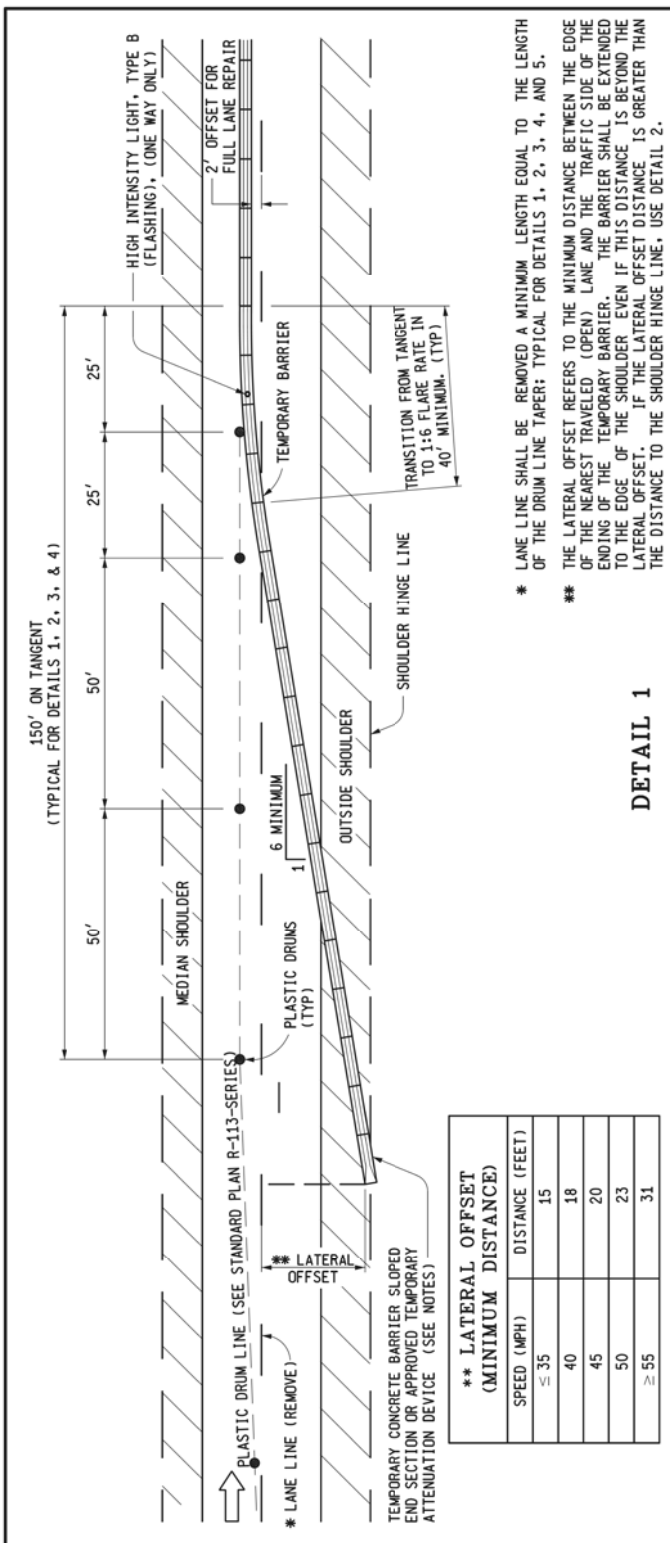
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DESIGN UNIT:	JN:		
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FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

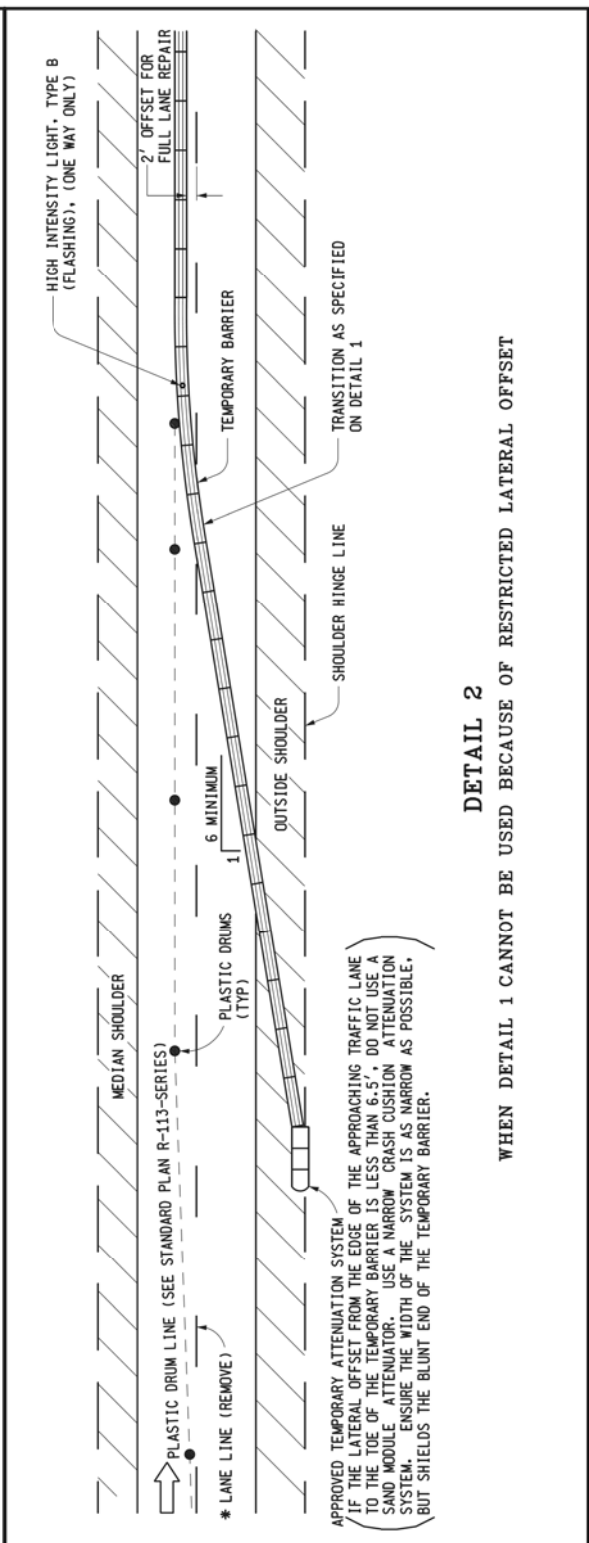
DESIGNED BY: MAHER ELSALTI	APPROVED BY:	CS: BHT-82000	DRAWING
DRAWN BY: SARMAD AL TAMEEMI	DATE: 11/12/2020	JN: 207699A	SHEET
CHECKED BY:			19 OF 38



* LANE LINE SHALL BE REMOVED A MINIMUM LENGTH EQUAL TO THE LENGTH OF THE DRUM LINE TAPER: TYPICAL FOR DETAILS 1, 2, 3, 4, AND 5.

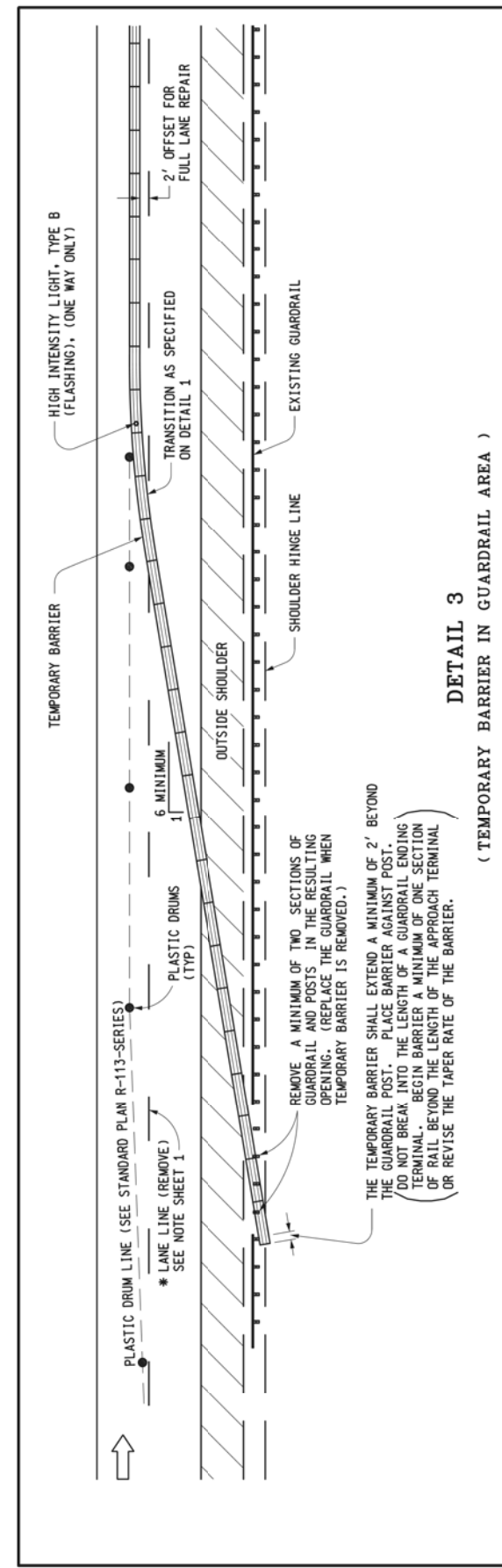
** THE LATERAL OFFSET REFERS TO THE MINIMUM DISTANCE BETWEEN THE EDGE OF THE NEAREST TRAVELED (OPEN) LANE AND THE TRAFFIC SIDE OF THE ENDING OF THE TEMPORARY BARRIER. THE BARRIER SHALL BE EXTENDED TO THE EDGE OF THE SHOULDER EVEN IF THIS DISTANCE IS GREATER THAN THE LATERAL OFFSET. IF THE LATERAL OFFSET DISTANCE IS GREATER THAN THE DISTANCE TO THE SHOULDER HINGE LINE, USE DETAIL 2.

DETAIL 1



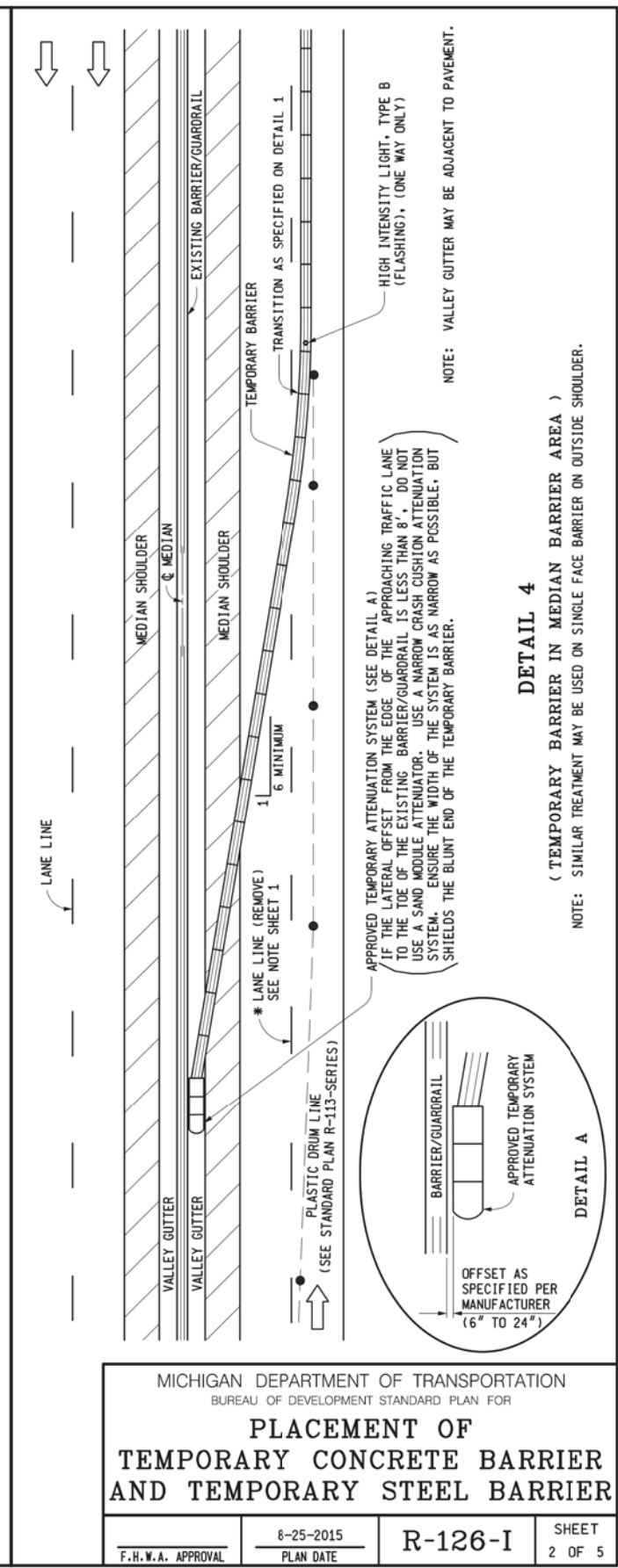
DETAIL 2

WHEN DETAIL 1 CANNOT BE USED BECAUSE OF RESTRICTED LATERAL OFFSET



DETAIL 3

(TEMPORARY BARRIER IN GUARDRAIL AREA)



DETAIL 4

(TEMPORARY BARRIER IN MEDIAN BARRIER AREA)

MDOT Michigan Department of Transportation

DEPARTMENT DIRECTOR
Kirk T. Steudle

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

DESIGN DIVISION

DRAWN BY: B.L.T.

CHECKED BY: W.K.P.

APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**PLACEMENT OF
TEMPORARY CONCRETE BARRIER
AND TEMPORARY STEEL BARRIER**

F.H.W.A. APPROVAL _____

8-25-2015 PLAN DATE

R-126-I SHEET 1 OF 5

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**PLACEMENT OF
TEMPORARY CONCRETE BARRIER
AND TEMPORARY STEEL BARRIER**

F.H.W.A. APPROVAL _____

8-25-2015 PLAN DATE

R-126-I SHEET 2 OF 5

AS-LET PLAN REVISIONS

NO.	DATE	AUTH	DESCRIPTION

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

NO.	DATE	AUTH	DESCRIPTION

MDOT Michigan Department of Transportation

0 VERT. (FT)
0 HORZ. (FT)

DATE: _____ CS: _____
DESIGN UNIT: _____ JN: _____
TSC: _____

FILE: _____

CITY OF DETROIT MICHIGAN

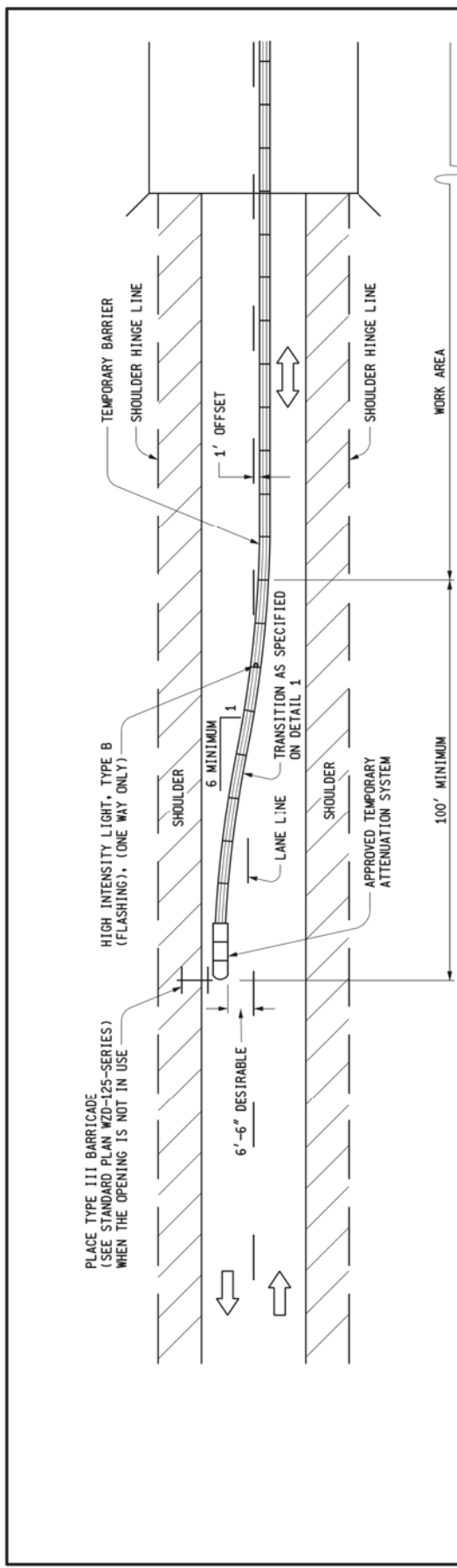
NO SCALE

DESIGNED BY: MAHER ELSALTI
DRAWN BY: SARMAD AL TAMEEMI
CHECKED BY: _____

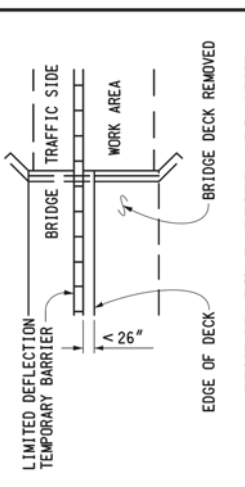
APPROVED BY: _____
DATE: 11/12/2020

CS: BHT-82000
JN: 207699A

DRAWING SHEET
20 OF 38



DETAIL 5
(TRAILING END OF TEMPORARY BARRIER ON TWO-WAY ROADWAY)



TEMPORARY BARRIER ADJACENT TO A PRECIPITOUS DROP-OFF

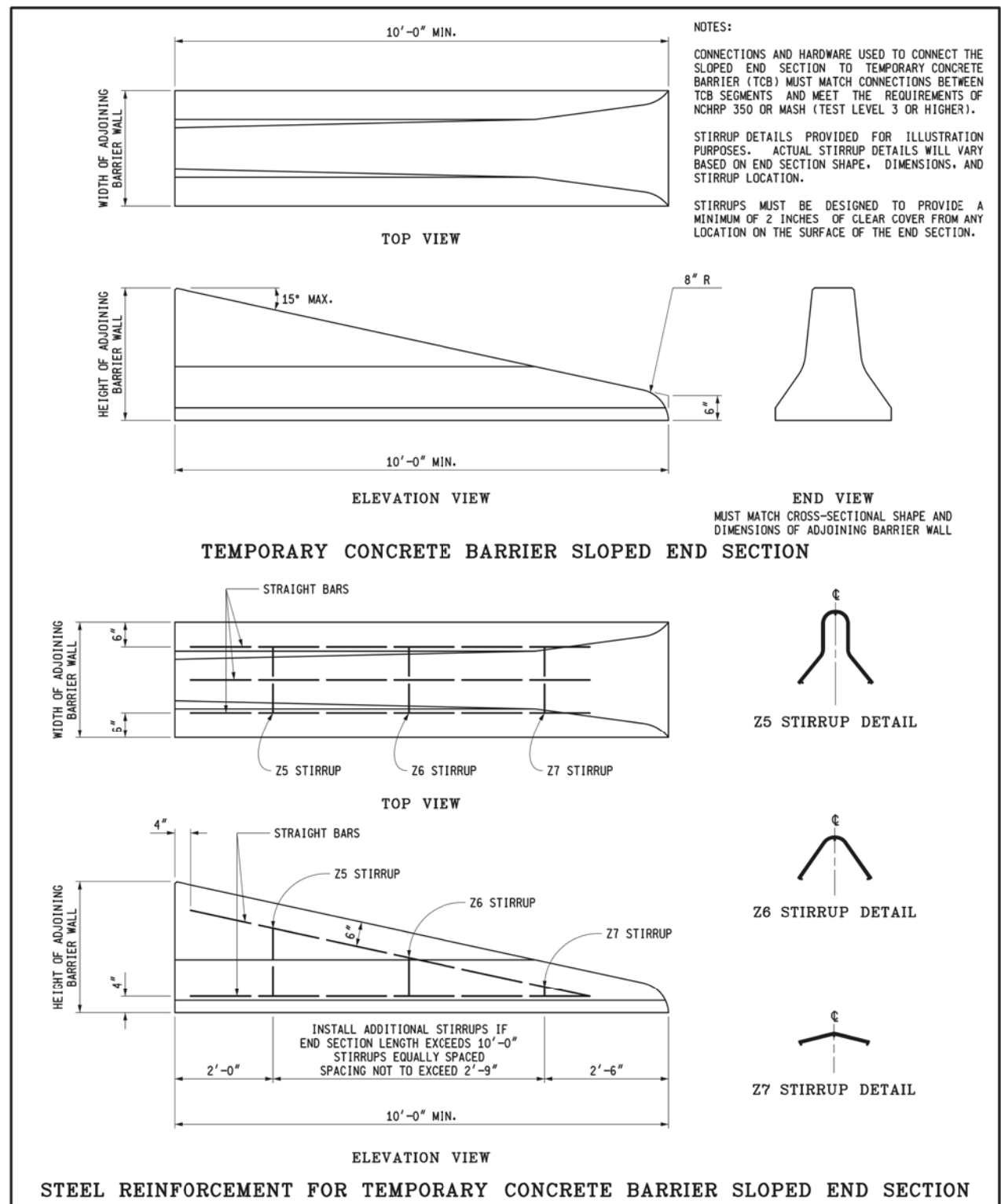
DETAIL 5 NOTES:
 WHERE CONTROLLED BI-DIRECTIONAL TRAFFIC IS MAINTAINED ON A SINGLE LANE, THE PLACING OF TEMPORARY BARRIER ON THE APPROACHING END OF A LANE CLOSURE SHALL BE THE SAME AS SPECIFIED ON DETAIL 1, 2 OR 3. THE TRAILING END OF THE LANE CLOSURE SHALL BE AS SPECIFIED ON DETAIL 5. PLASTIC DRUM LINE TAPER WILL BE ACCORDING TO THE CURRENT MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES OR WITH THE MAINTAINING TRAFFIC PROVISIONS IN THE PLANS OR PROPOSAL. THE TEMPORARY BARRIER END SECTION ON THE TRAILING END OF THE TEMPORARY BARRIER SHALL BE PARALLEL WITH THE TRAFFIC.

TEMPORARY BARRIER ADJACENT TO A PRECIPITOUS DROP-OFF:
 WHEN THERE IS 26" OR MORE Laterally BETWEEN THE TOE OF THE BARRIER ON THE CONSTRUCTION SIDE AND THE DROP-OFF, STANDARD TEMPORARY CONCRETE BARRIER OR TEMPORARY STEEL BARRIER MEETING MOST SPECIFICATIONS MAY BE USED NEAR THE DROP-OFF. NO SPECIAL HARDWARE OR PROCEDURES ARE NECESSARY. HOWEVER, WHEN THERE IS LESS THAN 26" Laterally BETWEEN THE TOE OF THE BARRIER ON THE CONSTRUCTION SIDE AND THE DROP-OFF, AN APPROPRIATE LIMITED DEFLECTION TEMPORARY BARRIER DETAIL MEETING THE REQUIREMENTS OF STANDARD PLAN R-53-SERIES, OR AN APPROVED ALTERNATIVE, MUST BE USED.

REFER TO STANDARD PLAN R-53-SERIES FOR ADDITIONAL INFORMATION REGARDING LIMITED DEFLECTION TEMPORARY BARRIER DETAILS.

MICHIGAN DEPARTMENT OF TRANSPORTATION
 BUREAU OF DEVELOPMENT STANDARD PLAN FOR
PLACEMENT OF TEMPORARY CONCRETE BARRIER AND TEMPORARY STEEL BARRIER

F.H.W.A. APPROVAL	8-25-2015 PLAN DATE	R-126-I	SHEET 3 OF 5
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NOTES:
 CONNECTIONS AND HARDWARE USED TO CONNECT THE SLOPED END SECTION TO TEMPORARY CONCRETE BARRIER (TCB) MUST MATCH CONNECTIONS BETWEEN TCB SEGMENTS AND MEET THE REQUIREMENTS OF NCHRP 350 OR MASH (TEST LEVEL 3 OR HIGHER).
 STIRRUP DETAILS PROVIDED FOR ILLUSTRATION PURPOSES. ACTUAL STIRRUP DETAILS WILL VARY BASED ON END SECTION SHAPE, DIMENSIONS, AND STIRRUP LOCATION.
 STIRRUPS MUST BE DESIGNED TO PROVIDE A MINIMUM OF 2 INCHES OF CLEAR COVER FROM ANY LOCATION ON THE SURFACE OF THE END SECTION.

STEEL REINFORCEMENT FOR TEMPORARY CONCRETE BARRIER SLOPED END SECTION
 NOTE: #5 BARS SHALL BE USED FOR ALL STRAIGHT BARS AND STIRRUPS

MICHIGAN DEPARTMENT OF TRANSPORTATION
 BUREAU OF DEVELOPMENT STANDARD PLAN FOR
PLACEMENT OF TEMPORARY CONCRETE BARRIER AND TEMPORARY STEEL BARRIER

F.H.W.A. APPROVAL	8-25-2015 PLAN DATE	R-126-I	SHEET 4 OF 5
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AS-LET PLAN REVISIONS							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

MDOT
 Michigan Department of Transportation

0 VERT. (FT)
 0 HORZ. (FT)

FILE: _____

DATE:	CS:	DRAWING	SHEET
DESIGN UNIT:	JN:		
TSC:			

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

CITY OF DETROIT MICHIGAN

NO SCALE

DESIGNED BY:	MAHER ELSALTI	APPROVED BY:	
DRAWN BY:	SARMAD AL TAMEEMI	DATE:	11 / 12 / 2020
CHECKED BY:			

CS:	BHT-82000	DRAWING	SHEET
JN:	207699A	BW-271-PLYMOUTH	SPECIAL DETAILS
			21 OF 38

NOTES:

THE DETAILS IN STANDARD PLAN R-126-SERIES ARE NOT APPLICABLE TO PORTABLE WATER-FILLED BARRIER. PLACEMENT OF PORTABLE WATER-FILLED BARRIER SHALL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE SEQUENCE OF BARRIER PLACEMENT SHALL BE IN THE DIRECTION OF TRAFFIC FLOW. BARRIER REMOVAL SHALL BE IN THE DIRECTION OPPOSITE TO TRAFFIC FLOW.

TEMPORARY BARRIER ENDINGS SUBJECT TO APPROACH TRAFFIC AND NOT TERMINATED BEHIND GUARDRAIL MUST BE ATTENUATED OR, IF APPLICABLE, SHIELDED WITH A TEMPORARY CONCRETE BARRIER SLOPED END SECTION.

DETAIL 2 WILL BE USED WHEN THERE IS NO EXISTING GUARDRAIL OR BARRIER AVAILABLE AS SPECIFIED IN DETAILS 3 OR 4.

THE LOCATION OF THE HIGH INTENSITY LIGHT, TYPE B (FLASHING) SPECIFIED IN DETAIL 1, SHALL APPLY TO DETAILS 2, 3, 4, AND 5. ALSO THE HIGH INTENSITY LIGHT, TYPE B SHALL BE FASTENED ON THE TOP OF THE BARRIER.

THE BARRIER FLARE RATE SHALL BE AT LEAST 6' OF RUN FOR EVERY FOOT OF OFFSET.

EXACT LATERAL PLACEMENT OF BARRIER MUST BE SPECIFIED ON THE PLANS OR IN THE PROPOSAL. BARRIER POSITION SPECIFIED IS DESIRABLE WHEN WORK AREA INVOLVES THE FULL WIDTH OF THE CLOSED LANE. WHEN PARTIAL LANE WORK IS INVOLVED, OR SHOULDER WORK ONLY, BARRIER SHOULD BE SET INSIDE CLOSED LANE, AS ALLOWED BY WORK AREA, WITH 2' OR MORE OFFSET DESIRABLE TO LANE LINE.

IN DETAIL 3, EXISTING GUARDRAIL POSTS ARE REMOVED TO FACILITATE PLACING OF TEMPORARY BARRIER BEHIND THE GUARDRAIL. THE DEGREE OF THE BARRIER DEPARTURE ANGLE WILL DETERMINE THE AMOUNT OF BEAM GUARDRAIL AND THE NUMBER OF POSTS TO BE REMOVED.

THE HIGH INTENSITY LIGHT, TYPE B SHALL BE OMITTED WHERE TWO-WAY TRAFFIC IS MAINTAINED ON ONE LANE AND IS CONTROLLED BY TRAFFIC SIGNALS.

IN DETAIL 1, WHEN USING STEEL BARRIER, ATTACH AN APPROVED TEMPORARY ATTENUATION SYSTEM TO TEMPORARY STEEL BARRIER. ATTACHING A TEMPORARY CONCRETE BARRIER SLOPED END SECTION TO TEMPORARY STEEL BARRIER WILL BE PROHIBITED. WHEN USING CONCRETE BARRIER, ATTACH TEMPORARY CONCRETE BARRIER SLOPED END SECTION OR AN APPROVED TEMPORARY ATTENUATION SYSTEM TO THE TEMPORARY CONCRETE BARRIER.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

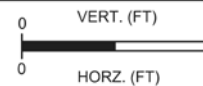
F.H.W.A. APPROVAL	PLAN DATE	SHEET OF
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MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**PLACEMENT OF
TEMPORARY CONCRETE BARRIER
AND TEMPORARY STEEL BARRIER**

F.H.W.A. APPROVAL	8-25-2015 PLAN DATE	R-126-I	SHEET 5 OF 5
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AS-LET PLAN REVISIONS							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



DATE:	CS:
DESIGN UNIT:	JN:
TSC:	
FILE:	

DRAWING	SHEET

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

DESIGNED BY:	MAHER ELSALTI	APPROVED BY:	
DRAWN BY:	SARMAD AL TAMEEMI	DATE:	11 / 12 / 2020
CHECKED BY:			

CS: BHT-82000
JN: 207699A

BW-271-PLYMOUTH
SPECIAL DETAILS

DRAWING	SHEET
	22 OF 38

SIDEWALK SECTIONS

ALL STEEL FOR COVER PLATE SHALL BE AASHTO M270, GRADE 36, MEET THE REQUIREMENTS OF ASTM A786 AND GALVANIZED (ASTM A123).

USE ASTM F 593 (TYPE 304) STAINLESS STEEL 3/4" OR 1#2" DIAMETER FLATHEAD COUNTERSUNK SCREWS WITH 3/4" OR 1#2" DIAMETER INSERTS OR FLUSH TYPE EXPANSION ANCHORS WITH A MINIMUM ALLOWABLE OR SAFE WORKING TENSION LOAD CAPACITY OF 1,200 POUNDS.

CAST CURBS AND SIDEWALKS WITH 3#8" SLIDING PLATES IN PLACE TO INSURE THAT INSERTS AND SCREWS ARE ALIGNED PROPERLY. APPLY BOND BREAKER TO SLIDING PLATES PRIOR TO INSTALLATION.

FORM CONCRETE RECESS AREA IN SIDEWALK AND GRIND TO PROVIDE SMOOTH SURFACE. TOOL OR GRIND CONCRETE EDGES TO 1#4" RADIUS. APPLY ONE COAT OF EPOXY RESIN ADHESIVE TO ALLOW BENT SLIDING PLATE TO MOVE FREELY WITHOUT FRICTION. CARE SHALL BE TAKEN SO THAT NO ADHESIVE COMES IN CONTACT WITH ANY PART OF THE EXPANSION JOINT DEVICE OR GLAND. REMOVE ANY FOREIGN PARTICLES FROM THE SURFACE PRIOR TO INSTALLING PLATES.

INSTALL PLATES SO THAT THE SCREWS AND INSERTS ARE SET ON THE HIGH SIDE OF LONGITUDINAL SIDEWALK GRADE.

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE COVER PLATE IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE COVER PLATE.

NOTES:

JOINT TYPES

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
--------	--------------

WABO STRIP SEAL - TYPE M	WATSON-BOWMAN & ACME, INC.
WABO STRIP SEAL - TYPE A	WATSON-BOWMAN & ACME, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
ONFLEX 40 SSA	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION

REMOVE SHIPPING BOLTS PRIOR TO PLACEMENT OF CONCRETE.

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

TIE DECK REINFORCING STEEL TO STEEL FRAME ANCHORS TO MAXIMUM EXTENT PRACTICABLE WITHOUT DAMAGING GALVANIZED OR EPOXY COATINGS. THE TOP OF THE EXPANSION JOINT DEVICE SHALL BE SET 1#4" - 3#8" BELOW THE CONCRETE SLAB (PAVEMENT).

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.03C.17 OF THE STANDARD SPECIFICATIONS.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

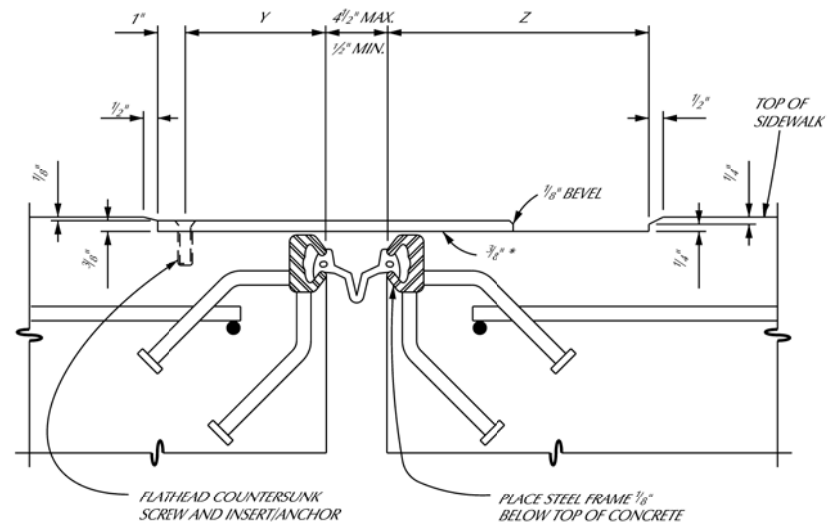
IN THE EVENT THAT SPlicing IS REQUIRED OF THE SEALING GLAND, IT SHALL BE SPliced BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS

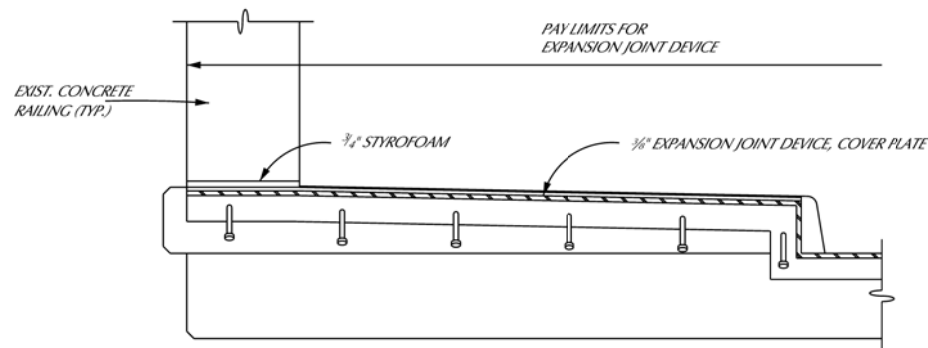
THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS

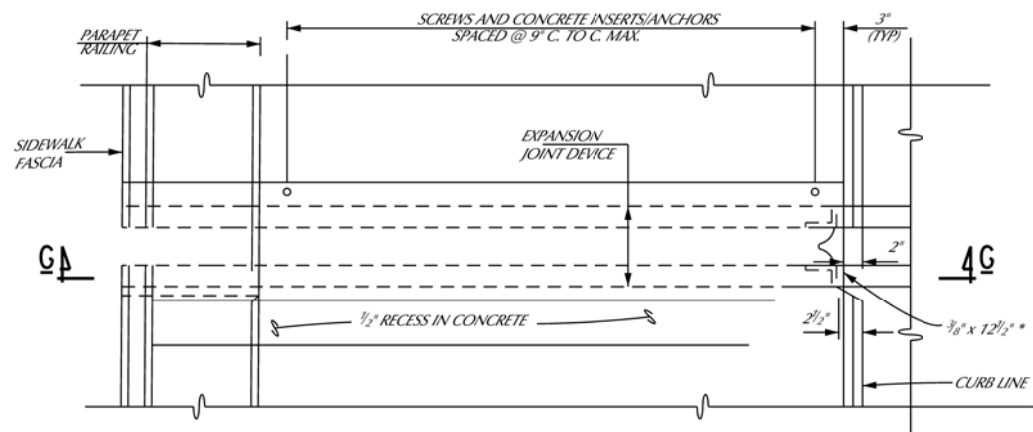
THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.



SECTION THROUGH EXPANSION JOINT AND COVER PLATE



SECTION G - G



PLAN AT PARAPET RAILING WITH SIDEWALK

WABO STRIP SEAL TYPE M			
TOTAL TRAVEL *	PLATE WIDTH	Y	Z
1"	10"	3 3/4"	5 1/4"

ALL OTHER DEVICES			
TOTAL TRAVEL *	PLATE WIDTH	Y	Z
1"	8"	2 1/2"	5"

* SEE TABLE FOR MINIMUM TOTAL TRAVEL ALONG CENTERLINE OF BRIDGE

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
B01	90°	PIER 1		112'
B01	90°	PIER 2		112'
B01	0.0°	cl deck		120'
TOTAL				344'

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	FT	224'
DEVICE COVER PLATE	FT	40'

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

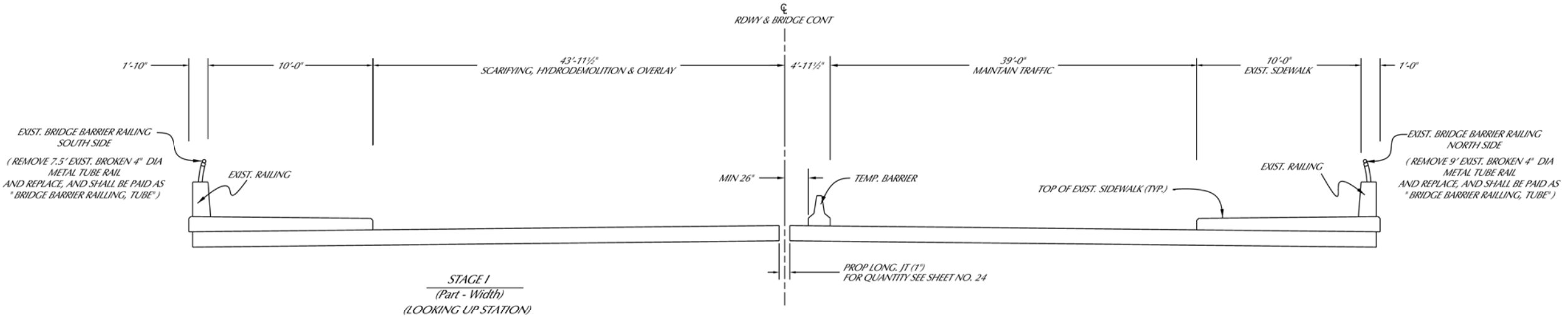
DESIGNED BY: MAHER ELSALTI
 DRAWN BY: SARMAD AL TAMEEMI
 CHECKED BY:

APPROVED BY:
 DATE: 11 / 12 / 2020

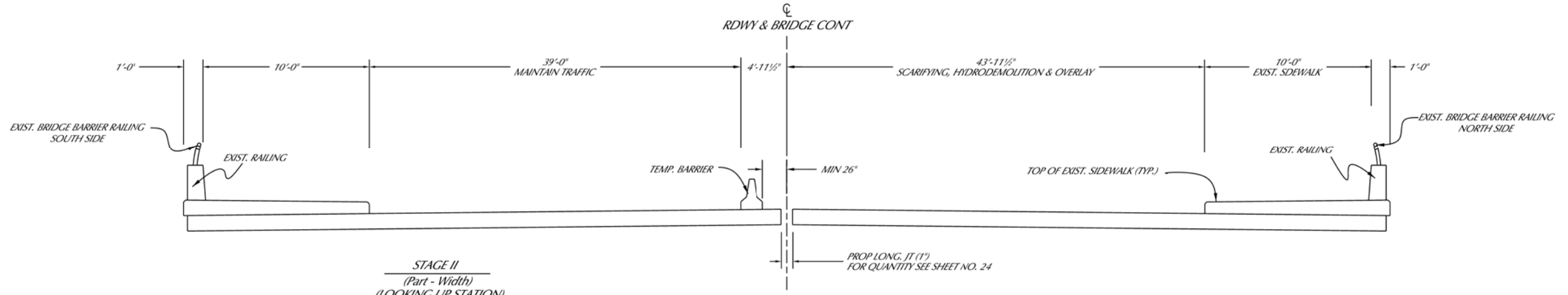
CS: BHT-82000
 JN: 207699A

BW-271-PLYMOUTH
 EXPANSION JOINT DETAILS

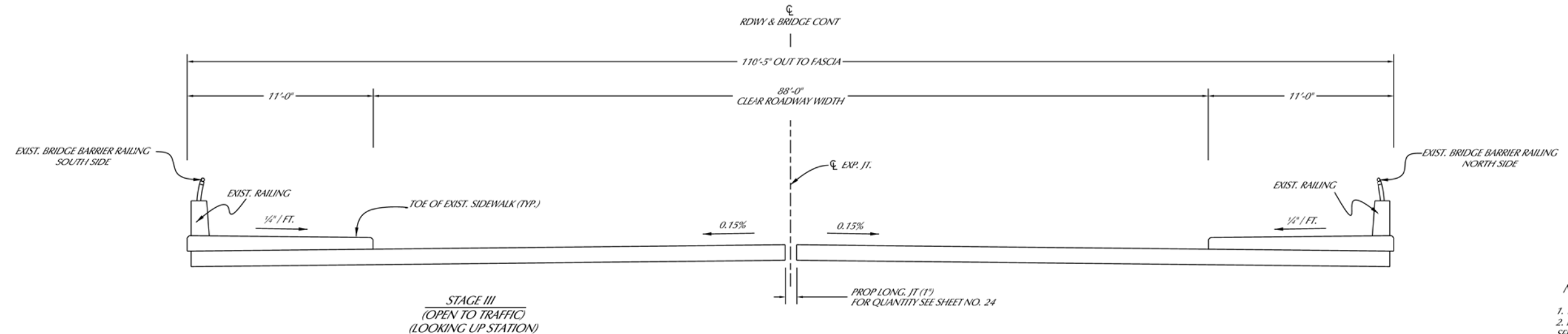
DRAWING SHEET
 24 OF 38



STAGE I
(Part - Width)
(LOOKING UP STATION)



STAGE II
(Part - Width)
(LOOKING UP STATION)



STAGE III
(OPEN TO TRAFFIC)
(LOOKING UP STATION)

MISCELLANEOUS QUANTITIES	
16.5 FT	BRIDGE BARRIER RAILING, TUBE
300 FT	CONCRETE BARRIER TEMP, FURN
300 FT	CONCRETE BARRIER TEMP, OPER

- NOTES:
1. TRAFFIC IS TO BE MAINTAINED OVER THE BRIDGE BY PART-WIDTH CONSTRUCTION.
 2. PLACEMENT OF TEMPORARY BARRIER SHALL BE ACCORDING TO STANDARD PLAN R-126-SERIES OR AS APPROVED BY ENGINEER (INCLUDED IN PAY ITEM "CONC BARRIER, TEMP, FURN").

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

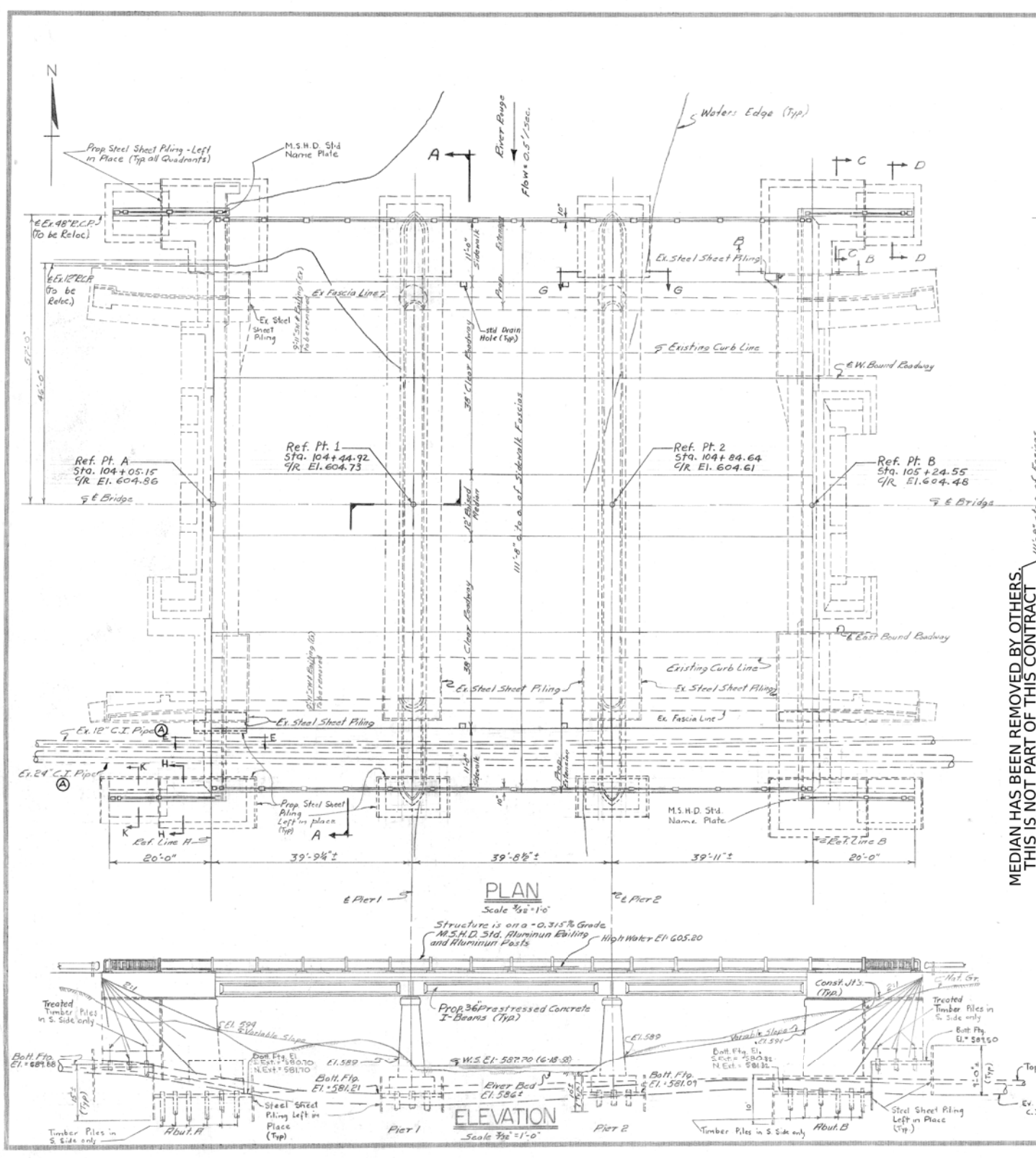


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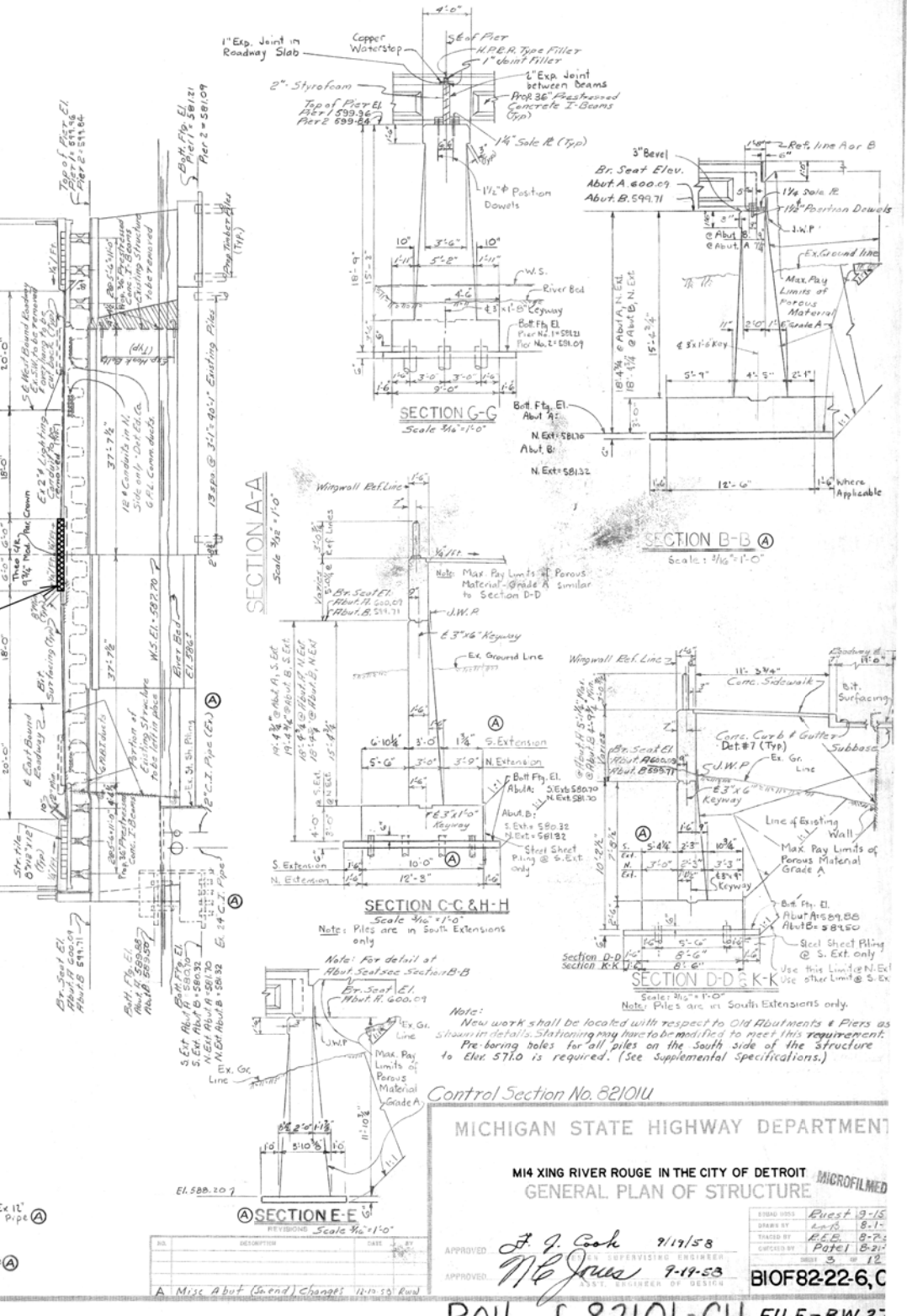
DESIGNED BY :	MAHER ELSALTI	APPROVED BY :	
DRAWN BY :	SARMAD AL TAMEEMI	DATE :	12 / 15 / 2020
CHECKED BY :			

CS: BHT-82000
JN: 207699A

BW-271-PLYMOUTH	DRAWING	SHEET
STAGING PLAN		26 OF 38



MEDIAN HAS BEEN REMOVED BY OTHERS. THIS IS NOT PART OF THIS CONTRACT



Control Section No. 82101U

MICHIGAN STATE HIGHWAY DEPARTMENT

M14 KING RIVER ROUGE IN THE CITY OF DETROIT MICROFILMED

GENERAL PLAN OF STRUCTURE

APPROVED: *J. J. Cook* 7/17/58
 APPROVED: *M. J. Jones* 7-19-53

DESIGNED BY: MAHER ELSALTI
 DRAWN BY: SARMAD AL TAMEEMI
 CHECKED BY:

DATE: 11/12/2020

CS: BHT-82000
 JN: 207699A

BW-271-PLYMOUTH
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DRAWING SHEET
 27 OF 38

BIOF82-22-6-C

B04 of 82101-C4 FILE-BW 27

EXISTING

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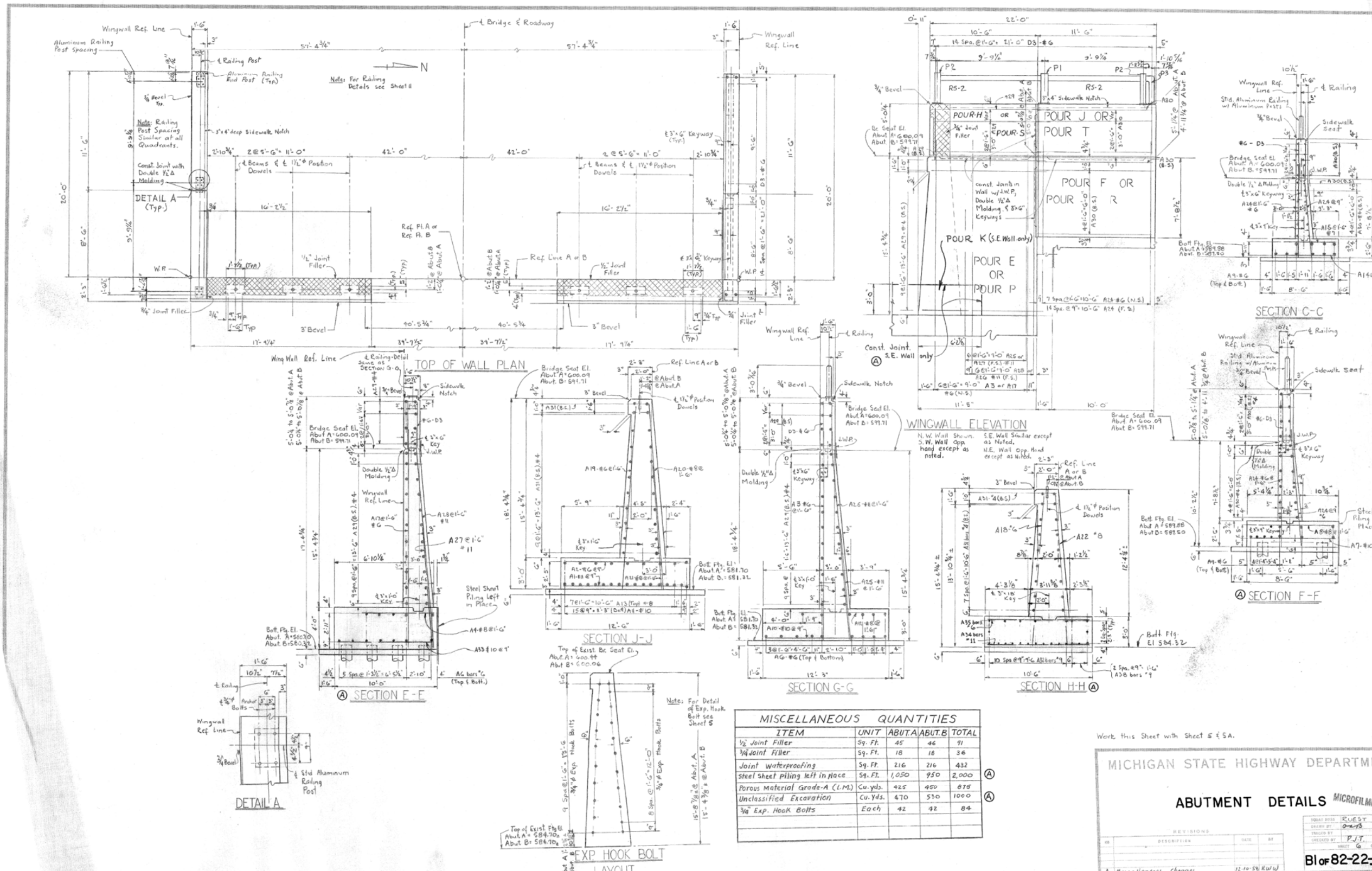
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NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

DESIGNED BY: MAHER ELSALTI	APPROVED BY:	CS: BHT-82000	BW-271-PLYMOUTH	DRAWING	SHEET
DRAWN BY: SARMAD AL TAMEEMI	DATE: 11/12/2020	JN: 207699A	EXISTING SHEET		27 OF 38
CHECKED BY:					



MISCELLANEOUS QUANTITIES

ITEM	UNIT	ABUT. A	ABUT. B	TOTAL
1/2" Joint Filler	Sq. Ft.	45	46	91
3/4" Joint Filler	Sq. Ft.	18	18	36
Joint Waterproofing	Sq. Ft.	216	216	432
Steel Sheet Piling left in place	Sq. Ft.	1,050	950	2,000
Porous Material Grade-A (L.M.)	Cu. Yds.	425	450	875
Unclassified Excavation	Cu. Yds.	470	530	1000
3/8" Exp. Hook Bolts	Each	42	42	84

Work this Sheet with Sheet S & SA.

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT DETAILS MICROFILME

REVISED: KUEST
 DRAWN BY: P.J.T.
 CHECKED BY: G.
 SHEET: 6

B1 of 82-22-

12-10-58 R.W.J.

B04 of 82101-C4 FILE-BW 2

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NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



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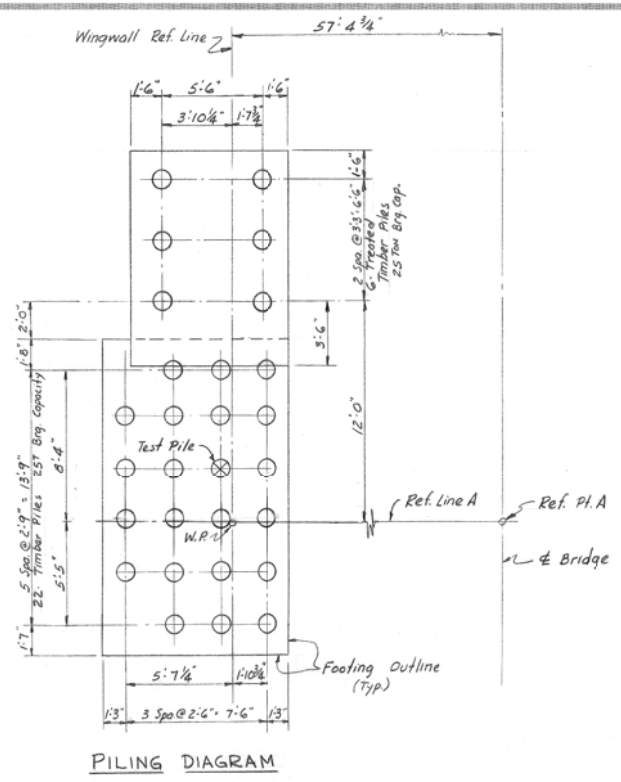
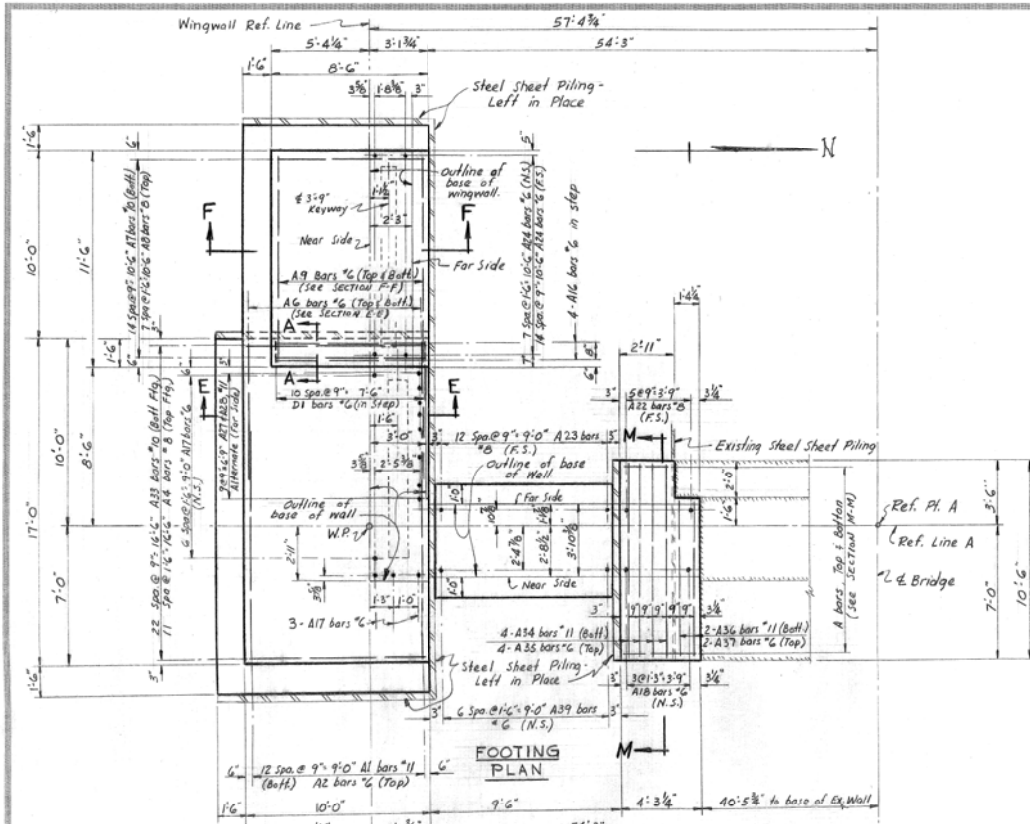
DESIGNED BY: MAHER ELSALTI
 DRAWN BY: SARMAD AL TAMEEMI
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APPROVED BY:
 DATE: 11/12/2020

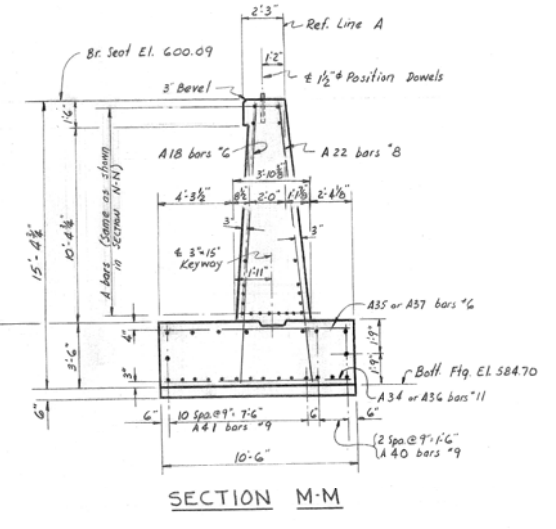
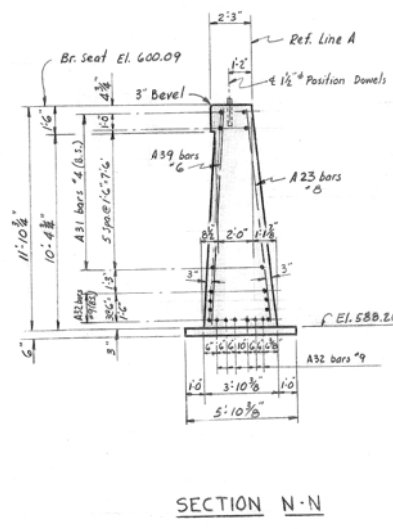
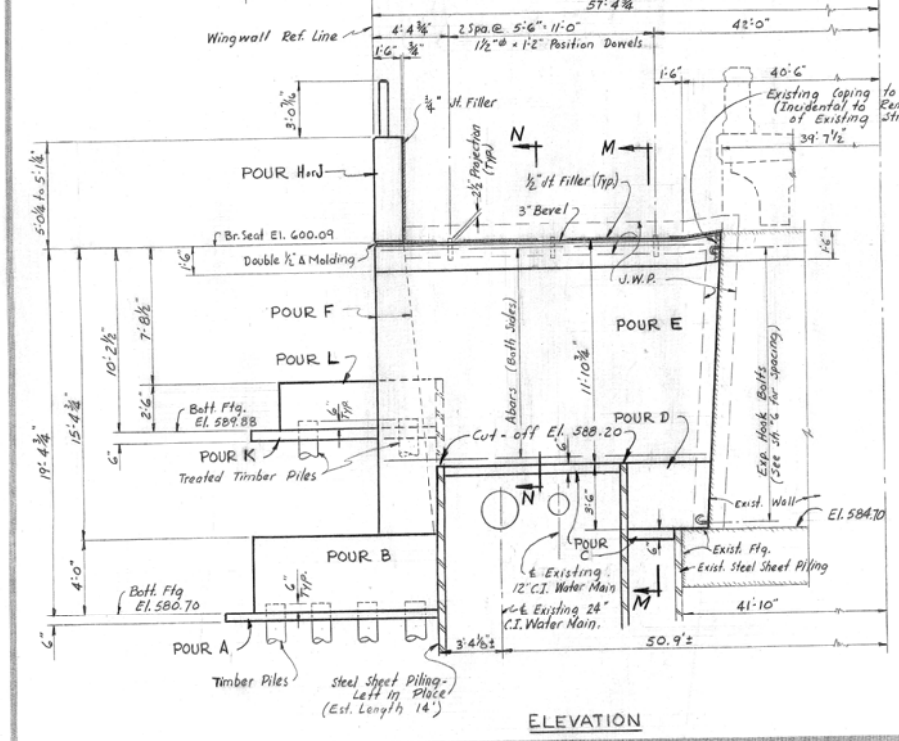
CS: BHT-82000
 JN: 207699A

BW-271-PLYMOUTH
 EXISTING SHEET

DRAWING SHEET
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CONCRETE QUANTITIES GRADE A CU. YDS.				
POUR	ABUTMENT A		ABUTMENT B	
	NW QUAD.	SW QUAD.	NE QUAD.	SE QUAD.
A	—	4.2	—	4.2
B	—	26.3	—	26.3
C	—	1.0	—	2.5
D	—	6.5	—	13.9
E	—	34.0	—	32.6
F	—	6.2	—	6.2
G	—	—	—	2.5
H	—	2.9	—	2.9
J	—	3.3	—	3.3
K	7.2	2.5	7.2	19.4
L	34.9	13.9	34.9	—
M	2.5	—	2.5	—
N	8.1	—	8.1	—
P	40.8	—	40.8	—
R	6.2	—	6.2	—
S	2.9	—	2.9	—
T	3.3	—	3.3	—
TOTALS	105.9	101.6	105.9	113.8
TOTAL Both ABUTS.	= 427.2 CU Yds.			



NOTES:
The details as shown on this sheet are for Abutment A (S.W. Quad) only.
For details and sections not shown on this sheet, see sheets '5' and '6'.

Work this sheet with sheets '5' and '6'.

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT DETAILS

REVISIONS:

NO.	DESCRIPTION	DATE	BY

BI of 82-22-6, C4

12-1958 EWW

B04 of 82101-C4 FILE-BW 271-

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FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

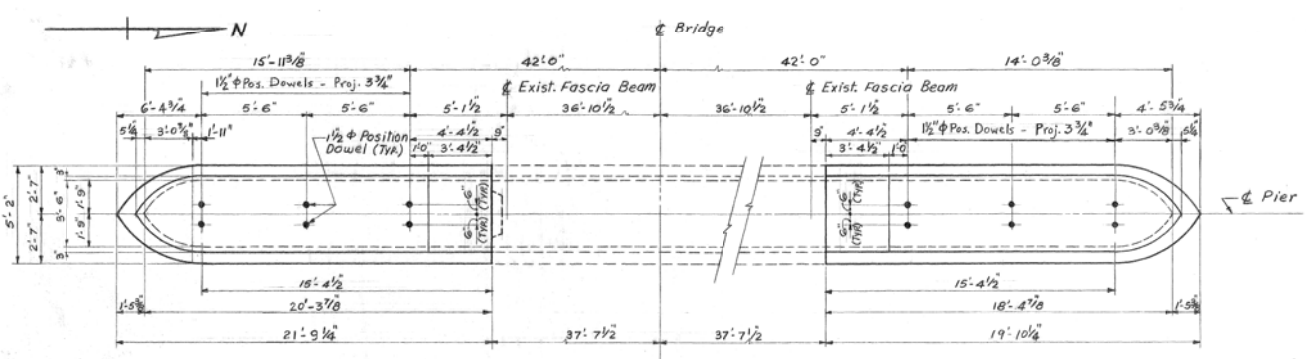
DESIGNED BY: MAHER ELSALTI
 DRAWN BY: SARMAD AL TAMEEMI
 CHECKED BY:

APPROVED BY:
 DATE: 11/12/2020

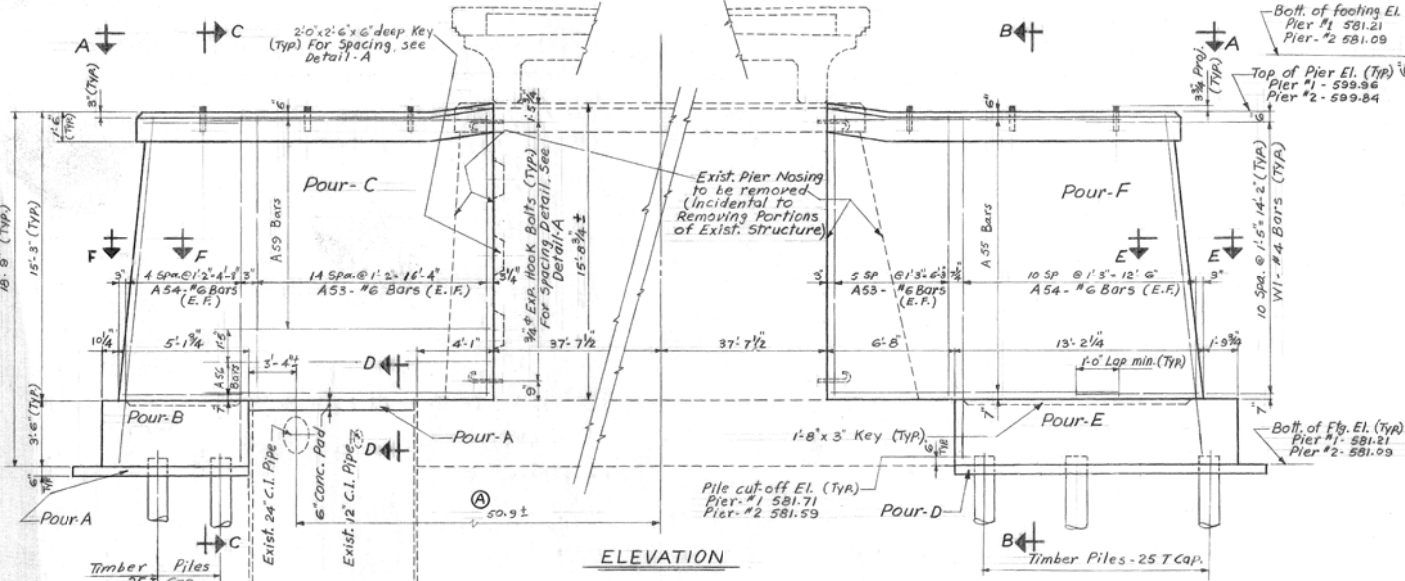
CS: BHT-82000
 JN: 207699A

BW-271-PLYMOUTH
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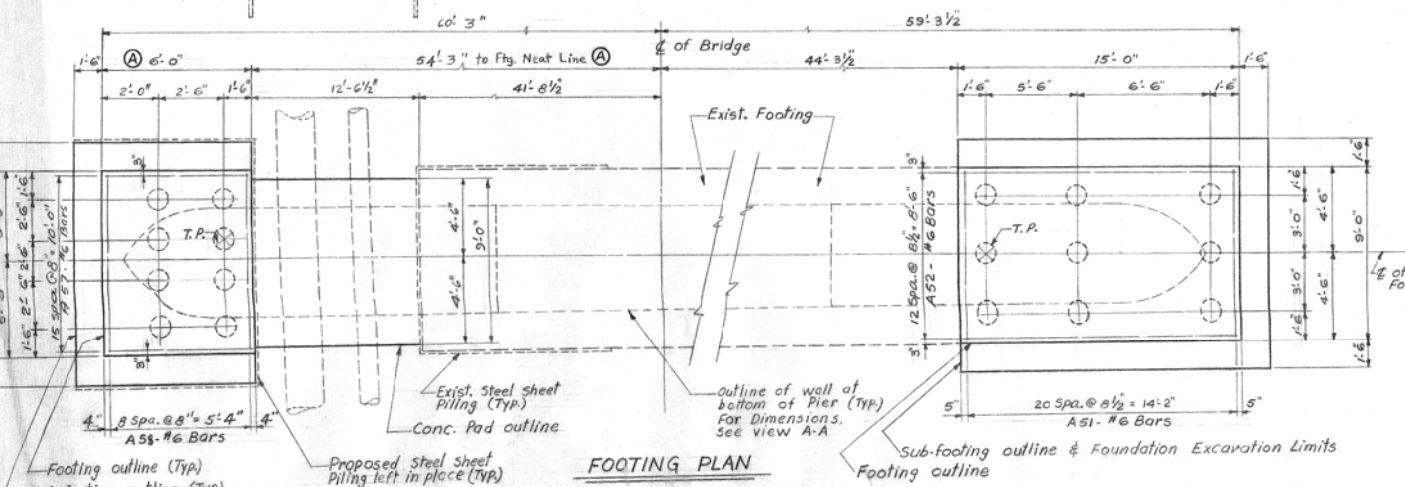
DRAWING SHEET
 30 OF 38



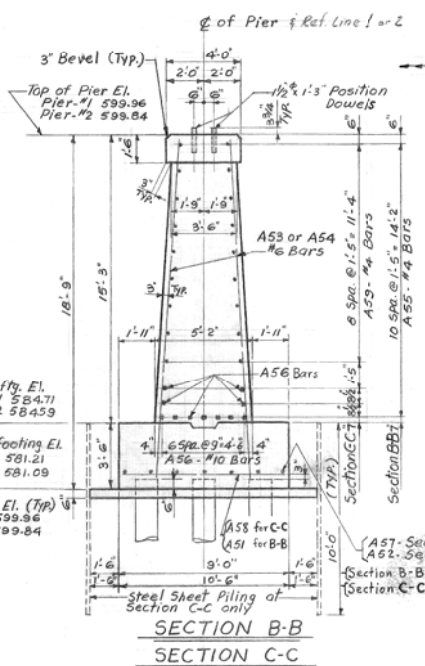
PLAN VIEW A-A



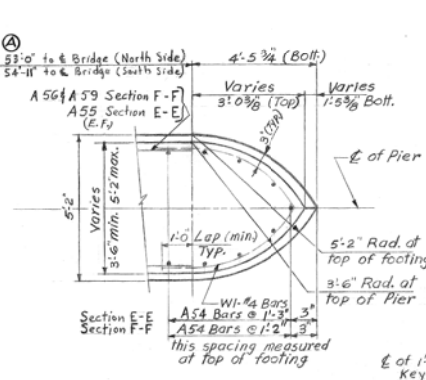
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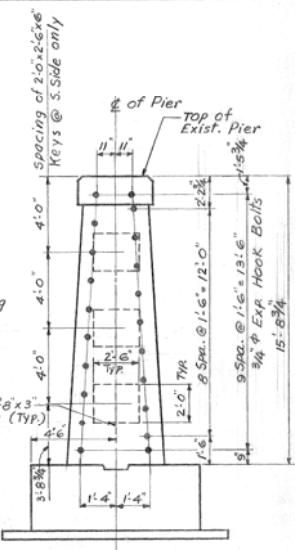
FOOTING PLAN



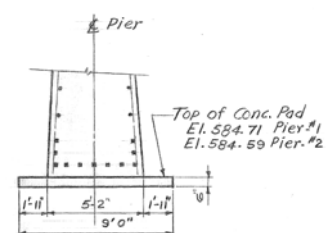
SECTION B-B
SECTION C-C



SECTION E-E as shown
SECTION F-F opp. Hand



DETAIL-A
Detail showing the location of 3/4" Exp. Hook Bolts.
(For Exp. Hook Bolt Detail, see Sht. 5)



SECTION D-D
For other Details, see Sect. C-C

TIMBER PILES					
LOCATION	No. Req'd	Length Each	Total		Cut Off
			Furn.	Driven	
PIER #1	15	22'	330	300'	15
	2	30'	60	40'	2
PIER #2	15	22'	330	300'	15
	2	30'	60	40'	2
Total 2 Piers			780	680'	34

Note:
 E.F. Denotes Each Face.
 For Bevel and Molding Details, see Sht. R.B.
 Position Dowels shall be set accurately to a template. For Position Dowels Detail, see Sht. B.
 Footing and subfooting concrete quantities and foundation excavation quantities are computed on the basis of an outline 3/4" outside the footing outline where the concrete is poured against steel sheet piling. No additional allowance in concrete and excavation quantities will be made regardless of the steel sheet piling used.
 The tops of Pier Extensions shall be finished to a true plane at the elevation shown and shall not vary more than 1/8" under a ten foot straight edge or more than 1/16" under any bearing.
 T.P. denotes Test Pile.
 All Piles shall be driven to a minimum bearing capacity of 25 tons. (See Supplemental Specifications)
 Steel Sheet Piling left in place shall be of the continuous interlock type, either new or used in good condition, weighing not less than 22 pounds per square foot of wall, and shall be furnished with suitable connecting and corner pieces. Steel sheet piling left in place shall be driven to its final position before pouring adjacent concrete.

CONCRETE QUANTITIES GRADE-A (cu. yds.)		
POUR	PIER #1	PIER #2
A	4.4	4.4
B	8.5	8.5
C	48.8	48.8
D	3.7	3.7
E	17.5	17.5
F	38.1	38.1
Total	121.0	121.0
Total Pier-1 & 2		242.0

MISCELLANEOUS QUANTITIES			
ITEM	UNIT	PIER #1	PIER #2
Unclassified Excavation	Cu. Yds.	75	77
Steel Sheet Piling-left in Place	Sq. Ft.	235	285
3/4" Expansion Hook Bolts	Each	42	42

MICHIGAN STATE HIGHWAY DEPARTMENT
PIER DETAILS
 MICROFILMED

REVISIONS

NO.	DESCRIPTION	DATE	BY

DESIGNED BY: Ruesf 9-15-58
 DRAWN BY: Patel 9-2-58
 CHECKED BY: P.J.T. 9-10-58
 DATE: 7/12

BIOF82-22-6,C4

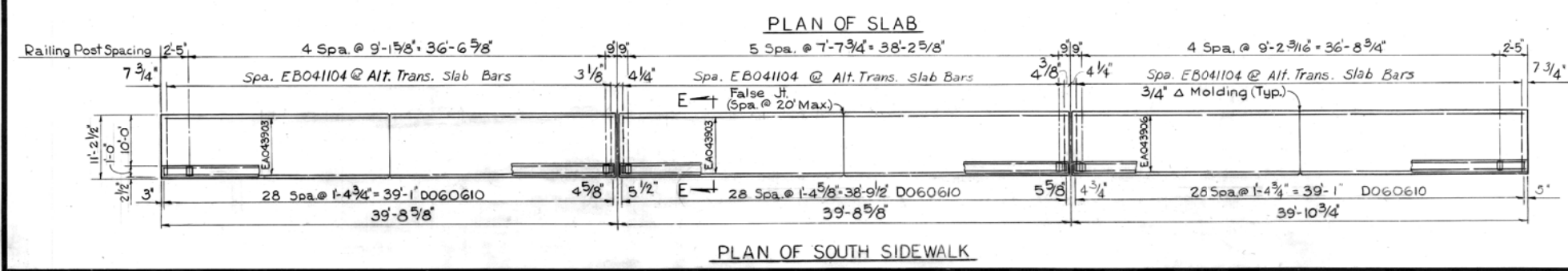
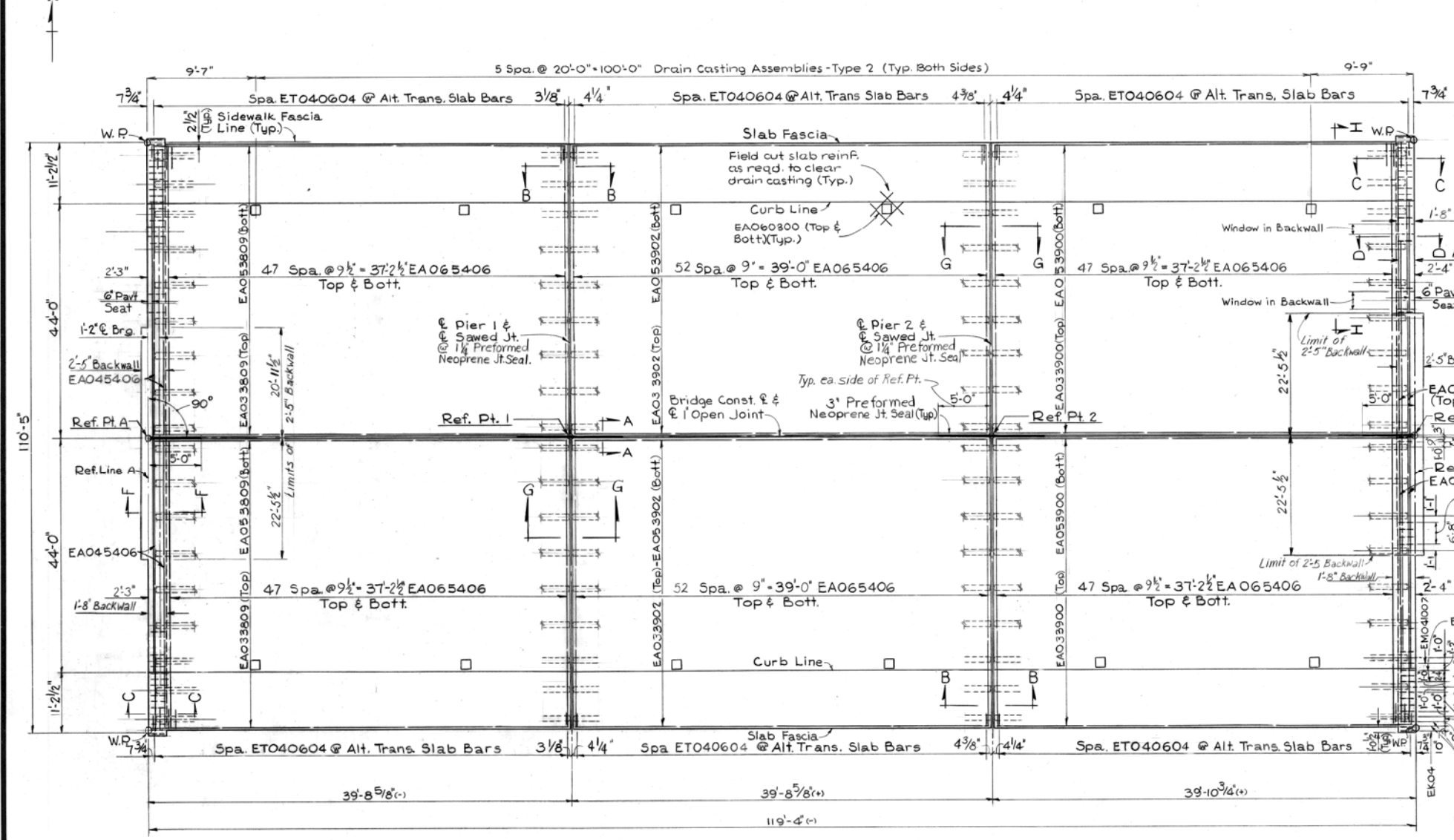
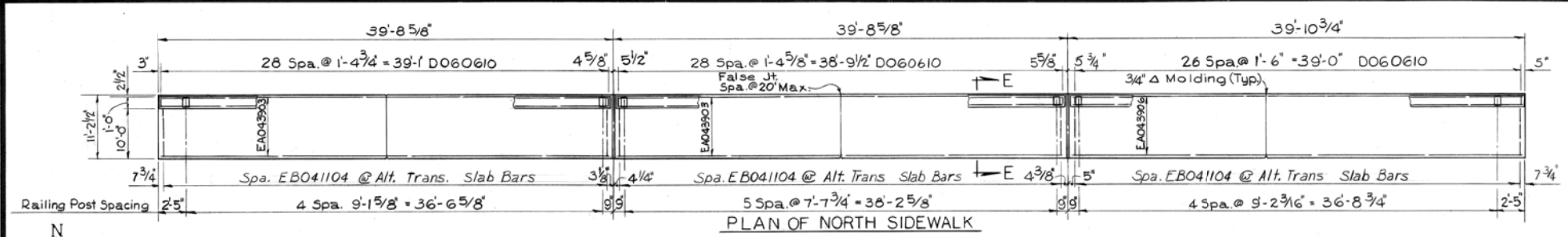
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BO 4 of 82101-12349 sht 8



MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Preformed Neoprene Joint Seal, 1 1/2"	Lft.	228
Preformed Neoprene Joint Seal, 3"	Lft.	30
Protective Treatment for Bridge Decks	Sft.	12800
Forming, Finishing and Curing Superstructure Concrete	L.S.	1
Bridge Railing, Solid Parapet Type	Lft.	257
Joint Water proofing	Sq.ft.	749
Drain Casting Assembly - Type 2	Each	12

CONCRETE QUANTITIES	
POUR	Amount (Cyd)
A	11.9
B	61.5
C	62.0
D	62.3
E	12.0
F	15.5
G	15.5
H	15.6
J	12.5
K	61.5
L	62.0
M	62.4
N	12.4
P	15.5
Q	15.5
R	15.6
S	26.3
Total	540.0

NOTES:

J.W.P. denotes joint waterproofing.

Protective treatment for bridge decks shall be applied to all superstructure concrete surfaces between inside faces of railing.

Sidewalk pours shall not be cast until slab concrete has attained 70 percent of its design strength as determined by Table 7.01-4 of the Standard Specifications. The restrictions of Article 5.03.10a regarding heavy equipment, however, shall be observed.

The District Utilities - Permits Engineer is to be notified one week in advance of the time of installation of the ducts in the backwall and diaphragms.

For details of Bridge Railing - Solid Parapet type and Guard Rail Anchorage, see Std. Plan XI-8A.

For details of Molding, Bar Chair, Bevel, Light Std. Anchorage Bolt Assy, and Name-Plate, see Standard Plan XI-103A.

A permanent camber extending over the entire length of the bridge, with a middle ordinate of 1/8", shall be placed in the tops of sidewalks.

All diaphragms are Pour S.

Edge or groove denotes edging or grooving with an approved tool.

For details of drain casting assemblies see Standard XI-101.

Drain casting assembly anchor straps shall be attached to the existing beams with 1/2" Φ Phillips Red Head Self-drilling Concrete Anchors, Chicago Expansion Bolt Co. - Special Self Drilling Anchor or approved equal. (Incidental to Drain Casting Assy-Type 2)

Work this sheet @ sheets #

MICHIGAN DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS

NO.	DESCRIPTION	DATE	BY

DESIGNED BY: MAHER ELSALTI
 DRAWN BY: SARMAD AL TAMEEMI
 CHECKED BY:
 DATE: 11/12/2020

CS: BHT-82000
 JN: 207699A

DATE: 6-3-88
 DRAWN BY: R. BUSH
 CHECKED BY: S. J. BENTLEY
 SHEET 25 OF 15

BO4 of 82101

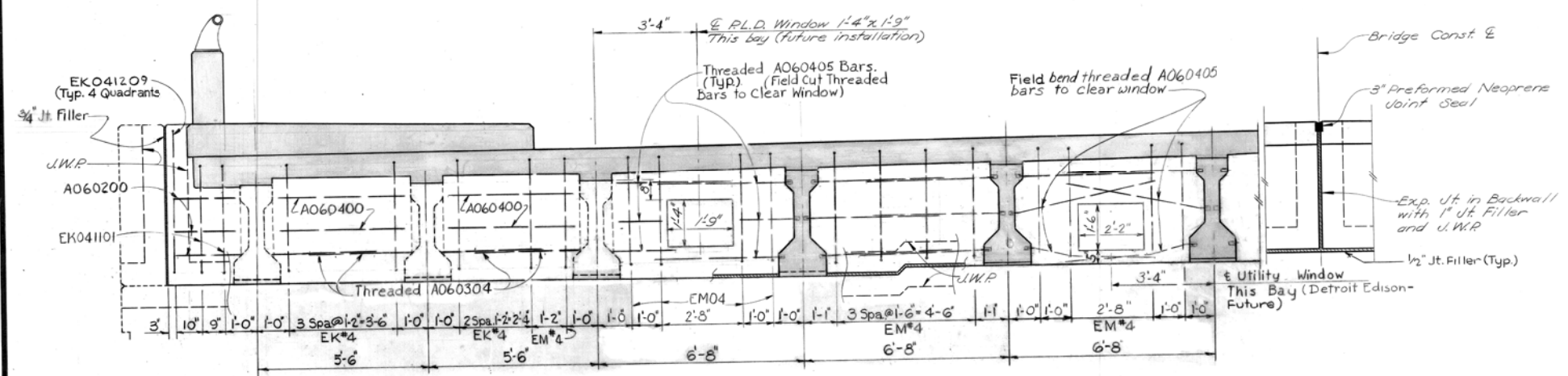
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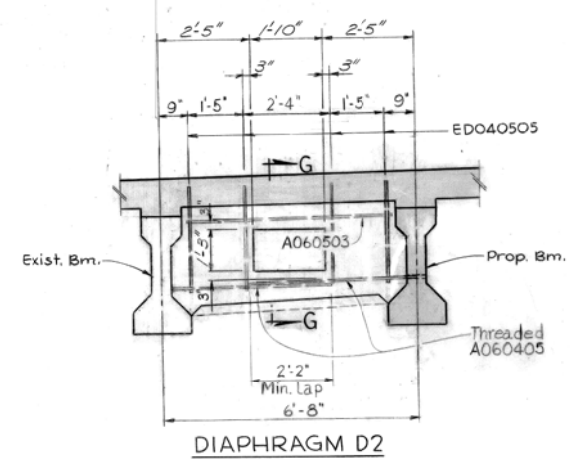
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B04 of 82101-12349 sht. 10

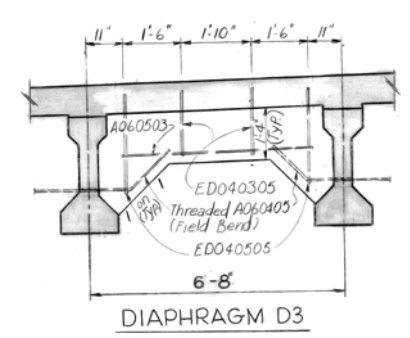
DATE 10/23/20 2-01 4004



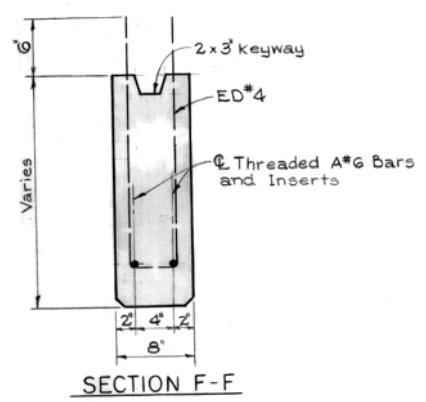
SECTION H-H
Looking East, Abut. B Shown



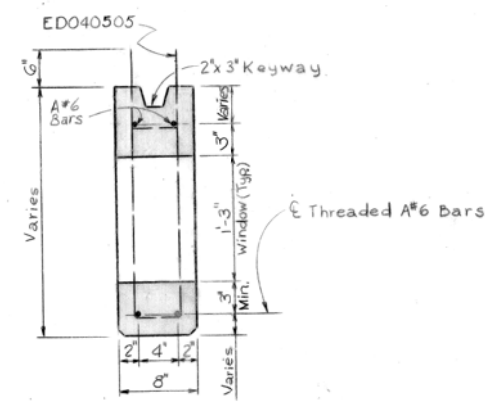
DIAPHRAGM D2



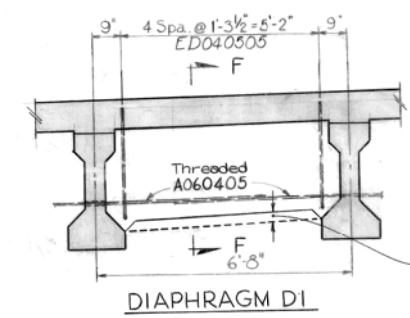
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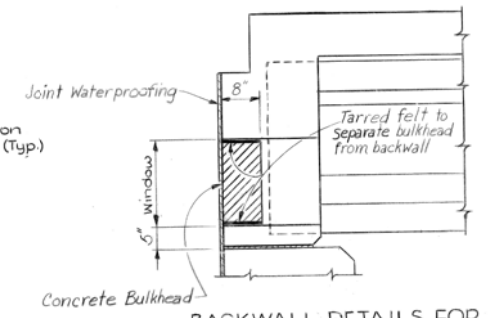
SECTION F-F



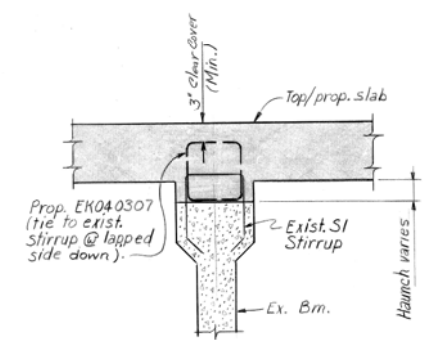
SECTION G-G



DIAPHRAGM D1



BACKWALL DETAILS FOR FUTURE ELECTRICAL CONDUITS
(For P.L.D. & Detroit Edison)



SHEAR CONNECTOR EXTENSION FOR EXISTING BEAMS
(Spans 1 & 3 only)

Note: Place 15-K040307 bars per beam, tied to existing stirrups, starting at the abutments and continuing to a point approximately 12' from the end of beam.

Work This Sheet @ Sheet#

MICHIGAN DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS

NO.	DESCRIPTION	DATE	BY

DESIGNED BY: MAHER ELSALTI
 DRAWN BY: SARMAD AL TAMEEMI
 CHECKED BY: S.J. GRIFFIN
 SHEET 10 of 15

B04 of 82101

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FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

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NO SCALE

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 DRAWN BY: SARMAD AL TAMEEMI
 CHECKED BY: S.J. GRIFFIN

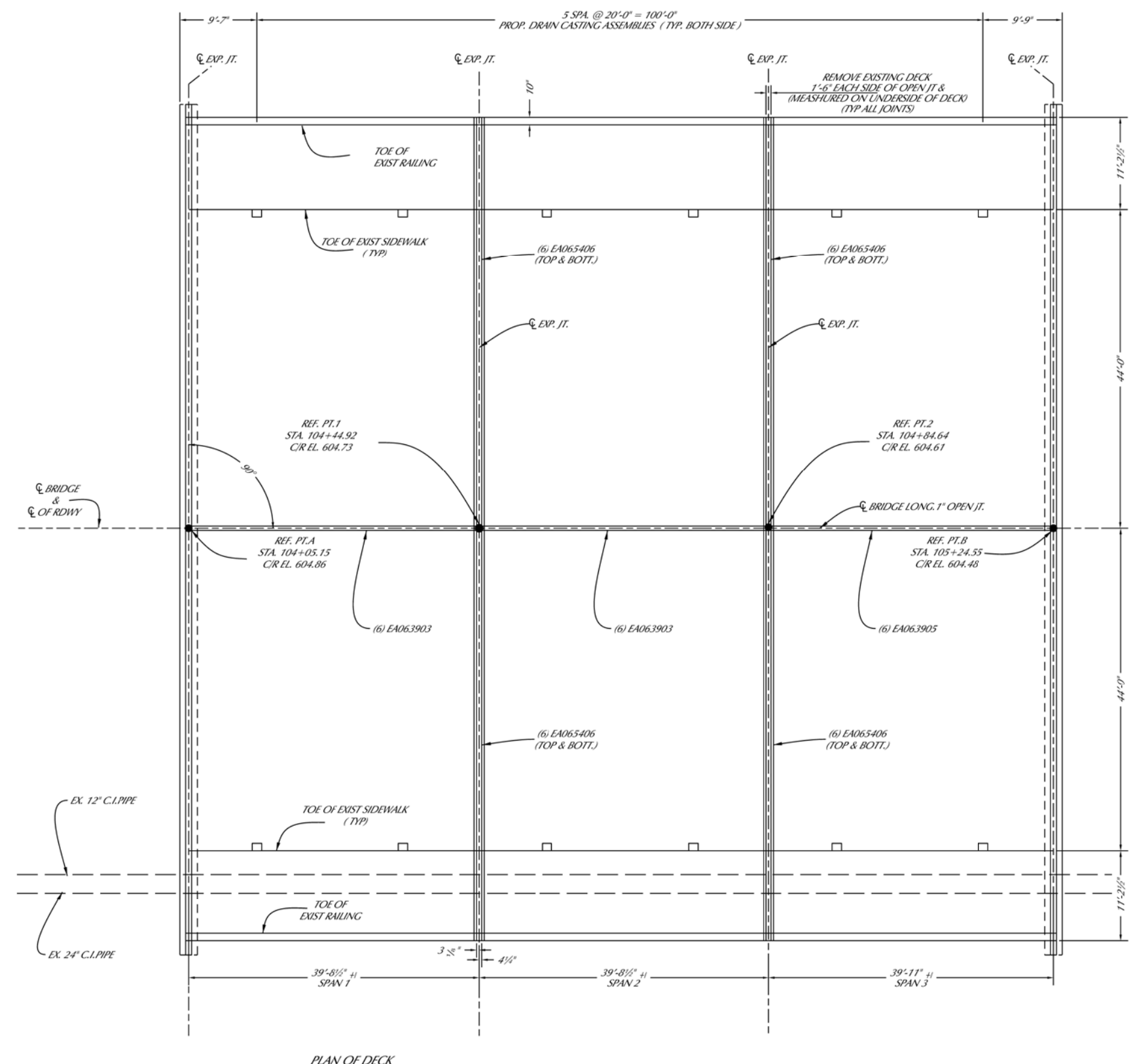
APPROVED BY: _____
 DATE: 11/12/2020

CS: 82000
 JN: 207699A

BW-271-PLYMOUTH
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 33 OF 38

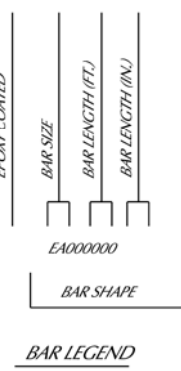
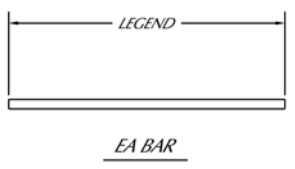
↑ RIVER ROUICE
Flow=0575sec



PLAN OF DECK

EPOXY COATED STEEL REINFORCEMENT		
BAR	NO. REQ'D	TOTAL WT
EA065406	48	3929
EA063903	24	1415
EA063905	12	711
EA063601	96	5203
* OVERRUN		2605
TOTAL		17468

* OVER RUN INCLUDED REINFORCEMENT FOR REPLACEMENT OF EXISTING RUSTED OR DAMAGED RE-BARS IN SIDEWALK



FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



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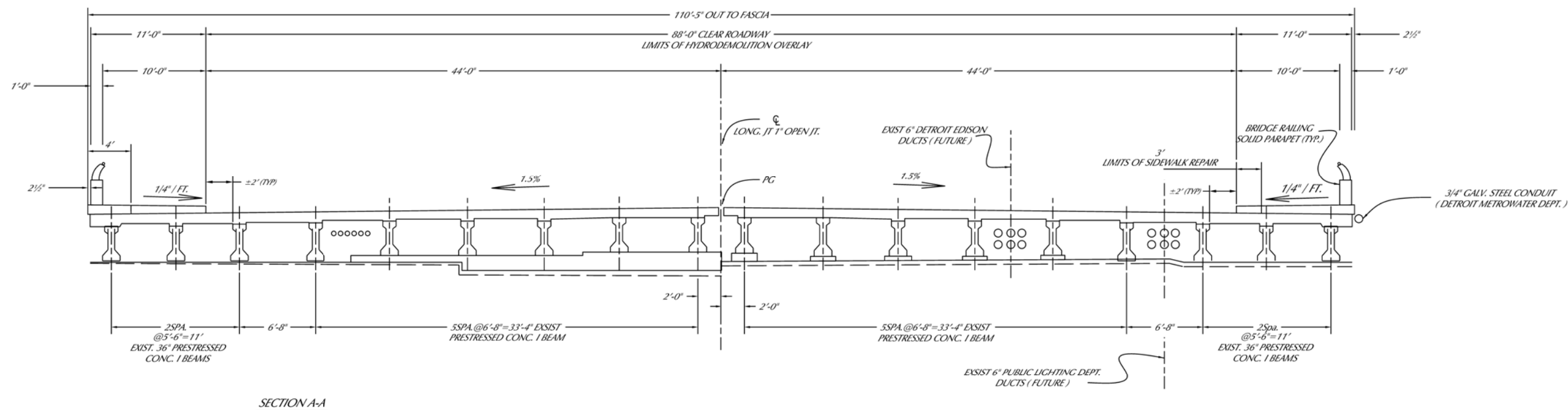
DESIGNED BY: MAHER ELSALTI
DRAWN BY: SARMAD AL TAMEEMI
CHECKED BY:

APPROVED BY:
DATE: 11 / 12 / 2020

CS: BHT-82000
JN: 207699A

BW-271-PLYMOUTH
DECK RESURFACING DETAILS

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34 OF 38



FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



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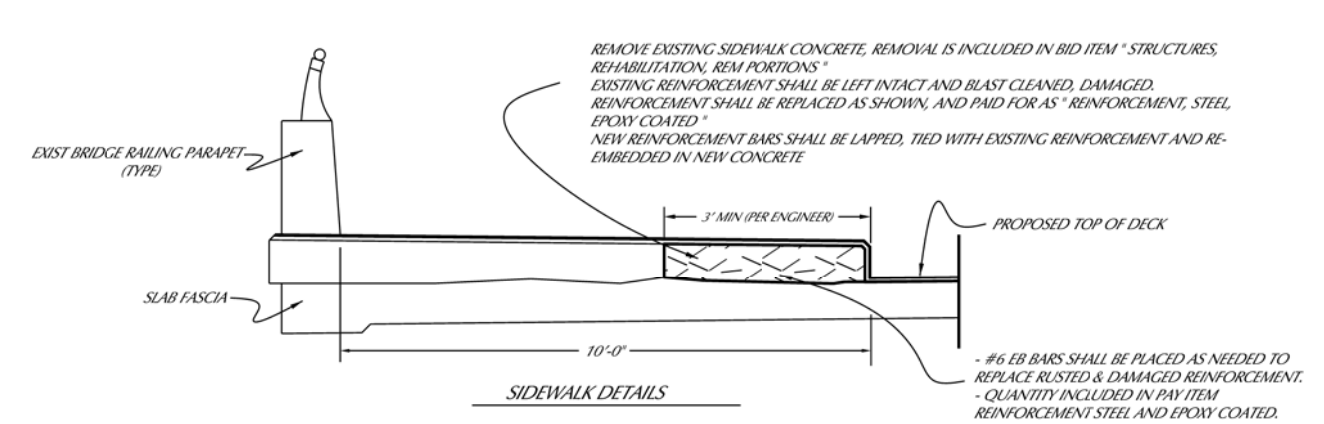
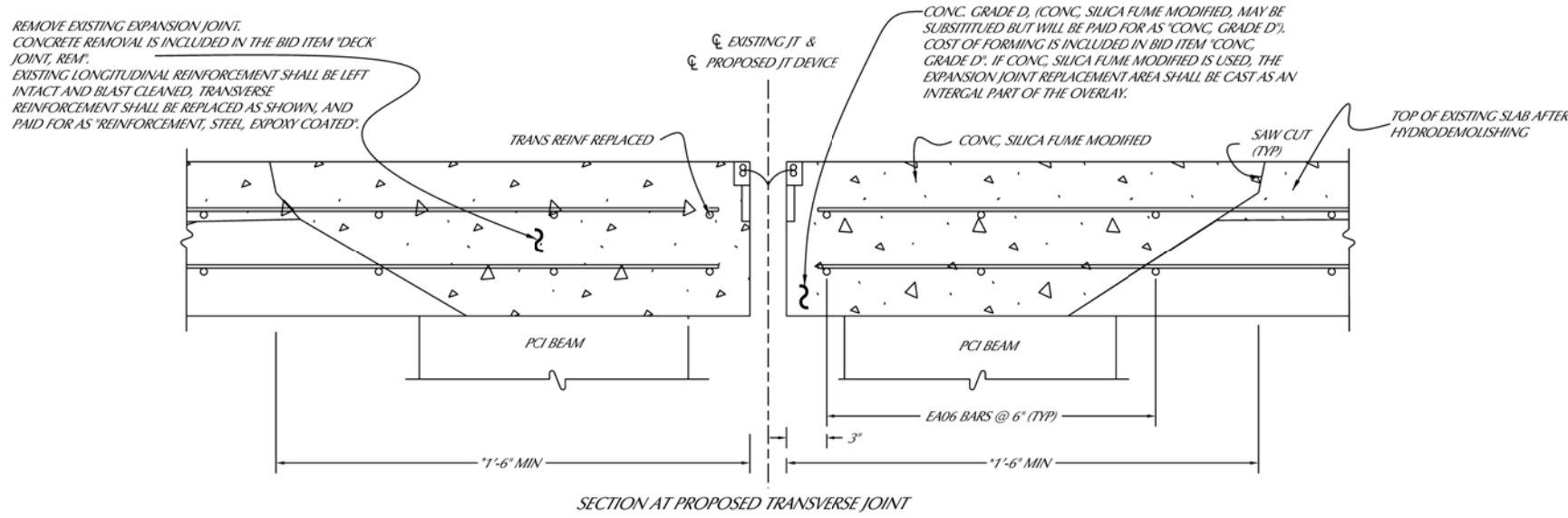
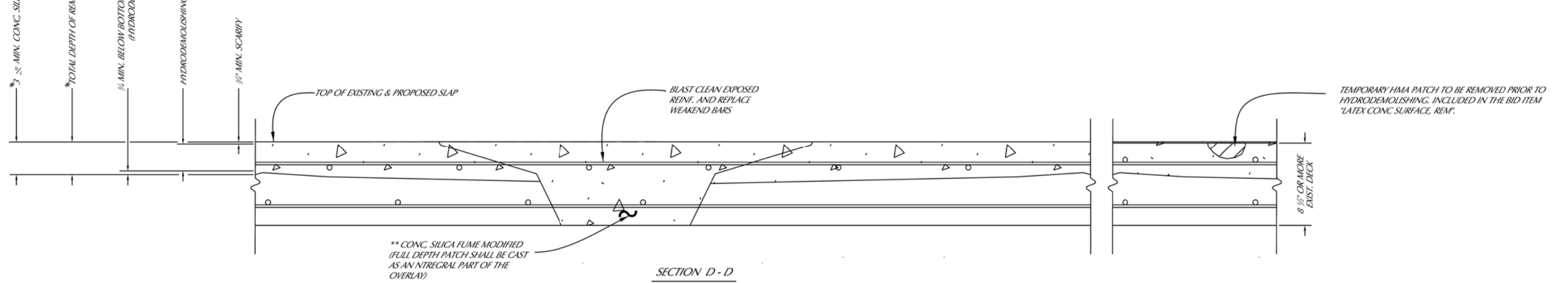
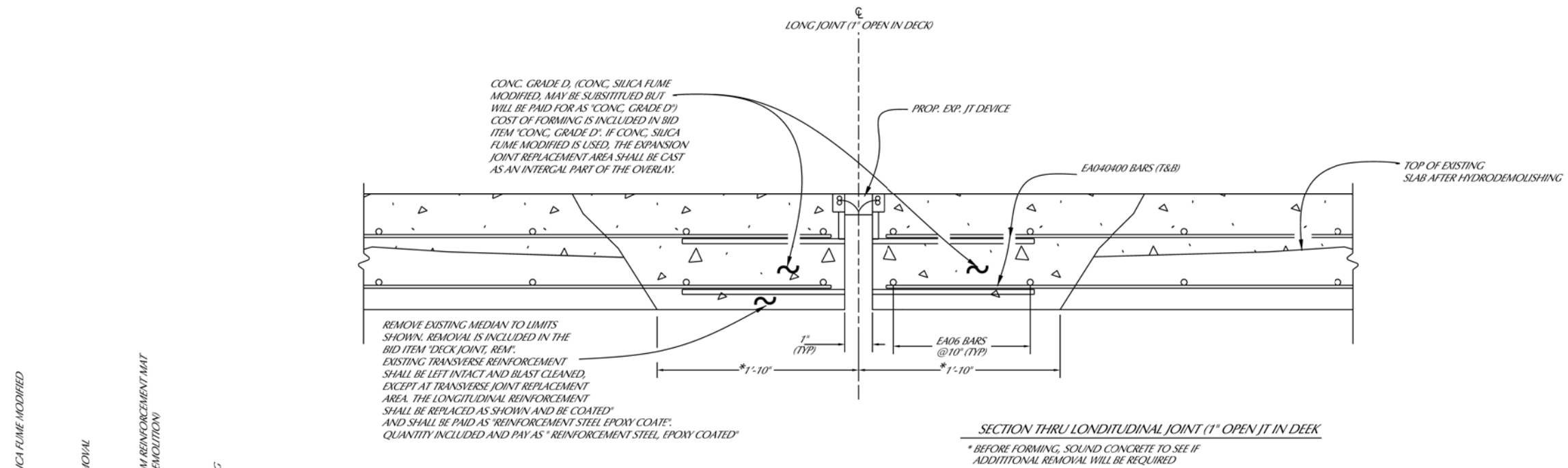
DESIGNED BY: MAHER ELSALTI
DRAWN BY: SARMAD AL TAMEEMI
CHECKED BY:

APPROVED BY:
DATE: 11 / 12 / 2020

CS: BHT-82000
JN: 207699A

BW-271-PLYMOUTH
DECK RESURFACING DETAILS

DRAWING SHEET
35 OF 38



FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



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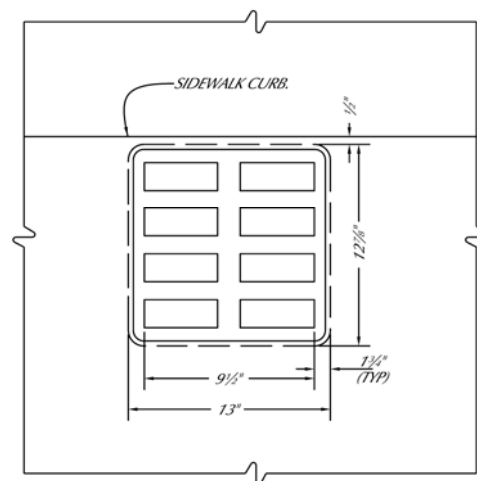
DESIGNED BY: MAHER ELSALTI
 DRAWN BY: SARMAD AL TAMEEMI
 CHECKED BY:

APPROVED BY:
 DATE: 11 / 12 / 2020

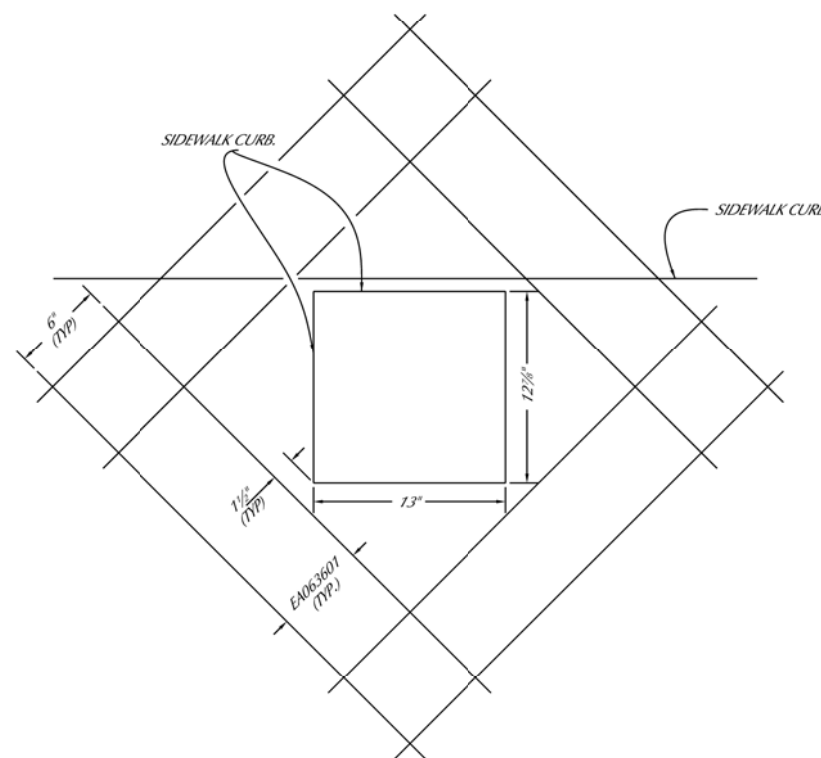
CS: BHT-82000
 JN: 207699A

BW-271-PLYMOUTH
 DECK RESURFACING DETAILS

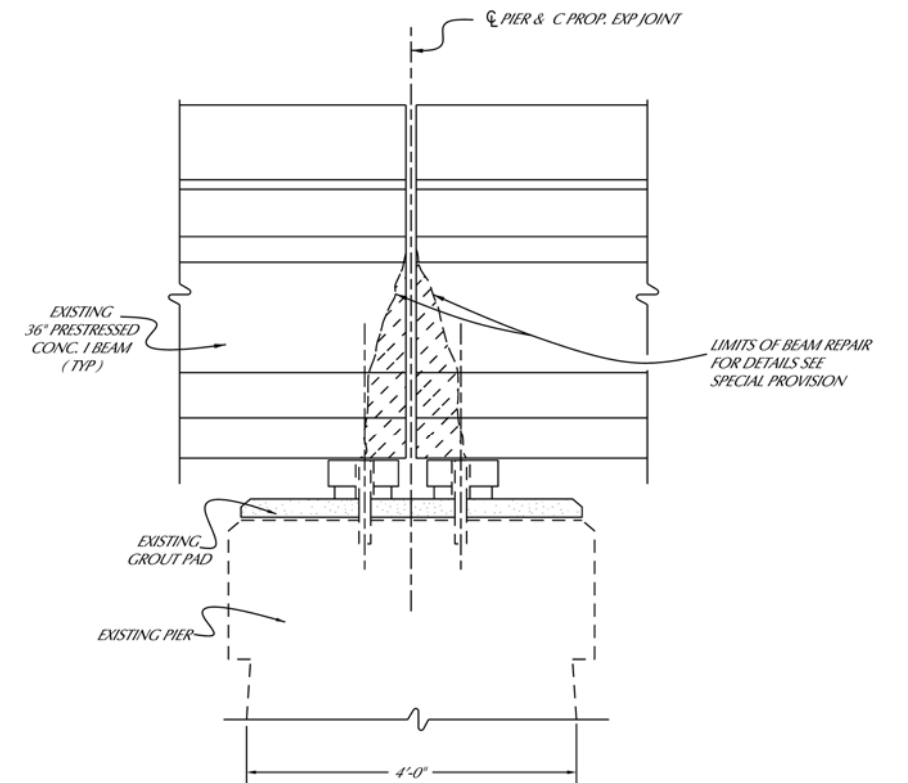
DRAWING SHEET
 36 OF 38



PLAN OF DRAIN CASTING



DRAIN CASTING REINFORCEMENT DETAILS



BEAM END REPAIR DETAIL

MISCELLANEOUS QUANTITIES	
120 FT ³	BEAM END REPAIR LATEX MODIFIED, CONC
12 Ea	DRAIN CASTING, TYPE 1

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

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NO SCALE

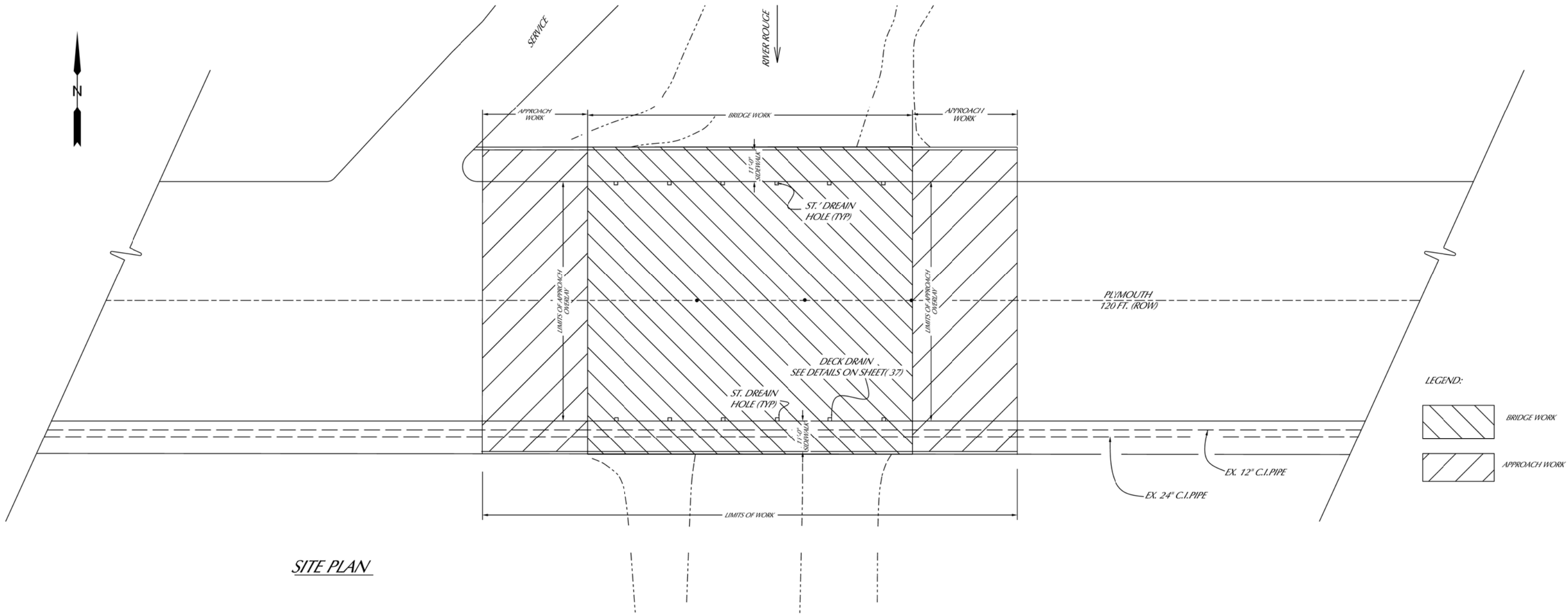
DESIGNED BY: MAHER ELSALTI
 DRAWN BY: SARMAD AL TAMEEMI
 CHECKED BY:

APPROVED BY:
 DATE: 11 / 12 / 2020

JN 207699

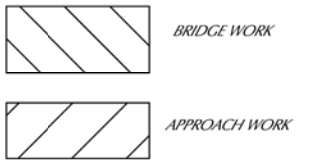
BW-271-PLYMOUTH
 BEAM REPAIR DETAILS

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SITE PLAN

LEGEND:



APPROACH WORK:

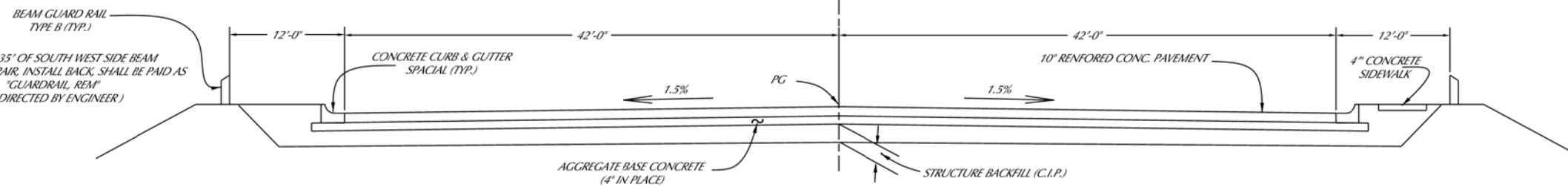
3" COLD MILLING CONC. PAVT.
CONC. SILICA FUME MODIFIED OVERLY

NOTES:

1. CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT THIS OPERATION IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRED RELOCATION WILL BE NOT DISTURBED.

MISCELLANEOUS QUANTITIES

70	Cyd	CONC. PAVT, OVLY, FINISHING AND CURING
35'		CURDRAIL, REM
800	Syd	COLD MILLING CONC. PAVT 3"
800	Syd	CONC. PAVT, OVLY, FINISHING AND PLACING
70	Cyd	CONC. SILICA FUME MODIFIED



TYPICAL APPROACH SECTION
LOOKING EAST

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



NO SCALE

DESIGNED BY: MAHER ELSALTI
DRAWN BY: SARMAD AL TAMEEMI
CHECKED BY:

APPROVED BY:
DATE: 12 / 15 / 2020

CS: 82000

JN: 207699A

BW-271-PLYMOUTH
TYPICAL APPROACH SECTION

DRAWING SHEET
38 OF 38