MDOT Project Estimating 101

2024 MITA Annual Conference – January 17, 2024

John Otto, PE

LSE
L. S. ENGINEERING, INC.

John Otto, P.E. – Over 40 years of heavy/highway construction employment with contractors in various roles such as engineer, field supervisor, project manager, estimator and vice president. Currently working part time as a consultant and MDOT DRB Panelist.

- 2020 – Current L.S. Engineering, Inc.
- 1988 – 2019 Dan's Excavating, Inc.
- 1986 – 1988 Thompson – McCully Co.
- 1980 – 1996 Al Johnson Construction Co.

Why Estimates are Important

- Contractors have 1.5 times the failure rate of other small business
- Cash flow number one reason
- Bad estimates that don’t account for all costs contribute to cash flow issues.

Construction estimates are prepared in order to determine the probable cost of a project

Two Types of Estimates:

- Approximate Estimates – similar to the engineer's estimate where historic unit prices are used

- Detailed Estimates – should be the type contractor use where all aspects of the probable costs are analyzed

Presentation Example

- Assuming I am a small miscellaneous concrete contractor
- Want to perform concrete curbs, sidewalks, sidewalk ramps, driveways, small non-machine pavements, small formed walls
- MDOT prequalified J contractor

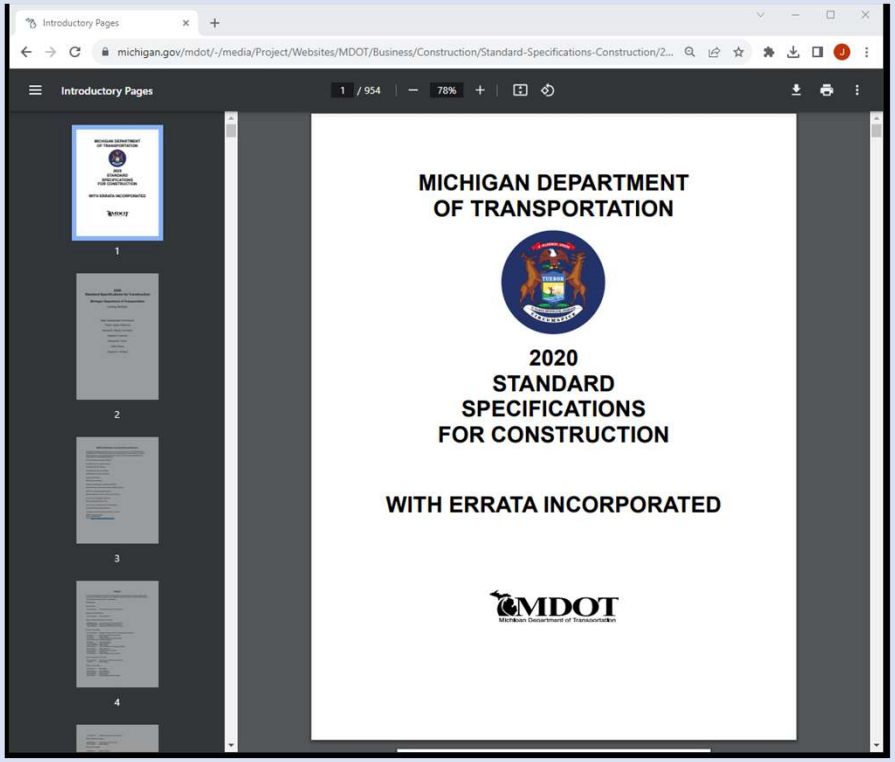
4 Steps to Estimating

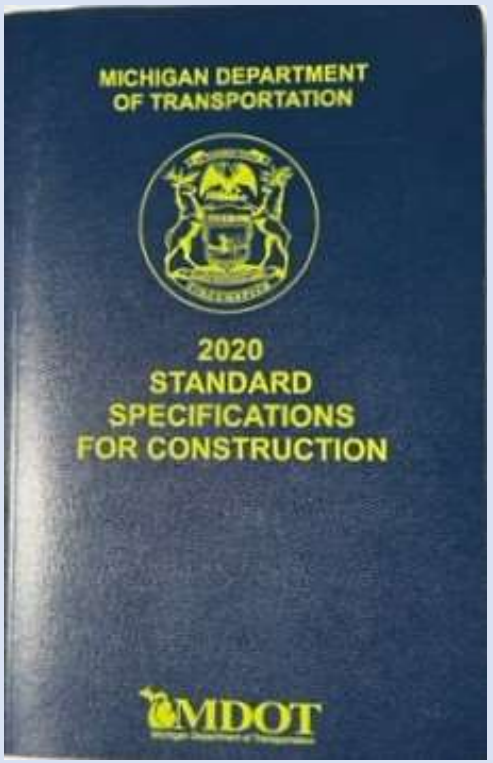
- Preparation / Understand the Project
- Quantify the Work
- Develop the Cost of the Work
- Evaluate the Risk / Profit / Proposal

Preparation / Understand the Project

- Understand the Owner & their Standard Specifications
- Find MDOT Projects to Bid
- Review Bid Items
- Obtain Plans & Specifications
- Review Special Provisions
- Review Plans
- Review the Site

MDOT Standard Specifications for Construction





MDOT Standard Specifications for Construction

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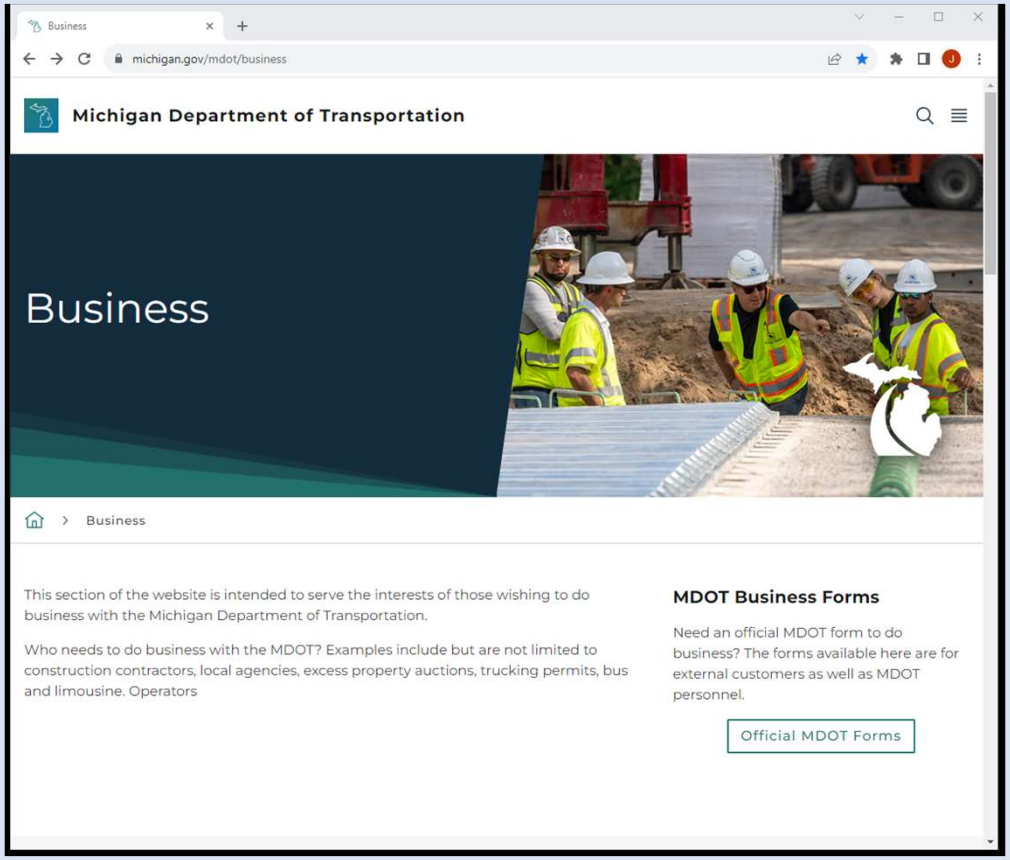
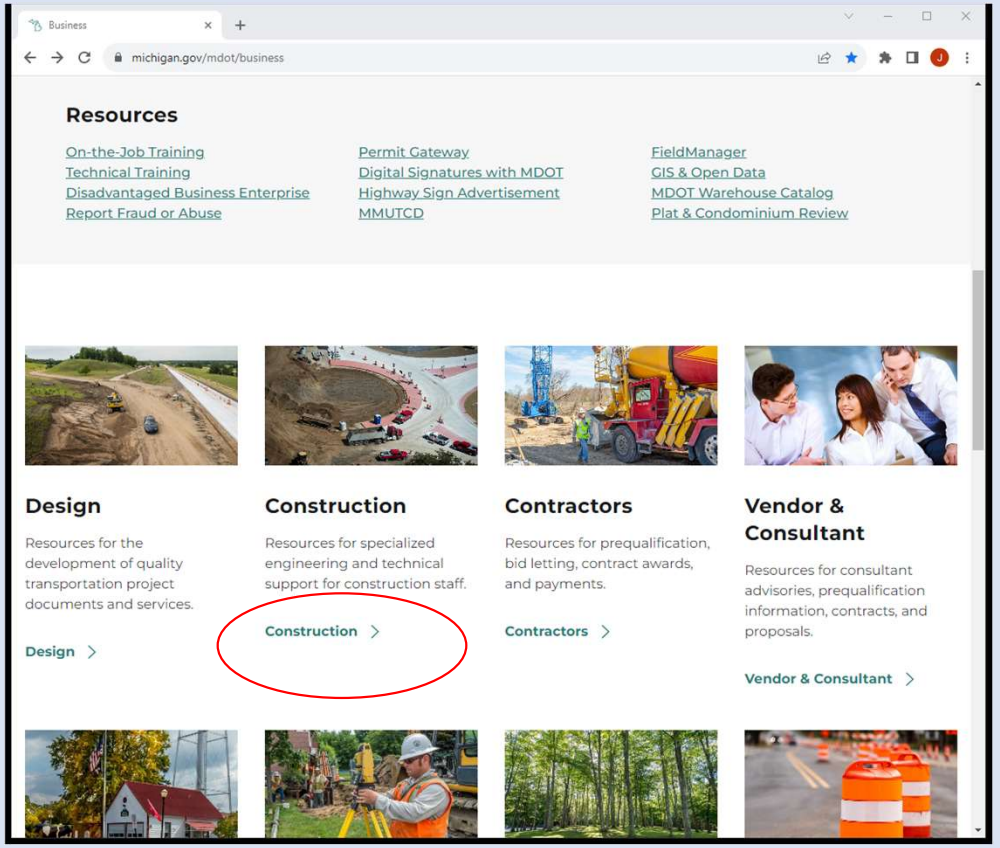
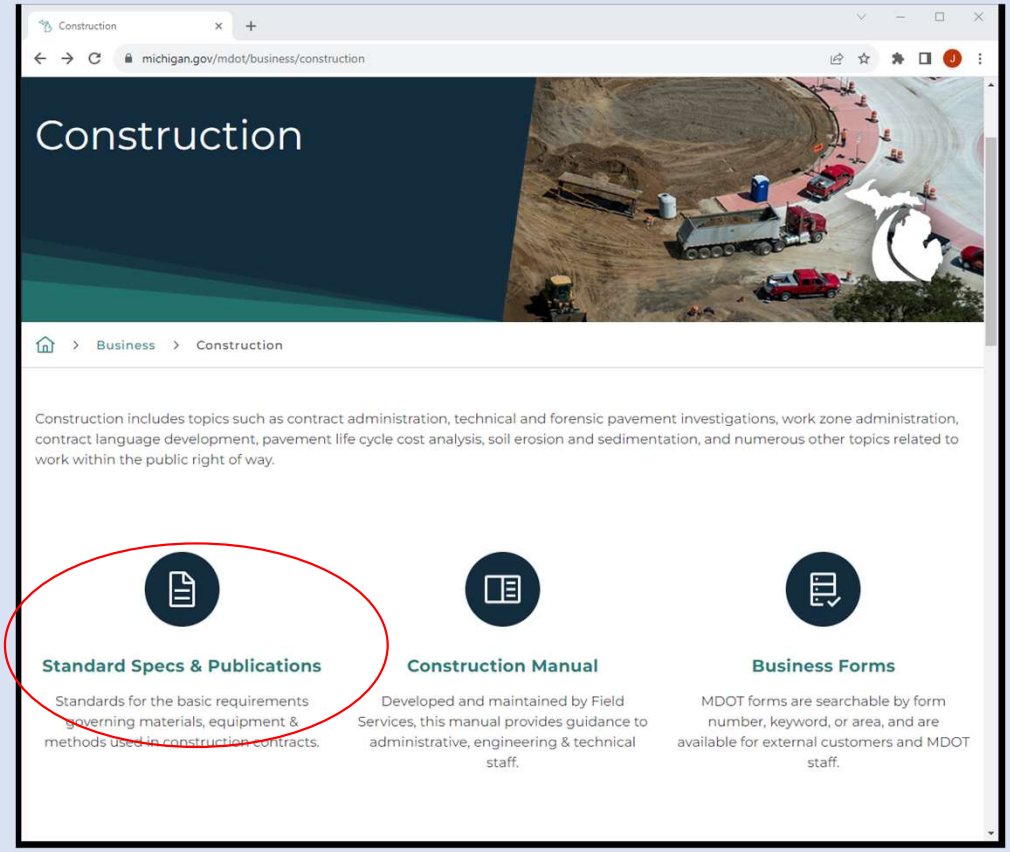




MDOT Standard Specifications for Construction



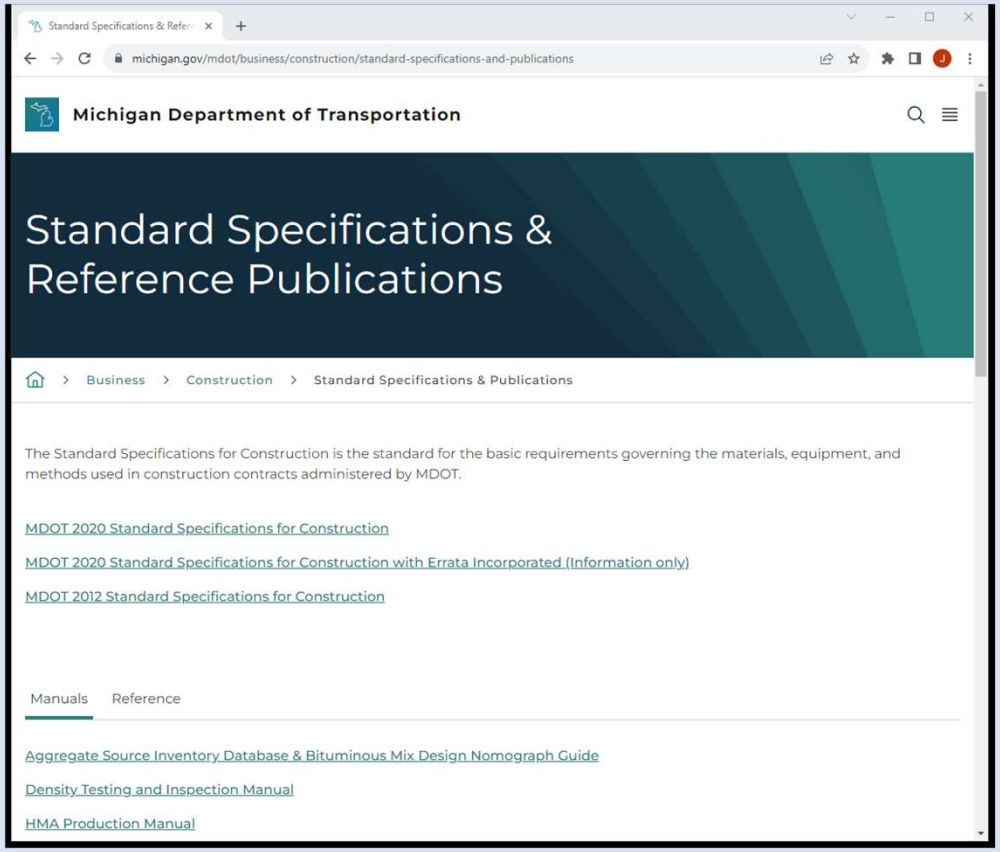


Table of Contents

Pay Item Index

Section 801 Concrete Curb

Section 802. Concrete Curb, Gutter, and Dividers

802.01. Description

This work consists of constructing the following items on the prepared base, with or without reinforcement, as required by the contract:

A. Concrete curb, combination curb and gutter, and curb nose;

B. Valley gutter and shoulder gutter;

C. Downspout headers and spillways; and

D. Dividers.

802.02. Materials

Provide materials in accordance with the following sections:

Curing Compound	903
Asphaltic Materials	904
Steel Reinforcement	905
Geotextile Liner	910
Lane Ties	914
Joint Fillers	914
Concrete, Grade 3500	1004
Mortar, Type R-2	1005

802.03. Construction

A. **Preparation of Base.** Prepare the base in accordance with subsection 602.03.B. Construct a uniform base. Compact the base material to 95% of the maximum unit weight. Prepare the base and geotextile liner for concrete spillways in accordance with subsection 814.03.A.

B. **Placing Forms.** Place fixed forms in accordance with subsection 602.03.C. Use face forms, if necessary, to construct straight curbs.

If using slip-forming methods, match the dimensions of the form to the dimensions of the curb shown on the plans.

C. **Placing Steel Reinforcement.** Place steel reinforcement and lane ties in the correct position during concrete placement, as required.

Splice steel reinforcement bars by lapping them at least 10 inches. Tie bar laps with wire ties within 2 inches of each end of the lap.

D. **Placing Concrete.** Obtain the Engineer's approval of the base before placing concrete. Wet the base before placing concrete.

Do not stamp, stencil, or in any way mark concrete with a company name, logo, or other such information.

H. **Curing.** Cure concrete curb, gutter, and dividers in accordance with subsection 602.03.M.

I. **Weather and Temperature Limitations.** Protect concrete curb, gutter, and dividers in accordance with subsection 602.03.T.

J. **Backfilling.** Place and compact backfill after the concrete gains the needed strength to support placing and compacting. Grade the remaining excavated areas.

802.04. Measurement and Payment

Pay Item	Pay Unit
Curb, Conc, Det __	Foot
Curb and Gutter, Conc, Det __	Foot
Valley Gutter, Conc	Foot
Curb and Gutter, Bridge Approach, Det__	Foot
Shld Gutter, Conc, Det __	Each
Curb Nose	Each
Downspout Header, Conc	Each
Driveway Opening, Conc, Det M	Foot
Spillway, Conc	Foot
Divider, Conc, Type __	Square Foot

A. **Concrete Acceptance.** Conduct concrete QC as specified in section 1002. The Engineer will conduct QA as specified in section 1003. The Department will apply adjustments to this work based on the QA results.

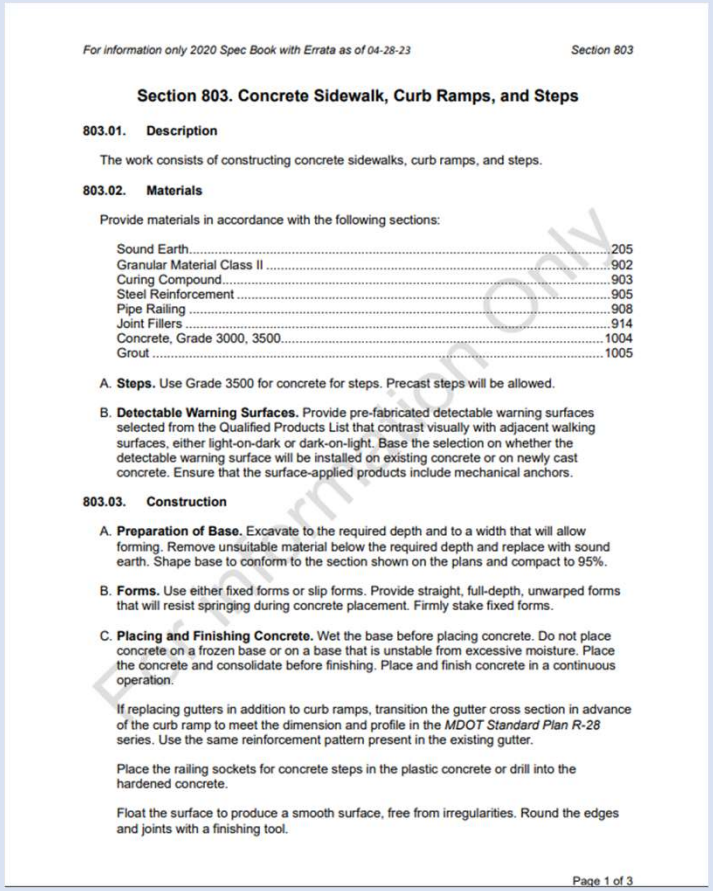
B. **Curb, Concrete; Curb and Gutter, Concrete; Valley Gutter, Concrete; and Curb and Gutter, Bridge Approach, Det__.** The Engineer will measure **Curb and Gutter, Conc, Det __**, **Valley Gutter, Conc**, and **Curb and Gutter, Bridge Approach, Det__** in place along the joint of the curbing with the pavement. The Engineer will not make deductions in the pay item measured length for catch basins, inlet castings, or Detail L driveway openings. The Engineer will divide transition areas between **Valley Gutter, Conc** and **Curb and Gutter, Conc** in half and will measure each half in the units of the adjacent item.

C. **Integral Curb and Pavement Construction.** If the Contractor chooses to construct curb as an integral part of the pavement, the Engineer will measure the curb separately. The Department will not consider payment for extras or increases in pay quantities due to the Contractor's choice to cast curbing integral with the pavement.

D. **Shoulder Gutter, Concrete.** The unit price for **Shld Gutter, Conc, Det __** includes the cost of providing and placing a geotextile liner. The plans will show the pay limits for **Shld Gutter, Conc, Det __.**

E. **Driveway Opening, Conc, Det M.** The Engineer will measure **Driveway Opening, Conc, Det M** from springline to springline.

Section 802 Sidewalks, Curb Ramps



Section 803. Concrete Sidewalk, Curb Ramps, and Steps

803.01. Description

The work consists of constructing concrete sidewalks, curb ramps, and steps.

803.02. Materials

Provide materials in accordance with the following sections:

Sound Earth	205
Granular Material Class II	902
Curing Compound	903
Steel Reinforcement	905
Pipe Railing	908
Joint Fillers	914
Concrete, Grade 3000, 3500	1004
Grout	1005

A. **Steps.** Use Grade 3500 for concrete for steps. Precast steps will be allowed.

B. **Detectable Warning Surfaces.** Provide pre-fabricated detectable warning surfaces selected from the Qualified Products List that contrast visually with adjacent walking surfaces, either light-on-dark or dark-on-light. Base the selection on whether the detectable warning surface will be installed on existing concrete or on newly cast concrete. Ensure that the surface-applied products include mechanical anchors.

803.03. Construction

A. **Preparation of Base.** Excavate to the required depth and to a width that will allow forming. Remove unsuitable material below the required depth and replace with sound earth. Shape base to conform to the section shown on the plans and compact to 95%.

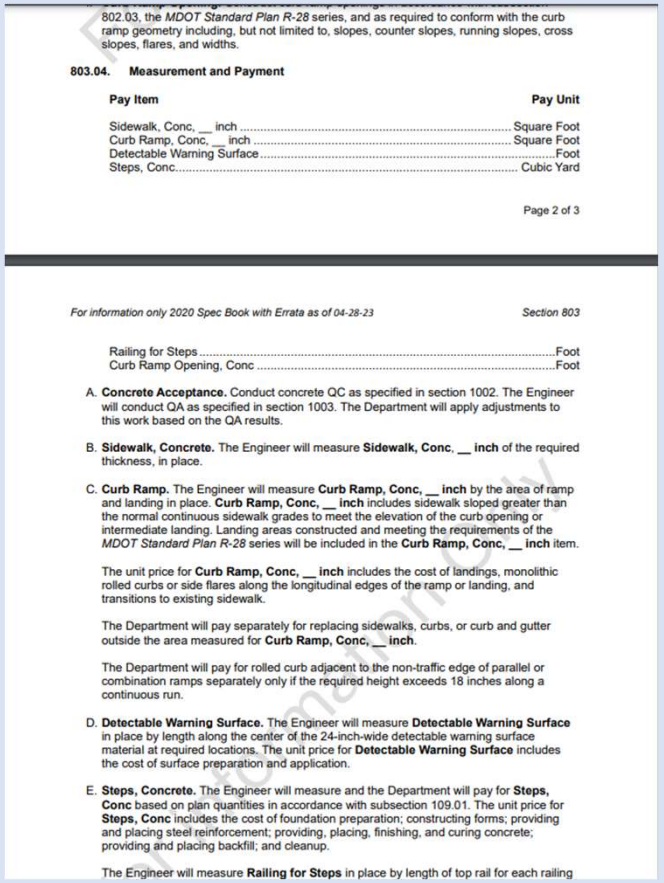
B. **Forms.** Use either fixed forms or slip forms. Provide straight, full-depth, unwarped forms that will resist springing during concrete placement. Firmly stake fixed forms.

C. **Placing and Finishing Concrete.** Wet the base before placing concrete. Do not place concrete on a frozen base or on a base that is unstable from excessive moisture. Place the concrete and consolidate before finishing. Place and finish concrete in a continuous operation.

If replacing gutters in addition to curb ramps, transition the gutter cross section in advance of the curb ramp to meet the dimension and profile in the *MDOT Standard Plan R-28* series. Use the same reinforcement pattern present in the existing gutter.

Place the railing sockets for concrete steps in the plastic concrete or drill into the hardened concrete.

Float the surface to produce a smooth surface, free from irregularities. Round the edges and joints with a finishing tool.



802.03, the *MDOT Standard Plan R-28* series, and as required to conform with the curb ramp geometry including, but not limited to, slopes, counter slopes, running slopes, cross slopes, flares, and widths.

803.04. Measurement and Payment

Pay Item	Pay Unit
Sidewalk, Conc, __ inch	Square Foot
Curb Ramp, Conc, __ inch	Square Foot
Detectable Warning Surface	Foot
Steps, Conc	Cubic Yard

Railing for Steps	Foot
Curb Ramp Opening, Conc	Foot

A. **Concrete Acceptance.** Conduct concrete QC as specified in section 1002. The Engineer will conduct QA as specified in section 1003. The Department will apply adjustments to this work based on the QA results.

B. **Sidewalk, Concrete.** The Engineer will measure **Sidewalk, Conc, __ inch** of the required thickness, in place.

C. **Curb Ramp.** The Engineer will measure **Curb Ramp, Conc, __ inch** by the area of ramp and landing in place. **Curb Ramp, Conc, __ inch** includes sidewalk sloped greater than the normal continuous sidewalk grades to meet the elevation of the curb opening or intermediate landing. Landing areas constructed and meeting the requirements of the *MDOT Standard Plan R-28* series will be included in the **Curb Ramp, Conc, __ inch** item.

The unit price for **Curb Ramp, Conc, __ inch** includes the cost of landings, monolithic rolled curbs or side flares along the longitudinal edges of the ramp or landing, and transitions to existing sidewalk.

The Department will pay separately for replacing sidewalks, curbs, or curb and gutter outside the area measured for **Curb Ramp, Conc, __ inch**.

The Department will pay for rolled curb adjacent to the non-traffic edge of parallel or combination ramps separately only if the required height exceeds 18 inches along a continuous run.

D. **Detectable Warning Surface.** The Engineer will measure **Detectable Warning Surface** in place by length along the center of the 24-inch-wide detectable warning surface material at required locations. The unit price for **Detectable Warning Surface** includes the cost of surface preparation and application.

E. **Steps, Concrete.** The Engineer will measure and the Department will pay for **Steps, Conc** based on plan quantities in accordance with subsection 109.01. The unit price for **Steps, Conc** includes the cost of foundation preparation; constructing forms; providing and placing steel reinforcement; providing, placing, finishing, and curing concrete; providing and placing backfill; and cleanup.

The Engineer will measure **Railing for Steps** in place by length of top rail for each railing

Referenced Sections

Section 803. Concrete Sidewalk, Curb Ramps, and Steps

803.01. Description

The work consists of constructing concrete sidewalks, curb ramps, and steps.

803.02. Materials

Provide materials in accordance with the following sections:

A. **Steps.** Use Grade 3500 for concrete for steps. Precast steps will be allowed.

Section 1002. Contractor Quality Control for Concrete

1002.01. Description

This work consists of providing and maintaining an effective concrete QC plan for all concrete production and placement on the project.

The Engineer will not sample or test for QC or assist in controlling the Contractor's production operations.

1002.02. Materials

None specified.

1002.03. General Requirements.

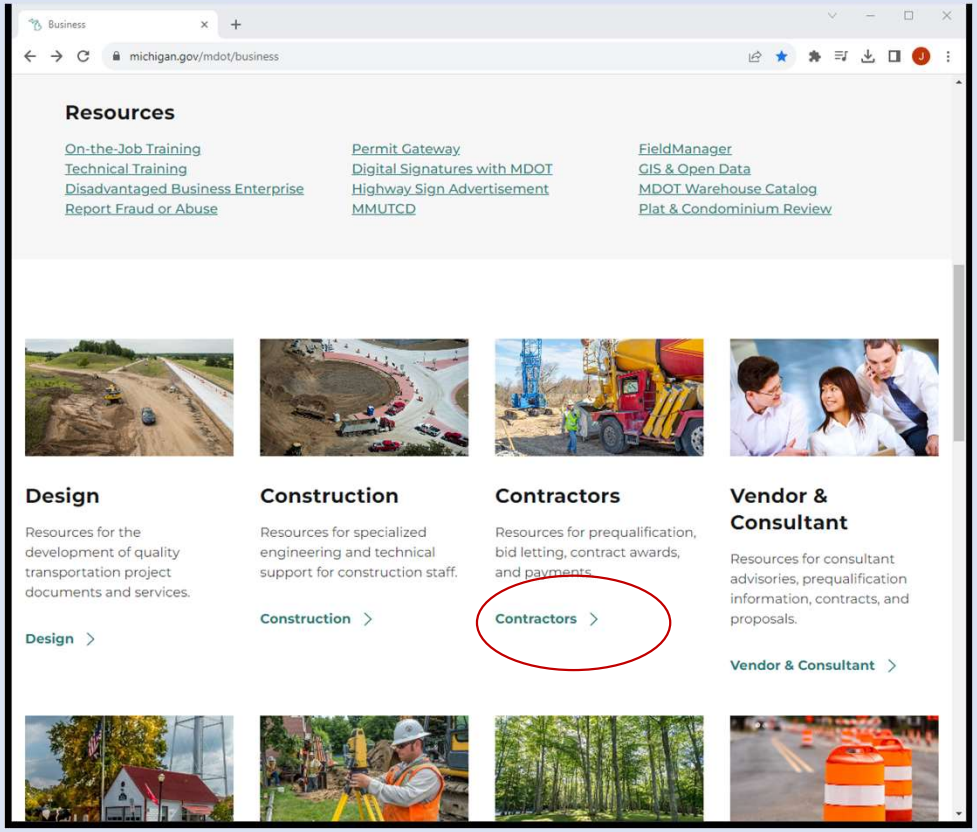
A. **Standard Reference Procedures.** The following ASTM test methods apply to the Department's established procedures for sampling and testing:

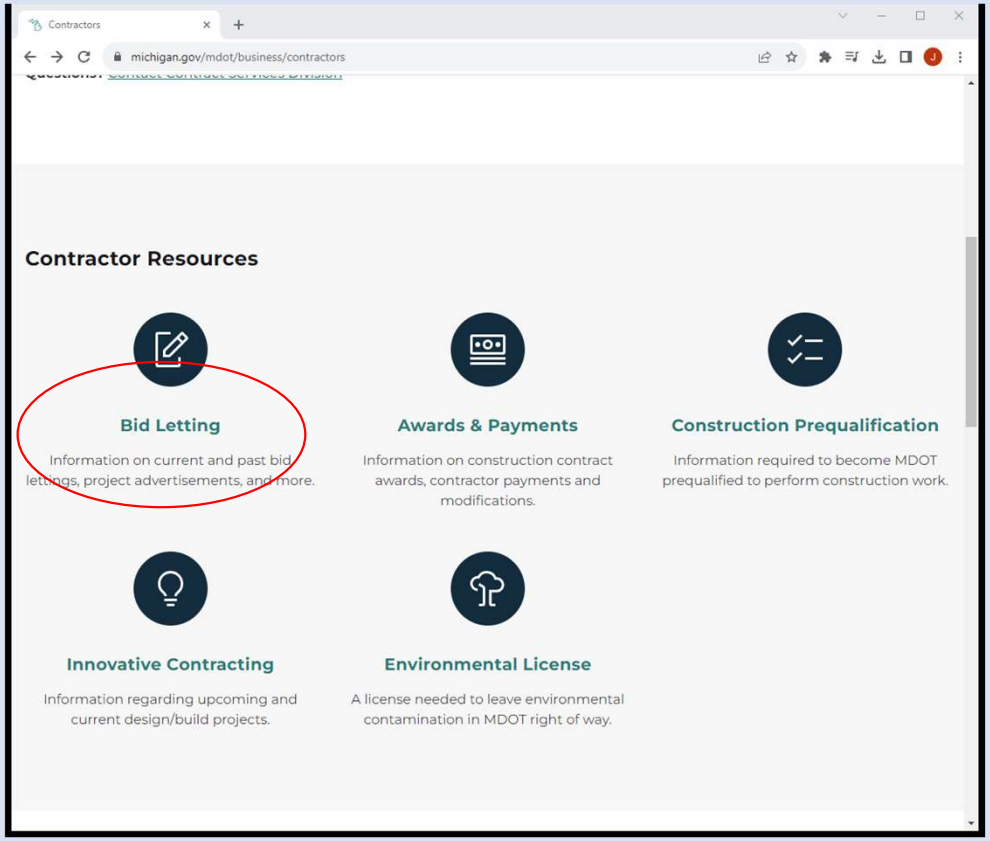
1. ASTM C31/C31M – Standard Practice for Making and Curing Concrete Test Specimens in the Field
2. ASTM C39/C39M – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
3. ASTM C78/C78M – Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
4. ASTM C138/C138M – Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
5. ASTM C143/C143M – Standard Test Method for Slump of Hydraulic-Cement Concrete
6. ASTM C172/C172M – Standard Practice for Sampling Freshly Mixed Concrete
7. ASTM C173/C173M – Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
8. ASTM C231/C231M – Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
9. ASTM C293/C293M – Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading)
10. ASTM C1064/C1064M – Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete

B. **Quality Control Elements.** Prepare, implement, and maintain a QC plan for concrete, specific to the project, that will provide quality oversight for production, testing, and control of construction processes. The QC plan must be in conformance with the contract and

Find MDOT Projects to Bid

https://www.michigan.gov/mdot/business





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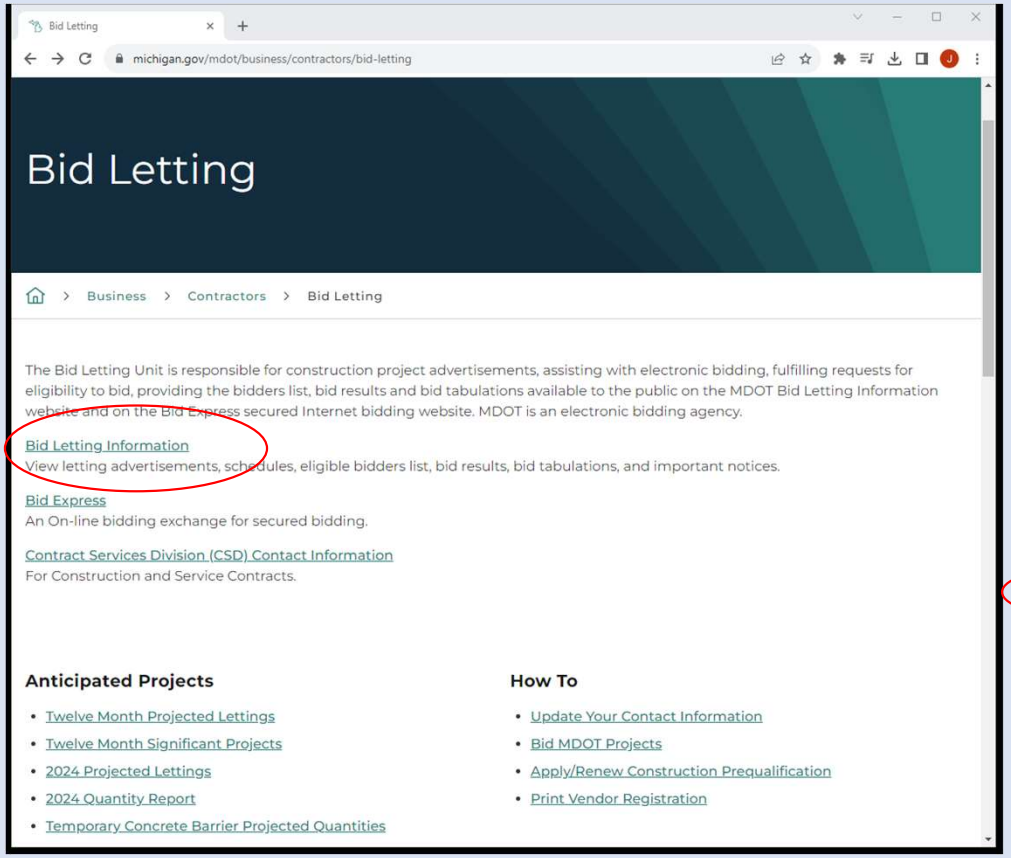

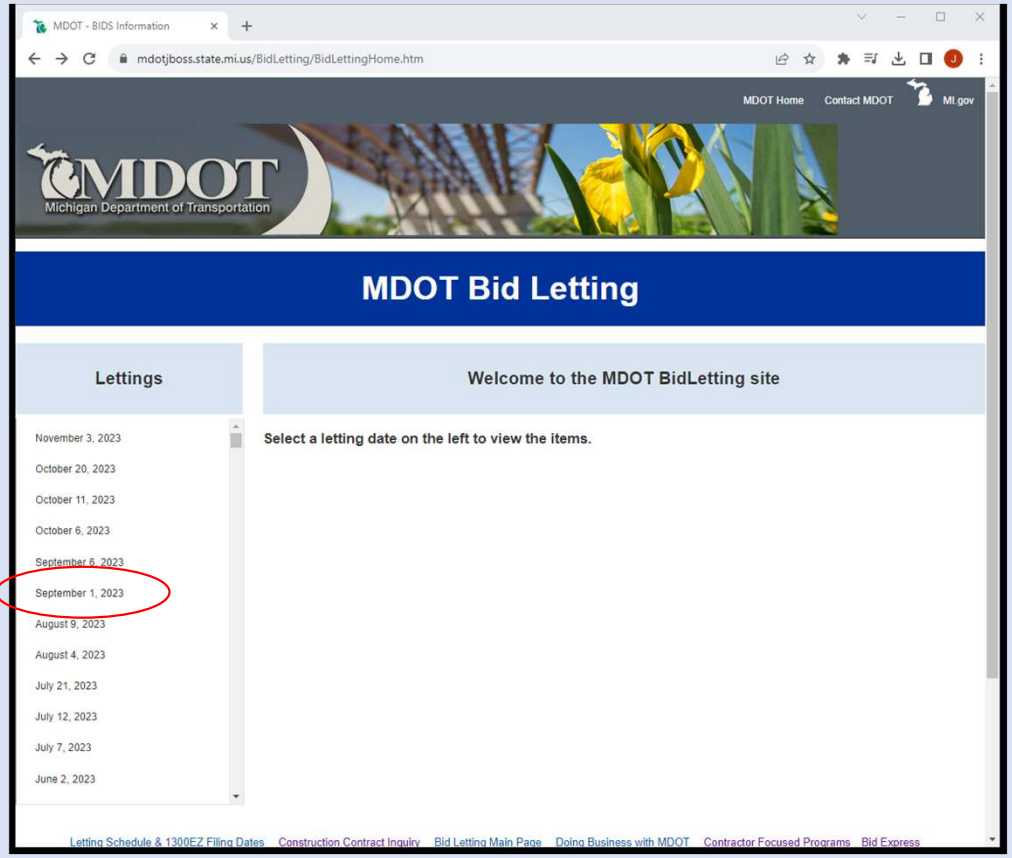

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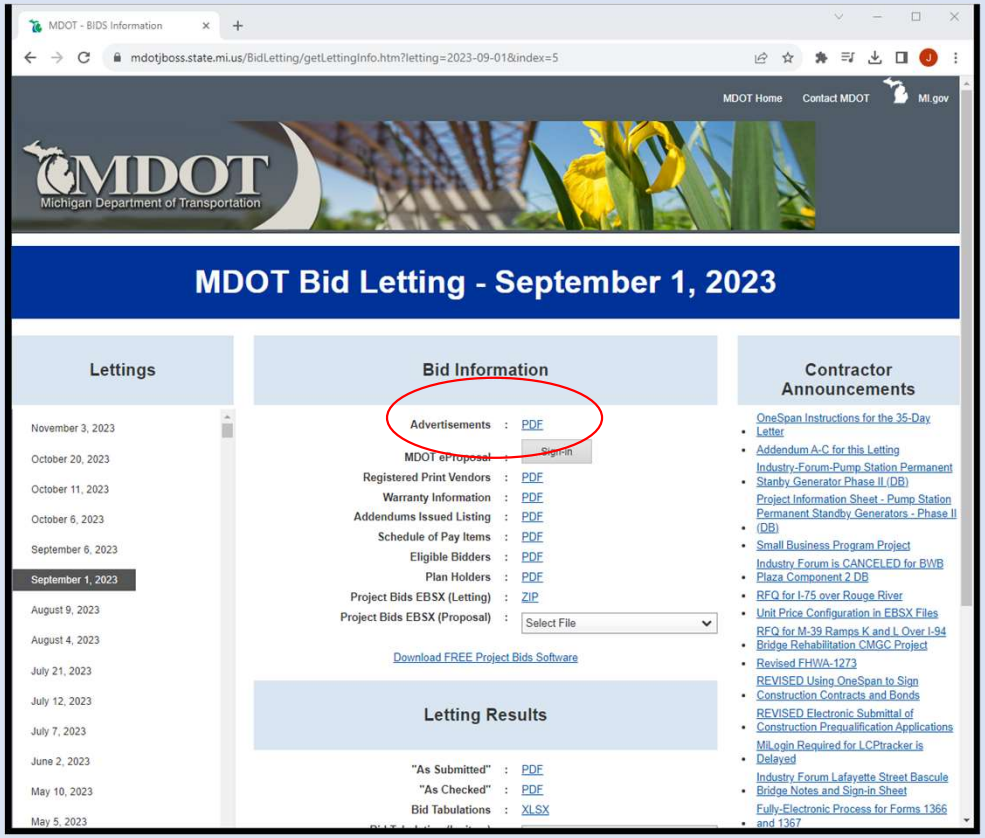

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AASHTOWare Project™ Version 4.8.1 Revision 025

Notice of Advertisement Report v1

Letting of: 230901

10:30 AM, Local Time 425 W. OTTAWA ST., LANSING, MI 48933

Call Number	Contract ID	Control Section	Project Number	Federal Project Number
010	58071-120343	CMG 58071	120343A	23A0745

Description: Traffic signal modernization, concrete curb, gutter, sidewalk and ramps and pavement markings on M-125 at the intersection of Sterns Road and Mall Road, Monroe County.

Required DBE Participation: 0.00%

Net Classification Required For This Project: ** 562 L **

Estimated Pages For Plans: 71

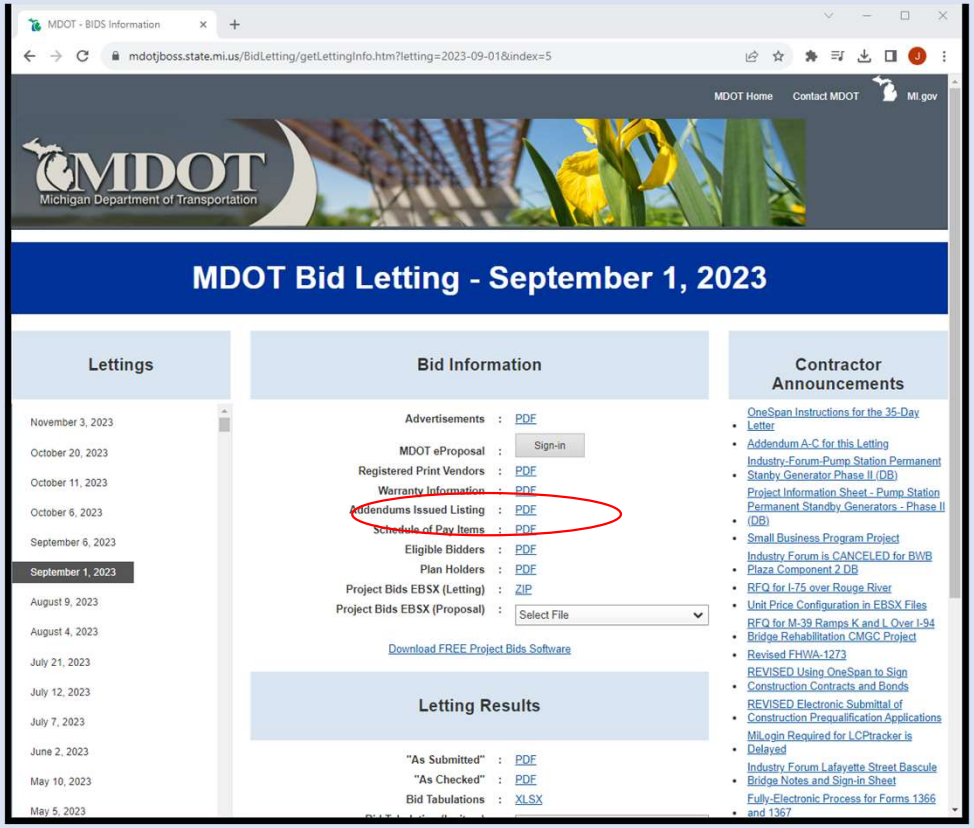
Completion Date: 7/29/2024

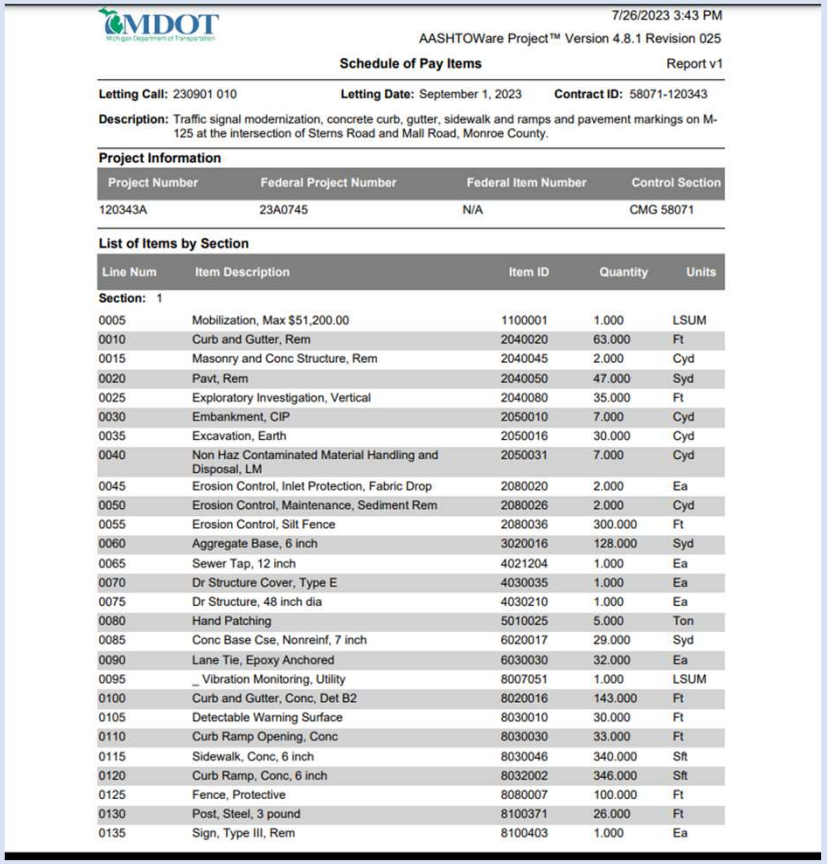
Date Advertised: 7/28/2023

See proposal for bidder guaranty information.

Proposal and plans, if applicable, are available for examination online at <http://mdotcf.state.mi.us/public/eprop/login/index.cfm>

Review Bid Items





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Schedule of Pay Items Report v1

Letting Call: 230901 010 **Letting Date:** September 1, 2023 **Contract ID:** 58071-120343

Description: Traffic signal modernization, concrete curb, gutter, sidewalk and ramps and pavement markings on M-125 at the intersection of Sterns Road and Mall Road, Monroe County.

Project Information

Project Number	Federal Project Number	Federal Item Number	Control Section
120343A	23A0745	N/A	CMG 58071

List of Items by Section

Line Num	Item Description	Item ID	Quantity	Units
Section: 1				
0005	Mobilization, Max $51,200.00	1100001	1.000	LSUM
0010	Curb and Gutter, Rem	2040020	63.000	Ft
0015	Masonry and Conc Structure, Rem	2040045	2.000	Cyd
0020	Pavt, Rem	2040050	47.000	Syd
0025	Exploratory Investigation, Vertical	2040080	35.000	Ft
0030	Embankment, CIP	2050010	7.000	Cyd
0035	Excavation, Earth	2050016	30.000	Cyd
0040	Non Haz Contaminated Material Handling and Disposal, LM	2050031	7.000	Cyd
0045	Erosion Control, Inlet Protection, Fabric Drop	2080020	2.000	Ea
0050	Erosion Control, Maintenance, Sediment Rem	2080026	2.000	Cyd
0055	Erosion Control, Silt Fence	2080036	300.000	Ft
0060	Aggregate Base, 6 inch	3020016	128.000	Syd
0065	Sewer Tap, 12 inch	4021204	1.000	Ea
0070	Dr Structure Cover, Type E	4030035	1.000	Ea
0075	Dr Structure, 48 inch dia	4030210	1.000	Ea
0080	Hand Patching	5010025	5.000	Ton
0085	Conc Base Cse, Nonreinf, 7 inch	6020017	29.000	Syd
0090	Lane Tie, Epoxy Anchored	6030030	32.000	Ea
0095	_ Vibration Monitoring, Utility	8007051	1.000	LSUM
0100	Curb and Gutter, Conc, Det B2	8020016	143.000	Ft
0105	Detectable Warning Surface	8030010	30.000	Ft
0110	Curb Ramp Opening, Conc	8030030	33.000	Ft
0115	Sidewalk, Conc, 6 inch	8030046	340.000	Sft
0120	Curb Ramp, Conc, 6 inch	8032002	346.000	Sft
0125	Fence, Protective	8080007	100.000	Ft
0130	Post, Steel, 3 pound	8100371	26.000	Ft
0135	Sign, Type III, Rem	8100403	1.000	Ea

Obtain Plans & Specs

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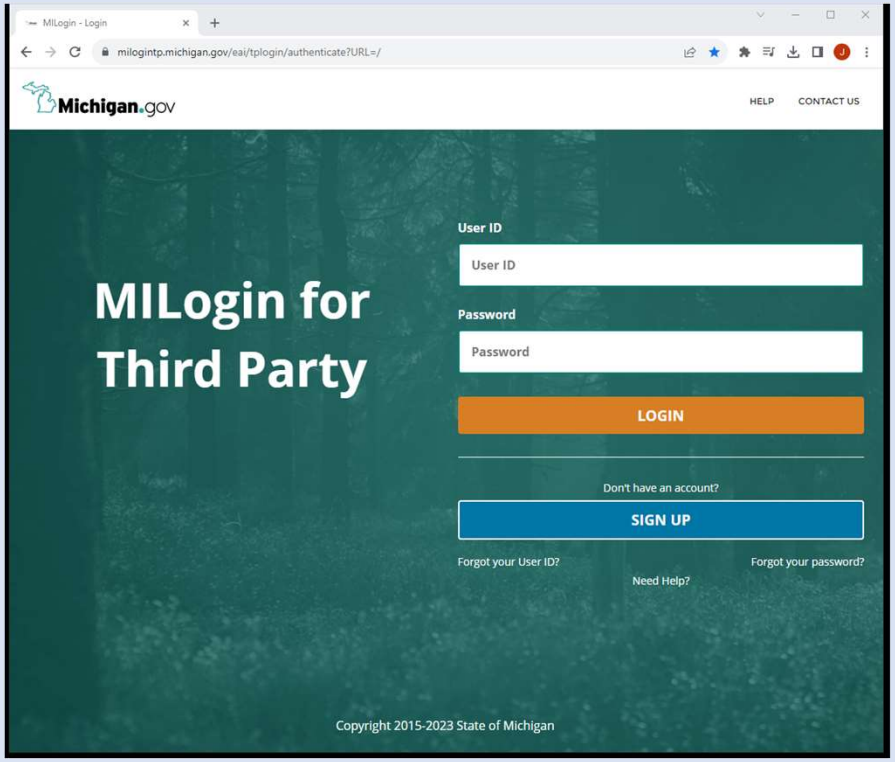
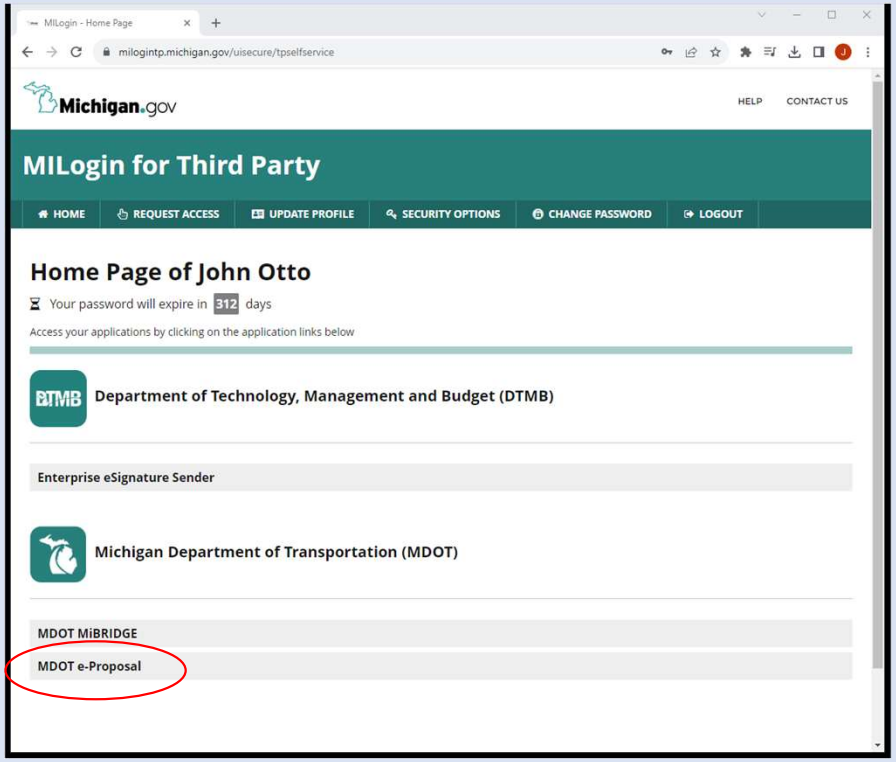
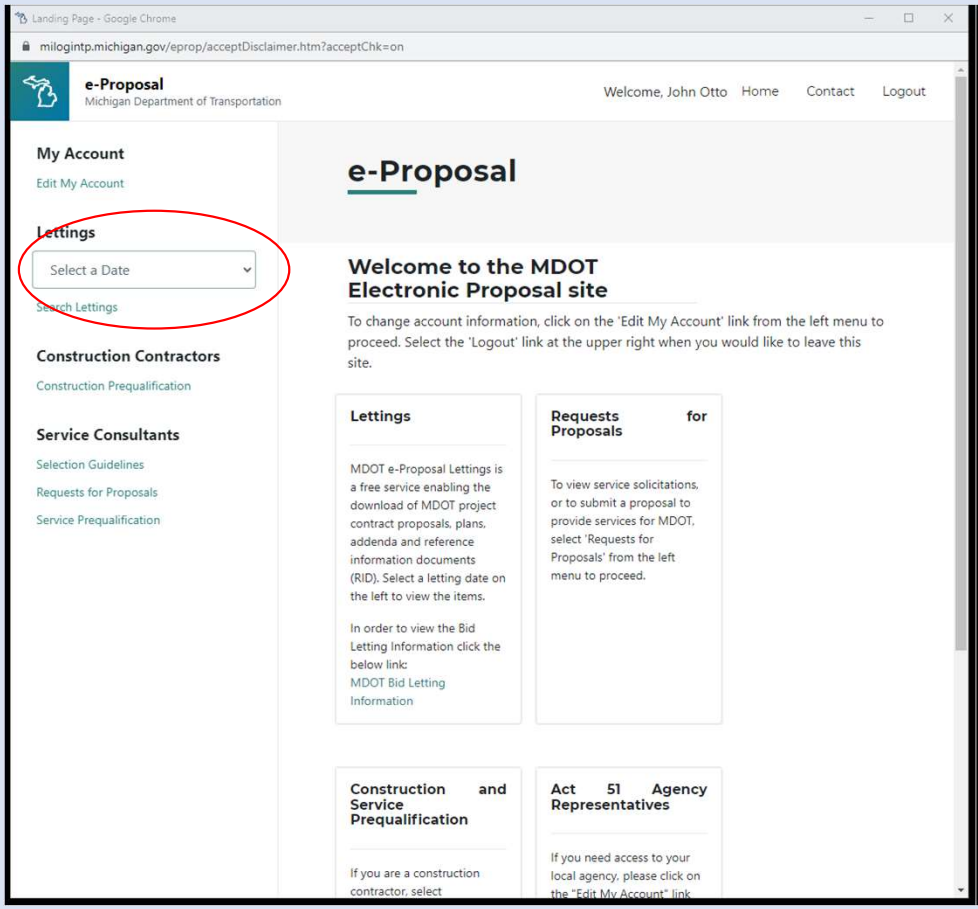
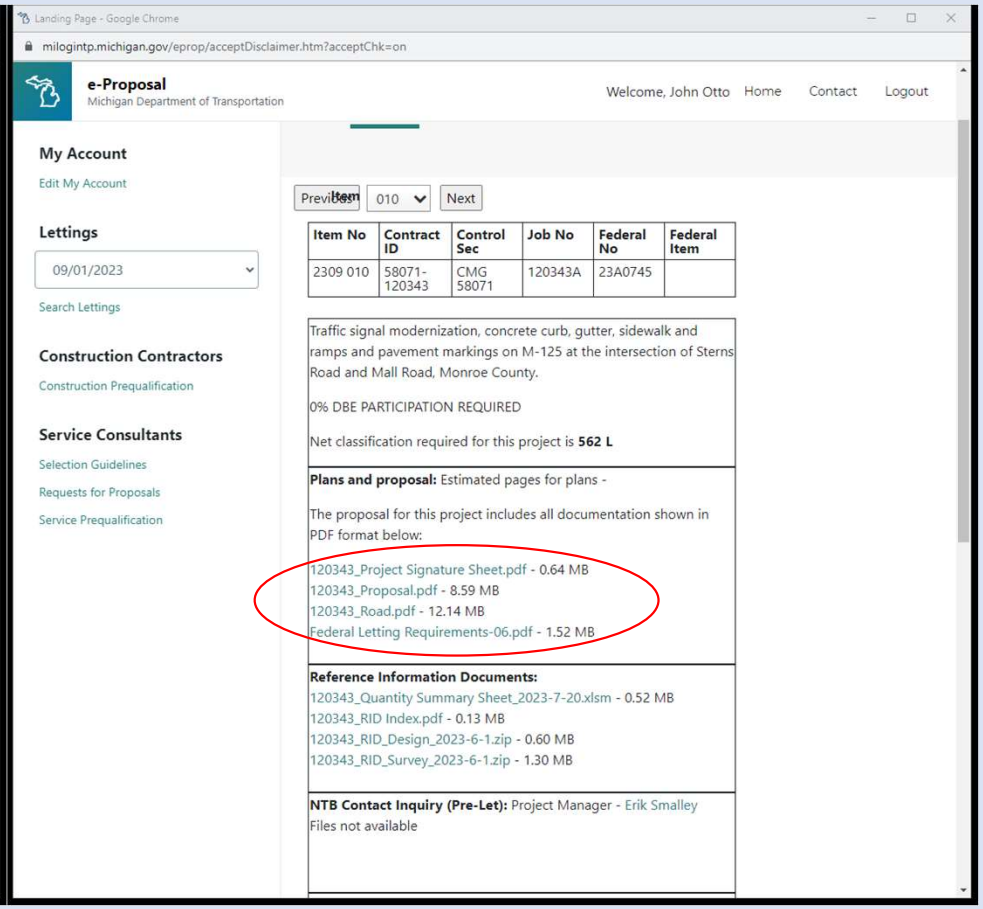




Obtain Plans & Specs





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2020 Standard Specifications for Construction

Warranty	No	**FHWA Oversight**	No
DBE %	No	**NHS**	No

ITEM NUMBER
2309 010

STATE OF MICHIGAN DEPARTMENT OF TRANSPORTATION

PROPOSAL

Traffic signal modernization, concrete curb, gutter, sidewalk and ramps and pavement markings on M-125 at the intersection of Sterns Road and Mall Road, Monroe County.

BIDS WILL BE ELECTRONICALLY DOWNLOADED AT 10:30 AM LOCAL TIME, ON 9/1/23

CONTRACT ID	CONTROL SECTION		PROJECT	FEDERAL NUMBER
58071-120343	CMG	58071	120343A	23A0745

The bidder has downloaded and examined the plans, specifications, special provisions, and related materials in the proposal, as well as the location of the work described in the proposal for this project, has obtained all addenda issued for this project, is fully informed as to the nature of the work and the conditions relating to its performance and understands that the quantities shown are approximate only and are subject to either increase or decrease.

The bidder hereby proposes to furnish all necessary machinery, tools, apparatus, and other means of construction, do all the work, furnish all the materials except as otherwise specified and, for each unit price, lump sum, or one each named in the itemized bid, to complete the work in strict conformity with the plans therefore and the entire proposal which is incorporated by reference in these pages, and in strict conformity with the requirements of the 2020 Standard Specifications for Construction, Michigan Department of Transportation and such other special provisions and supplemental specifications as may be a part of the proposal for this project.

The bidder further proposes to do such extra work as may be authorized by the Department, prices for which are not included in the itemized bid. Compensation shall be made on the basis agreed upon before such extra work is begun.

The bidder hereby certifies that if it is not prequalified in all classifications required by the advertisement for this project, it has taken such preparatory steps as may be necessary and will within the time specified in Subsection 102.14 of the 2020 Standard Specifications for Construction, designate subcontractor(s) that are fully prequalified in the classification(s) to perform the work.

THE BIDDER UNDERSTANDS AND AGREES THAT THE DEPARTMENT RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS AND NO CONTRACTUAL RELATIONSHIP SHALL EXIST BETWEEN THE BIDDER AND THE DEPARTMENT FOR THE WORK DESCRIBED HEREIN UNTIL SUCH TIME AS THE CONTRACT HAS BEEN FORMALLY EXECUTED BY BOTH THE BIDDER AND THE DEPARTMENT.

The bidder agrees upon submitting this bid that its agents, officers or employees have not directly or indirectly entered into any agreements, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this proposal for the above project.

Unless the bidder gives MDOT advance written notice, MDOT may correspond directly with the insurance agencies concerning questions and problems with the insurance certificates, bonds and related materials. It is the obligation of the bidder to monitor the filing of the insurance certificates, bonds, and related materials with MDOT and the bidder is responsible for any failure to provide MDOT with the required materials, on a timely basis and in proper form.

Subject to Subsection 102.16 of the 2020 Standard Specifications for Construction, the bidder agrees to pay to the Michigan Department of Transportation the bid guaranty sum of **$25,000.00** if the bidder fails to provide the required materials and/or execute the contract in accordance with Subsection 102.14 of the 2020 Standard Specifications for Construction.

Brighton TSC

Schedule of Items

Report v1

Proposal ID: 58071-120343 **Project(s):** 120343A

Letting Number: 230901 **Call Number:** 010

Contractor: _____

Section Information

Section ID	Section Description	Section Total	Alt. Set ID	Alt. Member ID
1	Road Work			

Item Prices

Proposal Line Number	Item ID - Description	Approximate Quantity and Units	Unit Price	Bid Amount
0005	1100001 - Mobilization, Max$51,200.00	1.000 LSUM		
0010	2040020 - Curb and Gutter, Rem	63.000 Ft		
0015	2040045 - Masonry and Conc Structure, Rem	2.000 Cyd		
0020	2040050 - Pavt, Rem	47.000 Syd		
0025	2040080 - Exploratory Investigation, Vertical	35.000 Ft		
0030	2050010 - Embankment, CIP	7.000 Cyd		
0035	2050016 - Excavation, Earth	30.000 Cyd		
0040	2050031 - Non Haz Contaminated Material Handling and Disposal, LM	7.000 Cyd		
0045	2080020 - Erosion Control, Inlet Protection, Fabric Drop	2.000 Ea		
0050	2080026 - Erosion Control, Maintenance, Sediment Rem	2.000 Cyd		
0055	2080036 - Erosion Control, Silt Fence	300.000 Ft		
0060	3020016 - Aggregate Base, 6 inch	128.000 Syd		
0065	4021204 - Sewer Tap, 12 inch	1.000 Ea		

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Schedule of Items

Report v1

Item Prices

Proposal Line Number	Item ID - Description	Approximate Quantity and Units	Unit Price	Bid Amount
0070	4030035 - Dr Structure Cover, Type E	1.000 Ea		
0075	4030210 - Dr Structure, 48 inch dia	1.000 Ea		
0080	5010025 - Hand Patching	5.000 Ton		
0085	6020017 - Conc Base Cse, Nonreinf, 7 inch	29.000 Syd		
0090	8030030 - Lane Tie, Epoxy Anchored	32.000 Ea		
0095	8007051 - _Vibration Monitoring, Utility	1.000 LSUM		
0100	8020016 - Curb and Gutter, Conc, Det B2	143.000 Ft		
0105	8030010 - Detectable Warning Surface	30.000 Ft		
0110	8030030 - Curb Ramp Opening, Conc	33.000 Ft		
0115	8030046 - Sidewalk, Conc, 6 inch	340.000 Sft		
0120	8032002 - Curb Ramp, Conc, 6 inch	346.000 Sft		
0125	8080007 - Fence, Protective	100.000 Ft		
0130	8100371 - Post, Steel, 3 pound	26.000 Ft		
0135	8100403 - Sign, Type III, Rem	1.000 Ea		
0140	8100405 - Sign, Type IIIB	8.000 Sft		
0145	8102010 - Ground Mtd Sign Support, Rem	1.000 Ea		
0150	8110093 - Pavt Mrkg, Polyurea, 6 inch, Crosswalk	290.000 Ft		
0155	8110094 - Pavt Mrkg, Polyurea, 6 inch, White	95.000 Ft		

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PROGRESS CLAUSE: Submit a Progress Schedule. The Engineer for this project is as follows:

James R. Daavettila, P.E.
MDOT Brighton TSC
10321 E. Grand River, STE. 500
Brighton, MI 48116
(810) 227-7929
DaavettilaJ@michigan.gov

After award, start work on the date approved by the Engineer, which must be no earlier than **April 29, 2024**. In no case may any work be commenced prior to award by the Department.

The entire project must be completed by the final completion date of **July 29, 2024**.

The Contractor is responsible to provide sufficient resources and adjust work schedules to complete work within the contract time.

Failure by the Contractor to meet final completion dates will result in the assessment of liquidated damages in accordance with subsection 108.10.C.1 of the Standard Specifications for Construction. Liquidated damages will be assessed separately and simultaneously for failure to meet interim final completion dates. Liquidated damages will continue to be assessed for each calendar day that the work associated with the final completion dates remains incomplete, even if these days extend into or beyond seasonal suspension, unless approved otherwise by the Engineer.

Unless specific pay items are provided in the contract any extra costs incurred by the Contractor due to cold-weather protection and winter grading will not be paid for separately but will be included in the payment of other pay items in the contract.

After award and prior to the start of work, the Contractor must attend a preconstruction meeting with the Engineer. The Engineer will determine the day, time and place for the preconstruction meeting. The meeting will be conducted after project award and may be rescheduled if there are delays in the award of the project. The named subcontractor(s) for, Designated and/or Specialty Items, as shown in the proposal, is(are) recommended to be at the preconstruction meeting if such items materially affect the work schedule.

The Contractor may be required to meet with Department representatives for a post-construction review meeting, as directed by the Engineer. The Engineer will schedule the meeting.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
MAINTAINING TRAFFIC

SIG:EMS 1 of 6 APPR:UNIV:GNS:05/24/23

a. Description. This special provision consists of requirements and restrictions to maintain traffic on M-125 in Erie Township and Frenchtown Township, Monroe County.

b. General. Maintain traffic throughout the project in accordance with the standard specifications, typicals, and supplemental specifications in the contract and as described on the plans for this project.

c. Construction Influence Area (CIA). The CIA includes the right-of-way of the following roadways, within the approximate limits described below:

1. On intersection roads from approximately ¼ mile in advance of the following locations:
   A. M-125 (Dixie Hwy) @ Sterns Rd
   B. M-125 (Monroe) @ Frenchtown Mall

2. In addition, the CIA includes the right-of-way of any designated detour route or alternate route, intersecting roads and ramps adjacent to the work zone for a distance of approximately 1/4 mile in advance of the work zone or as far as the construction or detour signing extends. The roads include but are not limited to the locations noted in Section c.1 above.

d. Traffic Restrictions. Maintain traffic in accordance with the Maintaining Traffic Typicals contained herein, except as noted below. Changes or adjustments to the Maintaining Traffic Typicals may be necessary to fit field conditions, subject to approval of the Engineer or as determined by the Engineer.

1. Utilize the following Maintaining Traffic Typicals:

   A. 100-GEN-KEY

   B. 101-GEN-SPACING-CHARTS

   C. 102-GEN-NOTES

   D. 103-GEN-SIGN

   E. 110-TR-NFW-2L

   F. 122-NFW-SHL-(R)

   G. 123-NFW-1LC-(R)

   H. 160-INT-LD-CLT-MID

   I. 161-INT-LD-LANE

   J. 162-INT-LD-MID

   K. 163-INT-LD-OUT

   L. 164-INT-SD-MID

   M. WZD-100

   N. WZD-125

2. Do not work, deliver material, or close lanes during the holiday periods as defined in Table 1. Cover or remove "45 where workers present" signing during the holiday periods as defined in Table 1.

Table 1: 2024 Holiday Periods

Holiday	Start Date and Time	End Date and Time
Memorial Day	15:00, Friday, 5/24/24	6:00, Tuesday, 5/28/24
Independence Day	15:00, Wednesday, 7/3/24	6:00, Monday, 7/8/24
Labor Day	15:00, Friday, 8/30/24	6:00, Tuesday, 9/3/24

4. Traffic switch operations are exempt from lane rental assessments or liquidated damage assessments for 8 hours for each traffic switch. Perform traffic switch operations within the allowable "traffic restriction tables" as shown below.

   A. A traffic switch is defined as a change in the existing (original or staged) traffic configuration which requires multiple (more than one) lane lines and/or edge lines to be relocated in a new location and the old lines to be removed either between construction stages, or maintenance of traffic stages.

Table 2: M-125 Traffic Restrictions

Closure Type	Start Time	End Time	M	Tu	W	Th	F	Sa	Su
Shoulder Closures	00:00	24:00	∞	∞	∞	∞	∞	∞	∞
Single Lane Closures	00:00	09:00	0	0	0	0	0	0	0
	09:00	15:00	∞	∞	∞	∞	∞	∞	0
	15:00	24:00	0	0	0	0	0	0	0
∞ = Closure is allowed, and the frequency is not limited during the project timeframe # = The number of times closures can take place during the project timeframe.									

5. Maintain a minimum of one lane(s) of traffic in each direction at all times on M-125 (And all intersecting roads and ramps, except where detoured.)

   A. Consecutive lane closures on the same bound must originate on the same side of the roadway.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PORTLAND CEMENT CONCRETE PRICES FOR ADJUSTMENTS

BFS 1 of 1 APPR:MAS:CRB:03-10-23

a. Description. This special provision identifies the price(s) that will be used in all price adjustments for work related to Portland cement concrete item(s) used in conjunction with this contract.

If the Contractors bid is lower than the established base price any positive adjustment will use the Contractors bid in the calculation for the adjustment. If the Contractors bid is lower than the established base price any negative adjustment will use the base price established herein in the calculation for the adjustment.

If the Contractors bid is higher than the established base price any positive adjustment will use the Contractors bid in the calculation for the adjustment. If the Contractors bid is higher than the established base price any negative adjustment will use the Contractors bid in the calculation for the adjustment.

b. Base Unit Prices. The base price(s) shown below will be used as specified above in calculating adjustments for the pay item(s) listed herein:

Pay Item Code	Pay Item Name	Unit	Base Price
6020017	Conc Base Cse, Nonreinf, 7 inch	Syd	$39.94

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
MIXING PORTLAND CEMENT CONCRETE

CFS:JFS 1 of 1 APPR:CPM:TEB:12-17-21
FHWA:APPR:12-20-21

Add the following paragraph to subsection 1001.03.E.1 of the Standard Specifications for Construction:

Weigh and batch each material into its respective weighing device within the tolerance from the individual batch weights or quantities documented in the approved JMF as follows:

a. Cementitious Materials. Provide cementitious materials within -2.0 percent to +5.0 percent of the required weight.

b. Aggregates. Provide aggregate within ±3.0 percent of the required weight.

c. Water. Provide net water to not exceed the required water quantity and the required maximum water/cementitious ratio (w/cm).

d. Air Entraining Admixtures. Provide the necessary quantity or dosage rate per 100 pounds of cementitious material to achieve the required air content of fresh concrete.

e. Other Admixtures. Provide water-reducing and other admixtures within ±3.0 percent of the required quantity.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
ALKALI SILICA REACTIVITY OF FINE AGGREGATE USED IN PORTLAND CEMENT CONCRETE

CFS:CPM 1 of 2 APPR:TES:JFS:05-19-20
FHWA:APPR:05-27-20

a. Description. This special provision sets out the requirements for all fine aggregate used in Portland cement concrete (PCC) mixtures to be tested by an independent testing laboratory and determined to be resistant to the potential for deleterious expansion caused by alkali-silica reactivity (ASR). ASR testing is not required for concrete pavement repairs, temporary concrete pavements, and other items covered by the contract.

Except as explicitly modified by this special provision, all materials, test methods, and PCC mixture requirements of the standard specifications and the contract apply.

b. Definition. ASR is a chemical reaction which occurs over time within concrete between highly alkaline cement paste and reactive forms of silica found in some aggregates. In the presence of moisture, an expansive ASR gel is formed which can exert pressure within the concrete, causing random cracking and premature deterioration of the concrete.

c. Laboratory Requirements. The independent laboratory, including all associated testing equipment and staff performing ASR testing of aggregates, must be proficient in ASR testing in accordance with the applicable test methods and procedures. The laboratory must provide documentation to the Regions that they are qualified and proficient to conduct ASR testing in accordance with the required test procedures.

d. Laboratory Testing Requirements. Perform testing on fine aggregate proposed to be used in any PCC Job Mix Formula (JMF). The Contractor must ensure the testing is conducted in accordance with a designated standard test procedure described herein. Test results must conform to the specified criterion for one of the following standard test methods. The Rounding Method described in *ASTM E29* must be used when reporting expansion test results.

(1) Method 1. *ASTM C1293*. Concrete Prism Test. If the expansion of concrete prisms is not greater than 0.040 percent (rounded to the nearest 0.001 percent) after 1 year, the fine aggregate is considered non-deleterious to ASR and may be used in the JMF.

(2) Method 2. *ASTM C1567*. Mortar Bar Test. If no previous test data are available for the fine aggregate that shows it is resistant to ASR using Method 1, above, replace 25 to 40 percent of the Portland cement in the concrete mixture with a supplementary cementitious material (slag cement of fly ash). A blended cement meeting the requirements of *ASTM C595/C595M* containing the above Portland cement and supplementary cementitious material proportions may also be used.

Demonstrate the ability of the supplementary cementitious material to control the deleterious expansion caused by ASR by molding and testing mortar bars in accordance with the standard

test method described in *ASTM C1567* using the mix proportions and constituent sources for both the aggregates and the cementitious materials that will be used for the project. Make at least three test specimens for each cementitious materials-aggregate combination. If the average of three mortar bars for a given cementitious materials-aggregate combination produces an expansion less than 0.10 percent (rounded to the nearest 0.01 percent) at 14 days of immersion, the JMF associated with that combination will be considered non-deleterious to ASR. If the average expansion is 0.10 percent (rounded to the nearest 0.01 percent) or greater, the JMF associated with that combination will be considered not sufficient to control the deleterious expansion caused by ASR and the JMF will be rejected.

(3) Method 3. *ASTM C1260*. Mortar Bar Test. If the expansion of the mortar bars is less than 0.10 percent (rounded to the nearest 0.01 percent) at 14 days of immersion, the fine aggregate is considered non-deleterious to ASR and may be used in the concrete without the need for ASR mitigation.

The Engineer will not approve the use of the JMF if the expansion exceeds the threshold limits for the respective *ASTM* test method used. The test results and report are valid for 2 years from the completion of testing.

e. Submittals. A current ASR test report for the fine aggregate proposed to be used in the Job Mix Formula (JMF) must accompany each JMF. Ensure the ASR test report is accompanied by a certification stating which test procedure was followed and that all testing was conducted in accordance with the designated standard test procedure.

f. Measurement and Payment. All materials, labor, equipment, and laboratory facilities necessary to complete the work in accordance with this special provision is included in other contract pay items and no additional compensation will be permitted.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
REDUCED TESTING FOR NON-CRITICAL CONCRETE PLACEMENTS

a. Description. The Contractor must administer QC and the Department will administer QA procedures that will be used for acceptance of and payment for all Portland cement concrete (PCC) for the project. Except as explicitly modified by this special provision, all materials, test methods, and PCC mixture requirements of the standard specifications and the contract apply. Non-critical concrete placements as specified in this special provision or otherwise approved by the Engineer are eligible for reduced testing. All other QC and QA requirements for the project apply.

b. Terminology.

Non-critical Concrete Placements. Concrete meeting the reduced testing requirements below, that is incorporated into a non-structural element such as a sign post foundation, fence post foundation, signal controller foundation, electrical service pedestals, electrical racks, encased conduits, and isolated sidewalk panels, or similar items as approved by the Engineer.

Quality Control (QC). All activities administered by the Contractor to monitor, assess, and adjust production and placement processes to ensure the final product will meet the specified levels of quality, including, but not limited to, training, materials selection, construction, sampling, testing, project oversight and documentation.

c. Reduced Concrete Testing Requirements. Ensure all of the following criteria are met for use of reduced concrete testing:

1. The concrete must be a non-critical placement as defined above.

2. Ensure a concrete QC plan is submitted for approval and followed for all other concrete work on the project per the contract. This applies even if the total concrete quantity on the project is less than 100 cubic yards.

3. No more than 100 cubic yards of non-critical concrete placements will be permitted for the project. Quantities greater than this value must follow the standard specifications.

4. No more than five cubic yards of non-critical quantity concrete will be incorporated into any individual work element (pedestal foundation, single fence post foundation, etc.) per day unless approved otherwise by the Engineer.

5. No more than 20 cubic yards of non-critical quantity concrete will be allowed on the project per day unless approved otherwise by the Engineer.

6. The Engineer has received written certification from the Contractor that the ready-

mixed concrete producer/supplier has a current QC plan in place for their facility for all concrete, which is available for review by the Engineer, upon request.

7. The Engineer is given advanced notification of each concrete placement and is provided sufficient opportunity to witness concrete placement.

8. Any modifications or adjustments to the JMF for non-critical concrete prior to concrete placement, which are necessary to ensure compliance, must be made by a certified concrete technician (Michigan Level II).

9. The JMF represents a standard MDOT Grade of Concrete. Ensure the JMF is approved prior to placement.

10. Reduced testing for non-critical concrete placements will not be considered for any items of work associated with concrete pavements, driveways and driveway ramps, anchorage foundations, structures, and/or any other element that will be subjected to live loading.

11. Strain pole foundations are not eligible for reduced testing.

d. Quality Control Testing. Contractor QC testing of fresh concrete is not required for placements meeting the requirements for reduced concrete testing above. Compressive strength sampling and testing is not required for non-critical concrete placements as defined in this special provision.

e. Acceptance, Sampling and Testing. Prior to concrete discharge into forms, the Engineer will confirm by visual inspection and/or verification testing (and note in the Inspector's Daily Report) that the concrete represents the required physical quality properties. At any time during concrete placement, the Engineer may sample and conduct verification testing for temperature, slump, and air content of the fresh concrete. Do not resume concrete placement until verification tests validate that the concrete meets specifications. Do not add additional water to the concrete mixer after commencement of discharge.

The Engineer may perform QA testing of any nature on any non-critical quantity concrete at their discretion. If test results do not meet specification requirements, the use of reduced testing for non-critical concrete placements may be eliminated on the project and standard concrete QC and QA will apply per the contract.

f. Measurement and Payment. All costs associated with this work will be included in the item of work associated with the non-critical placement of concrete.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONSTRUCTION MANAGEMENT

a. Description. This work consists of complying with the Department's construction management processes. The Department will manage this contract using the AASHTOWare Project Construction Materials (APCM) software. Ensure all change orders are approved using APCM. No paper documents, faxes, or other methods/media are permitted for change order approvals except as allowed by this special provision or specifically approved by the Engineer.

b. Terminology. Replace the following terms in all of the contract:

- Inspector's Daily Report (IDR) replaced with Daily Work Report (DWR)
- Contract Modification replaced with Change Order
- Construction Pay Estimate Report replaced with Pay Estimate for Contractor
- Contractor's Performance Evaluation replaced with Contractor Evaluation
- Site Times replaced with Contract Times

The new terms have the same definition as the term being replaced.

c. Contractor Access to APCM. APCM access is available at no cost to all contractors associated with the project. APCM user accounts and access is granted using the State of Michigan Identity, Credential and Access Management solution, MILogin. MILogin is a web based access portal at the following website:

https://milogintp.michigan.gov

Use MILogin to submit all APCM access requests.

d. Roles and Contract Authority. Roles restrict what data each user can view and the actions they can perform in the system. Roles will be assigned at user creation through the MILogin access request process. Read only and change order approver roles are available to the Contractor. The change order approval role requires written authorization from an authorized officer of the company.

Contract authority grants the user the ability to use one of the user's roles on a specific contract. Contract authority will be granted by the Engineer at the request of the Contractor. Provide the Engineer with a list of users and the user role for this contract at the time of the preconstruction meeting.

Notify the Engineer within 24 hours of any user access changes for this contract.

e. Training. Additional documentation and training for APCM processes, details of scheduled classes and methods for requesting training are available by emailing the MDOT

AASHTOWare Help Desk at MDOT-ConstructionSoftware@michigan.gov between the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.

f. Technical Issue Resolution. Upon discovery of an APCM access issue the Contractor must immediately notify the Engineer and submit a notice to the e-mail resource at:

MDOT-ConstructionSoftware@michigan.gov.

g. Change Order Approvals. Ensure electronic review/approval of change orders are accomplished through APCM approval decisions and automated e-mail notifications. An approval decision is the system recorded decision entered by the user. When a change order is ready for approval, the user with authority to approve is notified by e-mail. Submit the approval decision by accessing APCM, reviewing the change order, and recording the approval decision within the system.

h. Data/File Retention. The electronic data and files stored within APCM are part of the official project documentation and will be retained per the current documentation retention schedule.

i. Measurement and Payment. The work included in this special provision will not be paid for separately and is considered to be included in other pay items of work in the contract.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONSTRUCTION DOCUMENT MANAGEMENT

COS:RJC 1 of 3 APPR:JJG:LFS:01-19-23
FHWA:APPR:01-19-23

a. Description. This work consists of meeting MDOT's construction document management (CDM) system requirements. Submit all project documentation for this contract in electronic format and place it in MDOT's CDM system, unless otherwise noted in this special provision. No paper documents, in printed format (faxes, letters, etc.) are permitted except as allowed by this special provision or specifically approved by the Engineer. The Contractor is responsible for keeping all information in the CDM system up to date throughout the execution of the contract.

b. Digitally Encrypted Electronic Signatures. All documents that require Contractor or subcontractor signatures or signed authorizations by the Contractor or subcontractor must be signed using an MDOT issued digitally encrypted electronic signature. The MDOT approved digital signature tool is the OneSpan Sign ID Verification & Acceptance Electronic signature Solution (OneSpan), and OneSpan Sign Mobile Applications. Digital signature software is provided by MDOT for use only on MDOT projects at no cost to the Contractor. Instructions on how to use MDOT's digitally encrypted electronic signature can be obtained at the following website. The website also provides support for users.

www.michigan.gov/MDOT-esign

Scanned signatures, cursive fonts or other non-conforming signatures are not permitted in lieu of digitally encrypted electronic signatures.

The OneSpan signature appliance creates a digital envelope that is distributable for signature by email. OneSpan workflow does not allow changes to be made to the original document after the first signature is placed and uploaded to the document host location. It is the responsibility of the Contractor to provide all individual signatory names and email addresses at the preconstruction meeting to expedite document processing and payment.

Failure to submit documents utilizing OneSpan will result in the documents being rejected by the Engineer and returned to the Contractor. No payment will be made for any affected work items until all required documents are received with validated digitally encrypted signatures.

c. Contractor Access to MDOT's Construction Document Management System (ProjectWise). The Contractor must use MDOT's current CDM system (ProjectWise). ProjectWise access and software is available at no cost to all contractors, suppliers and other vendors associated with the project. User account setup, installation details, and access to ProjectWise may be requested by sending an e-mail request to:

MDOT-ProjectWiseConst@michigan.gov

d. Contractor Authorized Requestors. Designate two authorized requestors at the

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PREVAILING WAGE AND LABOR COMPLIANCE SYSTEM

COS:AS 1 of 2 APPR:RJC:MRB:03-24-20
FHWA:APPR:03-30-20

a. Description. This work consists of the required use of a prevailing wage and labor compliance (PWLC) system for all prevailing wage documentation as directed by the Engineer. Input all required certified payroll documentation into the PWLC system (LCPtracker) and update this documentation throughout the execution of the contract. Certified payroll information is to be submitted in the PWLC system per the time requirements in the 20SP-107D - Labor Compliance.

b. Contractor Responsibility. Coordinate all electronic document submittals including documentation supplied by other companies (e.g. subcontractors, suppliers, fabricators, etc.) as detailed in this special provision. All companies will directly submit their certified payroll information into the PWLC system.

c. General Requirements. Submit all certified payroll information as required in this special provision and the 20SP-107D - Labor Compliance. Provide employee zip codes as part of the certified payroll submission. This information will be redacted from any certified payroll reports to protect worker anonymity. Zip code information will be anonymized and used for federal, state, and legislative prevailing wage and labor reporting.

All data entry will be submitted through the following program and website:

Program: LCPtracker
Login Website: http://www.lcptracker.net
General Information website: www.lcptracker.com

A tutorial for this system can be found though the website provided.

d. Condition of Payment. Post all documents electronically into the PWLC system. Electronic posting and submittal of documents is a condition of payment for this contract. Documents submitted in any other manner, unless required otherwise in this special provision or directed by the Engineer, will not be accepted and will delay payment.

e. Digitally Encrypted Electronic Signatures. Ensure all documents that require signature authorizations are signed using a digitally encrypted electronic signature. Further information regarding how to obtain a digital signature can be found at the following website:

www.michigan.gov/mdot-esign

f. Contractor Preparation for Tracking Software:

1. Information about LCPtracker is available to the Contractor and other project companies (e.g. subcontractors, suppliers, etc.) at the following website:

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SOURCE OF STEEL AND IRON (BUY AMERICA)

CFS:JJG 1 of 2 APPR:LLR:AG:10-13-22
FHWA:APPR:10-16-22

Delete subsection 105.10, on page 1-60 of the Standard Specifications for Construction, in its entirety and replace with the following:

105.10. Source of Steel and Iron. Provide steel and iron materials and products for permanent incorporation into the work that were produced only in the United States per Title 23 of the CFR Section 635.410, Buy America Requirements.

All steel and iron products and manufacturing processes of the steel and iron material in a product, including but not limited to the following steps; smelting, melting, rolling, extruding, machining, bending, grinding, drilling, welding, galvanizing, and coating, must occur within the United States. Provide manufacturer and/or fabricator certifications that all steel and iron products and manufacturing processes of the steel and iron material are compliant with Buy America requirements unless noted otherwise in this special provision.

Examples of products that are subject to Buy America coverage include, but are not limited to, the following:

A. Steel or iron products used in pavements, bridges, tunnels, or other structures, which include, but are not limited to, the following: fabricated structural steel, hot or cold rolled structural steel shapes, reinforcing steel, piling, high strength bolts, anchor bolts, dowel bars, permanently incorporated sheet piling, bridge bearings, cable wire/strand, pre-stressing/post-tensioning wire, motor/machinery brakes and other equipment for moveable structures.

B. Guardrail, guardrail posts, end sections, terminals, cable guardrail.

C. Steel fencing material, fence posts.

D. Steel or iron pipe, conduit, grates, manhole covers, risers.

E. Mast arms, poles, standards, trusses, supporting structural members for signs, luminaires, or traffic control systems.

F. Steel or iron components of precast concrete products, such as reinforcing steel, wire mesh and pre-stressing or post-tensioning strands or cables.

G. Left-in-place structural steel formwork, falsework, and earth retaining system elements.

Manufactured products that are predominantly (90 percent or greater) steel and/or iron

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SOURCE OF CONSTRUCTION MATERIALS

CFS:JJG 1 of 1 APPR:LLR:KAS:10-13-22
FHWA:APPR:10-16-22

Add Subsection 105.11 after subsection 105.10, on page 1-60 of the Standard Specifications for Construction:

105.11. Source of Construction Materials. Provide construction materials for permanent incorporation into the work that were produced in the United States.

The final manufacturing process for construction materials and the immediately preceding manufacturing stage for construction materials must occur within the United States.

Construction materials include an article, material, or supply that is or consists primarily of the following:

A. Non-ferrous metals;

B. Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);

C. Glass (including optic glass);

D. Lumber; or

E. Drywall.

Items that consist of two or more of the listed construction materials that have been combined together through a manufacturing process, and items that include at least one of the listed materials combined with a material that is not listed (including steel/iron) through a manufacturing process are treated as manufactured products, rather than as construction materials.

Manufactured products that are predominantly (90 percent or greater) steel and/or iron must comply with 20SP-105A - Source of Steel and Iron (Buy America) and are not subject to this special provision. All other manufactured products are exempt from this special provision.

Cement and cementitious materials; asphalt cements; aggregates such as stone, sand, or gravel; and aggregate binding agents or additives are not subject to this special provision.

Provide documented certification that the applicable construction materials are produced and/or manufactured in the United States per this special provision.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
LABOR COMPLIANCE

a. Description. Ensure all levels of contracting (prime, sub, sub-sub, etc.) comply with all labor compliance requirements in this contract. The Contractor is responsible for subcontractors and lower tier subcontractor labor compliance. Job site poster requirements apply to state and federally funded projects. All Contractors must insert this special provision in each subcontract and further require its inclusion in lower tier subcontracts for federal prevailing wage projects.

b. Requirements.

1. Jobsite Posters. All jobsite posters and employment notices required by State and Federal regulations and the contract are to be posted on the jobsite in a conspicuous area prior to the commencement of work. Ensure jobsite postings are accessible at all times.

2. Federal Prevailing Wage Projects. The Davis-Bacon Related Acts apply to all Contractors, and subcontractors (all tiers) performing work on federally funded or assisted construction contracts where the total construction contract price is in excess of $2,000. Contractors and subcontractors are required to comply with *29 Code of Federal Regulations Parts 1, 3,* and *5.*

The Contractor must advise subcontractors of the requirement to pay the prevailing wage rates prior to commencement of work and that all employees must cooperate during wage rate interviews.

A. Certified Payroll Submittal Requirements. Contractors (all tiers) must submit their certified payrolls to the prime Contractor. The submitted payrolls must accurately and completely include all information required on MDOT Form CP-347, Certified Payroll. The required weekly payroll information may be submitted on a contractor generated form but must contain all information required on Form CP-347. The first certified payroll is to be received by the Engineer within 3 weeks from the week ending in which work is performed. The 3 week period is to allow for the processing and review of the certified payrolls by the prime Contractor. The review must ensure the certified payroll is complete and contains all information required on Form CP-347. Form CP-347 is available on the MDOT forms webpage. Certified payroll information must meet the requirements of this special provision unless the contract requires payroll to be submitted through the prevailing wage and labor compliance (PWLC) system. Payroll submitted via the PWLC system must be entered into the system, certified, and approved by the prime Contractor to be considered received by the Department.

Labor compliance issues must be resolved within 60 calendar days of receiving the Departments first documented notice. The 60-day requirement may be extended based on documented mutual agreement between the Department and the Contractor.

(1) Fringe Benefit Statements. Contractors making payments or incurring cost to provide bona fide benefits must submit an hourly breakdown of fringe benefits paid each worker, or work classification where applicable, that must accompany the first certified payroll where fringe benefits are credited towards the prevailing wage. The Contractor must update these documents as necessary to ensure they are current throughout the working life of the contract. Failure to submit or maintain the required fringe benefit statement will constitute a payroll deficiency.

(2) Delinquent Payroll. Certified payrolls not submitted per subsection b.2.A of this special provision will be considered delinquent.

(3) Deficient Payroll. Certified payrolls that are found to be incomplete, inaccurate, or inconsistent with other project records are considered deficient.

(4) Non-compliance Damages. A Contractor found to be in non-compliance with the requirements of this special provision will be assessed non-compliance damages listed in Table 1, proportional to the value of their work on the contract (including subcontract, purchase order (P.O.) or invoice amount).

Table 1: Schedule of Non-Compliance Damages

Contract/Subcontract/P.O./Invoice Amount (a)	Non-compliance damages per calendar day
$0 to 49,999	$200
50,000 to 99,999	400
100,000 to 499,999	600
500,000 to 999,999	900
1,000,000 to 1,999,999	1,300
2,000,000 to 4,999,999	1,550
5,000,000 to 9,999,999	2,650
10,000,000 and above	3,000
Trucker	$200

a. "Contract" amount if offending contractor is the prime contractor. "Subcontract/P.O./Invoice" amount if offending contractor is a subcontractor/vendor.

B. Record Keeping. Maintain payrolls and basic records relating thereto (i.e. employee names, occupation, hours worked, W2, canceled checks, bank statements, etc.) by all levels of contractors during the course of work and retain for a 3-year period from the date of final estimate for all employees working on the site of work. Make these records available for inspection, copying, or transcription by the Department or its representative.

C. Short Duration Projects. The following modifications apply if the project is less than 75 calendar days in duration.

(1) Submittal Requirements. On short duration projects the first certified payroll is to be received by the Engineer within 2 weeks from the week ending in which work is

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONCRETE CURB, AND GUTTER, WITH __ FIBER REINFORCED POLYMER, DETAIL __

STR:MJC 1 of 4 APPR:JAB:JFS:02-19-21
FHWA:APPR:03-05-21

a. Description. This work consists of constructing concrete curb, gutter, and dividers, using glass fiber reinforced polymer (GFRP), or basalt fiber reinforced polymer (BFRP) reinforcement in accordance with section 802 of the Standard Specifications for Construction, and as modified on the plans and this special provision. At the Contractors option the number 3 size GFRP or BFRP may be substituted for longitudinal epoxy coated number 4 conventional steel reinforcement shown on Standard Plans R-27 Series, R-30 Series, R-31 Series, and R-33 Series. Do not use GRFP or BFRP for lane ties, or any other transverse reinforcement.

b. Materials. Provide materials in accordance with subsection 802.02 of the Standard Specifications for Construction except as modified by this special provision. Furnish GFRP or BFRP reinforcement that meet the following material specifications and requirements. Provide GFRP or BFRP reinforcement in accordance with the details shown on the plans. Do not mix reinforcement types.

1. Fibers. Use fibers in the form of unidirectional rovings of given size and weight with fiber sizing and coupling agents that are compatible with the resin system used to impregnate them. The GFRP reinforcement must contain 70 percent, minimum, by weight of glass fiber in accordance with *ASTM D7957/D7957M, Standard Specification for Solid Round Glass Fiber Reinforced Polymer Bars for Concrete Reinforcement.* The BFRP reinforcement must contain 70 percent, minimum, by weight of basalt fiber in accordance with *ASTM D258, Standard Test Method for Ignition Loss of Cured Reinforced Resins.*

2. Resin Matrix. Use commercial grades of epoxy, polyurethanes, or vinyl ester resins. Thermo-set resin systems or their blending are permitted. Ensure the base polymer in the resin system does not contain any polyester. Blending of vinyl ester and epoxy resins is permitted. Ensure the glass transition temperature (Tg) of the resin is not less than 212 degrees Fahrenheit in accordance with the Differential Scanning Calorimetry (DSC) method described in *ASTM E1356, Standard Test Method for Assignment of the Glass Transition Temperatures by Differential Scanning Calorimetry.*

3. Fillers. Inorganic fillers and secondary fibers may be used, but their quantity must not exceed 20 percent by weight of the base polymer resin specified. Commercial grade additives and process aids such as release agents, low profile shrink additives, initiators, promoters, hardeners, catalysts, pigments, fire-retardants, and ultraviolet inhibitors are permitted and depend on the process method. If used, limit shrink additives to less than 20 percent by weight of the polymer resin.

4. Mechanical Properties. Furnish GFRP or BFRP bars with the following minimum requirements:

specifications, except as modified by the details on the plans and this special provision. Ensure GFRP or BFRP reinforcement bars are uniform in diameter/size and free of defects. Defects include exposed fibers, cracks, kinks, and surface pitting. Slight discoloration is not cause for rejection.

1. Field Fabrication. Provide GFRP or BFRP reinforcement in accordance with the details shown on the plans. Field fabrication, except for tying and cutting, and gradual bending in accordance with manufacturer's recommendations, of GFRP or BFRP reinforcement is prohibited. The minimum bending radius for GFRP or BFRP reinforcement is two feet and must utilize the necessary tying and stabilization methods to ensure the GFRP or BFRP remains in the proper position before and during concrete placement. Field cut GFRP or BFRP reinforcement using high speed grinding cutter, fine blade saw, diamond blade, or masonry blade. Ensure all surface damage due to cutting is repaired or replaced as directed by the Engineer, at no additional expense to the contract.

2. Handling. Ensure GFRP bars are handled and transported as to not damage or fracture the bars. Cracked or damaged GFRP bars are not to be used. BFRP bars can be handled similar to their steel counterparts. Minor scratches and chipping that do not impact performance may be permitted with approval of the Engineer.

3. Storage of GFRP or BFRP Reinforcement. Store reinforcement above the surface of the ground on platforms, skids, pallets, or other supports. Cover the GFRP or BFRP bars with a tarp or other protective cover if it is anticipated that the GFRP or BFRP bars will be stored outdoors for more than 2 months. Protective cover must eliminate exposure to ultraviolet (UV) light.

4. Placing and Fastening. Place all reinforcement within the tolerances recommended in the CRSI "Manual of Standard Practice" unless otherwise specified in the contract. Secure reinforcement firmly with mechanical fasteners during the placing and setting of the concrete. Suspend concrete placement and take corrective action if it is observed that the GFRP or BFRP reinforcement is not adequately supported or tied to resist settlement, floating upward, or movement in any direction during concrete placement.

5. Ties and Supports. Ensure all accessories for use with the GFRP or BFRP bars such as tie wires, bar chairs, supports or clips are either plastic coated steel or plastic. Place all reinforcement in locations as shown on the plans and securely hold in position while placing and consolidating concrete. Fasten bars together with ties at all intersections.

6. Lap Splices. Lap splices are the only approved method to tie bars together to make a continuous bar. Mechanical splices are prohibited. Ensure lap length and spacing is as specified in the contract. Provide the same cover clearances for splices that is shown or specified for the reinforcement.

e. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

Pay Item	Pay Unit
Curb and Gutter, Conc, with GFRP Reinf, Det __	Foot
Valley Gutter, Conc, with GFRP Reinf	Foot
Curb and Gutter, Bridge Approach, with GFRP Reinf, Det __	Foot

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
BACKFILL FOR CONCRETE CURB, GUTTER, AND DIVIDERS

CFS:JJG 1 of 1 APPR:DMG:DBP:02-16-23
FHWA:APPR:02-21-23

Delete subsection 802.04.H, on page 8-7 of the Standard Specifications for Construction, in its entirety and replace with the following:

H. **Backfill.** Unless the contract includes separate pay items for backfill, the unit price for other items of work will include the cost of backfill.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PORTLAND CEMENT (TYPE IL)

CFS:JFS 1 of 2 APPR:TES:TEB:12-14-21
FHWA:APPR:12-16-21

a. Description. The Contractor may substitute Type IL Portland cement in lieu of Type I Portland cement for concrete mixtures and other applications where Type I Portland cement is specified, provided documentation showing specification compliance is provided as described herein.

The Contractor must provide the Engineer a minimum of 14 calendar days prior notification of their intent to substitute Type IL Portland cement in lieu of Type I Portland cement for the project.

b. Materials. Furnish Type IL Portland cement in accordance with section 901 of the Standard Specifications for Construction meeting the chemical and physical requirements specified in *ASTM C595/C595M, Standard Specifications for Blended Hydraulic Cements*. Ensure the Type IL Portland cement proposed for substitution is from the same Approved Manufacturer as the Type I Portland cement in the approved JMF.

c. Construction. At least 7 days prior to concrete production, the concrete producer must provide test data (specified below) generated from a four cubic yard (minimum) trial batch of concrete using Type IL Portland cement for the Engineer's review and approval. The trial batch must represent a current approved JMF for either a standard MDOT Grade 3500, Grade 3500HP, Grade 4500, or Grade 4500HP concrete mixture produced using Type I Portland cement, as described in section 1004 of the Standard Specifications for Construction. Ensure the materials and mixture proportions for the Type IL JMF are the same as those documented in the above mentioned JMF using Type I Portland cement. Minor adjustments to chemical admixture dosages are permitted in efforts to achieve the specified fresh concrete properties. Trial batch compliance for applications other than Portland cement concrete mixtures will be in accordance with the contract.

1. Fresh Concrete Properties.
   A. Concrete temperature,
   B. Air content of fresh concrete, and
   C. Slump.
2. Hardened Concrete Properties.
   A. 7-day compressive strength.

The Engineer will review the trial batch test data to determine if the fresh and hardened concrete properties of the Type IL JMF meet specification requirements for the respective MDOT Grade of

cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

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* LAB00465-001 06/01/2023

LABORER: Highway, Bridge and Airport Construction

AREA 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES

AREA 2: ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA AND VAN BUREN COUNTIES

AREA 3: ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON AND WEXFORD COUNTIES

AREA 4: ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES

	Rates	Fringes
LABORER (AREA 1)		
GROUP 1	$ 29.67	13.45
GROUP 2	$ 29.88	13.45
GROUP 3	$ 30.17	13.45
GROUP 4	$ 30.61	13.45
GROUP 5	$ 30.23	13.45
GROUP 6	$ 30.66	13.45
LABORER (AREA 2)		
GROUP 1	$ 26.92	12.90
GROUP 2	$ 27.12	12.90
GROUP 3	$ 27.36	12.90
GROUP 4	$ 27.71	12.90
GROUP 5	$ 27.58	12.90
GROUP 6	$ 27.92	12.90
LABORER (AREA 3)		
GROUP 1	$ 26.22	12.90
GROUP 2	$ 26.43	12.90
GROUP 3	$ 26.72	12.90

GROUP 4	$ 27.16	12.90
GROUP 5	$ 26.78	12.90
GROUP 6	$ 27.21	12.90
LABORER (AREA 4)		
GROUP 1	$ 26.22	12.90
GROUP 2	$ 26.43	12.90
GROUP 3	$ 26.72	12.90
GROUP 4	$ 27.16	12.90
GROUP 5	$ 26.78	12.90
GROUP 6	$ 27.21	12.90

LABORER CLASSIFICATIONS

GROUP 1: Asphalt shoveler or loader; asphalt plant misc.; burlap person; yard person; dumper (wagon, truck, etc.); joint filling laborer; miscellaneous laborer; unskilled laborer; sprinkler laborer; form setting laborer; form stripper; pavement reinforcing; handling and placing (e.g., wire mesh, steel mats, dowel bars); mason's tender or bricklayer's tender on manholes; manhole builder; headwalls, etc.; waterproofing,(other than buildings) seal coating and slurry mix, shoring, underpinning; pressure grouting; bridge pin and hanger removal; material recycling laborer; horizontal paver laborer (brick, concrete, clay, stone and asphalt); ground stabilization and modification laborer; grouting; waterblasting; top person; railroad track and trestle laborer; carpenters' tender; guard rail builders' tender; earth retention barrier and wall and M.S.E. wall installer's tender; highway and median installer's tender(including sound, retaining, and crash barriers); fence erector's tender; asphalt raker tender; sign installer; remote control operated equipment.

GROUP 2: Mixer operator (less than 5 sacks); air or electric tool operator (jackhammer, etc.); spreader; boxperson (asphalt, stone, gravel); concrete paddler; power chain saw operator; paving batch truck dumper; tunnel mucker (highway work only); concrete saw (under 40 h.p.) and dry pack machine; roto-mill grounds person.

GROUP 3: Tunnel miner (highway work only); finishers tenders; guard rail builders; highway and median barrier installer; earth retention barrier and wall and M.S.E. wall installer's (including sound, retaining and crash barriers); fence erector; bottom person; powder person; wagon drill and air track operator; diamond and core drills; grade checker; certified welders; curb and side rail setter's tender.

GROUP 4: Asphalt raker

GROUP 5: Pipe layers, oxy-gun

GROUP 6: Line-form setter for curb or pavement; asphalt screed checker/screw man on asphalt paving machines.

LABO1076-005 04/01/2023

MICHIGAN STATEWIDE

	Rates	Fringes
LABORER (DISTRIBUTION WORK)		
Zone 1	$ 25.17	13.32
Zone 2	$ 24.22	13.45
Zone 3	$ 21.60	13.45
Zone 4	$ 20.97	13.43
Zone 5	$ 21.00	13.40

DISTRIBUTION WORK - The construction, installation, treating and reconditioning of distribution pipelines transporting coal, oil, gas or other similar materials, vapors or liquids, including pipelines within private property boundaries, up to and including the meter settings on residential, commercial, industrial, institutional, private and public structures. All work covering pumping stations and tank farms not covered by the Building Trades Agreement. Other distribution lines with the exception of sewer, water and cable television are included.

Underground Duct Layer Pay: $.40 per hour above the base pay rate.

Zone 1 - Macomb, Oakland and Wayne
Zone 2 - Monroe and Washtenaw
Zone 3 - Bay, Genesee, Lapeer, Midland, Saginaw, Sanilac, Shiawassee and St. Clair
Zone 4 - Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon and Schoolcraft
Zone 5 - Remaining Counties in Michigan

PAIN0022-002 07/01/2008

HILLSDALE, JACKSON AND LENAWEE COUNTIES; LIVINGSTON COUNTY

stacks over 40 ft. of falling heights, recovery of lead-based paints and any work associated with industrial plants, except maintenance of industrial plants	$ 25.39	14.68
All other work, including maintenance of industrial plant	$ 25.39	14.68

FOOTNOTES: Spray painting, sandblasting, blowdown associated with spraying and blasting, water blasting and work involving a swing stage, boatswain chair or spider: $1.00 per hour additional. All work performed inside tanks, vessels, tank trailers, railroad cars, sewers, smoke stacks, boilers or other spaces having limited egress not including buildings, opentop tanks, pits, etc.: $1.25 per hour additional.

PLAS0514-001 06/01/2018

ZONE 1: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, SAGINAW, WASHTENAW AND WAYNE COUNTIES

ZONE 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
ZONE 1	$ 31.47	13.81
ZONE 2	$ 29.97	13.81

PLUM0190-003 05/01/2015

ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY,

MICHIGAN DEPARTMENT OF TRANSPORTATION 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION.

MICHIGAN DEPARTMENT OF TRANSPORTATION

ROUTE: M-125

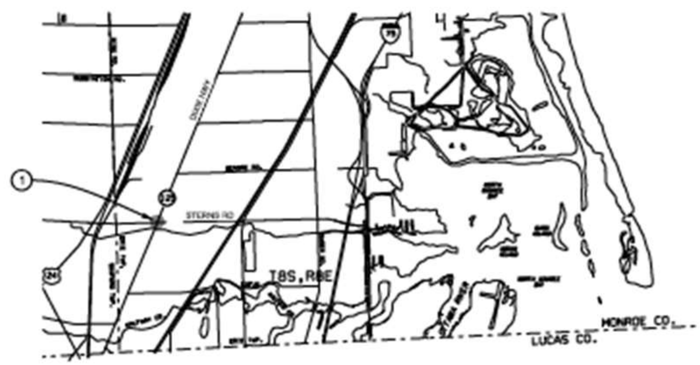
ERIE AND FRENCHTOWN TOWNSHIPS

MONROE COUNTY

SECTION	CONTROL SEC	JOB NO.	FED AID PROJ
1	58071	120343	YES

COUNTY KEY

NO.	SPOT NO.	INTERSECTION	CITY/TOWNSHIP
1	[illegible]	M-125 (DIXIE HWY) AT STERNS RD	ERIE TWP
2	[illegible]	M-125 (MONROE ST) AT MALL RD	FRENCHTOWN TWP



MICHIGAN
DEPARTMENT OF TRANSPORTATION

CONTRACT FOR:
TRAFFIC SIGNAL MODERNIZATION AT TWO LOCATIONS

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

OHM

MDOT

NO SCALE

	DATE: 08/01/23	CS: 58071	
	DESIGN UNIT: SMALLEY	JN: 120343	
FILE: 120343_T1.dgn	TSC: BRIGHTON		

TITLE	DRAWING	SHEET
TRAFFIC SIGNAL MODERNIZATIONS AT 2 LOCATIONS	M-125 TITLE 001	SECT 1 1
MONROE COUNTY		

PUBLIC UTILITIES

The existing utilities listed below and shown on these plans represent the best information available as obtained on our surveys. This information does not relieve the contractor of the responsibility to be satisfied as to it's accuracy and the location of existing utilities.

Name Of Owner	Type Of Utility
AT&T Attn: Kevin Roberts 17651 Michigan Avenue, 2nd Floor Dearborn, MI 48126 Office: 313-240-5473 Cell: 734-985-5784 Email: kr630x@att.com	Telecom
Michigan Gas Utilities Attn: Kristopher R. Kleinsmith Construction Coordinator 899 S. Telegraph Rd. Monroe, Michigan 48161 Office: 734-457-6166 Fax: 734-457-6184 Email: krkleinsmith@michigangasutilities.com	Gas
Buckeye Telesystem Attn: Michael Sheahan 4818 Angola Road Toledo, OH 43615 Office: 419-724-3713 Fax: 419-724-0489 Email: msheahan@sharedsvcs.com	Telecom
Charter Communications Attn: Patrick Delisle 7372 Davison Rd Davison, MI 48423 Office: 734-388-4560 Fax: 810-652-1433 Email: Patrick.Delisi@charter.com	CATV
City of Monroe Attn: Patrick M. Lewis 120 East First Street Monroe, MI 48161 Office: 734-243-0700 Fax: 734-384-9108 Email: Patrick.lewis@monroemi.gov	Water & Sanitary
Consumers Energy Attn: David Southward 1955 W. Parnall Rd Jackson, MI 49201 Office: 517-788-2400 Fax: 517-788-2365 Cell: 517-673-1072 Email: david.southward@cmsenergy.com	Electric
Consumers Energy HVD Attn: Pete Mulhearn 1945 West Parnall Rd., P12-206A Jackson, MI 49201 Office: 517-788-0817 Email: peter.mulhearn@cmsenergy.com	Electric
DTE Attn: Rick Cattran One Energy Plaza, Room 330 SB Detroit, Michigan 48226-1279 Office: 313-235-6374 Email: richard.cattran@dteenergy.com	Electric
Frenchtown Charter Township Attn: Rich Weirich 2744 Vivian Road Monroe, MI 48161 Office: 734-289-1015 Fax (734) 289-1277 Email: rweirich@frenchtownchartertwp.org	Wat & San
Comcast Attn: Daryl Wood 25626 Telegraph Road Southfield, Michigan 48034 Office: 248-809-2749 Fax: 248-809-2721 Cell: 248-388-8166 Email: daryl_wood@cable.comcast.com	CATV
Frontier Communication Attn: Mark Spina 340 S. Main St. Adrian, Michigan 49221 Office: 517-265-0648 Fax: 517-263-2379 Pager: 517-251-1693 Email: mark.spina@ftr.com	Telecom
South County Water System Attn: Christian Schmidt P.O. Box 446 Temperance, MI 48182 Office: 734-847-0579 Fax: 734-847-4053 Email: sschmidtscw@frontier.com	Water
AT&T (Nation) Attn: William Taggart 8372 E Broad St, Reynoldsburg, Ohio 43068 Office: 614-868-2511 Cell: 614-370-5414 Email: WT2462@att.com	Telecom
Independents Fiber Network Attn: Randy Plaisier 13888 County Road 25 A Wapakoneta, Ohio 45895 Office: 419-739-3157 Email: plaisier@cniteam.com	Telecom

NOTES APPLYING TO STANDARD PLANS

Where the following items are called for on plans, they are to be constructed according to the standard plan given below opposite each item unless otherwise indicated.

Title	Plan No.
ROAD	
DRAINAGE STRUCTURES	R-1-G
COVER E	R-10-D
CURB RAMP AND DETECTABLE WARNING DETAILS	R-28-J
CONCRETE CURB AND CONCRETE CURB & GUTTER	R-30-G
SOIL EROSION & SEDIMENTATION CONTROL MEASURES	R-96-E
SEEDING AND TREE PLANTING	R-100-I *
PAVEMENT MARKINGS	
PAVEMENT ARROW AND MESSAGE DETAILS	PAVE-900-G
PAVEMENT MARKING RECESSING DETAILS	PAVE-901-A
6-INCH YELLOW COMBINATION PAVEMENT MARKINGS	PAVE-903-A *
LONGITUDINAL LINE TYPES AND PLACEMENT	PAVE-905-E
LEFT TURN LANE MARKINGS	PAVE-935-E
RIGHT TURN LANE AND ISLAND PAVEMENT MARKINGS	PAVE-940-D
INTERSECTION, STOP BAR, AND CROSSWALK MARKINGS	PAVE-945-D
STATEWIDE TRAFFIC SIGNALS	
SPAN WIRE TS ON STEEL AND WOOD POLES	SIG-010-A *
6 ANCHOR BOLT STRAIN POLE AND FOUNDATION	SIG-020-B *
STEEL TRUSS BRACKETS	SIG-060-A *
PEDESTAL FOUNDATION	SIG-070-A *
PEDESTAL BASE ALTERNATE ANCHORAGE DETAILS	SIG-071-A *
BASE MOUNTED TS CONTROLLER CABINET/FOUNDATIONS	SIG-110-A *
CELL MODEM AND RSU ATTACHMENT DETAIL	SIG-131-A *
SECONDARY SERVICE/DISCONNECT FOR STEEL POLES	SIG-201-A *
COLOR CODE WIRING/EQUIPMENT GROUNDING	SIG-230-A *
LIGHTING PROTECTION DETAIL	SIG-231-A *
HANDHOLE- PRECAST, POLYMER CONCRETE	SIG-240-A *
CONDUIT (DIRECT BURIAL/ENCASED)	SIG-250-A *
SPAN WIRE MOUNTED TS BRACKET ASSEMBLY	SIG-300-A *
TRAFFIC SIGNAL BACKPLATES	SIG-304-A *
SPAN WIRE TETHER DETAILS	SIG-305-C *
PEDESTAL MOUNTED SIGNAL DISPLAYS	SIG-330-A *
PEDESTAL MOUNTING DETAILS FOR SIGNALS	SIG-331-A *
POLE MOUNTED SIGNAL DISPLAYS	SIG-340-A *
POLE MOUNTING DETAILS FOR SIGNALS	SIG-341-A *
PEDESTRIAN PUSH BUTTON DETAILS	SIG-400-A *
HEMISPHERICAL VIDEO DETECTION	SIG-431-A *
SIGNING	
STANDARD SIGN INSTALLATIONS	SIGN-100-G
ROADSIDE SIGN LOCATIONS & SUPPORT SPACING	SIGN-120-E
STEEL POSTS	SIGN-200-E

*** Denotes Special Detail**

SHEET INDEX

FUNDING CATEGORIES

JN 120343 Traffic Signal Modernizations
Category 0001 = 100% Fed

NOTES APPLYING TO STANDARD PLANS

Where the following items are called for on plans, they are to be constructed according to the standard plan given below opposite each item unless otherwise indicated.

Title	Plan No.
ROAD	
DRAINAGE STRUCTURES	R-1-G
COVER E	R-10-D
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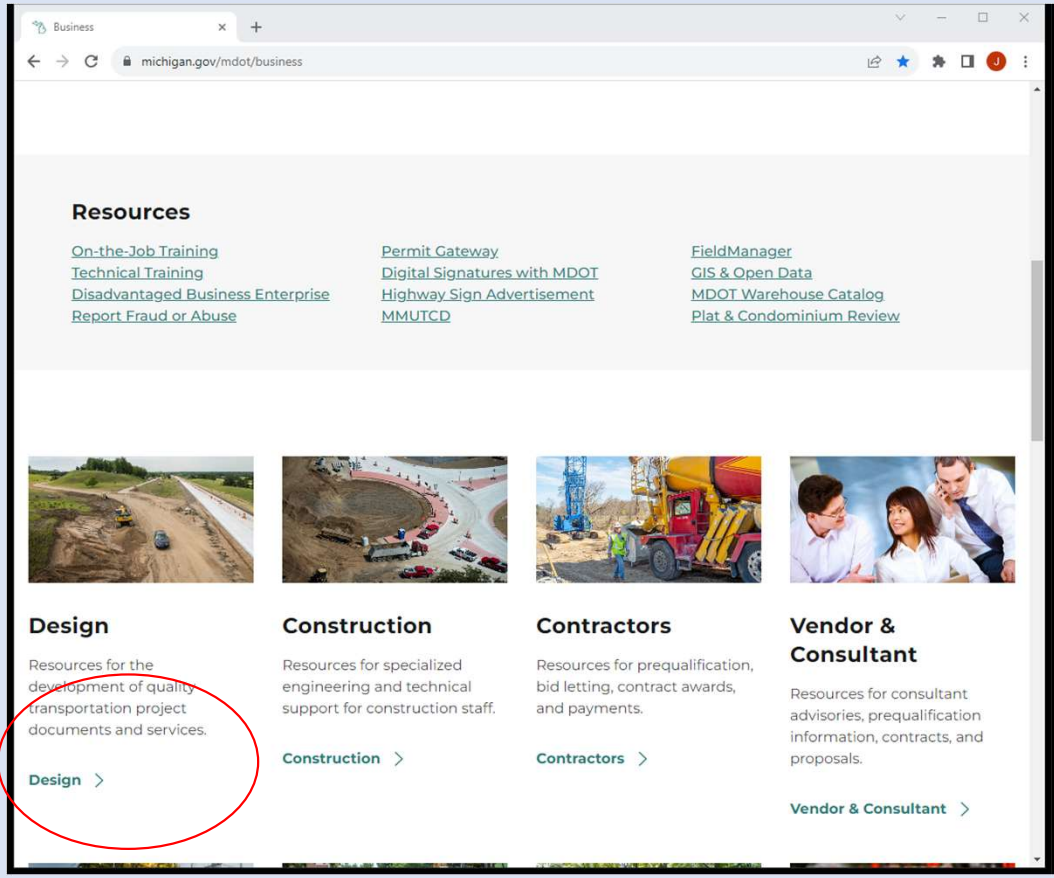
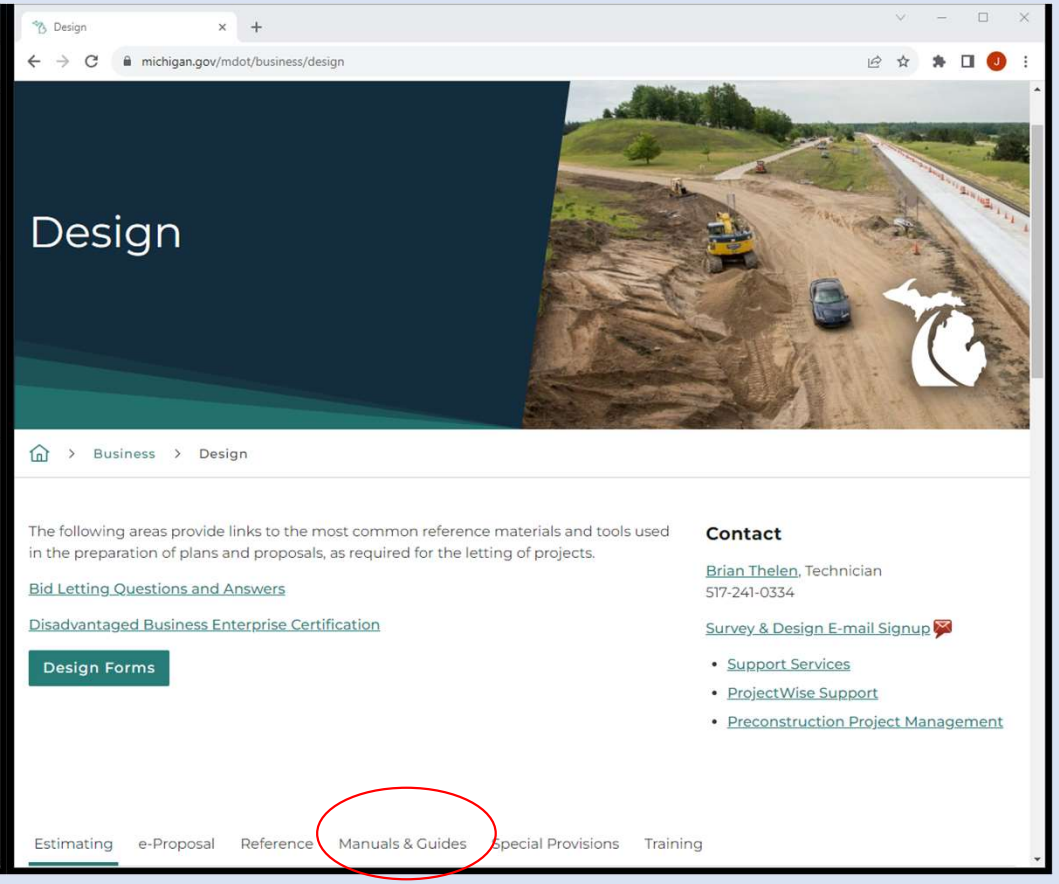
PAVEMENT MARKING RECESSING DETAILS	PAVE-901-A
6-INCH YELLOW COMBINATION PAVEMENT MARKINGS	PAVE-903-A *
LONGITUDINAL LINE TYPES AND PLACEMENT	PAVE-905-E
LEFT TURN LANE MARKINGS	PAVE-935-E
RIGHT TURN LANE AND ISLAND PAVEMENT MARKINGS	PAVE-940-D

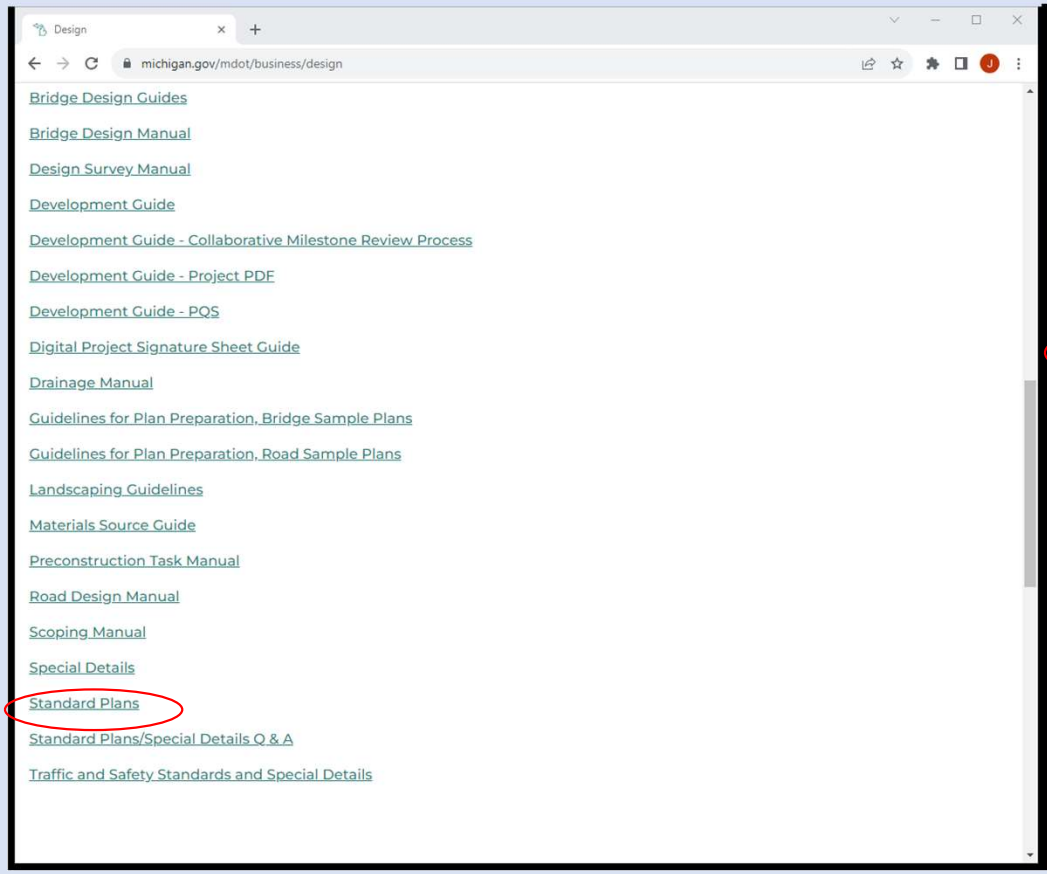
MDOT Standard Plans

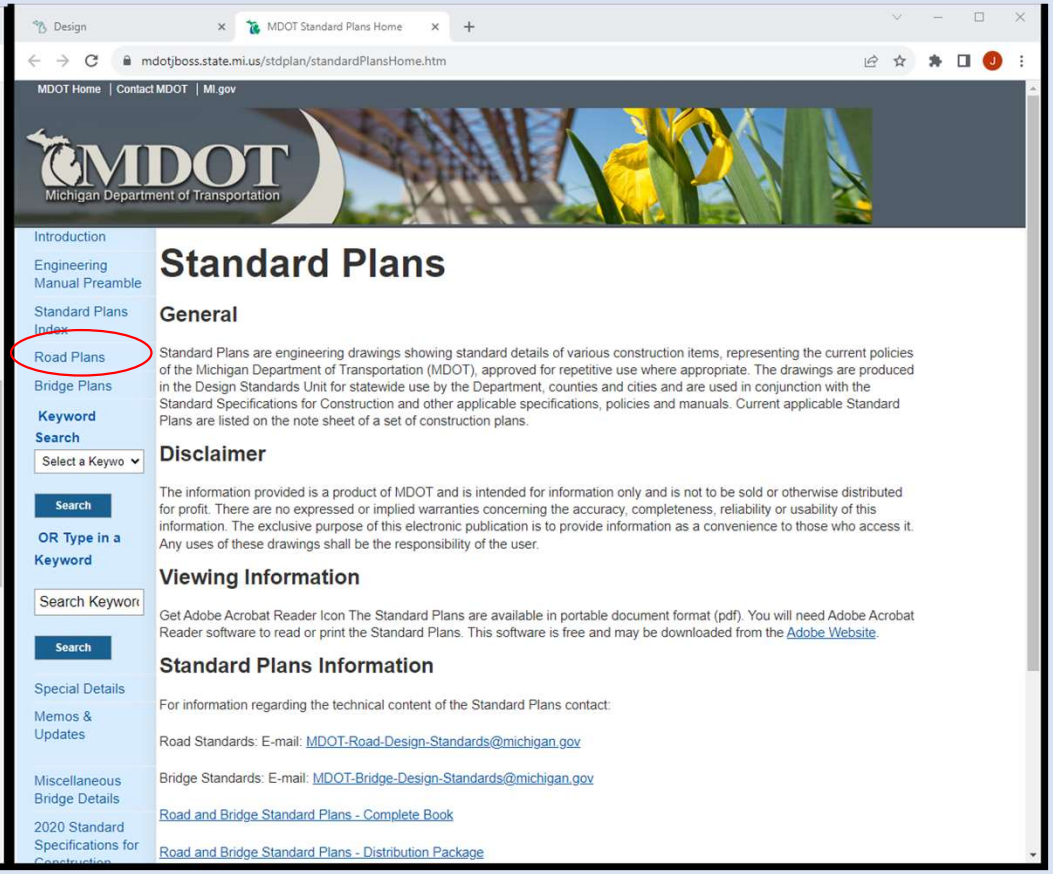
https://www.michigan.gov/mdot/business



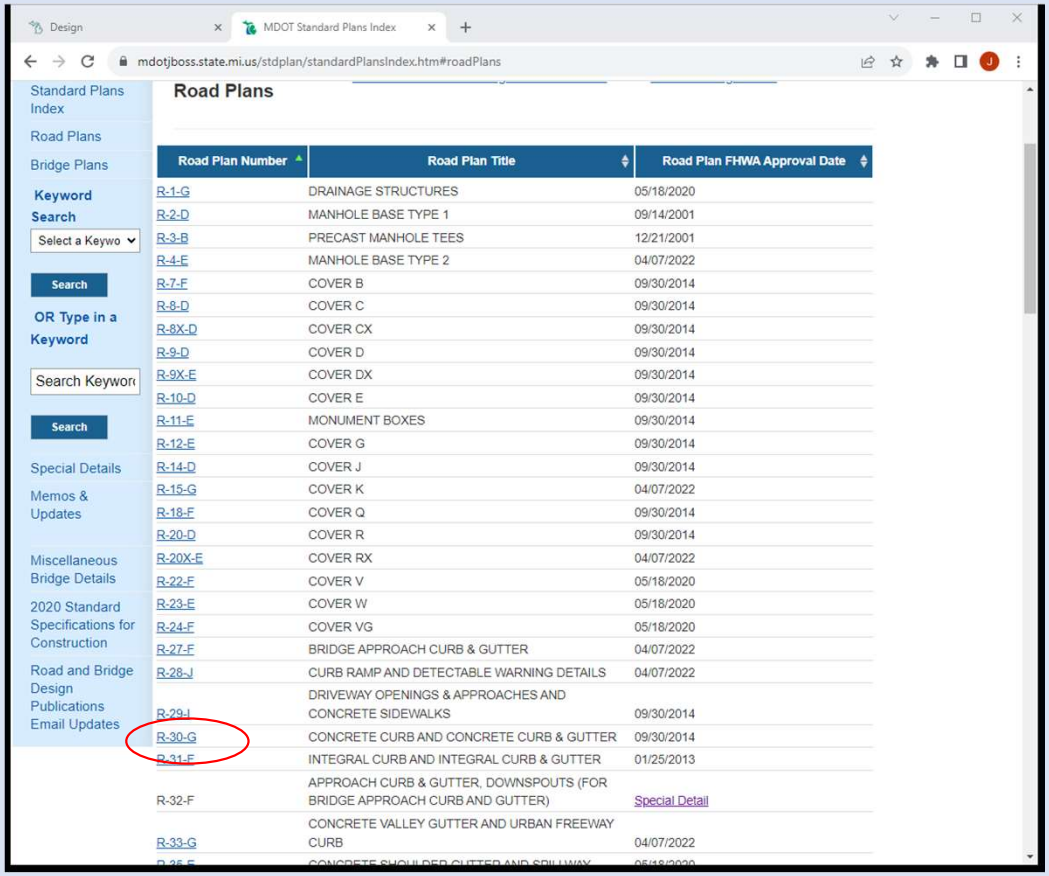


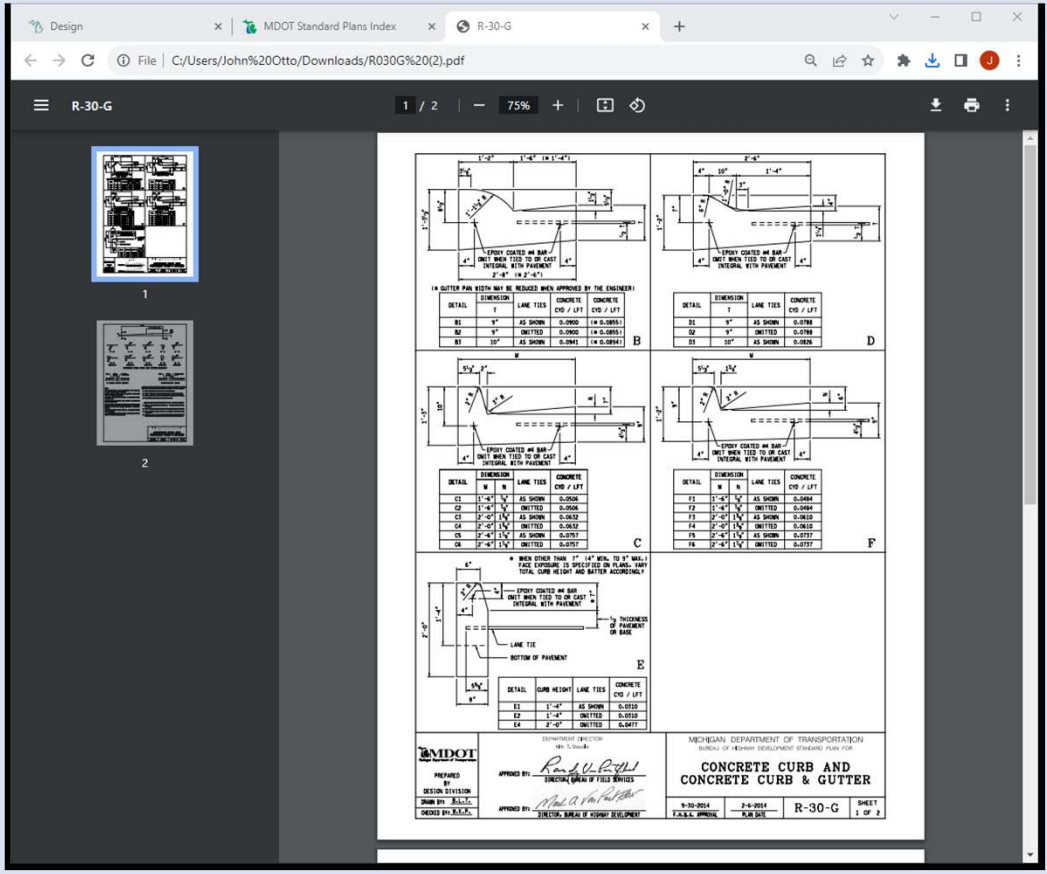
MDOT Standard Plans





MDOT Standard Plans





GENERAL NOTES

UTILITIES

MISS DIG/UNDERGROUND UTILITY NOTIFICATION
Contact MISS DIG System, Inc. for the protection of underground utilities and in conformance with MCL 460.721 et seq. by phone at 811 or 800-482-7171 or via the web at either elocate.missdig.org for single address or rte.missdig.org, a minimum of 3 working days prior to excavating, excluding weekends and holidays.

ROW / REAL ESTATE

LAWN SPRINKLER SYSTEMS AND LANDSCAPING
Notify owners of existing lawn sprinkler systems and/or landscaping (in writing with a copy sent to the Engineer) two weeks in advance of any work to be done that will affect those systems and/or landscaping. If the property owner fails to relocate the lawn sprinkler system prior to the Contractor beginning work, and if the Contractor cuts the system during the construction, cap the system pipe and witness the location of the cap with a wooden stake for the property owner's use. Place the salvaged sprinkler heads on the property owner's property. If the property owner fails to relocate the landscaping prior to the Contractor beginning work, carefully salvage the landscaping items and stockpile them on the property owner's property for the property owner. This work is included in other items of the project. Any other modification to the lawn sprinkler systems and/or landscaping, is the responsibility of the owner and is not part of this contract.

SURVEY

PRESERVATION OF BOUNDARY MONUMENTS
Preserve all corners within the project limits, whether shown or not. Adjust monument boxes as required.

Earthwork

SLOPES
Construct Class A slopes on this project.

EARTH DISTURBANCE LIMITS
Limit earth disturbance to 10' beyond the slope stake line or to the ROW line whichever is less except areas adjacent to wetlands where the limits of earth disturbance are at the slope stake line. The plans include restoration measures for the approved areas of disturbance. Submit an earth change plan to the Engineer to review and approve for any work beyond the approved areas of disturbance. Costs for obtaining and executing an approved earth change plan, including restoration are the Contractor's responsibility.

SOIL EROSION MEASURES
Place appropriate soil erosion and sedimentation control measures prior to earth-disturbing activities. Place turf establishment items as soon as possible on potential erodible slopes as directed by the Engineer. Protect critical ditch grades with either sod or seed/mulch or mulch blanket as directed by the Engineer.

BASES

AGGREGATE BASE
Use aggregate 21AA, for aggregate bases unless otherwise specified.

PAVEMENT

SOIL BORINGS AND/OR PAVEMENT CORES
The soil boring logs and/or pavement cores represent point information. No inference should be made that subsurface or pavement conditions are the same at other locations.

TURF ESTABLISHMENT

SEED MIXTURE
Use symbol __TUF___ for the permanent turf seed mixture.

LANDSCAPING

Do not operate heavy equipment or perform work outside the site slope stake lines in the wooded portion of the site.

Do not store equipment within the drip line of existing and retained trees.

Do not remove or damage tree branches. Contact Roadside Development or the Region Resource Specialist for proper branch removal methods prior to pruning for clearance.

Trenching within the drip line of existing or protected trees is prohibited unless directed and approved by the Engineer.

Promptly repair and restore all property damage at no expense to MDOT.

Do not use cereal rye seeding on this project.

Protect existing sidewalks from damage.

Plant material, soil, fertilizer, and mulch will be inspected/approved by the Engineer/Region Resource Specialist or the Landscape Architect prior to installation. Plant inspection may occur at the nursery source or when plants arrive on site.

Adjust final staking to avoid conflicts with utilities and legally permitted billboards. Do not plant within the legal bounds of billboards. If billboard conflicts occur consult the Engineer.

SIGNS

EXISTING SIGN RELOCATION
Salvage and reset any permanent signs requiring relocation due to Contractor operations at locations designated by the Engineer. Replace signs and posts damaged during the removal and storage operations with new signs and posts. The cost of this work is the Contractor's responsibility.

Contact Mike Kovalchick, (888) 645-6467 from Michigan Logos, at least two weeks prior to construction to remove / relocate Michigan Logo or tourist oriented directional signs.

SIGN INSTALLATION
Place nylon washers between the steel washer and the sign face sheeting. The nylon washers are to be considered part of the attaching devices and hardware. Use nylon washers with have a 3/8-inch inner diameter, a 7/8-inch outer diameter and a 1/16-inch thickness.

SIGNALS

MAINTAINING AGENCY CONTACT INFORMATION
- MDOT - Statewide Signal Shop: (517-242-1486)

NOTIFICATIONS TO MAINTAINING AGENCIES
Contact MDOT (and any other maintaining agency) seven working days prior to start of construction and seven working days prior to signal activation.

CONTINUOUS TRAFFIC SIGNAL OPERATION
Place proposed traffic signal into operation at time of removal of existing traffic signal facilities. Contact MDOT (and any other maintaining agency) if unable to maintain the traffic signal in an operable condition at all times.

UNDERGROUND UTILITY SEPARATION
Maintain a minimum clearance of 3'-6" horizontal & 1'-0" vertical between proposed facilities & existing underground water facilities.

SIGNAL EQUIPMENT DISPOSAL
Disposal of all traffic signal equipment is included in the removal pay items and includes the following:
- Notification to MDOT (and any other maintaining agency) that traffic signal equipment is being removed.
- Temporary storage of equipment in a dumpster on site (or as directed by the Engineer) allowing MDOT (and any other maintaining agency) 48 hours to salvage any equipment.
- Proper disposal of any equipment containing environmentally sensitive materials (mercury relay switches for example)
- Disabling or destruction of all remaining equipment to the satisfaction of the engineer such that it cannot be reused or resold.
- Proper disposal of all remaining equipment.

PLAN DEVIATIONS DURING CONSTRUCTION
Obtain approval from the MDOT Traffic Signals Unit in Lansing, MI; (517-881-0187) prior to changing the plan location of supporting structures, signal head placement or traffic signal equipment.

HAND PATCHING
Use HMA, 4EML with binder type PG 64-22 for Hand Patching with a variable application rate. Apply binder coat at 0.05-0.15 gallons per square yard.

POLE BAND CLAMP ACCEPTANCE
The current basis of acceptance for this material is now part of the QPL (Qualified Products List). This can be found in the Materials Acceptance Requirements table, published in the MQAP and repeated for convenience in the Materials Service Guide.

SIGNAL HEAD LANDING POINT
Ensure each traffic signal head assembly has its own landing point with all neutrals connected together with a metal type jumper.

PROJECT SPECIFIC NOTES

WOOD POLE GUYS
Payment for removal of guying will be included in the pay item "Span Wire, Rem".

TIE OFF SPANS
Payment for removal of or installation of span wire tie offs (pull offs) will be included in the quantity of span wire pay items indicated on the plans and will not be paid for separately.

TETHER SPANS
All tether spans installed on this project will be Bottom Tether Spans.

CONSTRUCTION COORDINATION
Coordinate with Jim Kwapiszewski (517) 242-1486, MDOT Statewide Signal shop 7 days prior to starting work at each intersection.

OVERHEAD SERVICE ATTACHMENT TO STEEL POLES
Where new overhead electrical service cables will attach to a steel pole, the contractor shall provide a pole band clamp and insulated clevis. Payment for this shall be included in the pay item "Serv Disconnect".

MISCELLANEOUS QUANTITIES

The following items of work shall be done as they apply throughout the project. These items are not detailed or included on the plan and profile sheets

PROJECT WIDE

TOTAL	UNIT	DESCRIPTION
1	LSUM	Mobilization, Max
2	Cyd	Masonry and Conc Structure, Rem
35	Ft	Exploratory Investigation, Vertical
7	Cyd	Non Haz Contaminated Material Handling and Disposal, LM
2	Ea	Erosion Control, Inlet Protection, Fabric Drop
2	Cyd	Erosion Control, Maintenance, Sediment Rem
300	Ft	Erosion Control, Silt Fence
1	LSUM	Vibration Monitoring, Utility
831	Syd	Slope Restoration, Non-Freeway, Type A
2000	Dlr	Power Company (Estimated Cost to Contractor)
1	LSUM	Contractor Staking
6	Hr	Staking Plan Errors and Extras, Max $150/hour
1	LSUM	Grounding, Bonding, and Surge Protection

MAINTAINING TRAFFIC

TOTAL	UNIT	DESCRIPTION
100	Ft	Fence, Protective
2	Ea	Lighted Arrow, Type C, Furn
2	Ea	Lighted Arrow, Type C, Oper
1	LSUM	Minor Traf Devices
118	Ea	Plastic Drum, Fluorescent, Furn
118	Ea	Plastic Drum, Fluorescent, Oper
4	Ea	Sign Cover
64	Sft	Sign, Type A, Temp, Prismatic, Furn
64	Sft	Sign, Type A, Temp, Prismatic, Oper
832	Sft	Sign, Type B, Temp, Prismatic, Furn
832	Sft	Sign, Type B, Temp, Prismatic, Oper
1	LSUM	Traf Regulator Control

MISCELLANEOUS QUANTITIES

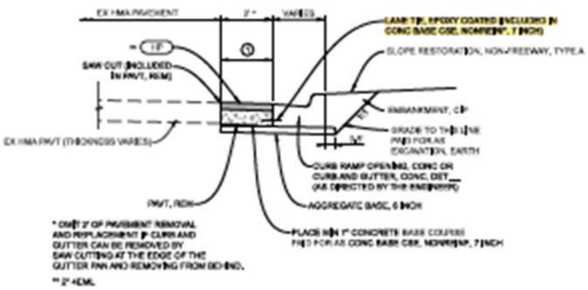
The following items of work shall be done as they apply throughout the project. These items are not detailed or included on the plan and profile sheets

PROJECT WIDE

TOTAL	UNIT	DESCRIPTION
1	LSUM	Mobilization, Max
2	Cyd	Masonry and Conc Structure, Rem
35	Ft	Exploratory Investigation, Vertical
7	Cyd	Non Haz Contaminated Material Handling and Disposal, LM
2	Ea	Erosion Control, Inlet Protection, Fabric Drop
2	Cyd	Erosion Control, Maintenance, Sediment Rem
300	Ft	Erosion Control, Silt Fence
1	LSUM	Vibration Monitoring, Utility
831	Syd	Slope Restoration, Non-Freeway, Type A
2000	Dlr	Power Company (Estimated Cost to Contractor)
1	LSUM	Contractor Staking
6	Hr	Staking Plan Errors and Extras, Max $180/hour
1	LSUM	Grounding, Bonding, and Surge Protection

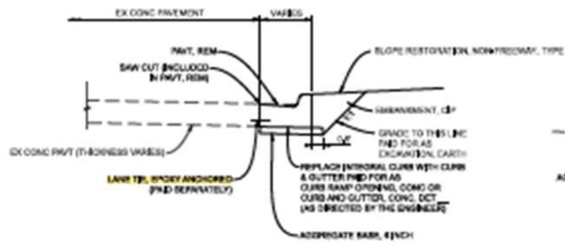
MAINTAINING TRAFFIC

TOTAL	UNIT	DESCRIPTION
100	Ft	Fence, Protective
2	Ea	Lighted Arrow, Type C, Furn
2	Ea	Lighted Arrow, Type C, Oper
1	LSUM	Minor Traf Devices
118	Ea	Plastic Drum, Fluorescent, Furn
118	Ea	Plastic Drum, Fluorescent, Oper
4	Ea	Sign Cover
64	Sft	Sign, Type A, Temp, Prismatic, Furn
64	Sft	Sign, Type A, Temp, Prismatic, Oper
832	Sft	Sign, Type B, Temp, Prismatic, Furn
832	Sft	Sign, Type B, Temp, Prismatic, Oper
1	LSUM	Traf Regulator Control

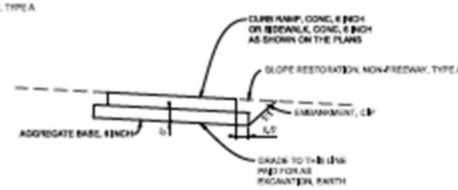


CASE 1: CURB REPLACEMENT SECTION
ADJACENT TO EXISTING HMA PAVEMENT

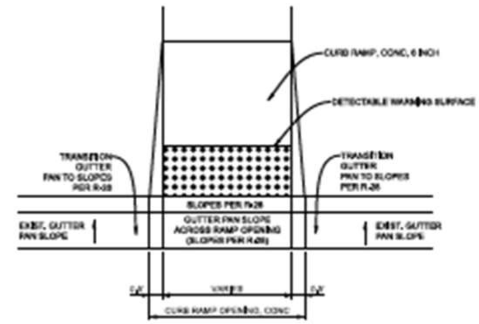
① REMOVE 2' OF PAVT AS REQUIRED TO CONSTRUCT CURB AND GUTTER.



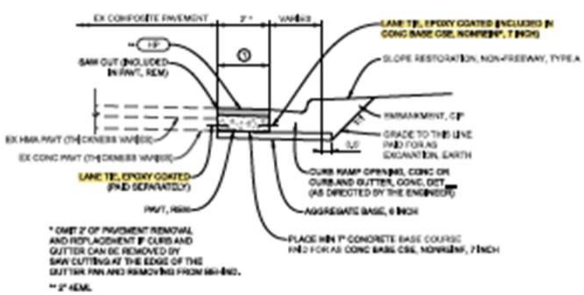
CASE 3: INTEGRAL CURB REPLACEMENT SECTION
IN CONCRETE DRIVEWAY APPROACH



PROPOSED SIDEWALK TYPICAL SECTION



PROPOSED GUTTER PAN CROSS SLOPE TRANSITION DETAIL



CASE 2: CURB REPLACEMENT SECTION
ADJACENT TO COMPOSITE PAVEMENT

① REMOVE 2' OF PAVT AS REQUIRED TO CONSTRUCT CURB AND GUTTER.

FINAL ROW PLAN REVISIONS SUBMITTAL DATE:

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

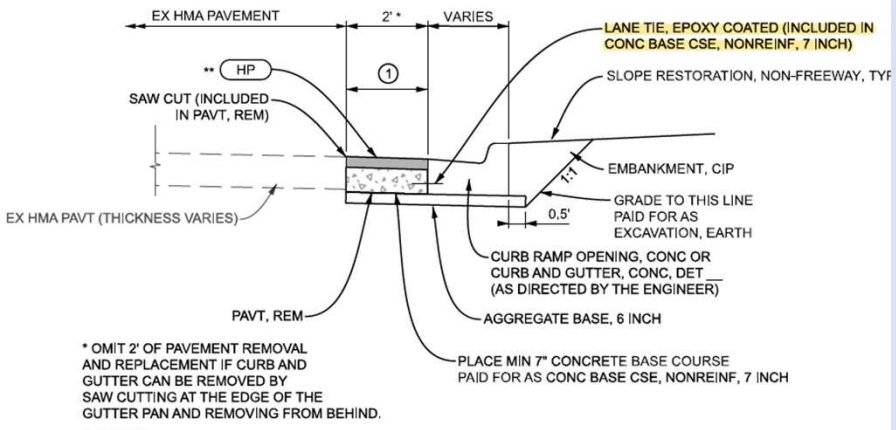
OHM | MDOT Michigan Department of Transportation | NO SCALE

FILE: 120343_MiscDet_Sheet.dgn | DATE: 06/01/23 | DESIGN UNIT: SMALLEY | TSC: BRIGHTON

CS: 58071 | JN: 120343

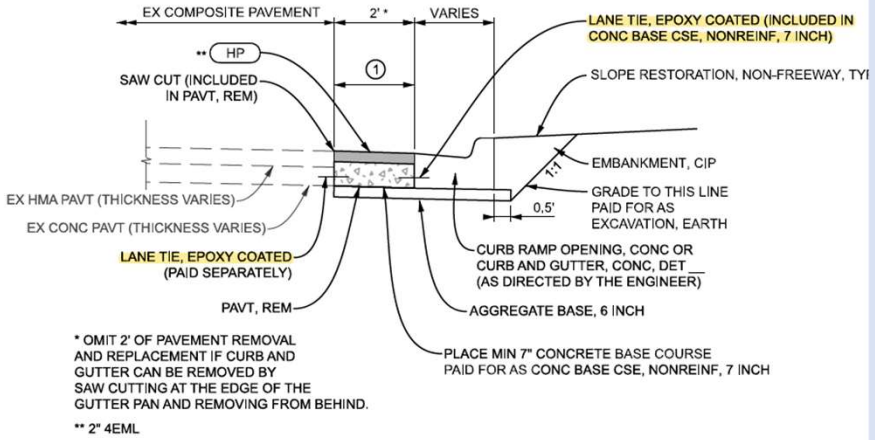
MISCELLANEOUS DETAILS
TRAFFIC SIGNAL MODERNIZATIONS AT 2 LOCATIONS
MONROE COUNTY

DRAWING: M-026 MSCDET 001 | SHEET: SECT 1 8



CASE 1: CURB REPLACEMENT SECTION
ADJACENT TO EXISTING HMA PAVEMENT

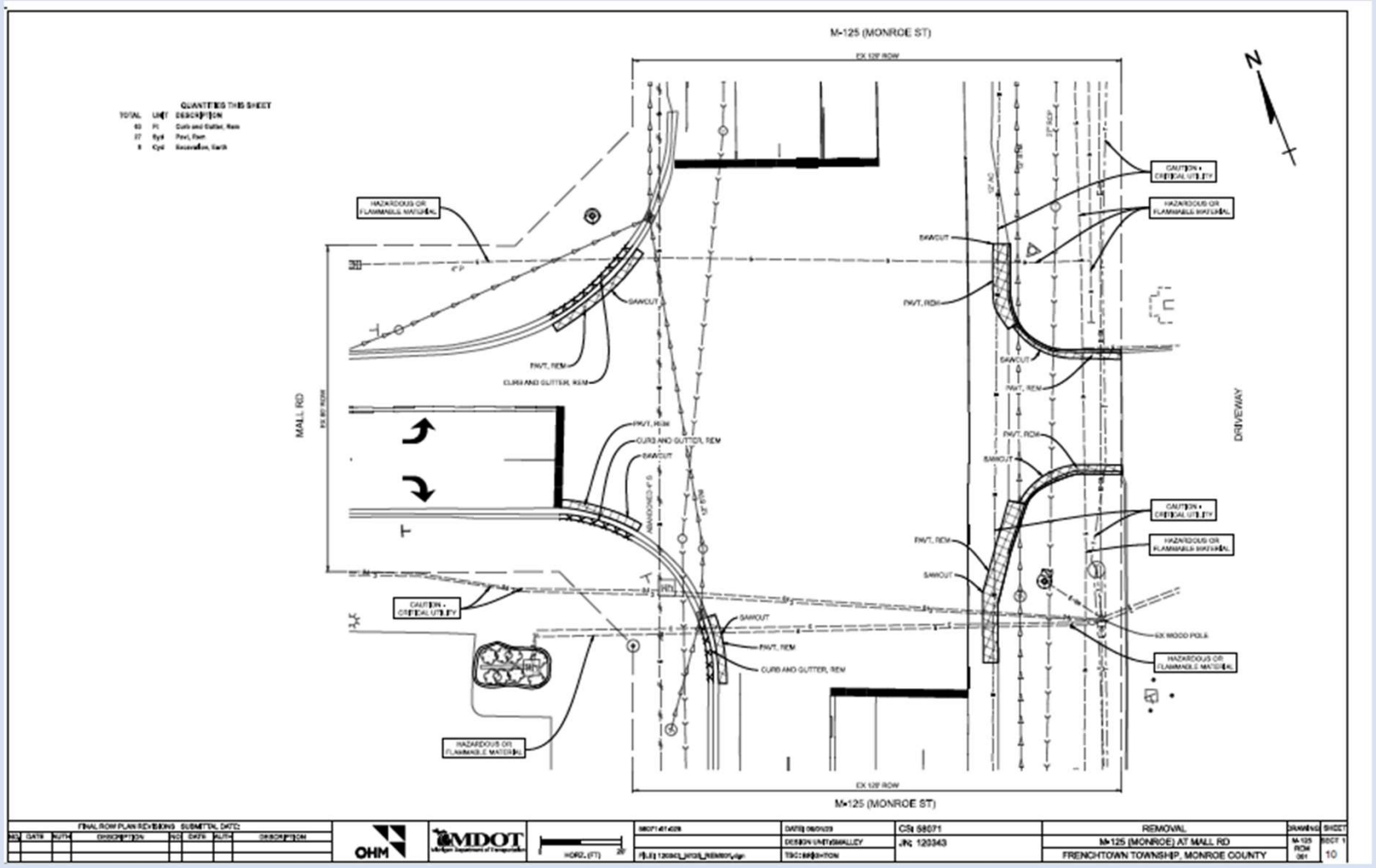
(1) REMOVE 2' OF PAVT AS REQUIRED TO CONSTRUCT CURB AND GUTTER.



CASE 2: CURB REPLACEMENT SECTION
ADJACENT TO COMPOSITE PAVEMENT

(1) REMOVE 2' OF PAVT AS REQUIRED TO CONSTRUCT CURB AND GUTTER.

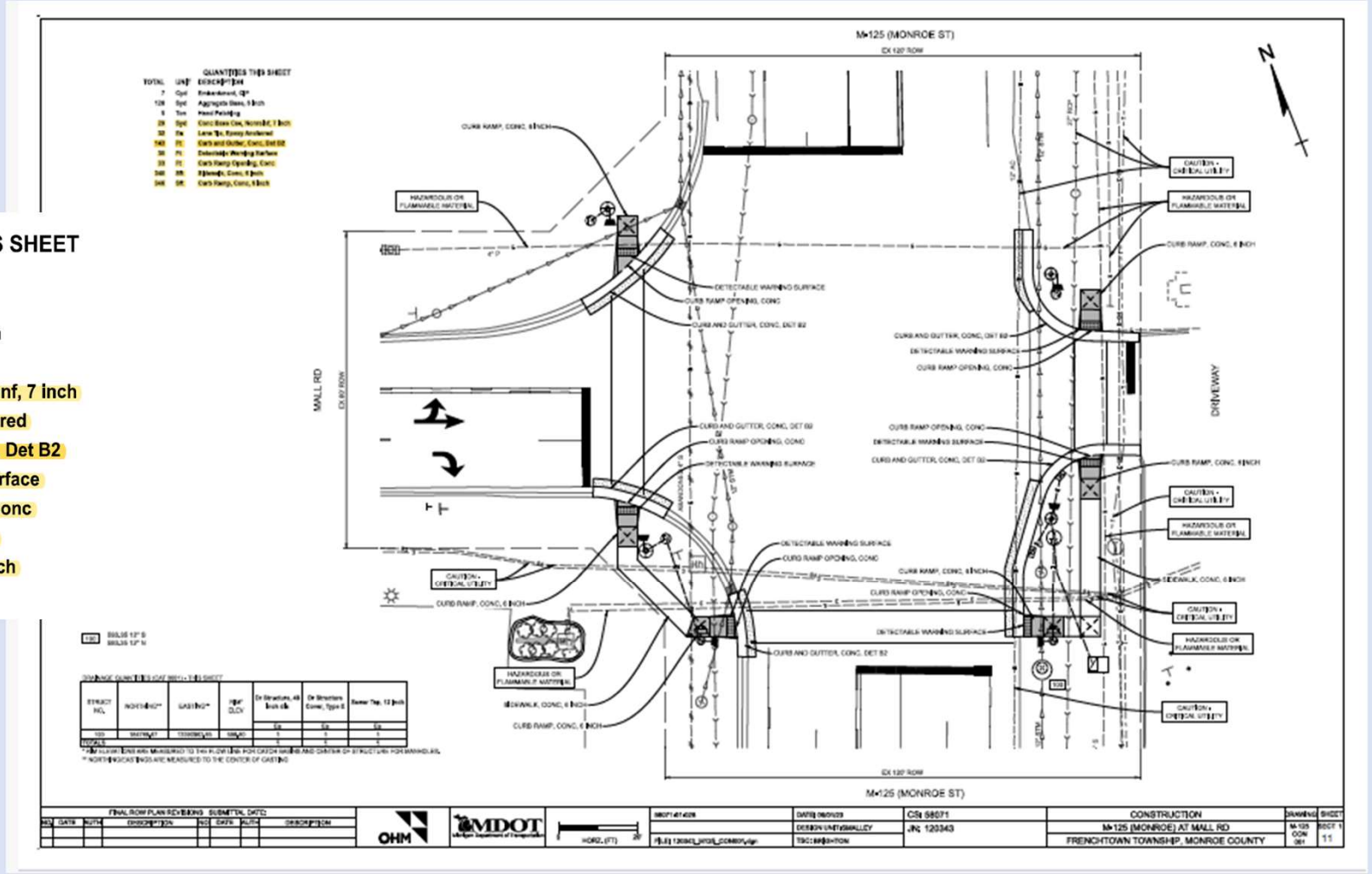
Removal Sheet

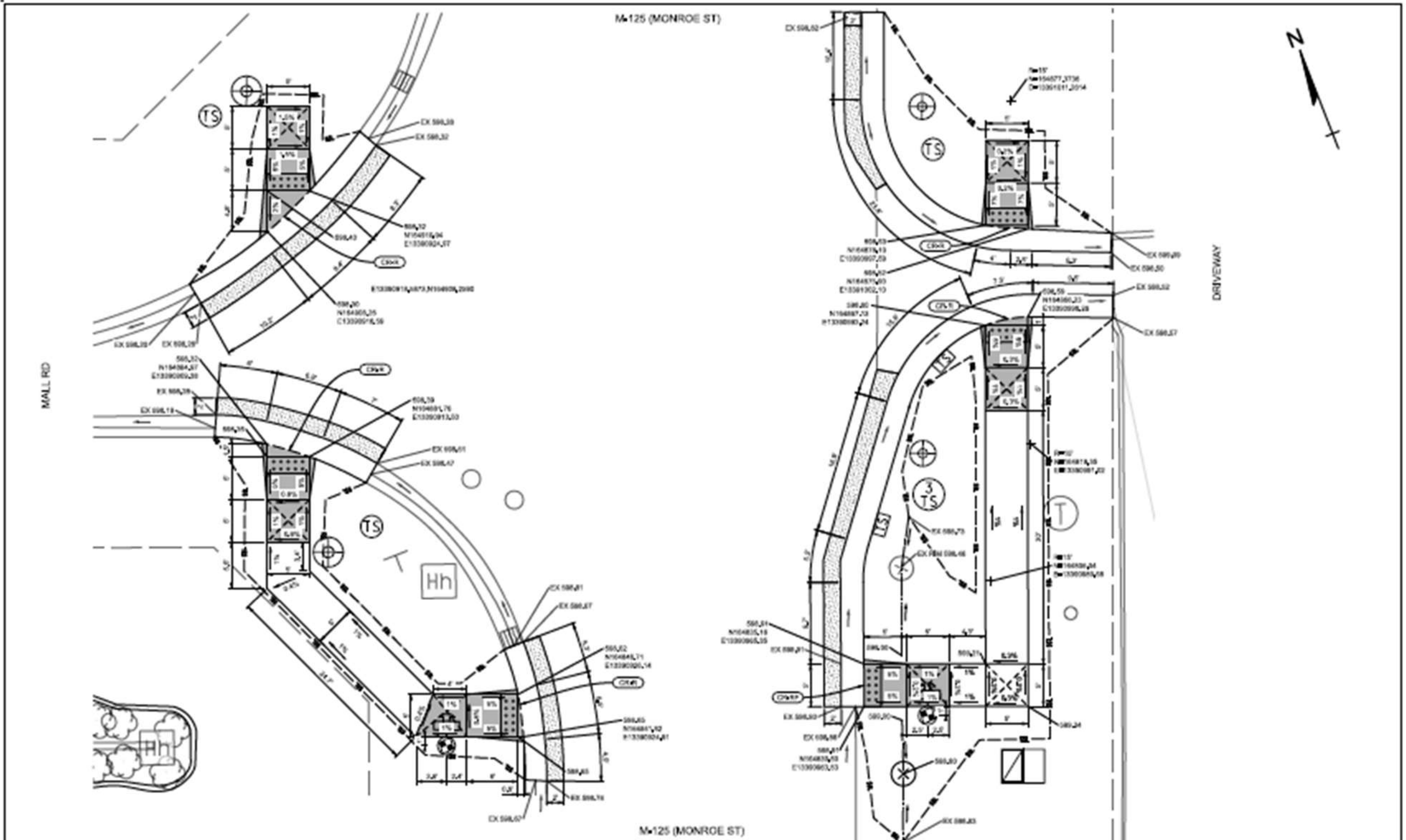


Construction Sheet

QUANTITIES THIS SHEET

TOTAL	UNIT	DESCRIPTION
7	Cyd	Embankment, CIP
128	Syd	Aggregate Base, 6 inch
5	Ton	Hand Patching
29	Syd	Conc Base Cse, Nonreinf, 7 inch
32	Ea	Lane Tie, Epoxy Anchored
143	Ft	Curb and Gutter, Conc, Det B2
30	Ft	Detectable Warning Surface
33	Ft	Curb Ramp Opening, Conc
340	Sft	Sidewalk, Conc, 6 inch
346	Sft	Curb Ramp, Conc, 6 inch





FINAL ROW PLAN REVISIONS SUBMITTAL DATE:

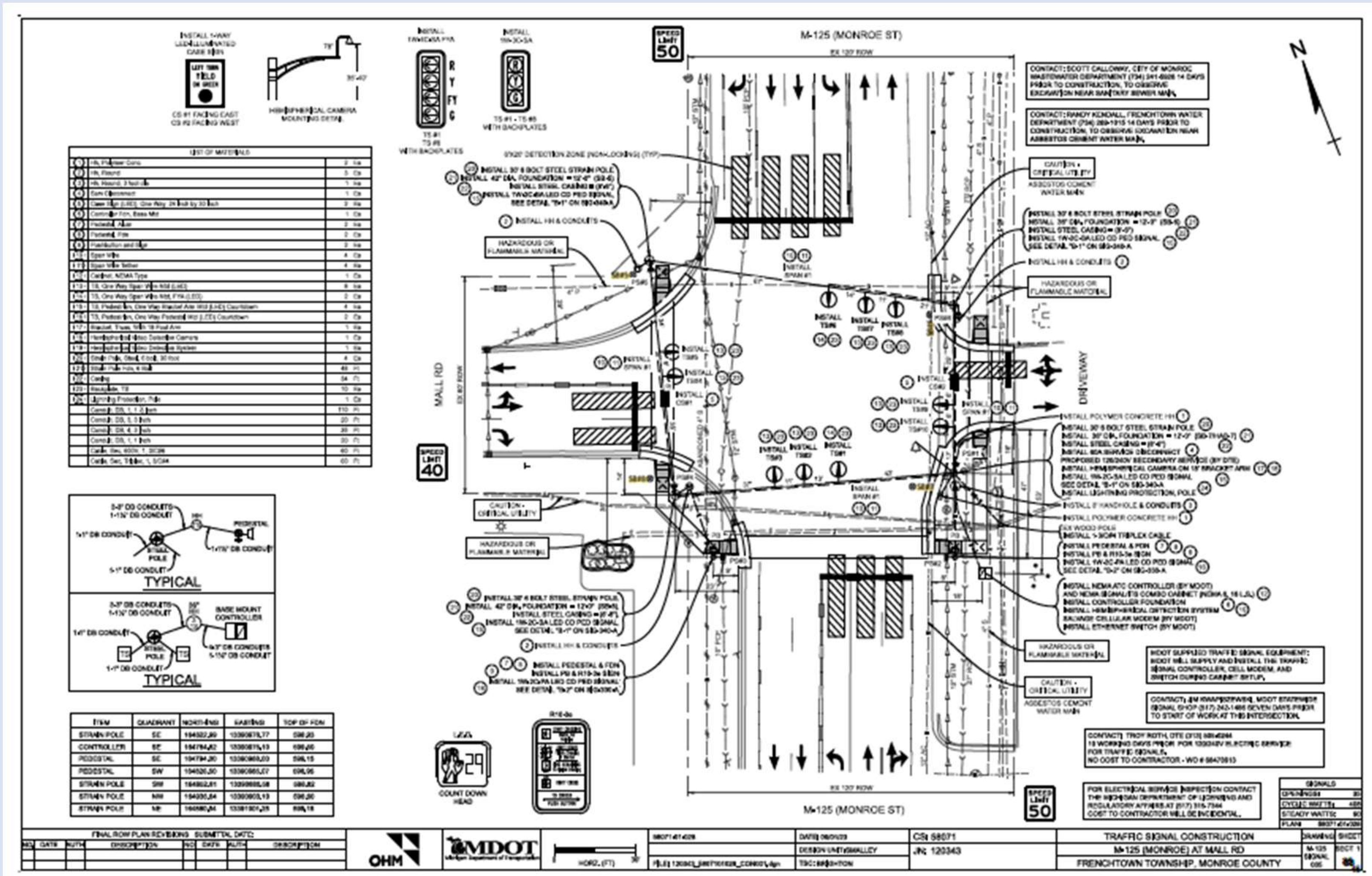
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

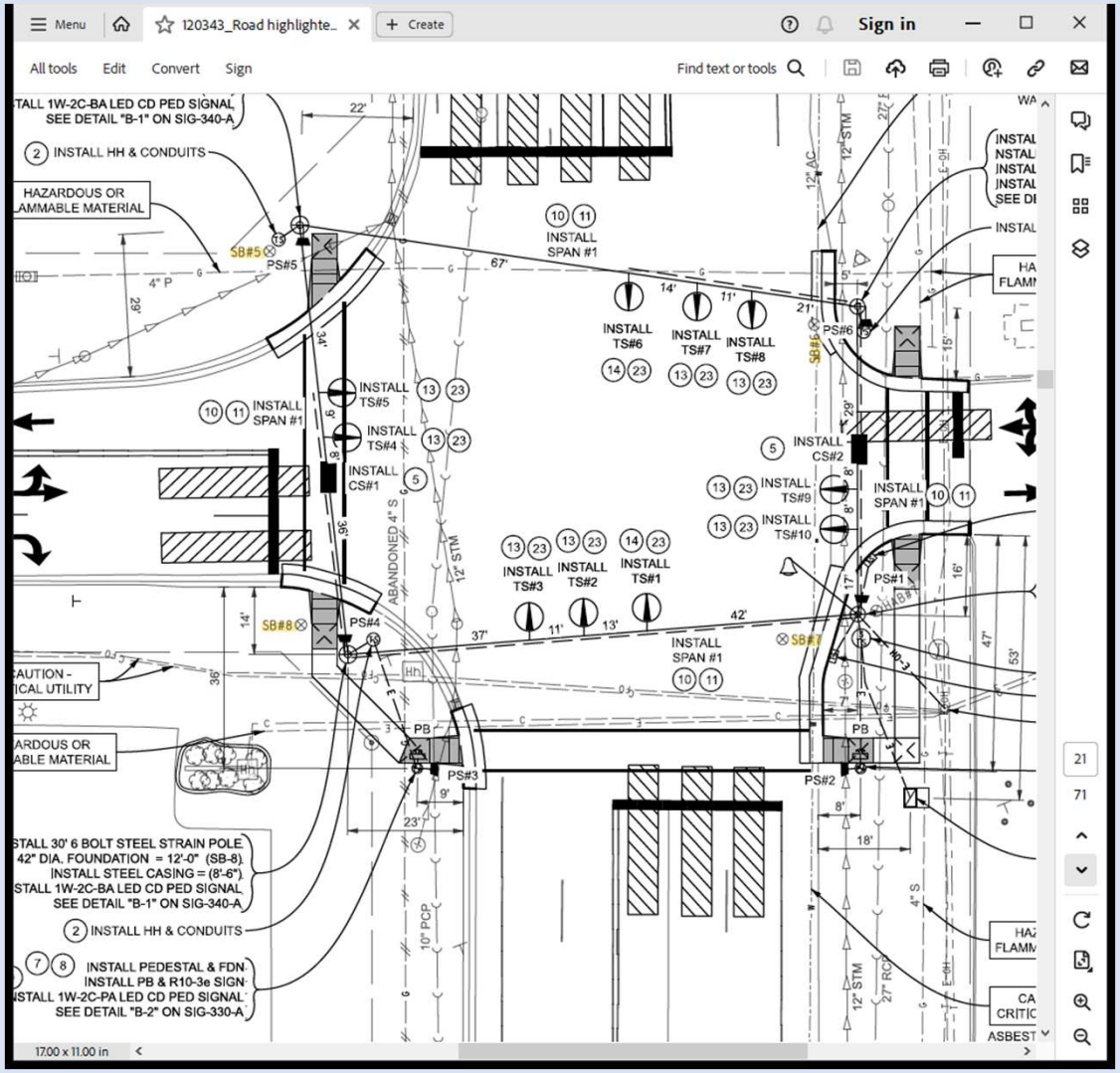
OHM | MDOT Michigan Department of Transportation | HORZ. (FT)

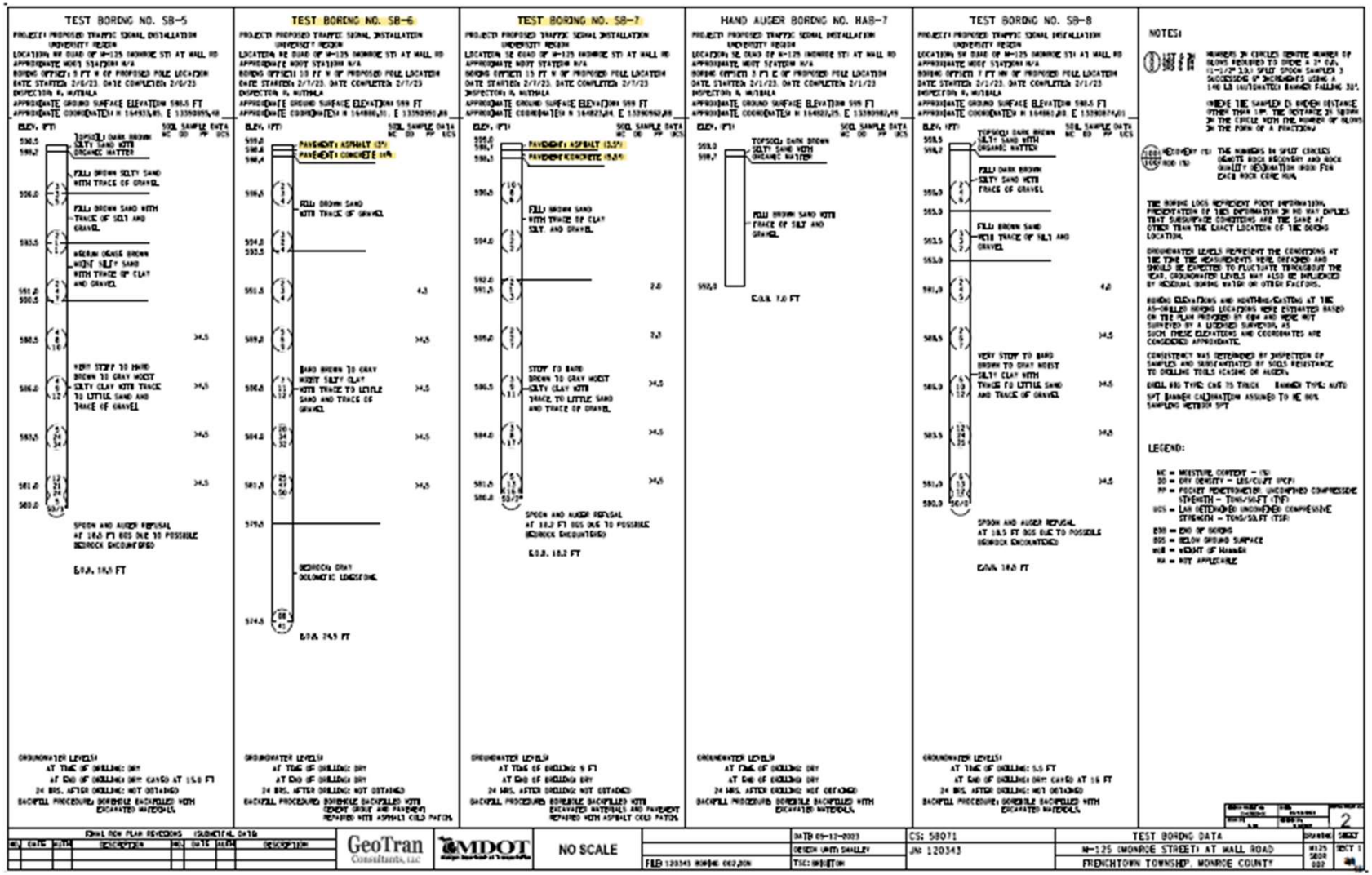
DATE: 08/01/23 | DESIGN UNIT: SMALLEY | TSC: BRIGHTON | CS: 58071 | JN: 120343

DETAIL GRADES
M-125 (MONROE) AT MALL RD
FRENCHTOWN TOWNSHIP, MONROE COUNTY

DRAWING: M-125 DETGRD 001 | SHEET: SECT 1 12

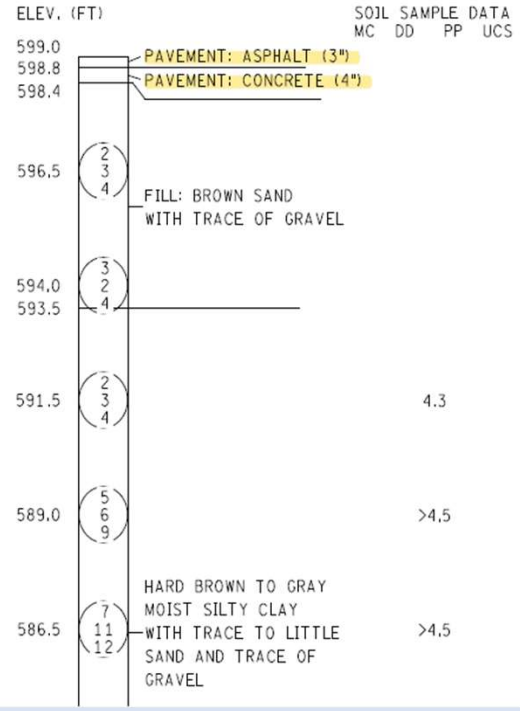

M-125 (MONROE ST)
SPEED LIMIT 50
MALL RD
SPEED LIMIT 40
DRIVEWAY
N
TYPICAL
TYPICAL
CAUTION - CRITICAL UTILITY
ASBESTOS CEMENT WATER MAIN
HAZARDOUS OR FLAMMABLE MATERIAL
COUNT DOWN HEAD
OHM
MDOT
TRAFFIC SIGNAL CONSTRUCTION
M-125 (MONROE) AT MALL RD
FRENCHTOWN TOWNSHIP, MONROE COUNTY
CS: 58071
JN: 120343


Menu
120343_Road highlighte...
Create
Sign in
All tools
Edit
Convert
Sign
Find text or tools
INSTALL 1W-2C-BA LED CD PED SIGNAL
SEE DETAIL "B-1" ON SIG-340-A
2 INSTALL HH & CONDUITS
HAZARDOUS OR
FLAMMABLE MATERIAL
SB#5
PS#5
10 11 INSTALL SPAN #1
INSTALL TS#6
INSTALL TS#7
INSTALL TS#8
PS#6
INSTALL TS#5
INSTALL TS#4
INSTALL CS#1
5 INSTALL CS#2
INSTALL TS#9
INSTALL TS#10
INSTALL SPAN #1
INSTALL TS#3
INSTALL TS#2
INSTALL TS#1
PS#1
SB#8
PS#4
SB#7
INSTALL SPAN #1
PB
PS#3
PS#2
ABANDONED 4" S
12" STM
12" AC
27" RCP
10" PCP
4" S
CAUTION -
ELECTRICAL UTILITY
INSTALL 30' 6 BOLT STEEL STRAIN POLE
42" DIA. FOUNDATION = 12'-0" (SB-8)
INSTALL STEEL CASING = (8'-6")
INSTALL 1W-2C-BA LED CD PED SIGNAL
SEE DETAIL "B-1" ON SIG-340-A
2 INSTALL HH & CONDUITS
7 8 INSTALL PEDESTAL & FDN
INSTALL PB & R10-3e SIGN
INSTALL 1W-2C-PA LED CD PED SIGNAL
SEE DETAIL "B-2" ON SIG-330-A
17.00 x 11.00 in
21
71


TEST BORING NO. SB-5
TEST BORING NO. SB-6
TEST BORING NO. SB-7
HAND AUGER BORING NO. HAB-7
TEST BORING NO. SB-8
NOTES:
LEGEND:
GeoTran Consultants, LLC
MDOT
NO SCALE
TEST BORING DATA
M-125 (MONROE STREET) AT WALL ROAD
FRENCHTOWN TOWNSHIP, MONROE COUNTY

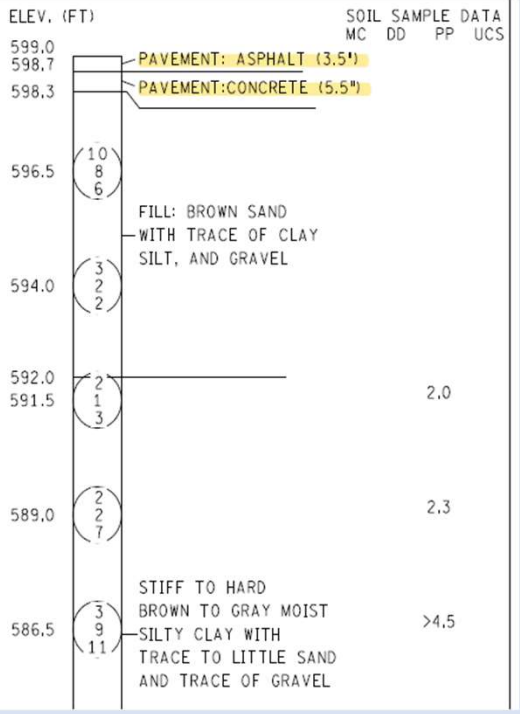
TEST BORING NO. SB-6

PROJECT: PROPOSED TRAFFIC SIGNAL INSTALLATION
UNIVERSITY REGION
LOCATION: NE QUAD OF M-125 (MONROE ST) AT MALL RD
APPROXIMATE MDOT STATION: N/A
BORING OFFSET: 10 FT W OF PROPOSED POLE LOCATION
DATE STARTED: 2/7/23, DATE COMPLETED: 2/7/23
INSPECTOR: R. MUTHALA
APPROXIMATE GROUND SURFACE ELEVATION: 599 FT
APPROXIMATE COORDINATES: N 164880.31, E 13390991.88

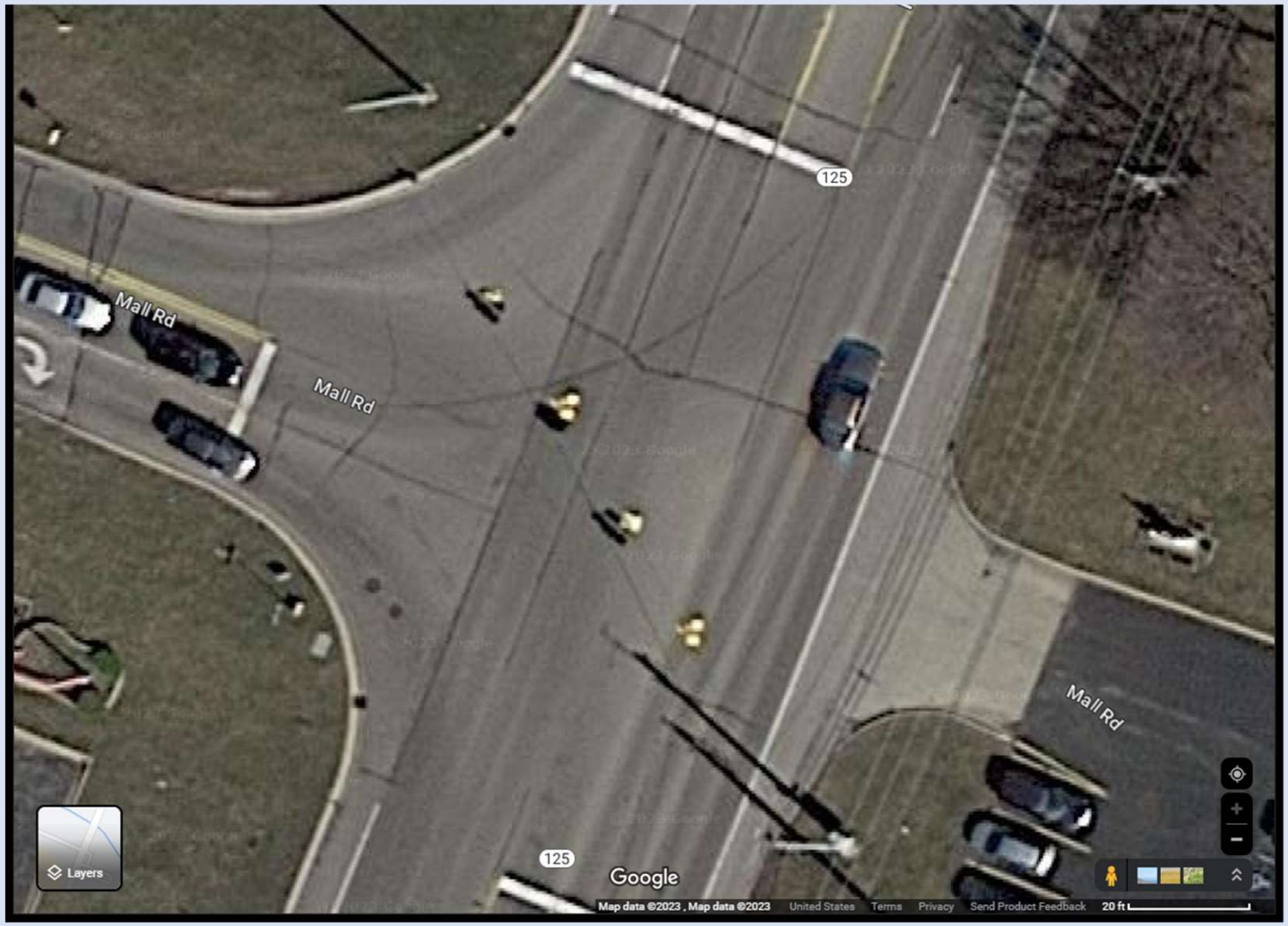


TEST BORING NO. SB-7

PROJECT: PROPOSED TRAFFIC SIGNAL INSTALLATION
UNIVERSITY REGION
LOCATION: SE QUAD OF M-125 (MONROE ST) AT MALL RD
APPROXIMATE MDOT STATION: N/A
BORING OFFSET: 15 FT W OF PROPOSED POLE LOCATION
DATE STARTED: 2/7/23, DATE COMPLETED: 2/7/23
INSPECTOR: R. MUTHALA
APPROXIMATE GROUND SURFACE ELEVATION: 599 FT
APPROXIMATE COORDINATES: N 164823.84, E 13390962.88



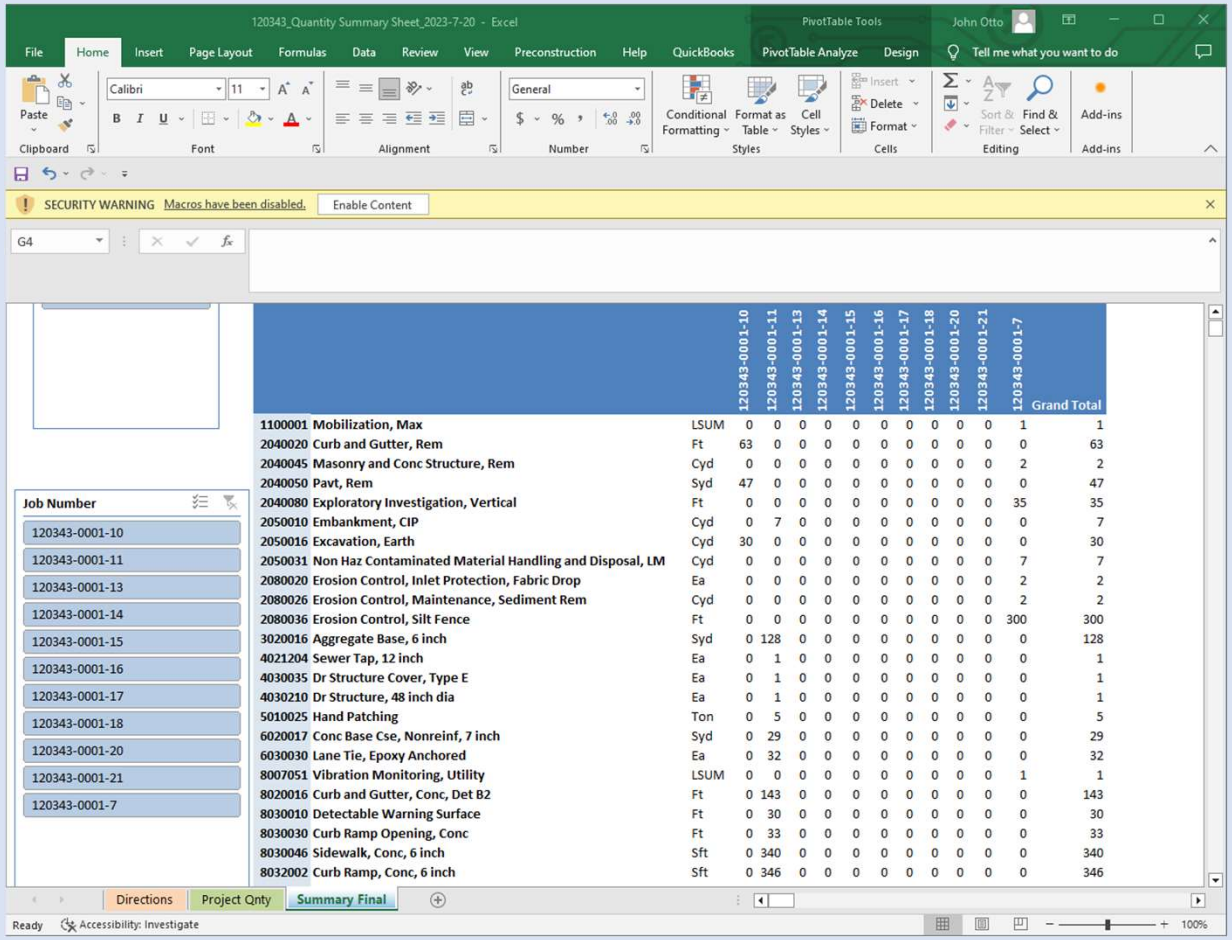
Site Visit


125
Mall Rd
Mall Rd
Mall Rd
125
Layers
Google
Map data ©2023 , Map data ©2023
United States
Terms
Privacy
Send Product Feedback
20 ft

Quantify the Work

- Check / review plan quantities
- Takeoff needed quantities to price the work
- Breakdown quantities by stages / years of work
- Review “as needed” quantities

Item 10 plan quantities – MDOT spreadsheet



120343_Quantity Summary Sheet_2023-7-20 - Excel

SECURITY WARNING Macros have been disabled. Enable Content

G4

Job Number

120343-0001-10
120343-0001-11
120343-0001-13
120343-0001-14
120343-0001-15
120343-0001-16
120343-0001-17
120343-0001-18
120343-0001-20
120343-0001-21
120343-0001-7

			120343-0001-10	120343-0001-11	120343-0001-13	120343-0001-14	120343-0001-15	120343-0001-16	120343-0001-17	120343-0001-18	120343-0001-20	120343-0001-21	120343-0001-7	Grand Total
1100001	Mobilization, Max	LSUM	0	0	0	0	0	0	0	0	0	0	1	1
2040020	Curb and Gutter, Rem	Ft	63	0	0	0	0	0	0	0	0	0	0	63
2040045	Masonry and Conc Structure, Rem	Cyd	0	0	0	0	0	0	0	0	0	0	2	2
2040050	Pavt, Rem	Syd	47	0	0	0	0	0	0	0	0	0	0	47
2040080	Exploratory Investigation, Vertical	Ft	0	0	0	0	0	0	0	0	0	0	35	35
2050010	Embankment, CIP	Cyd	0	7	0	0	0	0	0	0	0	0	0	7
2050016	Excavation, Earth	Cyd	30	0	0	0	0	0	0	0	0	0	0	30
2050031	Non Haz Contaminated Material Handling and Disposal, LM	Cyd	0	0	0	0	0	0	0	0	0	0	7	7
2080020	Erosion Control, Inlet Protection, Fabric Drop	Ea	0	0	0	0	0	0	0	0	0	0	2	2
2080026	Erosion Control, Maintenance, Sediment Rem	Cyd	0	0	0	0	0	0	0	0	0	0	2	2
2080036	Erosion Control, Silt Fence	Ft	0	0	0	0	0	0	0	0	0	0	300	300
3020016	Aggregate Base, 6 inch	Syd	0	128	0	0	0	0	0	0	0	0	0	128
4021204	Sewer Tap, 12 inch	Ea	0	1	0	0	0	0	0	0	0	0	0	1
4030035	Dr Structure Cover, Type E	Ea	0	1	0	0	0	0	0	0	0	0	0	1
4030210	Dr Structure, 48 inch dia	Ea	0	1	0	0	0	0	0	0	0	0	0	1
5010025	Hand Patching	Ton	0	5	0	0	0	0	0	0	0	0	0	5
6020017	Conc Base Cse, Nonreinf, 7 inch	Syd	0	29	0	0	0	0	0	0	0	0	0	29
6030030	Lane Tie, Epoxy Anchored	Ea	0	32	0	0	0	0	0	0	0	0	0	32
8007051	Vibration Monitoring, Utility	LSUM	0	0	0	0	0	0	0	0	0	0	1	1
8020016	Curb and Gutter, Conc, Det B2	Ft	0	143	0	0	0	0	0	0	0	0	0	143
8030010	Detectable Warning Surface	Ft	0	30	0	0	0	0	0	0	0	0	0	30
8030030	Curb Ramp Opening, Conc	Ft	0	33	0	0	0	0	0	0	0	0	0	33
8030046	Sidewalk, Conc, 6 inch	Sft	0	340	0	0	0	0	0	0	0	0	0	340
8032002	Curb Ramp, Conc, 6 inch	Sft	0	346	0	0	0	0	0	0	0	0	0	346

Directions | Project Qnty | Summary Final

Ready Accessibility: Investigate 100%

Takeoff quantities needed to price the work

- Work activities to complete the work – tied to production
- Permanent materials
- Construction materials
- Subcontractor work

Bid Item Pricing – Work Activities

- Develop work activities required to complete the work that you can quantify and apply a production for that work.

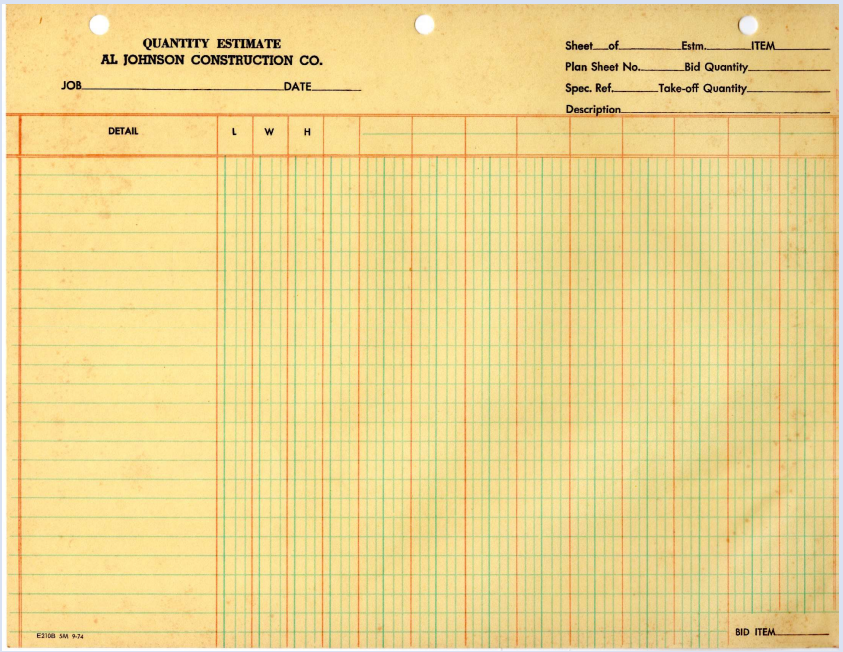
University over I-75

Substructure Concrete CYD - activities

- Form & Strip Footings
- Form & Strip Abutment Walls
- Form & Strip Wing Walls
- Form & Strip Crash Wall
- Form & Strip Columns
- Form & Strip Pier Cap
- Place & Cure Substructure Concrete

Work activities – one pour Al Johnson Construction

- Forming – build, reface, erect/strip/move, for straight wood, cantilever, curved & special, supported.
- Resteel – unload, install, couplers
- Concrete – mix/batch, truck, place
- Surface Treatments – pour cleanup, air/water cut, patch & plug, cure, finish – steel trowel, float, broom, special
- Embeds – metals, anchor bolts, other


QUANTITY ESTIMATE
AL JOHNSON CONSTRUCTION CO.
JOB
DATE
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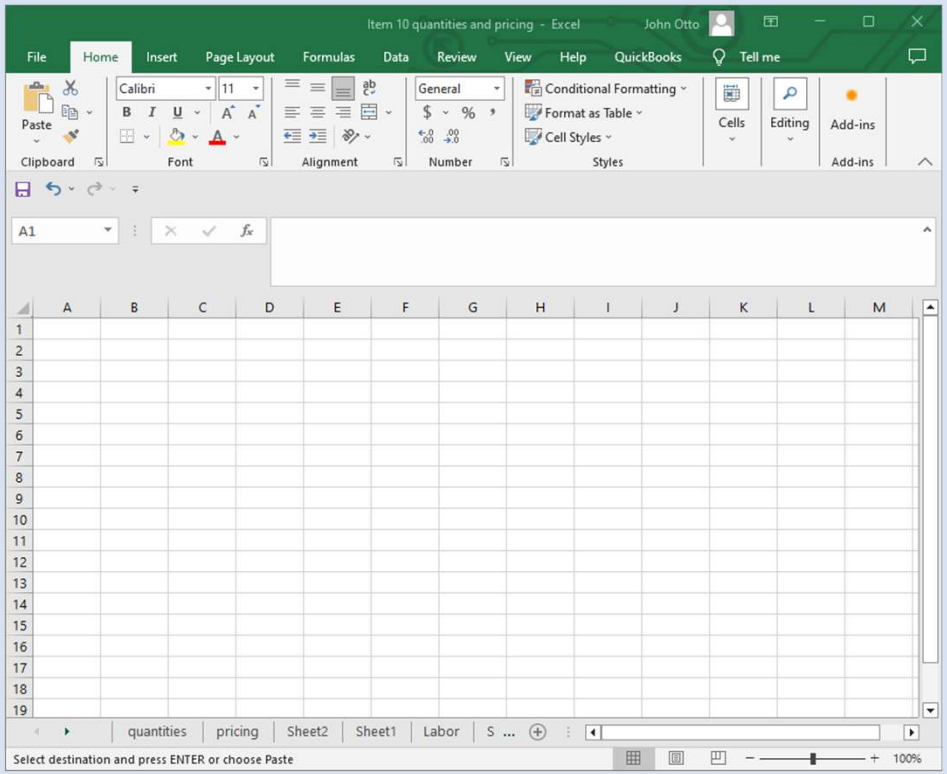
Plan Sheet No. Bid Quantity
Spec. Ref. Take-off Quantity
Description
DETAIL
L
W
H
BID ITEM


Item 10 quantities and pricing - Excel
John Otto
File
Home
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Page Layout
Formulas
Data
Review
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Help
QuickBooks
Tell me
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Calibri
11
Font
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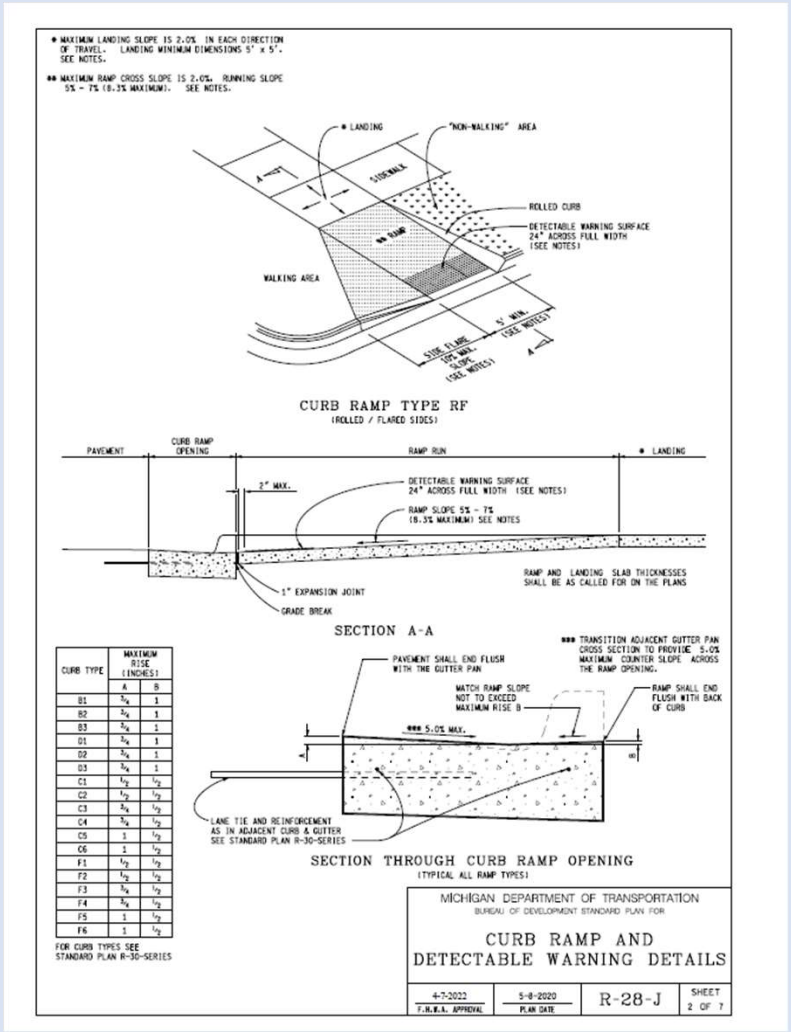
General
Number
Conditional Formatting
Format as Table
Cell Styles
Styles
Cells
Editing
Add-ins
A1
quantities
pricing
Sheet2
Sheet1
Labor
Select destination and press ENTER or choose Paste
100%

Activity / Costing Quantities – Item 10

- Conc Base Cse, 7 inch, 29 syd – cyd concrete, sft cure, sft forms, lane ties each, number of pours
- Lane Tie, Epoxy Anchored, 32 ea – lft drilling
- Curb & Gutter B2, 143 ft – cyd concrete, lbs resteel, sft forms, sft cure, joint fiber, number of pours
- Detectable Warning Surface, 30 ft – number each
- Curb Ramp Opening, 33 ft – cyd concrete, lbs resteel, sft form, sft cure, number of pours
- Sidewalk Conc 6 inch, 340 sft – cyd concrete, sft form, sft cure, joint fiber, number of pours, lft saw joint
- Curb Ramp, Conc 6 inch, 346 sft – cyd concrete, sft form, sft cure, joint fiber, number of pours, lft saw joint

Standard Plans R-28-J & R-30-G



* 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

SECTION THROUGH CURB RAMP OPENING
(TYPICAL ALL RAMP TYPES)

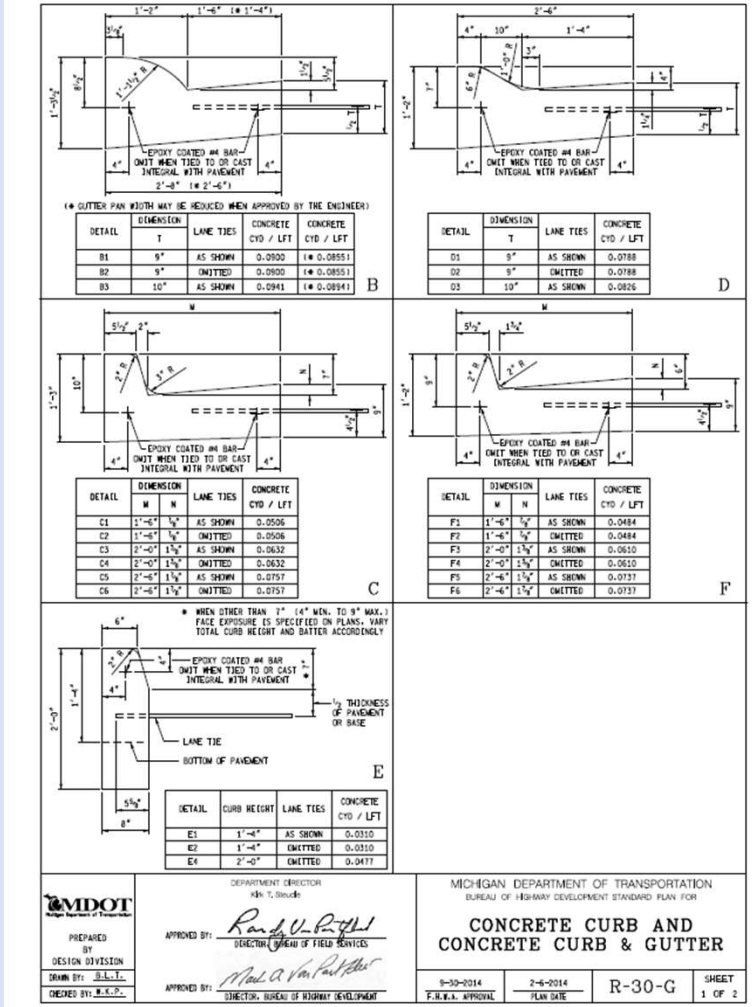
CURB TYPE	MAXIMUM RISE (INCHES) A	B
B1	3/4	1
B2	3/4	1
B3	3/4	1
D1	3/4	1
D2	3/4	1
D3	3/4	1
C1	1/2	1/2
C2	1/2	1/2
C3	3/4	1/2
C4	3/4	1/2
C5	1	1/2
C6	1	1/2
F1	1/2	1/2
F2	1/2	1/2
F3	3/4	1/2
F4	3/4	1/2
F5	1	1/2
F6	1	1/2

FOR CURB TYPES SEE STANDARD PLAN R-30-SERIES

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND DETECTABLE WARNING DETAILS

4-7-2022 F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 2 OF 7



(◆ GUTTER PAN WIDTH MAY BE REDUCED WHEN APPROVED BY THE ENGINEER)

B

DETAIL	DIMENSION T	LANE TIES	CONCRETE CYD / LFT	CONCRETE CYD / LFT
B1	9"	AS SHOWN	0.0900	(◆ 0.0855)
B2	9"	OMITTED	0.0900	(◆ 0.0855)
B3	10"	AS SHOWN	0.0941	(◆ 0.0894)

D

DETAIL	DIMENSION T	LANE TIES	CONCRETE CYD / LFT
D1	9"	AS SHOWN	0.0788
D2	9"	OMITTED	0.0788
D3	10"	AS SHOWN	0.0826

C

DETAIL	DIMENSION M	N	LANE TIES	CONCRETE CYD / LFT
C1	1'-6"	1/2"	AS SHOWN	0.0506
C2	1'-6"	1/2"	OMITTED	0.0506
C3	2'-0"	1 3/4"	AS SHOWN	0.0632
C4	2'-0"	1 3/4"	OMITTED	0.0632
C5	2'-6"	1 3/4"	AS SHOWN	0.0757
C6	2'-6"	1 3/4"	OMITTED	0.0757

F

DETAIL	DIMENSION M	N	LANE TIES	CONCRETE CYD / LFT
F1	1'-6"	1/2"	AS SHOWN	0.0484
F2	1'-6"	1/2"	OMITTED	0.0484
F3	2'-0"	1 3/4"	AS SHOWN	0.0610
F4	2'-0"	1 3/4"	OMITTED	0.0610
F5	2'-6"	1 3/4"	AS SHOWN	0.0737
F6	2'-6"	1 3/4"	OMITTED	0.0737

E

* WHEN OTHER THAN 7" (4" MIN. TO 9" MAX.) FACE EXPOSURE IS SPECIFIED ON PLANS, VARY TOTAL CURB HEIGHT AND BATTER ACCORDINGLY

DETAIL	CURB HEIGHT	LANE TIES	CONCRETE CYD / LFT
E1	1'-4"	AS SHOWN	0.0310
E2	1'-4"	OMITTED	0.0310
E4	2'-0"	OMITTED	0.0477

MDOT
PREPARED BY DESIGN DIVISION
DRAWN BY: B.L.T.
CHECKED BY: W.K.P.

DEPARTMENT DIRECTOR
Kirk T. Steudle

APPROVED BY: DIRECTOR, BUREAU OF FIELD SERVICES

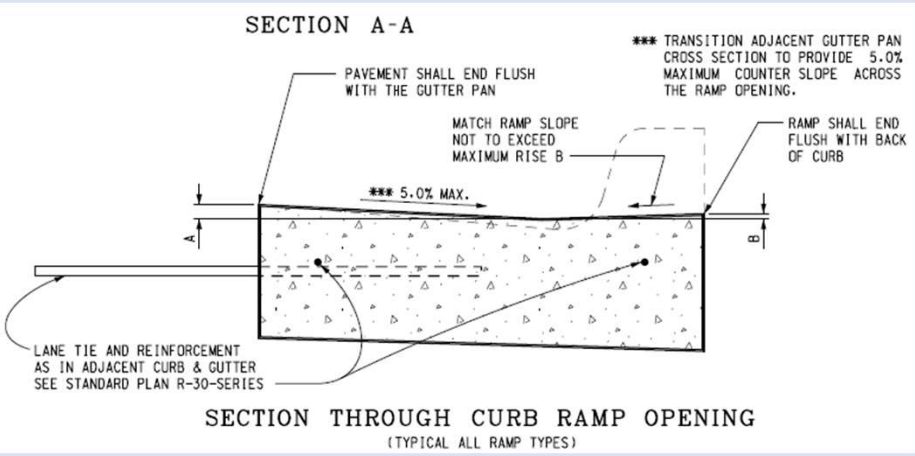
APPROVED BY: DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

CONCRETE CURB AND CONCRETE CURB & GUTTER

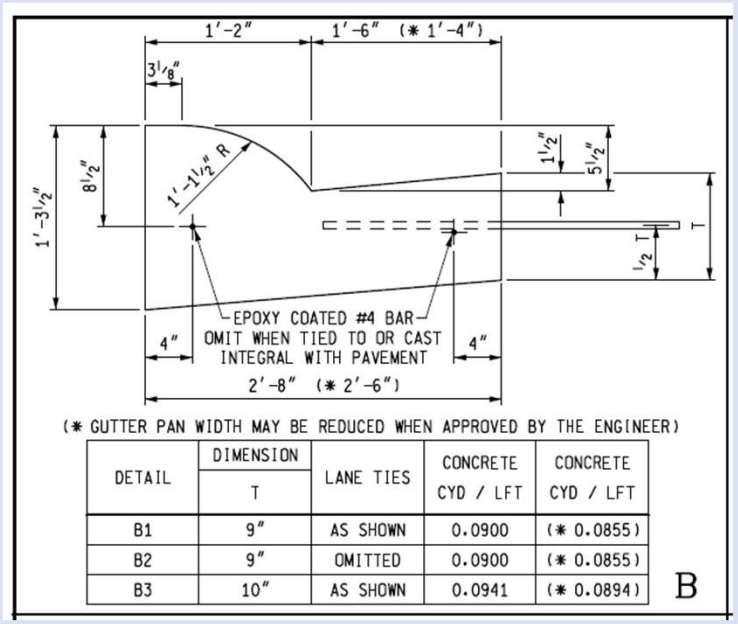
9-30-2014 F.H.W.A. APPROVAL	2-6-2014 PLAN DATE	R-30-G	SHEET 1 OF 2

YPE	MAXIMUM RISE (INCHES)	
	A	B
	3/4	1
	3/4	1
	3/4	1
	3/4	1
	3/4	1
	3/4	1
	1/2	1/2
	1/2	1/2
	3/4	1/2
	3/4	1/2
	1	1/2
	1	1/2
	1/2	1/2
	1/2	1/2



SECTION THROUGH CURB RAMP OPENING

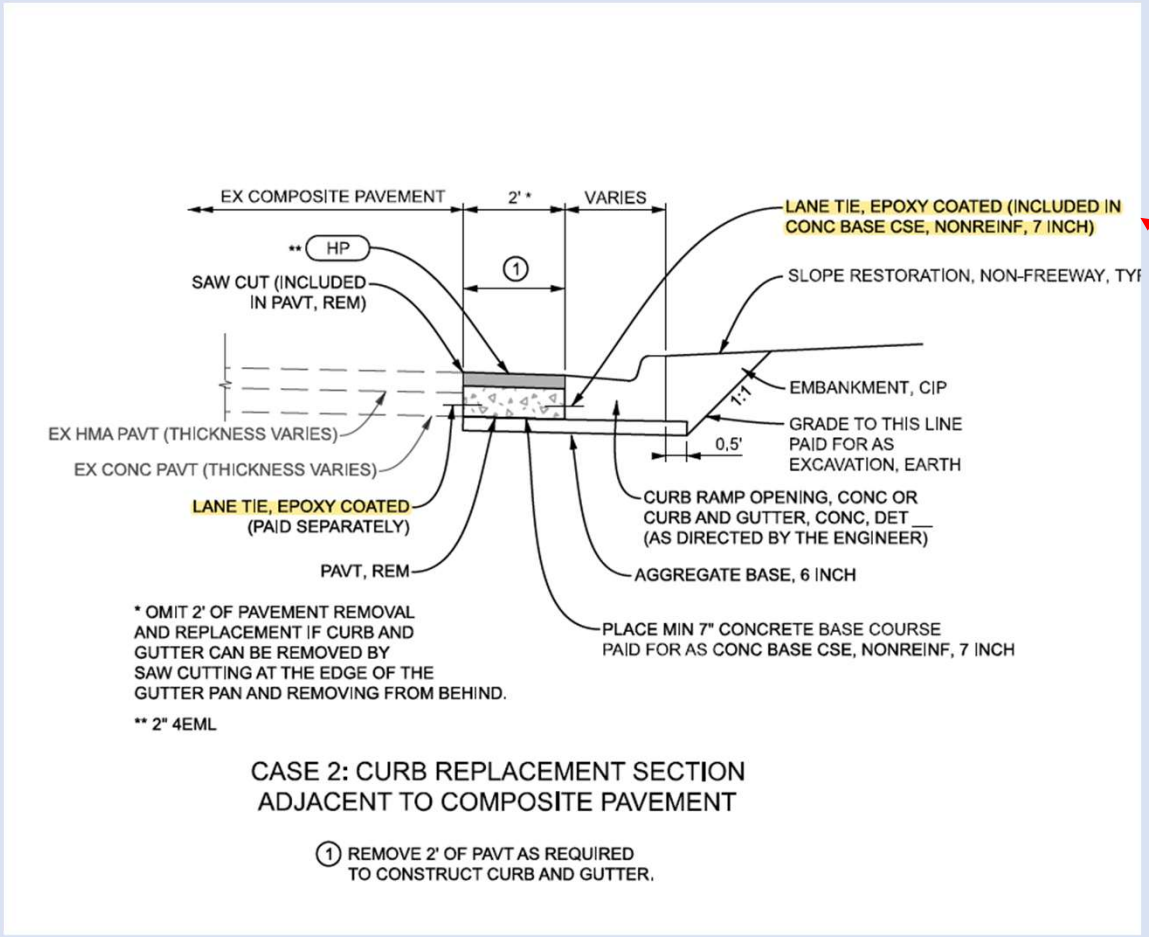
(TYPICAL ALL RAMP TYPES)



(* GUTTER PAN WIDTH MAY BE REDUCED WHEN APPROVED BY THE ENGINEER)

DETAIL	DIMENSION T	LANE TIES	CONCRETE CYD / LFT	CONCRETE CYD / LFT
B1	9"	AS SHOWN	0.0900	(* 0.0855)
B2	9"	OMITTED	0.0900	(* 0.0855)
B3	10"	AS SHOWN	0.0941	(* 0.0894)

B



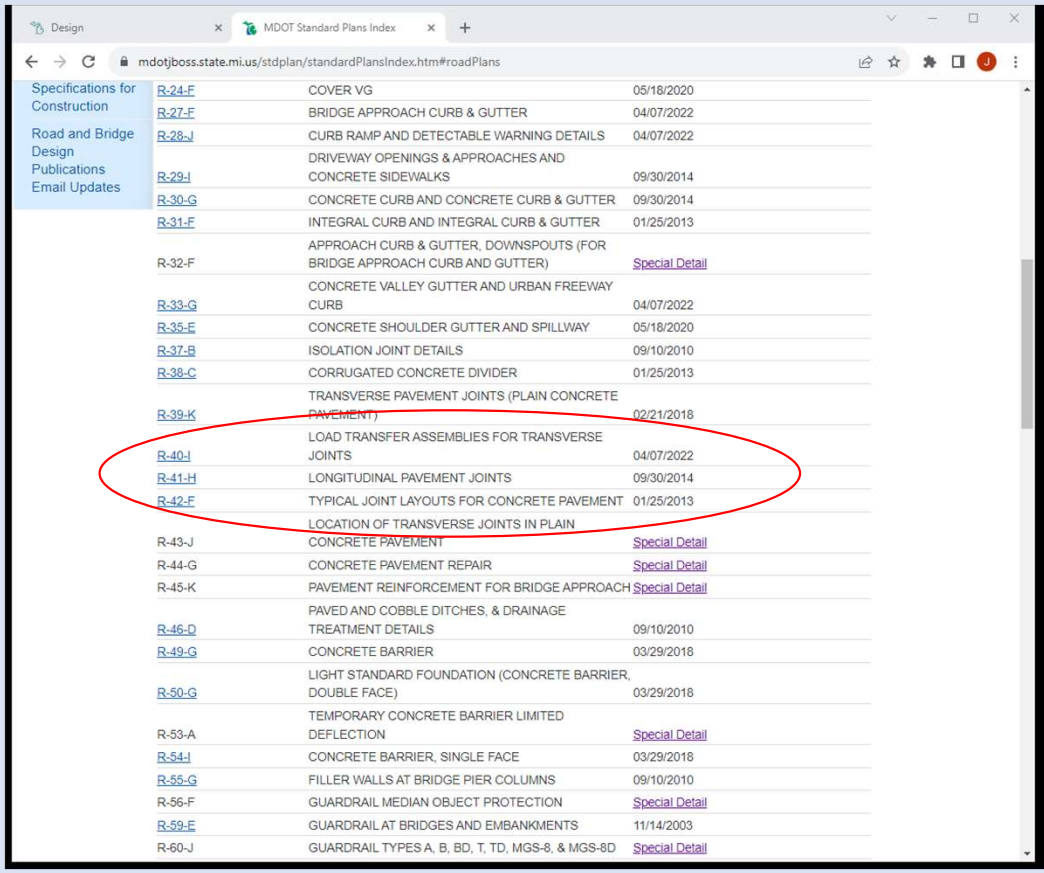
CASE 2: CURB REPLACEMENT SECTION
ADJACENT TO COMPOSITE PAVEMENT

(1) REMOVE 2' OF PAVT AS REQUIRED TO CONSTRUCT CURB AND GUTTER.

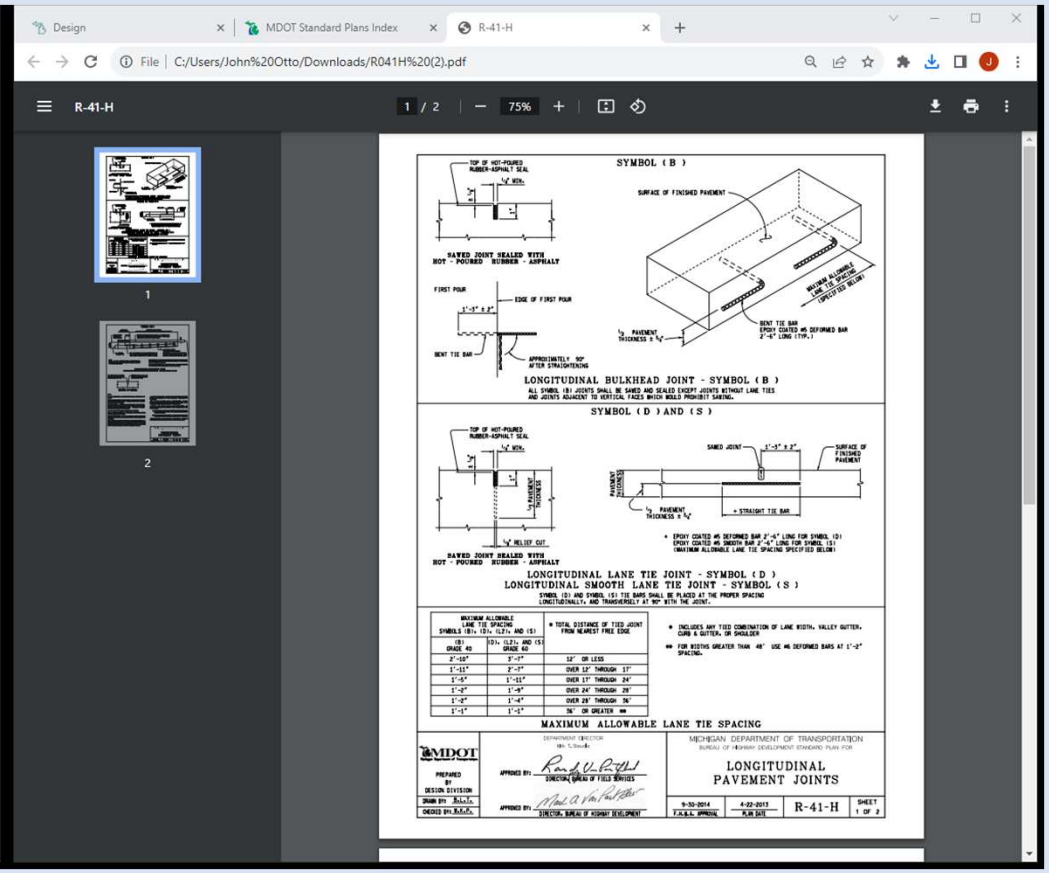
Lane Tie ? Detail?
Spacing?

Review Standard Plans

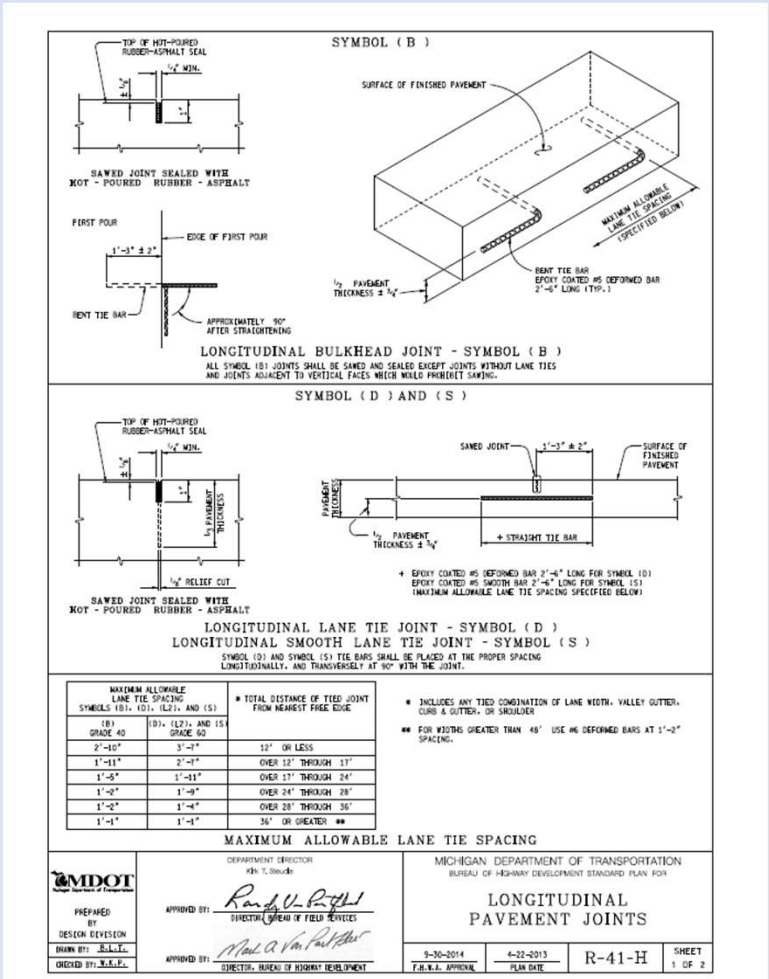
Lane Ties / Pavement Joints



R-24-F	COVER VG	05/18/2020
R-27-F	BRIDGE APPROACH CURB & GUTTER	04/07/2022
R-28-J	CURB RAMP AND DETECTABLE WARNING DETAILS	04/07/2022
R-29-I	DRIVEWAY OPENINGS & APPROACHES AND CONCRETE SIDEWALKS	09/30/2014
R-30-G	CONCRETE CURB AND CONCRETE CURB & GUTTER	09/30/2014
R-31-F	INTEGRAL CURB AND INTEGRAL CURB & GUTTER	01/25/2013
R-32-F	APPROACH CURB & GUTTER, DOWNSPOUTS (FOR BRIDGE APPROACH CURB AND GUTTER)	Special Detail
R-33-G	CONCRETE VALLEY GUTTER AND URBAN FREEWAY CURB	04/07/2022
R-35-E	CONCRETE SHOULDER GUTTER AND SPILLWAY	05/18/2020
R-37-B	ISOLATION JOINT DETAILS	09/10/2010
R-38-C	CORRUGATED CONCRETE DIVIDER	01/25/2013
R-39-K	TRANSVERSE PAVEMENT JOINTS (PLAIN CONCRETE PAVEMENT)	02/21/2018
R-40-I	LOAD TRANSFER ASSEMBLIES FOR TRANSVERSE JOINTS	04/07/2022
R-41-H	LONGITUDINAL PAVEMENT JOINTS	09/30/2014
R-42-F	TYPICAL JOINT LAYOUTS FOR CONCRETE PAVEMENT	01/25/2013
R-43-J	LOCATION OF TRANSVERSE JOINTS IN PLAIN CONCRETE PAVEMENT	Special Detail
R-44-G	CONCRETE PAVEMENT REPAIR	Special Detail
R-45-K	PAVEMENT REINFORCEMENT FOR BRIDGE APPROACH	Special Detail
R-46-D	PAVED AND COBBLE DITCHES, & DRAINAGE TREATMENT DETAILS	09/10/2010
R-49-G	CONCRETE BARRIER	03/29/2018
R-50-G	LIGHT STANDARD FOUNDATION (CONCRETE BARRIER, DOUBLE FACE)	03/29/2018
R-53-A	TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION	Special Detail
R-54-I	CONCRETE BARRIER, SINGLE FACE	03/29/2018
R-55-G	FILLER WALLS AT BRIDGE PIER COLUMNS	09/10/2010
R-56-F	GUARDRAIL MEDIAN OBJECT PROTECTION	Special Detail
R-59-E	GUARDRAIL AT BRIDGES AND EMBANKMENTS	11/14/2003
R-60-J	GUARDRAIL TYPES A, B, BD, T, TD, MGS-8, & MGS-8D	Special Detail



Lane Ties – Standard Plan R-41-H



SYMBOL (B)

TOP OF HOT-POURED RUBBER-ASPHALT SEAL

SAWED JOINT SEALED WITH HOT - POURED RUBBER - ASPHALT

FIRST POUR

EDGE OF FIRST POUR

BENT TIE BAR

APPROXIMATELY 90° AFTER STRAIGHTENING

SURFACE OF FINISHED PAVEMENT

MAXIMUM ALLOWABLE LANE TIE SPACING (SPECIFIED BELOW)

BENT TIE BAR EPOXY COATED #5 DEFORMED BAR 2'-6" LONG (TYP.)

LONGITUDINAL BULKHEAD JOINT - SYMBOL (B)

ALL SYMBOL (B) JOINTS SHALL BE SAWED AND SEALED EXCEPT JOINTS WITHOUT LANE TIES AND JOINTS ADJACENT TO VERTICAL FACES WHICH WOULD PROHIBIT SAWING.

SYMBOL (D) AND (S)

TOP OF HOT-POURED RUBBER-ASPHALT SEAL

SAWED JOINT SEALED WITH HOT - POURED RUBBER - ASPHALT

SAWED JOINT

SURFACE OF FINISHED PAVEMENT

+ STRAIGHT TIE BAR

+ EPOXY COATED #5 (DEFORMED) BAR 2'-6" LONG FOR SYMBOL (D)
EPOXY COATED #5 SMOOTH BAR 2'-6" LONG FOR SYMBOL (S)
(MAXIMUM ALLOWABLE LANE TIE SPACING SPECIFIED BELOW)

LONGITUDINAL LANE TIE JOINT - SYMBOL (D)
LONGITUDINAL SMOOTH LANE TIE JOINT - SYMBOL (S)

SYMBOL (D) AND SYMBOL (S) TIE BARS SHALL BE PLACED AT THE PROPER SPACING LONGITUDINALLY, AND TRANSVERSELY AT 90° WITH THE JOINT.

MAXIMUM ALLOWABLE LANE TIE SPACING SYMBOLS (B), (D), (L2), AND (S)		* TOTAL DISTANCE OF TIED JOINT FROM NEAREST FREE EDGE
(B) GRADE 40	(D), (L2), AND (S) GRADE 60	
2'-10"	3'-7"	12' OR LESS
1'-11"	2'-7"	OVER 12' THROUGH 17'
1'-5"	1'-11"	OVER 17' THROUGH 24'
1'-2"	1'-9"	OVER 24' THROUGH 28'
1'-2"	1'-4"	OVER 28' THROUGH 36'
1'-1"	1'-1"	36' OR GREATER **

* INCLUDES ANY TIED CONBINATION OF LANE WIDTH, VALLEY GUTTER, CURB & GUTTER, OR SHOULDER

** FOR WIDTHS GREATER THAN 48' USE #6 DEFORMED BARS AT 1'-2" SPACING.

MAXIMUM ALLOWABLE LANE TIE SPACING

MDOT

PREPARED BY DESIGN DIVISION

DRAWN BY: R.L.T.

CHECKED BY: W.K.P.

DEPARTMENT DIRECTOR

Kirk T. Steudle

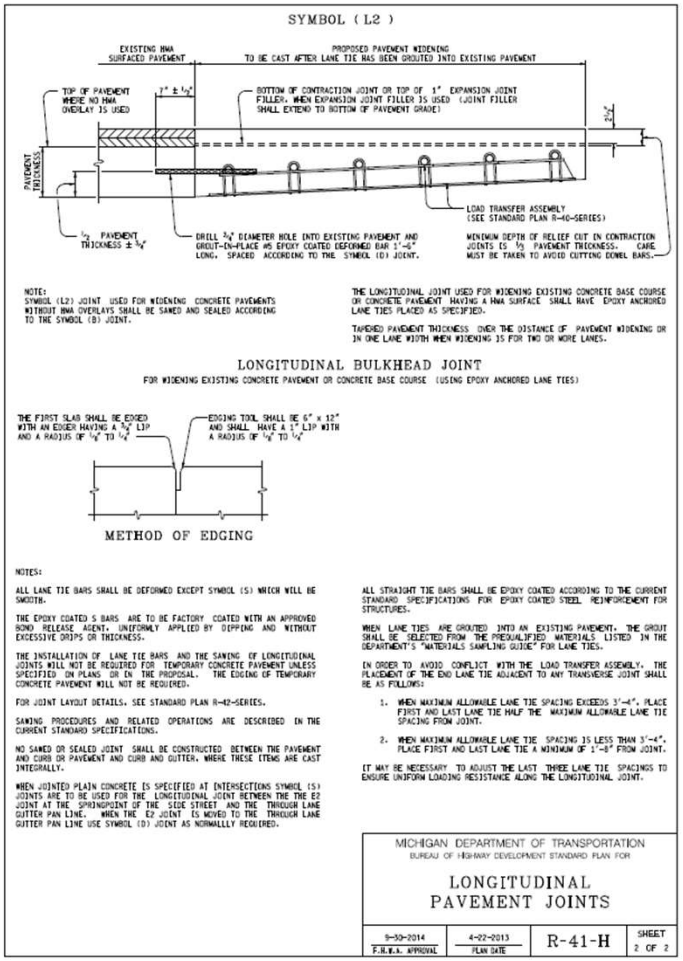
APPROVED BY: DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

LONGITUDINAL PAVEMENT JOINTS

9-30-2014 F.H.W.A. APPROVAL	4-22-2013 PLAN DATE	R-41-H	SHEET 1 OF 2



SYMBOL (L2)

EXISTING HMA SURFACED PAVEMENT

PROPOSED PAVEMENT WIDENING TO BE CAST AFTER LANE TIE HAS BEEN GROUTED INTO EXISTING PAVEMENT

TOP OF PAVEMENT WHERE NO HMA OVERLAY IS USED

1" ± ½"

BOTTOM OF CONTRACTION JOINT OR TOP OF 1" EXPANSION JOINT FILLER. WHEN EXPANSION JOINT FILLER IS USED (JOINT FILLER SHALL EXTEND TO BOTTOM OF PAVEMENT GRADE)

PAVEMENT THICKNESS

LOAD TRANSFER ASSEMBLY (SEE STANDARD PLAN R-40-SERIES)

½ PAVEMENT THICKNESS ± ¾"

DRILL ¾" DIAMETER HOLE INTO EXISTING PAVEMENT AND GROUT-IN-PLACE #5 EPOXY COATED DEFORMED BAR 1'-6" LONG. SPACED ACCORDING TO THE SYMBOL (D) JOINT.

MINIMUM DEPTH OF RELIEF CUT IN CONTRACTION JOINTS IS ½ PAVEMENT THICKNESS. CARE MUST BE TAKEN TO AVOID CUTTING DOWEL BARS.

NOTE:
SYMBOL (L2) JOINT USED FOR WIDENING CONCRETE PAVEMENTS WITHOUT HMA OVERLAYS SHALL BE SAWED AND SEALED ACCORDING TO THE SYMBOL (B) JOINT.

THE LONGITUDINAL JOINT USED FOR WIDENING EXISTING CONCRETE BASE COURSE OR CONCRETE PAVEMENT HAVING A HMA SURFACE SHALL HAVE EPOXY ANCHORED LANE TIES PLACED AS SPECIFIED.

TAPERED PAVEMENT THICKNESS OVER THE DISTANCE OF PAVEMENT WIDENING OR IN ONE LANE WIDTH WHEN WIDENING IS FOR TWO OR MORE LANES.

LONGITUDINAL BULKHEAD JOINT

FOR WIDENING EXISTING CONCRETE PAVEMENT OR CONCRETE BASE COURSE (USING EPOXY ANCHORED LANE TIES)

THE FIRST SLAB SHALL BE EDGED WITH AN EDGER HAVING A ¾" LIP AND A RADIUS OF ⅛" TO ¼"

EDGING TOOL SHALL BE 6" x 12" AND SHALL HAVE A 1" LIP WITH A RADIUS OF ⅛" TO ¼"

METHOD OF EDGING

NOTES:

ALL LANE TIE BARS SHALL BE DEFORMED EXCEPT SYMBOL (S) WHICH WILL BE SMOOTH.

THE EPOXY COATED S BARS ARE TO BE FACTORY COATED WITH AN APPROVED BOND RELEASE AGENT, UNIFORMLY APPLIED BY DIPPING AND WITHOUT EXCESSIVE DRIPS OR THICKNESS.

THE INSTALLATION OF LANE TIE BARS AND THE SAWING OF LONGITUDINAL JOINTS WILL NOT BE REQUIRED FOR TEMPORARY CONCRETE PAVEMENT UNLESS SPECIFIED ON PLANS OR IN THE PROPOSAL. THE EDGING OF TEMPORARY CONCRETE PAVEMENT WILL NOT BE REQUIRED.

FOR JOINT LAYOUT DETAILS, SEE STANDARD PLAN R-42-SERIES.

SAWING PROCEDURES AND RELATED OPERATIONS ARE DESCRIBED IN THE CURRENT STANDARD SPECIFICATIONS.

NO SAWED OR SEALED JOINT SHALL BE CONSTRUCTED BETWEEN THE PAVEMENT AND CURB OR PAVEMENT AND CURB AND GUTTER, WHERE THESE ITEMS ARE CAST INTEGRALLY.

WHEN JOINTED PLAIN CONCRETE IS SPECIFIED AT INTERSECTIONS SYMBOL (S) JOINTS ARE TO BE USED FOR THE LONGITUDINAL JOINT BETWEEN THE THE E2 JOINT AT THE SPRINGPOINT OF THE SIDE STREET AND THE THROUGH LANE GUTTER PAN LINE. WHEN THE E2 JOINT IS MOVED TO THE THROUGH LANE GUTTER PAN LINE USE SYMBOL (D) JOINT AS NORMALLY REQUIRED.

ALL STRAIGHT TIE BARS SHALL BE EPOXY COATED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR EPOXY COATED STEEL REINFORCEMENT FOR STRUCTURES.

WHEN LANE TIES ARE GROUTED INTO AN EXISTING PAVEMENT, THE GROUT SHALL BE SELECTED FROM THE PREQUALIFIED MATERIALS LISTED IN THE DEPARTMENT'S "MATERIALS SAMPLING GUIDE" FOR LANE TIES.

IN ORDER TO AVOID CONFLICT WITH THE LOAD TRANSFER ASSEMBLY, THE PLACEMENT OF THE END LANE TIE ADJACENT TO ANY TRANSVERSE JOINT SHALL BE AS FOLLOWS:

1. WHEN MAXIMUM ALLOWABLE LANE TIE SPACING EXCEEDS 3'-4", PLACE FIRST AND LAST LANE TIE HALF THE MAXIMUM ALLOWABLE LANE TIE SPACING FROM JOINT.
2. WHEN MAXIMUM ALLOWABLE LANE TIE SPACING IS LESS THAN 3'-4", PLACE FIRST AND LAST LANE TIE A MINIMUM OF 1'-8" FROM JOINT.

IT MAY BE NECESSARY TO ADJUST THE LAST THREE LANE TIE SPACINGS TO ENSURE UNIFORM LOADING RESISTANCE ALONG THE LONGITUDINAL JOINT.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

LONGITUDINAL PAVEMENT JOINTS

9-30-2014 F.H.W.A. APPROVAL	4-22-2013 PLAN DATE	R-41-H	SHEET 2 OF 2

MAXIMUM ALLOWABLE LANE TIE SPACING SYMBOLS (B), (D), (L2), AND (S)		* TOTAL DISTANCE OF TIED JOINT FROM NEAREST FREE EDGE
(B) GRADE 40	(D), (L2), AND (S) GRADE 60	
2'-10"	3'-7"	12' OR LESS
1'-11"	2'-7"	OVER 12' THROUGH 17'
1'-5"	1'-11"	OVER 17' THROUGH 24'
1'-2"	1'-9"	OVER 24' THROUGH 28'
1'-2"	1'-4"	OVER 28' THROUGH 36'
1'-1"	1'-1"	36' OR GREATER **

* INCLUDES ANY TIED COMBINATION OF LANE WIDTH, VALLEY GUTTER, CURB & GUTTER, OR SHOULDER

** FOR WIDTHS GREATER THAN 48' USE #6 DEFORMED BARS AT 1'-2" SPACING.

MAXIMUM ALLOWABLE LANE TIE SPACING

MDOT Michigan Department of Transportation

PREPARED BY DESIGN DIVISION

DRAWN BY: B.L.T.

CHECKED BY: W.K.P.

DEPARTMENT DIRECTOR
Kirk T. Steudle

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

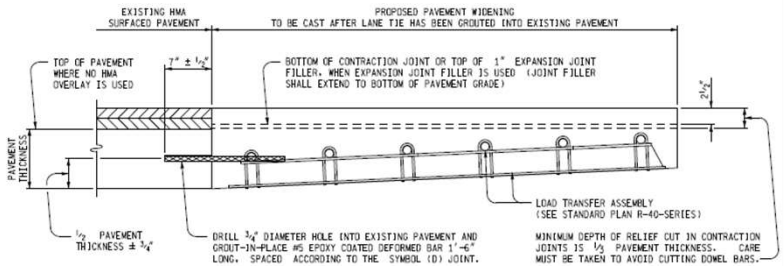
APPROVED BY: _____
DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

LONGITUDINAL PAVEMENT JOINTS

9-30-2014	4-22-2013	R-41-H	SHEET
F.H.W.A. APPROVAL	PLAN DATE		1 OF 2

SYMBOL (L2)



NOTE:
SYMBOL (L2) JOINT USED FOR WIDENING CONCRETE PAVEMENTS WITHOUT HMA OVERLAYS SHALL BE SAWED AND SEALED ACCORDING TO THE SYMBOL (B) JOINT.

THE LONGITUDINAL JOINT USED FOR WIDENING EXISTING CONCRETE BASE COURSE OR CONCRETE PAVEMENT HAVING A HMA SURFACE SHALL HAVE EPOXY ANCHORED LANE TIES PLACED AS SPECIFIED.

TAPERED PAVEMENT THICKNESS OVER THE DISTANCE OF PAVEMENT WIDENING OR IN ONE LANE WIDTH WHEN WIDENING IS FOR TWO OR MORE LANES.

				concrete		resteel		forms		cure			
Item ID	Bid Item	Quantity	Unit	cyd/unit	total	lbs/unit	total	sft/unit	total	sft/unit	total	pours	other
1100001	Mobilization	1	LSUM										
6020017	Conc Base Cse, Nonreinf, 7 inch	29	Syd	0.193	5.60					9	261	1	126 lft @ 3.58 + 5 = 40
6030030	Lane Tie, Epoxy Anchored	32	Ea										
8020016	Curb & Gutter, Conc, Det B2	143	Ft	0.090	12.87	1.5	215	2.04	292	4.71	674	2	
8030010	Detectable Warning Surface	30	Ft										6 ea at 5 ft
8030030	Curb Ramp Opening, Conc	33	Ft	0.090	2.97	1.5	50	1.66	55	4.33	143		
8030046	Sidewalk, Conc, 6 inch	340	Sft	0.019	6.46			0.2	68	6	2040	2	11 jnt @ 5 =55 lft, 4 fiber jnt
8032002	Curb Ramp, Conc, 6 inch	346	Sft	0.019	6.57			0.2	69	6	2076		9 jnt @ 5 = 45 lft, 6 fiber jnt
					34.47		264		484		5,193	5	

Develop cost for the work

- Labor
- Equipment
- Materials
- Subcontractors / Trucking
- Overhead

DIRECT COST ESTIMATE
AL JOHNSON CONSTRUCTION CO.

JOB_____DATE_____

FORM E204R1 3-77 10M

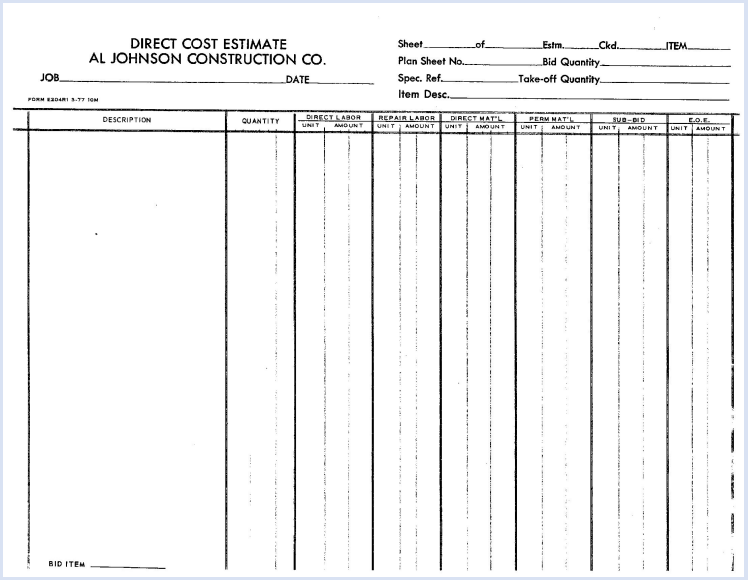
Sheet_____of_____Estm._____Ckd._____ITEM_____

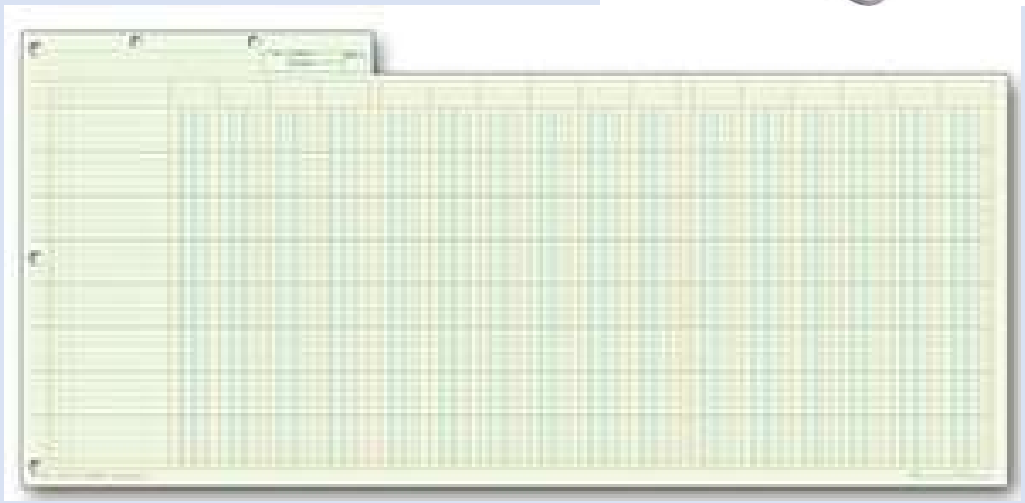
Plan Sheet No._____Bid Quantity_____

Spec. Ref._____Take-off Quantity_____

Item Desc._____

DESCRIPTION	QUANTITY	DIRECT LABOR		REPAIR LABOR		DIRECT MAT'L		PERM MAT'L		SUB-BID		E.O.E.	
		UNIT	AMOUNT	UNIT	AMOUNT	UNIT	AMOUNT	UNIT	AMOUNT	UNIT	AMOUNT	UNIT	AMOUNT





	JOB:	ITEM 034, I-69					21A	22A	23A	Sand		25%	37%				
	BID DATE:	August 4, 1999				per ton	$ 6.00	$ 6.00	$ 6.00	$ 4.00							
	ESTIMATE:					per m^3	$ 15.60	$ 15.60	$ 15.60	$ 8.58							
ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	TOTAL	COST	TAX	BED	SAND	TRUCKIN	MISC	PROFIT	INCID	LABOR	EQUIP	SUBCONTI	
5	Mobilization	ls	1.0	0.00	0.00												
50	Tree,Rem,200-450mm	Ea	5.0	0.00	0.00												
55	Tree,Rem,451-900mm	Ea	1.0	0.00	0.00												
60	Culv,Rem	Ea	1.0	0.00	0.00												
65	Curb and Gutter,Rem	m	990.0	0.00	0.00												
80	Pavt,Rem	m2	276593.0	0.00	0.00												
85	Ditch Cleanout	m	1120.0	0.00	0.00												
90	Embankment,LM	m3	100.0	0.00	0.00												
95	Subgrade undercut type II	m3	3450.0	0.00	0.00												
100	Ditching-Special	m	1666.0	0.00	0.00												
105	Station Grading-Mod	m	35620.0	0.00	0.00												
110	Station grading-Special Ramp Tem	m	6825.0	0.00	0.00												
115	Erosion control,Check Dam,Stone	m	725.0	0.00	0.00												
120	Erosion control,Sediment Basin,LM	m3	50.0	0.00	0.00												
125	Erosion control Sed,Basin,Maint,LM	m3	140.0	0.00	0.00												
130	Erosion comtrol Sediment Trap	Ea	100.0	0.00	0.00												
135	Erosion control Silt Fence	m	3400.0	0.00	0.00												
145	Subbase,CIP	m3	28485.0	0.00	0.00												
150	Aggregate Base	Ton	1221.0	0.00	0.00												
155	Aggregate Base,100mm	m2	383944.0	0.00	0.00												
160	Aggregate Base,200mm	m2	20819.0	0.00	0.00												
165	Open Graded Dr Cse,100mm	m2	352081.0	0.00	0.00												
170	Shoulder,CL II,80mm	m2	8457.0	0.00	0.00												
175	Shoulder,CL II,160mm	m2	78496.0	0.00	0.00												
180	Trenching	m	17055.0	0.00	0.00												
185	Culv,CL 5,300mm	m	973.0	0.00	0.00												
190	Culv, CL 5,375mm	m	213.0	0.00	0.00												
195	Culv,CL 5,450mm	m	427.0	0.00	0.00												

Bidding Spreadsheet for quoting Item 2309-010

				labor		equipment		perm materials		construction mtls		subcontractor		overhead		subtotal		profit		totals		Adjusted Totals	
Item ID	Bid Item	Quantity	Unit	per unit	total	per unit	total	per unit	total	per unit	total	per unit	total	per unit	total	per unit	total	per unit	total	per unit	total	per unit	total
1100001	Mobilization	1	LSUM																				
6020017	Conc Base Cse, Nonreinf, 7 inch	29	Syd																				
6030030	Lane Tie, Epoxy Anchored	32	Ea																				
8020016	Curb & Gutter, Conc, Det B2	143	Ft																				
8030010	Detectable Warning Surface	30	Ft																				
8030030	Curb Ramp Opening, Conc	33	Ft																				
8030046	Sidewalk, Conc, 6 inch	340	Sft																				
8032002	Curb Ramp, Conc, 6 inch	346	Sft																				

Labor – MDOT projects have Prevailing Wage

- Direct Wage – minimum required by the contract per craft
- Fringes – minimum required by the contract per craft
- Payroll Taxes 10 – 20%
  - FICA – 7.65%
  - Federal Unemployment – 6% of first $7,000 wage
  - State Unemployment - .06% - 10.3% with wage base of $9,500
- Insurances
  - Worker's Compensation – varies by craft, concrete flatwork 2.68 – 4.69%
  - General Liability
  - Umbrella

Laborer – set forms, place concrete, operate small tools, place resteel & dowels, assist concrete finisher

cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

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* LABO0465-001 06/01/2023

LABORER: Highway, Bridge and Airport Construction

AREA 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES

AREA 2: ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA AND VAN BUREN COUNTIES

AREA 3: ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON AND WEXFORD COUNTIES

AREA 4: ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES

	Rates	Fringes
LABORER (AREA 1)		
GROUP 1	$ 29.67	13.45
GROUP 2	$ 29.88	13.45
GROUP 3	$ 30.17	13.45
GROUP 4	$ 30.61	13.45
GROUP 5	$ 30.23	13.45
GROUP 6	$ 30.66	13.45
LABORER (AREA 2)		
GROUP 1	$ 26.92	12.90
GROUP 2	$ 27.12	12.90
GROUP 3	$ 27.36	12.90
GROUP 4	$ 27.71	12.90
GROUP 5	$ 27.58	12.90
GROUP 6	$ 27.92	12.90
LABORER (AREA 3)		
GROUP 1	$ 26.22	12.90
GROUP 2	$ 26.43	12.90
GROUP 3	$ 26.72	12.90
GROUP 4	$ 27.16	12.90
GROUP 5	$ 26.78	12.90
GROUP 6	$ 27.21	12.90
LABORER (AREA 4)		
GROUP 1	$ 26.22	12.90
GROUP 2	$ 26.43	12.90
GROUP 3	$ 26.72	12.90
GROUP 4	$ 27.16	12.90
GROUP 5	$ 26.78	12.90
GROUP 6	$ 27.21	12.90

LABORER CLASSIFICATIONS

GROUP 1: Asphalt shoveler or loader; asphalt plant misc.; burlap person; yard person; dumper (wagon, truck, etc.); joint filling laborer; miscellaneous laborer; unskilled laborer; sprinkler laborer; form setting laborer; form stripper; pavement reinforcing; handling and placing (e.g., wire mesh, steel mats, dowel bars); mason's tender or bricklayer's tender on manholes; manhole builder; headwalls, etc.; waterproofing,(other than buildings) seal coating and slurry mix, shoring, underpinning; pressure grouting; bridge pin and hanger removal; material recycling laborer; horizontal paver laborer (brick, concrete, clay, stone and asphalt); ground stabilization and modification laborer; grouting; waterblasting; top person; railroad track and trestle laborer; carpenters' tender; guard rail builders' tender; earth retention barrier and wall and M.S.E. wall installer's tender; highway and median installer's tender(including sound, retaining, and crash barriers); fence erector's tender; asphalt raker tender; sign installer; remote control operated equipment.

GROUP 2: Mixer operator (less than 5 sacks); air or electric tool operator (jackhammer, etc.); spreader; boxperson (asphalt, stone, gravel); concrete paddler; power chain saw operator; paving batch truck dumper; tunnel mucker (highway work only); concrete saw (under 40 h.p.) and dry pack machine; roto-mill grounds person.

GROUP 3: Tunnel miner (highway work only); finishers tenders; guard rail builders; highway and median barrier installer; earth retention barrier and wall and M.S.E. wall installer's (including sound, retaining and crash barriers); fence erector; bottom person; powder person; wagon drill and air track operator; diamond and core drills; grade checker; certified welders; curb and side rail setter's tender.

Concrete Finisher

stacks over 40 ft. of
falling heights, recovery
of lead-based paints and
any work associated with
industrial plants, except
maintenance of industrial
plants.....$ 25.39 14.68
All other work, including
maintenance of industrial
plant.....$ 25.39 14.68

FOOTNOTES: Spray painting, sandblasting, blowdown associated with spraying and blasting, water blasting and work involving a swing stage, boatswain chair or spider: $1.00 per hour additional. All work performed inside tanks, vessels, tank trailers, railroad cars, sewers, smoke stacks, boilers or other spaces having limited egress not including buildings, opentop tanks, pits, etc.: $1.25 per hour additional.

PLAS0514-001 06/01/2018

ZONE 1: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, SAGINAW, WASHTENAW AND WAYNE COUNTIES

ZONE 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
ZONE 1	$ 31.47	13.81
ZONE 2	$ 29.97	13.81

PLUM0190-003 05/01/2015

ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY,

Bidding Labor Rates

Laborer - concrete form setter - area 1, group 1				
wage	ST	29.67	8	237.36
insurances use 10%		2.97	8	23.74
taxes +/- 18%		5.34	8	42.72
fringe		13.45	8	107.60
ST		51.43	8	411.42
wage	OT	44.51	4	178.02
insurances use 10%		4.45	4	17.80
taxes +/- 18%		8.01	4	32.04
fringe		13.45	4	53.80
OT		70.42	4	281.67
12 hr day		57.76	12	693.09

Laborer - concrete form setter - area 1, group 3				
wage	ST	30.17	8	241.36
insurances use 10%		3.02	8	24.14
taxes +/- 18%		5.43	8	43.44
fringe		13.45	8	107.60
ST		52.07	8	416.54
wage	OT	45.26	4	181.02
insurances use 10%		4.53	4	18.10
taxes +/- 18%		8.15	4	32.58
fringe		13.45	4	53.80
OT		71.38	4	285.51
12 hr day		58.50	12	702.05

Cement Mason / Concrete Finisher- zone 1				
wage	ST	31.47	8	251.76
insurances use 10%		3.15	8	25.18
taxes +/- 18%		5.66	8	45.32
fringe		13.81	8	110.48
ST		54.09	8	432.73
wage	OT	47.21	4	188.82
insurances use 10%		4.72	4	18.88
taxes +/- 18%		8.50	4	33.99
fringe		13.81	4	55.24
OT		74.23	4	296.93
12 hr day		60.81	12	729.66

Crew Makeup

• Foreman	1 each	$ 75.00 / hr	$ 75.00
• Laborers	2 each	$ 58.50 / hr	$ 117.00
• Finisher	1 each	$ 61.00 / hr	$ 61.00

Total Labor	$ 253.00 / hr
12 Hour day	$ 3,036.00

Equipment

- Owned large equipment
- Rented equipment
- Small equipment and Small tools

Equipment - Owned

- Usually, each company develops an hourly cost to use
- Ownership Cost – Highway work has limited season
  - Depreciation
  - Interest
  - Insurance
  - Taxes
- Operating Cost
  - Fuel, Oil, Filters & Grease
  - Repair Labor
  - Repair Parts

Equipment

- Equipment – Rental
  - Rental rate – typically rate is based on 40-hour week, 176-hour month, may include major non-negligent repairs
  - Still have Operating cost of fuel, oil & grease
- Small Equipment & Small Tools
  - Daily rate, % of labor, included in an overhead rate

Equipment

- Form Truck $ 25 / hr
  $ 300 / day
  (+/- 150 days) $ 45,000 / season
- Gas Generator
- Concrete Saw
- Hammer Drill
- Vibrator
- Plate Compactor
- Shovels, hand tools
- PPE, ice, water misc.

  _____
  $ 20 / hr
  $ 240 / day
  (+/- 150 days) $ 36,000 / season

Production – what do you use?

- Experience
- Cost history data
- Published References
- Use?? – number of shifts or hours, units/shift, hour or MH

Cost Data – best resource

LDRPT3 YRWK- 85/46 11/11/85 - 11/17/85 JOHNSON-MASSMAN * JOB ** TO DATE RUN DATE - 11/18/85 PAG

JOB - 1 OLD RIVER CONTROL STRUCTURE DACW29-82-C-0472

CODE	DESCRITION	LABOR BUDG	LABOR CUR	LABOR TO-DATE	QUANTITY BUDG	QUANTITY CUR	QUANTITY TO-DATE	UNIT	MAN HOURS BUDG	MAN HOURS CUR	MAN HOURS TO-DATE	UNITS/MAN HOUR BUDG	UNITS/MAN HOUR CUR	UNITS/MAN HOUR TO-DATE
	REINFORCING STEEL													
6101	UNLOAD & STORE	51040		54334	12760		13127	TN			4574			2.870
6102	PLACE REBAR	1920770		1643867	255195		262548	CW			160685			1.634
6104	INSTALL REBAR SPLICES	188500		68124	18850		15345	EA			5855			2.621
6105	WELD TENSION ANCHORS	85800		74388	6600		4852	LB			6134			.791
	REINFORCING STEEL	2246110		1840713							177247			

148 #/MH

AL JOHNSON CONST CO

MISC METALS SORTED BY YEAR

YEAR	JOB	TYPE	REBAR QUAN-LBS	LBS/MH
1968	HENNEPIN BRIDGE	BR	1449630	79
1969	OZARK BRIDGE ALTERATION	BR	393876	104
1971	MOPAC RAILROAD BRIDGE	BR	388862	112
1972	ATCHAFALAYA RIVER BRIDGE	BR	1957420	186
1976	CAIRO RIVER BRIDGE	BR	3608712	91
1977	LULING BRIDGE	BR	1487240	108
1962	MORROW POINT DAM	HVY	2768176	65
1963	ST. ANTHONY FALLS UPPER LOCK	HVY	4676240	305
1964	OPEKISKA LOCK	HVY	1967989	96
1964	DARDANELLE POWERHOUSE	HVY	8419983	67
1965	MEDAHL DAM	HVY	5102415	118
1967	SWIFT DAM	HVY	140769	50
1967	RECONSTRUCTION DAM 4	HVY	1294295	68
1969	OZARK LOCK, DAM & POWERHOUSE	HVY	14944788	157
1971	SALAMANCA FLOOD PROTECTION	HVY		
1971	RACINE DAM	HVY	4459088	123
1972	WILLOW ISLAND LOCKS	HVY	6151314	99
1972	CARTERS DAM INTAKE	HVY	627960	177
1977	GAINESVILLE SPILLWAY	HVY	569857	63
1977	CARTERS DAM POWERHOUSE	HVY	5141468	144
1979	ALICEVILLE LOCK & DAM	HVY	2962800	111
1980	TIBER	HVY	2528935	110
1981	LOCK A	HVY	2149200	102
1981	FORD LOCK	HVY	660933	68
1983	BAY SPRINGS AS OF (3/6/83)	HVY	12678000	148
1969	LOCK & DAM NO.3	HVY	8700096	158
1964	GREEN COUNTY STEAM PLANT	IND		
1965	ALCOA-WARRICK	IND	5318057	120
1967	MINNTAC	IND		
1967	HOMER CITY I	IND		
1968	HOMER CITY II	IND	194000	67
1969	COLEMAN POWER PLANT	IND	3900000	156
1969	WHEELER RIDGE PUMP NG PLANT	IND		
1970	ALCOA-DAVENPORT	IND	2552948	105
1971	CONEMAUGH POWER PLANT	IND	2292093	95
1971	VICKSBURG WATER INTAKE	IND	540000	82
1972	BIG STONE PUMPING STATION	IND	317749	133
1974	GREENVILLE INTAKE STRUCTURE	IND	909375	98
	AVERAGES	BR	1547623.3	113.3
		HVY	4523384.5	117.3
		IND	2003027.8	107.0

Materials

- Permanent Materials
  - **Must meet MDOT specs** - may need test reports, certifications, be on approved products list - REVIEW Special Provisions, and Standard Specification requirements
  - Buy America provisions for almost all materials now
  - Your payment will be held up if MDOT does not have their required material paperwork!
  - Buy from Suppliers experienced with suppling MDOT Projects
  - Include a waste factor and/or minimum sale quantity
  - Sales tax must be paid on all materials incorporated in MDOT projects

Materials

- Consumable / Construction Materials
  - Concrete form materials
  - Tie wire & rebar support materials
  - Cure & weather protection materials
  - Falsework or scaffold materials
  - Pipe lube
  - Saw blades, drill / core bits, sand blasting material, water
  - Dumpsters, trash fees, dump fees

SRM CONCRETE

Smyrna Ready Mix Project Quote
7801 N. Ann Arbor Road
Dundee, MI 48131
(517) 547-7004

Bid # 93137

Quote Date: 8/29/2023
Quote Expiration Date: 9/29/2023
Project: MDOT 58071-120343 ITEM 10 M-125 @ STERNS RD
Customer: [redacted]
Project Area: MONROE
Contact: Estimating
Project Address:
Phone:

MIX #	PRODUCT DESCRIPTION	UNIT PRICE (CY)	*PD BY 10th DISCOUNT (CY)	NET PRICE (CY)	NOTES
MIDOT35671	MDOT 3500 PSI SLAG MRWR AIR	154.00	2.00	152.00	
MIDOT35670	MDOT 3500 PSI SLAG RETARDER AIR	155.00	2.00	153.00	
MIDOT35375	MDOT 3500 PSI STRT P-NC MRWR AIR W/O NCA	163.00	2.00	161.00	

Fly Ash Mixes are subject to availability. If Fly Ash is not available, straight cement mixes will be used. Mixes will be priced as quoted. If Straight Cement mixes are not quoted, add $3.00 to the mix price.

Straight Cement (Except Slurry or Grout)	$3.00 CY	Retarder-Per Percent	$1.00 CY	Diversion Charge	$110.00 Load
Chip Mixes	$1.00 CY	Mid Range Double Dose	$3.00 CY	Delivery Charge Under 6cy	$100.00 Load
No Air Mix	$2.00 CY	Superplasticizer	$6.00 CY	Delivery Charge Under 3cy	$150.00 Load
Peagravel & Pea\Chip Blends	Call for Quote	Winter Charge	$6.50 CY	Delivery Charge Under 2cy	$200.00 Load
Custom Mixes	Call for Quote	Micro Fibers Half Dose	$3.00 CY	Truck Time	$75.00 Per Hour
Calcium Chloride-Per Percent	$3.00 CY	Micro Fibers Full Dose	$6.00 CY	Stand-by Charges	$75.00 Per Hour
Non-Chloride Per Percent	$4.50 CY	Steel Fibers	Call for Quote	Sand Grout & Shotcrete Mixes	Call for Quote
Specialty Concrete Mixes	Call for Quote	Sales Tax **NOT** Included In Pricing		Frost Law Charges	$100.00 Load

Smyrna Ready Mix will only be responsible for the concrete results when SRM Testing is contracted to perform the Q.C.Testing. If SRM Testing is not contracted for Q.C.Testing, SRM will only be responsible for the plastic results taken at the Ready Mix Truck's Discharge. To balance risk as it applies to Q.A. test results, Smyrna Ready Mix will only accept disincentive pay adjustments if Smyrna Ready Mix is included in pay incentives.
MDOT REQUIRED AGGREGATE TESTING = $750.00 PER TEST

Additional Items Quoted Upon Request **Not Open Sunday** **Fuel/Environmental Surcharge $40.00 Per Load**

Terms: $2.00 **(CYD) discount if paid in full by the 10th of the following month. Net 30 terms. ***
Escalation Date: 1/1/2024 **Escalation Amount:** $7 Per Yard
Job Pricing End Date: 12/31/2024
Quotation Good Through: 9/29/2023

HYMMCO

6666 Bay Rd, Saginaw, MI. 48604
Phone: 989-790-8001 Fax: 989-790-8015

Quote

Due Date: 9/1/23
Item No : 2309-010
Contract ID: 58071-120343
Location: Monroe Co
CD: 7/29/24

Quantity	Material Description			
	29 Syd Conc Base Cse, Nonreinf, 7 inch	*Materials total*	$ 5.27	Syd
37 pcs	#5 x 1'-6" Epoxy Coated Tie Bars		$ 1.35	ea
1 tube	Epoxy Grout - 53 oz tubes		$ 43.00	tube
5 gals	Clear Curing Compound (5 gal pail)		$ 12.00	gal
	32 Ea Lane Tie, Epoxy Anchored	*Materials total*	$ 2.69	Ea
32 pcs	#5 x 1'-6" Epoxy Coated Tie Bars		$ 1.35	ea
1 tube	Epoxy Grout - 53 oz tubes		$ 43.00	tube
	143 Ft Curb and Gutter, Conc, Det B2	*Materials total*	$ 1.70	Ft
5 gals	White Curing Compound (5 gal pails)		$ 10.00	gal
214 lbs	#4 x 20'-0" Epoxy Coated Steel Reinforcement		$ 0.82	lb
2 pcs	1" Curb Fiber, Det B2		$ 9.00	ea
	30 Ft Detectable Warning Surface	*Materials total*	$ 36.00	Ft
60 sft	Replaceable ADA Tiles		$ 18.00	sft
	33 Ft Curb Ramp Opening, Conc	*Materials total*	$ 1.62	Ft
53 lbs	#4 x 20'-0" Epoxy Coated Steel Reinforcement		$ 0.82	lb
1 gal	White Curing Compound (5 gal pails)		$ 10.00	gal
	340 Sft Sidewalk, Conc, 6 inch	*Materials total*	$ 0.09	Sft
2 gals	White Curing Compound (5 gal pails)		$ 10.00	gal
20 lft	1/2" x 6" Fiber Expansion Material		$ 0.45	lft
	346 Sft Curb Ramp, Conc, 6 inch	*Materials total*	$ 0.22	Sft
2 gals	White Curing Compound (5 gal pails)		$ 10.00	gal
50 lft	1" x 6" Fiber Expansion Material		$ 1.14	lft
	124 Ft Strain Pole Fdn, 6 Bolt			
4,538 lbs	Fabricated Uncoated Steel Reinforcement		$ 0.73	lb
	Add for pre-tied cages (Non-Taxable):		*$ 0.44*	*lb*
	Optional Material:			
	#3 x 20'-0" GatorBar		$ 6.25	ea

CONDITIONS: F.O.B. Jobsite. Truckload Quantities, ***Firm for delivery thru 6/1/2024.***

A purchase order or verbal commitment is required within 10 days to secure quoted price.

Orders for quantities smaller than those quoted may be subject to higher price per unit

Quantities are estimates only, per plans and specifications

Please Note: A 3% merchant fee will be added to all credit card transactions

No taxes included unless otherwise stated

CONTACT(cell phones): Derek LaBean (989) 274-0506

Subcontractors & Truckers

- Subcontractors must be MDOT Prequalified & comply with all specifications and requirements
- Define their scopes
- Review their proposals

				labor		equipment		perm materials		construction material		subcontractor	
Item ID	Bid Item	Quantity	Unit	per unit	total	per unit	total	per unit	total	per unit	total	per unit	total
6020017	Conc Base Cse, Nonreinf, 7 inch	29	Syd	36.55	1,060.00	6.21	180.00	45.65	1,323.94	0.45	13.05	25.86	750.00
				.									
	concrete	7	cyd					165	1155			107.1	750
	tax								69.3				
	misc conc charge	1	ls					40	40				
									2.4				
	cure	261	sft							0.05	13.05		
	lane ties	40	ea					1.35	54				
	tax								3.24				
	production	4	hour	4	4								
					labor/hr	equip/hr							
crew	foreman	1	ea	75.00	75								
	laborer	2	ea	62.50	125								
	finisher	1	ea	65.00	65								
	Crew Truck	1	ea	25.00		25							
	small equipment	1	ea	15.00		15							
	small tools	1	ea	5.00		5							
					265	45							

				labor		equipment		perm materials		construction material		subcontractor	
Item ID	Bid Item	Quantity	Unit	per unit	total	per unit	total	per unit	total	per unit	total	per unit	total
8020016	Curb & Gutter, Conc, Det B2	143	Ft	20.38	2,915.00	3.46	495.00	18.89	2,700.67	1.91	273.00	5.24	750.00
				.									
	concrete	14	cyd					165	2310			53.6	750
	tax								138.6				
	misc conc charge	1	ls					40	40				
									2.4				
	resteel	290	lf					0.62	179.8				
	tax								10.788				
	fiber	2	ea					9	18				
	tax								1.08				
	cure	640	sft							0.05	32		
	forms	241	sft							1	241		
	tax												
	production	11	hour	4	11								
					labor/hr	equip/hr							
crew	foreman	1	ea	75.00	75								
	laborer	2	ea	62.50	125								
	finisher	1	ea	65.00	65								
	Crew Truck	1	ea	25.00		25							
	small equipment	1	ea	15.00		15							
	small tools	1	ea	5.00		5							
					265	45							

				labor		equipment		perm materials		construction material		subcontractor		Direct Cost Subtotal	
tem ID	Bid Item	Quantity	Unit	per unit	total	per unit	total	per unit	total	per unit	total	per unit	total	per unit	total
1100001	Mobilization	1	LSUM												
6020017	Conc Base Cse, Nonreinf, 7 inch	29	Syd	36.55	1,060.00	6.21	180.00	45.65	1,323.94	0.45	13.05	25.86	750.00	114.72	3,326.99
6030030	Lane Tie, Epoxy Anchored	32	Ea	11.72	375.00	3.75	120.00	4.51	144.16	0.00	0.00	0.00	0.00	19.97	639.16
8020016	Curb & Gutter, Conc, Det B2	143	Ft	20.38	2,915.00	3.46	495.00	18.89	2,700.67	1.91	273.00	5.24	750.00	49.89	7,133.67
8030010	Detectable Warning Surface	30	Ft	25.50	765.00	0.00	0.00	38.16	1,144.80	0.00	0.00	0.00	0.00	63.66	1,909.80
8030030	Curb Ramp Opening, Conc	33	Ft	24.09	795.00	4.09	135.00	18.58	613.10	1.44	47.50	0.00	0.00	48.20	1,590.60
8030046	Sidewalk, Conc, 6 inch	340	Sft	5.46	1,855.00	0.93	315.00	4.58	1,558.20	0.26	90.00	1.10	375.00	12.33	4,193.20
8032002	Curb Ramp, Conc, 6 inch	346	Sft	5.36	1,855.00	0.91	315.00	4.65	1,608.02	0.29	101.00	1.08	375.00	12.29	4,254.02
					9,620.00		1,560.00		9,092.89		524.55		2,250.00		23,047.44

Overhead / Indirect Costs

- Job Related Overhead / Indirect Costs
  - Employee drinking water / sanitary needs
  - Employee Protective Equipment
  - Multiple crew supervision / management staff
  - Travel expenses

- Home Office Overhead / Indirect
  - Cost to run your office & management
  - Financing / Interest / cash flow expense
  - Apply as a daily rate or percentage of something

Home Office Overhead

Estimated at $ 300,000 per year

+/- 150 workdays in highway construction season

Want +/- $ 2000 / day as home office overhead

				Direct Cost Subtotal		overhead		subtotal	
Item ID	Bid Item	Quantity	Unit	per unit	total	per unit	total	per unit	total
1100001	Mobilization	1	LSUM						
6020017	Conc Base Cse, Nonreinf, 7 inch	29	Syd	114.72	3,326.99	22.99	666.67	137.71	3,993.66
6030030	Lane Tie, Epoxy Anchored	32	Ea	19.97	639.16	7.81	250.00	27.79	889.16
8020016	Curb & Gutter, Conc, Det B2	143	Ft	49.89	7,133.67	12.82	1,833.33	62.71	8,967.00
8030010	Detectable Warning Surface	30	Ft	63.66	1,909.80	16.67	500.00	80.33	2,409.80
8030030	Curb Ramp Opening, Conc	33	Ft	48.20	1,590.60	15.15	500.00	63.35	2,090.60
8030046	Sidewalk, Conc, 6 inch	340	Sft	12.33	4,193.20	3.43	1,166.67	15.76	5,359.87
8032002	Curb Ramp, Conc, 6 inch	346	Sft	12.29	4,254.02	3.37	1,166.67	15.67	5,420.69
					23,047.44		6,083.33		29,130.78

Risk / Profit / Proposal

- Factors to consider in determining Profit
  - Risk
  - Does the work match your company's skills
  - Your workload / backlog
  - Project schedule
  - Market conditions
- Ways to calculate Profit
  - Percentage of total cost
  - Percentage of risk work category – labor, equipment, materials
  - Contribution per day / per crew

Risk / Profit / Proposal

- Assessment of risk – Risks for this Project
  - MDOT imposed risks, i.e.: schedule, LDs, traffic restrictions
  - Confidence with your assumed production
    - ❖ Do you have job cost history data?
  - Conditions you have no control of
    - ❖ How weather dependent is your work?
    - ❖ Could you have material availability issues?
    - ❖ How good is the Prime Contractor you are quoting?
    - ❖ How dependent is your work to another contractors finish product?
    - ❖ Potential scheduling issues?

Risk / Profit / Proposal

- Control risk by your proposal terms & conditions
  - Identify possible long lead items or schedule concerns in your proposal, minimum notice to schedule your work
  - Identify the minimum duration you need to complete your work
  - Identify any work you do not include that would typically be part of an item you are quoting or shared with another trade
  - Confirm tolerances or conditions the contractor you follow must leave for you
  - State your proposal is conditioned on reaching mutually agreeable contract terms

Profit Analysis – Item 10

- Risks to consider
  - Weather – could loose a day with rain – currently expect it will be 3 days of work
  - Material overruns or short pours for some reason causing additional concrete supplier charges
  - May not have as many QC days if we can schedule pours in such a way to qualify for Reduced Testing SP
  - Concrete Base Csc and or Lane Tie quantities may change (reduce) depending on what is found after existing removals.
  - Potential price adjustment on Concrete Base Csc. - SP
  - Market Conditions???

Proposal conditions to include

- Our proposal is strictly conditioned on mutually agreeable contract terms can be reached
- All grades prepared by others will be compacted and graded to MDOT specifications and excess aggregate base material will be available at no cost if the grade is consistently on the low side of MDOT's tolerances
- The project schedule will be shared with us and updated on a regular bases as it may impact when our work will be needed
- Expect 1 week in any schedule for the placement and cure of our concrete work
- One mobilization is included in our price, any additional mobilizations will be $ 1,500 each

Profit calculation

- Assume we loss one day to weather – need one extra crew day & home office overhead
- +/- $ 3,500 + $ 2,000 = $ 5,500 +/- 33% of labor, equip., & OH
- Assume we could have unexpected additional material and / or QC testing
- 10% of $9,090 = $ 909
- Extra QC trip = +/- $750

- Spread +/- $ 6,000 and evaluate

				subtotal		profit		totals		Ajusted Totals	
Item ID	Bid Item	Quantity	Unit	per unit	total	per unit	total	per unit	total	per unit	total
1100001	Mobilization	1	LSUM								
6020017	Conc Base Cse, Nonreinf, 7 inch	29	Syd	137.71	3,993.66	26.26	761.59	163.97	4,755.25	100.00	2,900.00
6030030	Lane Tie, Epoxy Anchored	32	Ea	27.79	889.16	8.13	260.27	35.92	1,149.43	20.00	640.00
8020016	Curb & Gutter, Conc, Det B2	143	Ft	62.71	8,967.00	13.99	2,000.37	76.69	10,967.37	85.00	12,155.00
8030010	Detectable Warning Surface	30	Ft	80.33	2,409.80	17.73	531.93	98.06	2,941.73	100.00	3,000.00
8030030	Curb Ramp Opening, Conc	33	Ft	63.35	2,090.60	16.16	533.21	79.51	2,623.81	85.00	2,805.00
8030046	Sidewalk, Conc, 6 inch	340	Sft	15.76	5,359.87	3.70	1,256.92	19.46	6,616.79	20.00	6,800.00
8032002	Curb Ramp, Conc, 6 inch	346	Sft	15.67	5,420.69	3.65	1,261.90	19.31	6,682.59	20.00	6,920.00
					29,130.78		6,606.19		35,736.96		35,220.00
							23%				21%
										54%	6,089.22
										of L & E	

B H Concrete

Construction, LLC **Detroit, MI**

Date 08/31/23

Quote:

MDOT Item 2308-010
Due 09/01/23 at 10:30 AM
Project 58071-120343
Traffic Signals on M-125, Monroe County

Line No.	Item ID	Description	Quantity	Unit	Unit Price	Total
0085	6020017	Conc Base Cse, Nonreinf 7 inch	29.000	SYD	100.00	2,900.00
0090	6030030	Lane Tie, Epoxy Anchored	32.000	EA	20.00	640.00
0100	8020016	Curb & Gutter, Conc, Det B2	143.000	Ft	85.00	12,155.00
0105	8030010	Detectable Warning Surface	30.000	Ft	100.00	3,000.00
0110	8030030	Curb Ramp, Opening, Conc	33.000	Ft	85.00	2,805.00
0115	8030046	Sidewalk, Conc, 6 inch	340.000	Sft	20.00	6,800.00
0120	8032002	Curb Ramp, Conc, 6 inch	346.000	Sft	20.00	6,920.00
					Total	35,200.00

Conditions:

1. Our proposal is strictly conditioned on mutually agreeable contract terms can be reached.
2. All grades prepared by others will be compacted and graded to MDOT specifications and excess aggregate base material will be made available to BH Concrete at no cost if the grade is consistently on the low side of MDOT's tolerances.
3. The project schedule will be shared with BH Concrete and update on a regular bases as it may impact when our work will be needed.
4. Expect one (1) week in any schedule for the placement and cure of our concrete work.
5. This quote includes one (1) mobilization to the project to complete all of our work. Any additional mobilizations will be at $ 1,500.00 each.

Thank you for the opportunity to you this project. Should you have any questions please contact the undesigned. Good Luck.

BH Concrete Construction LLC

John Otto
Owner
XXX-XXX-XXXX

			Contractor A		Contractor B		Contractor C **		BH Concrete	
Mobilization	1	LSUM							0.00	0.00
Conc Base Cse, Nonreinf, 7 inch	29	Syd							100.00	2,900.00
Lane Tie, Epoxy Anchored	32	Ea							20.00	640.00
Curb & Gutter, Conc, Det B2	143	Ft							85.00	12,155.00
Detectable Warning Surface	30	Ft							100.00	3,000.00
Curb Ramp Opening, Conc	33	Ft							85.00	2,805.00
Sidewalk, Conc, 6 inch	340	Sft							20.00	6,800.00
Curb Ramp, Conc, 6 inch	346	Sft							20.00	6,920.00
				31,950.00		33,269.70		23,908.00		35,220.00
									over A	3,270.00
									over B	1,950.30
Contractor C also quoted removal, grading and aggregate base items.									over C	11,312.00

Questions?