

CHECKLIST TO DESIGNATE AREAS OF EVALUATION FOR REQUESTS FOR PROPOSAL (RFP)

MDOT PROJECT MANAGER Kyle Rudlaff			JOB NUMBER (JN) 79871C	CONTROL SECTION (CS) 11015
DESCRIPTION IF NO JN/CS				
MDOT PROJECT MANAGER: Check all items to be included in RFP. WHITE = REQUIRED GRAY SHADING = OPTIONAL			CONSULTANT: Provide only checked items below in proposal.	
Check the appropriate Tier in the box below				
<input type="checkbox"/> TIER I (\$25,000-\$99,999)	<input type="checkbox"/> TIER II (\$100,000-\$250,000)	<input checked="" type="checkbox"/> TIER III (>\$250,000)		
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Understanding of Service	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Innovations</i>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Safety Program</i>	
N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Organization Chart	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Qualifications of Team	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Past Performance	
Not required as part of official RFP	Not required as part of official RFP	<input type="checkbox"/>	Quality Assurance/Quality Control	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Location: The percentage of work performed in Michigan will be used for all selections unless the project is for on-site inspection or survey activities, then location should be scored using the distance from the consultant office to the on-site inspection or survey activity.	
N/A	N/A	<input type="checkbox"/>	Presentation	
N/A	N/A	<input type="checkbox"/>	Technical Proposal (if Presentation is required)	
3 pages (MDOT forms not counted) (No Resumes)	7 pages (MDOT forms not counted)	19 pages (MDOT forms not counted)	Total maximum pages for RFP not including key personnel resumes	

REQUEST FOR PROPOSAL

The Michigan Department of Transportation (MDOT) is seeking professional services for the project contained in the attached scope of services.

If your firm is interested in providing services, please indicate your interest by submitting a Proposal, Proposal/Bid Sheet or Bid Sheet as indicated below. The documents must be submitted in accordance with the latest "Consultant/Vendor Selection Guidelines for Service Contracts" and "Guideline for Completing a Low Bid Sheet(s)", if a low bid is involved as part of the selection process. **Referenced Guidelines are available on MDOT's website under Doing Business > Vendor/Consultant Services > Vendor/Consultant Selections.**

RFP SPECIFIC INFORMATION

☒ BUREAU OF HIGHWAYS ☐ BUREAU OF TRANSPORTATION PLANNING ** ☐ OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS

☒ NO ☐ YES DATED _____ THROUGH _____

<input checked="" type="checkbox"/> Prequalified Services – See page <u>1</u> of the attached Scope of Services for required Prequalification Classifications.	<input type="checkbox"/> Non-Prequalified Services - If selected, the vendor must make sure that current financial information, including labor rates, overhead computations, and financial statements, if overhead is not audited, is on file with MDOT's Office of Commission Audits. This information must be on file for the prime vendor and all sub vendors so that the contract will not be delayed. (Form 5100J Required with Proposal)
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☒ **Qualifications Based Selection** – Use Consultant/Vendor Selection Guidelines

For all Qualifications Based Selections, the section team will review the information submitted and will select the firm considered most qualified to perform the services based on the proposals. The selected vendor will be contacted to confirm capacity. Upon confirmation, that firm will be asked to prepare a priced proposal. Negotiations will be conducted with the firm selected.

****For RFP's that originate in Bureau of Transportation Planning only**, a priced proposal must be submitted at the same time as, but separate from, the proposal. Submit directly to the Contract Administrator/Selection Specialist, Bureau of Transportation Planning (see address list, page 2). The priced proposal must be submitted in a sealed envelope, clearly marked **"PRICE PROPOSAL."** The vendor's name and return address **MUST** be on the front of the envelope. The priced proposal will only be opened for the highest scoring proposal. Unopened priced proposals will be returned to the unselected vendor(s). Failure to comply with this procedure may result in your priced proposal being opened erroneously by the mail room.

For a cost plus fixed fee contract, the selected vendor must have a cost accounting system to support a cost plus fixed fee contract. This type of system has a job-order cost accounting system for the recording and accumulation of costs incurred under its contracts. Each project is assigned a job number so that costs may be segregated and accumulated in the vendor's job-order accounting system.

☐ **Qualifications Review / Low Bid** - Use Consultant/Vendor Selection Guidelines. See Bid Sheet Instructions for additional information.

For Qualification Review/Low Bid selections, the selection team will review the proposals submitted and post the date of the bid opening on the MDOT website. The notification will be posted at least two business days prior to the bid opening. Only bids from vendors that meet proposal requirements will be opened. The vendor with the lowest bid will be selected. The selected vendor may be contacted to confirm capacity.

☐ **Best Value** - Use Consultant/Vendor Selection Guidelines. See Bid Sheet Instructions below for additional information. The bid amount is a component of the total proposal score, not the determining factor of the selection.

☐ **Low Bid** (no qualifications review required - no proposal required.) See Bid Sheet Instructions below for additional instructions.

BID SHEET INSTRUCTIONS

A bid sheet(s) must be submitted in accordance with the "Guideline for Completing a Low Bid Sheet(s)" (available on MDOT's website). The Bid Sheet(s) is located at the end of the Scope of Services. Submit bid sheet(s) separate from the proposal, to the address indicated below. The bid sheet(s) must be submitted in a sealed manila envelope, clearly marked **"SEALED BID."** The vendor's name and return address **MUST** be on the front of the envelope. Failure to comply with this procedure may result in your bid being opened erroneously by the mail room and the bid being rejected from consideration.

PROPOSAL SUBMITTAL INFORMATION

REQUIRED NUMBER OF COPIES FOR PROJECT MANAGER 4	PROPOSAL/BID DUE DATE 1/12/10	TIME DUE 4:00 P.M.
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PROPOSAL AND BID SHEET MAILING ADDRESSES

Mail the multiple proposal bundle to the MDOT Project Manager or Other indicated below.

☒ MDOT Project Manager ☐ MDOT Other

Kyle Rudlaff
MDOT, Coloma TSC
3880 Red Arrow Hwy
Benton Harbor, MI 49022

Mail one additional stapled copy of the proposal to the Lansing Office indicated below.

Lansing Regular Mail	OR	Lansing Overnight Mail
<input checked="" type="checkbox"/> Secretary, Contract Services Div - B470 Michigan Department of Transportation PO Box 30050 Lansing, MI 48909		Secretary, Contract Services Div - B470 Michigan Department of Transportation 425 W. Ottawa Lansing, MI 48933
<input type="checkbox"/> Contract Administrator/Selection Specialist Bureau of Transportation Planning B470 Michigan Department of Transportation PO Box 30050 Lansing, MI 48909		Contract Administrator/Selection Specialist Bureau of Transportation Planning B470 Michigan Department of Transportation 425 W. Ottawa Lansing, MI 48933

GENERAL INFORMATION

Any questions relative to the scope of services must be submitted by e-mail to the MDOT Project Manager. Questions must be received by the Project Manager at least four (4) working days prior to the due date and time specified above. All questions and answers will be placed on the MDOT website as soon as possible after receipt of the questions, and at least three (3) days prior to the RFP due date deadline. The names of vendors submitting questions will not be disclosed.

MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to apply. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal

MDOT FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION

- 5100D** – Request for Proposal Cover Sheet
- 5100G** – Certification of Availability of Key Personnel
- 5100I** – Conflict of Interest Statement
- 5100J** - Consultant Data and Signature Sheet (Required only for Non-Prequalified Work)

(These forms are not included in the proposal maximum page count.)

Notification

ARRA MONTHLY EMPLOYMENT REPORTS

Note: This Notification is only applicable for those projects/contracts funded with ARRA funds. If you have questions, please contact MDOT Contract Services Division at (517) 335-0071.

The American Recovery and Reinvestment Act of 2009 (ARRA), requires states receiving stimulus funds for highway projects to provide monthly reports to the Federal Highway Administration (FHWA) regarding the number of employees of prime contractors, all-tier subcontractors and consultants on ARRA funded projects.

The cost for complying with this Notification must be borne by the prime contractor, and all-tiers of subcontractors and consultants, as part of their overhead and is deemed to be included in the payments made under this contract.

Within 10 days after the end of each month in which work is performed on this contract, all prime contractors, and all-tier subcontractors and consultants, must provide the Engineer a monthly report on form FHWA-1589 (<http://www.fhwa.dot.gov/economicrecovery/reportingforms.htm>) providing employment information on each ARRA project, which will include, for work performed in that preceding month:

- The total number of employees who performed work on this contract
- The total number of hours worked by employees who performed work on this contract
- The total wages of employees who performed work on this contract

In addition, the prime contractor must provide a total payment amount made to any subcontractor who is a certified DBE in that preceding month.

This Notification shall be included as a part of each subcontract executed by the prime contractor, and all-tiers of subcontractors and consultants.

If necessary to conform to guidance provided by FHWA concerning the ARRA reporting requirements, the prime contractor, and all-tiers of subcontractors and consultants will revise their reporting as directed by the Engineer.

Failure to comply with the reporting requirements under ARRA would jeopardize the Department's continued receipt of ARRA funding.

Accordingly, if a contractor or any-tier of subcontractor or consultant fails to comply with this Notification, the Department may withhold contract payments until compliance is achieved. If the Department is compelled to incur costs because of such a breach, the amount of those costs may be deducted from payments otherwise to be made under this contract. Additional sanctions may include reduction or elimination of prequalification ratings and removal of bidding privileges.

NOTIFICATION
REQUIRED CONTRACT PROVISIONS TO IMPLEMENT AMERICAN
RECOVERY AND REINVESTMENT ACT (ARRA) SECTIONS 902 AND 1515

Note: This Notification is only applicable for those projects/contracts funded with ARRA funds. If you have questions, please contact MDOT Contract Services Division at (517) 335-0071.

In accordance with requirements under section 902 of the American Recovery and Reinvestment Act of 2009 (ARRA), the following language is made a part of this contract and is to be made a part of all tier subcontracts or consultant contracts:

The U.S. Comptroller General and his representatives have the authority:

- (1) to examine any records of the contractor or any of its subcontractors, or any State or local agency administering such contract, that directly pertain to, and involve transactions relating to, the contract or subcontract; and
- (2) to interview any officer or employee of the contractor or any of its subcontractors, or of any State or local government agency administering the contract, regarding such transactions.

The Comptroller General and his representatives have the authority and rights provided under Section 902 of the ARRA with respect to this contract. As provided in section 902, nothing in section 902 shall be interpreted to limit or restrict in any way any existing authority of the Comptroller General.

In accordance with the requirements of section 1515(a) of the ARRA any representatives of the Inspector General have the authority:

- (1) to examine any records of the contractor or grantee, any of its subcontractors or subgrantees, or any State or local agency administering such contract, that pertain to, and involve transactions relating to the contract, subcontract, grant, or subgrant; and
- (2) to interview any officer or employee of the contractor, grantee, subgrantee or agency regarding such transactions.

Nothing set forth in section 1515 of the ARRA shall be interpreted to limit or restrict in any way any existing authority of an inspector general.

Michigan Department of Transportation

SCOPE OF SERVICE FOR DESIGN SERVICES

CONTROL SECTION(S): 11015

JOB NUMBER(S): 79871C

PROJECT LOCATION:

The project is located on I-94 eastbound from Sawyer Road to 0.5 miles east of Red Arrow Highway (Exit 16) in the city of Bridgman, Chikaming Township, and Lake Township in Berrien County. The project length is 4.1 miles.

PROJECT DESCRIPTION:

Provide design services for HMA milling and resurfacing, shoulder widening, culvert replacement, guardrail replacement, cable barrier replacement, right-of-way fence replacement, clearing, and freeway sign upgrade.

ANTICIPATED SERVICE START DATE: April 27, 2010

ANTICIPATED SERVICE COMPLETION DATE: December 21, 2012

PRIMARY PREQUALIFICATION CLASSIFICATION(S):

Roadway Rehabilitation & Rural Freeways

SECONDARY PREQUALIFICATION CLASSIFICATION(S):

Geotechnical Engineering Services

Hydraulics

Maintaining Traffic Plans and Provisions

Pavement Marking Plans

Permanent Freeway Traffic Signing Plans

Road Design Surveys

DBE REQUIREMENT: 7%

MDOT PROJECT ENGINEER MANAGER:

Kyle Rudlaff, Transportation Engineer 13 Licensed Specialist

Southwest Region/Coloma TSC

Coloma TSC, 3880 Red Arrow Highway, Benton Harbor, MI 49022

Phone Number: (269) 849-2347

Fax Number: (269) 849-1227

E-mail: rudlaffk@michigan.gov

CONSTRUCTION COST:

A. The estimated cost of construction is:

1.	Mainline Pavement	\$ 7,500,000
2.	Drainage	\$ 1,000,000
3.	Permanent Barrier	\$ 750,000
4.	Maintaining Traffic	\$ 1,000,000
5.	Permanent Pavement Markings/Signs	\$ 250,000
6.	Mobilization/Staking	\$ 1,000,000
7.	Restoration/Clearing/Fence	\$ 500,000
8.	Miscellaneous	\$ 1,000,000
9.	Contingency	\$ 500,000
	CONSTRUCTION TOTAL	\$ 13,500,000

B. The estimated cost of real estate is: \$0

The above construction total is the amount of funding programmed for this project. The Consultant is expected to design the project within the programmed amount.

If at any time the estimated cost of construction varies by more than 5% of the current programmed amount, then the Consultant will be required to submit a letter to the MDOT Project Manager justifying the changes in the construction cost estimate.

REQUIRED MDOT GUIDELINES AND STANDARDS:

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., Road Design Manual, Standard Plans, Drainage Manual, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

NOTE: A process change mandated by federal audit of MDOT's design process puts the Omissions and Errors Check Meeting after the Plan Completion. Please keep this in mind when preparing your schedule. See MDOT Road Design Manual, Chapter 14 – Procedures – Section 14.54 for corroboration. See "For Your Information" contacts at the end of this document for more info or questions.

Consultant is required to use MDOT's current version of Bentley MicroStation for CADD applications and Bentley GEOPAK for road design. Consultant shall comply with all MDOT CADD standards and file naming conventions.

GENERAL INFORMATION:

The design services requested consists of all design related to this I-94 eastbound hot mix asphalt resurfacing project. The below listed items provide a supplemental description of the project and deliverables to be provided by the Consultant. The project includes, but is not limited to the following items:

1. The project is described in the Scope Verification Meeting Minutes. See Attachment D.
2. Design mainline resurfacing treatment according to the concept in Attachment D, Scope Verification Meeting Minutes. The pavement treatment includes crown point relocation, cross slope upgrade, shoulder widening, HMA base course replacement placement, and shoulder widening. The leading maintenance of traffic (MOT) concept involves construction of the median shoulder prior to providing treatment on the traffic lanes. The plans shall provide construction grades to accomplish work in this sequence. The level of design effort is more intense in this instance than milling and resurfacing that uses slope control in the field to dictate grades.
3. The Consultant shall provide an independent geometric element report with the base plans in a format similar to the one provided in Attachment D titled “Level One Design Criteria Checklist – Existing and Proposed.” An updated report shall be provided by the Consultant with the Preliminary Plans and the OEC Plans.
4. The Consultant shall provide removal, construction, and profile sheets for this project.
5. Design a ramp extension for the I-94 EB entrance ramp from Sawyer Road and the I-94 exit ramp at Red Arrow Highway.
6. The Browntown road bridge (S11 of 11015) is the only structure over I-94 within the project limits. Structure vertical clearance measurements shall be obtained by MDOT.
7. Complete project drainage design. Replace all small culverts under I-94 eastbound as listed in the Scope Verification Meeting Minutes and replace all median draining culverts under I-94 eastbound. For pipes continuous under both bounds of I-94, place a new drainage structure over the pipe in the center of the median and then replace the pipe under I-94 EB with open cut construction. Special staging design will be required to maintain the drainage flows, protect traffic from excavations, and complete the construction while maintaining two lanes of traffic. Hydraulic calculations and design of new drainage pipes is to be done. Note the locations of standing water on the roadside and propose ditching or other measures to improve roadway drainage. Provide permit diagrams and permit information for MDEQ permit applications at all locations indicated by MDOT. The permit applications will be completed and submitted by MDOT. Reconfigure existing drainage inlets in the median to conform to the proposed median ditch, which has a shallower depth than the existing median

ditch. It is anticipated that at the location of each existing culvert draining the median, a drainage structure shall be added in the median so ditch flows can be received and adequate cover provided over the new pipes.

8. The design plans shall show vegetation being cleared from the edge of the I-94 shoulder to the top of the ditch back slope, or 12 feet outside the ditch bottom, or to the existing MDOT ROW line, whichever is least.
9. Design the maintenance of traffic for all project work. The Consultant shall complete a Mobility Analysis and Transportation Management Plan for this project as described in the MDOT Work Zone Safety and Mobility Manual. Traffic Restrictions for I-94 are that two lanes of I-94 EB traffic are to be maintained for all work where this is feasible. One lane of I-94 EB traffic may be maintained from 7:00 p.m. to 12:00 p.m. (noon) to complete work in the center lane, install workzone pavement markings and barrier, and shift workzone traffic patterns. Design traffic staging for culvert replacements to be made with an open cut trench. Prepare different staging alternatives, including cost estimates, for culvert replacement work. The MOT signing plan will show the sign location and legend for each sign used in each sequence. The single lane closure convertible to a double lane closure will be located such that it will be in the same location for the entire project. Lanes shall always be closed starting from the left. Traffic shifts will be utilized to transition traffic to the left or right as necessary.
10. Photogrammetry product is available to provide graphics for the plan sheets. MDOT will be providing most of the supplemental design survey. It will include a digital terrain model for pavement surfaces and cross section every one hundred feet from I-94 WB to the ROW line along I-94 EB. See Attachment B for details. One Consultant survey task included in this project is to review the topography provided from the photogrammetry file with on-site observations and make updates to the topography data.
11. All soil erosion control items must be shown on plan and profile sheets with associated key numbers and notes where applicable. The Consultant will provide the design for these measures. MDOT staff will review measures shown on preliminary plans and make comments. The Consultant shall adjust the plan according to the comments.
12. Cost estimates in *.csv format are to be developed at base plan, preliminary plan, and final plan process steps. Independent cost estimates for comparing design alternatives are to be provided upon request.
13. Plans are to show existing utilities. Existing utility information is to be solicited by the Consultant. Information is to be transferred to the plans by the Consultant. The MDOT Project Manager will supply the forms to be utilized for corresponding with utilities. The Consultant will print and distribute the plans. The Design Consultant is to coordinate any communication with utilities with the MDOT Utilities Engineer. MDOT will coordinate utility relocations. The Coloma TSC Utility Engineer is Jarrett Burgess. He can be reached at phone number 269-849-1790.

14. Public involvement on this project is limited to supporting one public event by completing one flyer with graphics that describes the project, several displays depicting the project highlights, and attending one public meeting. The Consultant shall make allowance for two additional stakeholder meetings as may be scheduled to describe the project and discuss project impacts.
15. Reproduction of 12 sets of 11" x 17" Base Plans, 6 sets of Pre-OEC plans, and 12 sets of 11" x 17" OEC plans is to be performed by the Design Consultant. Shipping plan materials to the Project Manager in the base plan, Pre-OEC and the OEC distribution is to be performed by the consultant. A list will be provided by the Project Manager. The project manager will be provided another 5 sets of 11" x 17" plans-in-progress to review five weeks before the Plan Review Submission. All packages are to be accompanied by an 8.5" x 11" package with supplemental material. Reproduction is to be performed for two utility plan distributions with estimated ten 11" x 17" sets of plans shipped to the utility companies.
16. The OEC and final design package will be assembled and completed by the Consultant in the E-Plan and E-Proposal formats provided by MDOT. The matching *.csv file will accompany these items.
17. A period of approximately one year is expected between Consultant Plan Turn-in and the MDOT Plan Turn-in for letting. An allowance of Consultant hours to refresh the final package with mandated updates just prior to letting will be set up in the Consultant work plan.
18. Interim Consultant deliverables include CADD fence files of each sheet provided for base plans, preliminary plans, and final plans. No reference files are to be used and the display must replicate the plans submitted for the respective process step.
19. Final deliverables, including the survey are to be provided in 100% electronic format to the Project Manager. A paper portfolio of survey material is to be sent to the Southwest Region Surveyor for review when complete.
20. The Design Consultant must obtain prior approval from the MDOT Project Manager before charging of hours on a task in excess of the amount estimated in the work plan. The MDOT Project Manager reserves the option to delay approval of invoices when the cumulative amount charged exceeds the cumulative design progress.

CONSULTANT RESPONSIBILITIES:

Complete the design of this project including, but not limited to the following:

The Consultant must adhere to all applicable OSHA and MIOSHA safety standards, including the appropriate traffic signs for the activities and conditions for this job and perform field operations in accordance with the Department's Personal Protective Equipment (PPE) policy as stated in the MDOT Guidance Document #10118.

Meet with the MDOT Project Manager to review project, location of data sources and contact persons, and review relevant MDOT operations. The Consultant shall review and clarify project issues, data needs and availability, and the sequence of events and team meetings that are essential to complete the design by the project plan completion date. Attention shall be given to critical target dates that may require a large lead time, such as geotechnical requirements, ROW submittal dates, Railroad coordination requirements, utility conflict resolution, local agency meetings, etc.

- A. Perform design surveys.
- B. Prepare required plans, typical cross-sections, details, and specifications required for design and construction.
- C. Compute and verify all plan quantities.
- D. Prepare staging plans and special provisions for maintaining traffic during construction.
- E. Provide solutions to any unique problems that may arise during the design of this project.
- F. The Consultant may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.
- G. Maintain a Design Project Record which includes a history of significant events (changes, comments, etc.) which influenced the development of the plans, dates of submittals and receipt of information.
- H. If excavation is required, submit the excavation locations which may contain contamination. Project Manager then can proceed in requesting a Preliminary Project Assessment (PPA).
- I. The Consultant shall be required to prepare and submit a CPM network for the construction of this project.
- J. The Consultant representative shall record and submit type-written minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Consultant shall also distribute the minutes to all meeting attendees. MDOT will provide and distribute official meeting minutes for the Plan Review Meeting.

- K. The Consultant will provide to MDOT at the scheduled submittal dates, copies of the required specifications and plan set materials for distribution by MDOT for all reviews for this project with the exception of The Plan Review. The Consultant shall contact the project manager prior to the submittal dates for the exact number of copies that will be required for submittal.
- L. Prepare and submit electronically (native format or Adobe PDF) any information, calculations, hydraulic studies, or drawings required by MDOT for acquiring any permit (ie. NPDES, DEQ, etc), approvals (i.e. county drain commission) and related mitigation. MDOT will submit permit requests.
- M. Attend any project-related meetings as directed by the MDOT Project Manager.
- N. Attend information meetings (i.e., public hearings, open houses, etc.) with the public and public officials to assist in responding to concerns and questions. May require the preparation of displays such as maps, marked-up plans, etc.
- O. The Consultant shall assist in the review of utility permit requests, incorporate the information in the design plans, and respond within 2 weeks from receipt of the permit.
- P. The MDOT Project Manager shall be the official MDOT contact person for the Consultant **and shall be made aware of all communications regarding this project**. The Consultant must either address or send a copy of all correspondence to the MDOT Project Manager. This includes all Subcontractor correspondence and verbal contact records.
- Q. The Consultant shall contact the MDOT Project Manager whenever discoveries or design alternatives have the potential to require changes in the scope, limits, quantities, costs, or right-of-way of the project.

UTILITIES

The Consultant shall be responsible for obtaining and showing on the plans the location and names of all existing utilities within the limits of the project. In the course of resolving utility conflicts, the Consultant shall make modifications to the plans or design details and provide assistance as directed by the MDOT Utility Permits Engineer and/or Project Manager. The Consultant shall attend any utility meetings called to ensure that the concerns are addressed on the plans involving utilities. The Consultant shall assist in the review of utility permit requests to ensure compatibility with the project. The Consultant will be responsible for miscellaneous staking of utilities.

TRAFFIC CONTROL

The Consultant shall be responsible for all traffic control required to perform the tasks as outlined in this Scope of Design Services. The Consultant will discuss the traffic control with the Coloma TSC Traffic and Safety Engineer prior to each work activity in the field. These operations are known to consist of survey operations, and culvert borings. The Traffic Control Typicals are found in Attachment B. The TSC Traffic and Safety Engineer is Gary Loyola. His contact information is Ph. 269-849-2346, and E-mail: loyolag@michigan.gov.

GEOTECHNICAL SERVICES

PPMS Task 3510 Roadway Geotechnical services consists of collection of two soil borings for the ramp extension of the I-94 EB entrance ramp from Sawyer Road, the exit ramp extension at Red Arrow Highway, and collection two soil borings for each existing small culvert (36" & smaller) being replaced. The purpose of the investigation is to identify need for additional culvert bedding for culvert pipe and end treatments. These samples are not structure borings. Requested service includes a report with analysis and recommendations.

MDOT PERMITS

The Consultant shall be responsible for obtaining up to date access permits and pertinent information for tasks in MDOT Right of Way (ROW). This information can be obtained through Joe Rios, Utilities/Permits Section, Real Estate Division at (517) 241-2103.

MONTHLY PROGRESS REPORT

On the first of each month, the Consultant Project Manager shall submit a monthly project progress report to the Project Manager.

MDOT RESPONSIBILITIES:

- A. Schedule and/or conduct the following:
 - 1. Project related meetings.
 - 2. The Plan Review
 - 3. Utility Meetings.
 - 4. Quantity summary sheets and final item cost estimates.
 - 5. Packaging of plans and proposal.
- B. Furnish Special Details and pertinent reference materials.
- C. Furnish prints of an example of a similar project and old plans of the area, if available. Furnish the E.A.

- D. Obtain all permits for the project as outlined in previous section.
- E. Coordinate any necessary utility relocation.
- F. Furnish FTP site for software download and instructions for the MDOT Stand Alone Proposal Estimator's Worksheet (SAPW).
- G. Pavement designs will be provided by MDOT.

DELIVERABLES:

The Consultant shall deliver all computer files associated with the project in their native format (spreadsheets, CADD files, GEOPAK files, etc.) on DVD, CD or uploaded to ProjectWise, as directed by the MDOT Project Manager. All CADD/GEOPAK files shall be created and identified with standard MDOT file names as shown in Appendix A of the Road Design Manual. It is the Consultant's responsibility to obtain up to date MicroStation and GEOPAK seed/configuration files necessary to comply with MDOT's CADD standards which are posted to the bulletin board system. When the use of GEOPAK road design software is necessary to develop plans all pay items shall be placed into the CADD file using GEOPAK's Design and Computation Manager so that Quantity Manager can be used to transfer pay item information to SAPW/Trns*port. Any CADD/GEOPAK files that do not conform to MDOT standards will be returned to the Consultant for correction at the Consultant's expense.

Proposal documents shall be submitted in their native format with standard naming conventions as well as combined into one Adobe PDF file in the sequence specified by MDOT. To provide text search capabilities the combined proposal shall be created by converting native electronic files to PDF. Scanning to PDF is discouraged except in instances where it is necessary to capturing a legally signed document or a hard copy version of a document is all that exists.

Plan files shall be submitted in their native dgn format with standard naming conventions as well as plotted into a combined Adobe PDF file. Plan sheets shall be plotted to Adobe PDF with full text search and level on/off capabilities in half size (11" x 17") formats. A full size title sheet shall be plotted stamped and signed then scanned for inclusion with the Adobe PDF set. The original title sheet will be sent to the MDOT Project Manager.

Stand Alone Proposal Estimator's Worksheet (SAPW) shall be used to generate the txt and csv files necessary for import into the Trns*port bid letting software. The SAPW files shall be transmitted electronically by the method specified by the MDOT Project Manager.

The project construction, removal and profile sheets will require a ratio (scale) of **1":100'** (**English Units**).

Other plan sheets that are required for this project shall be completed by the Consultant. These include, but are not limited to the following plan sheets:

- A. The title sheet. MDOT will provide a map of the area on a disk in our workstation format. If the map is not available, MDOT will provide a map that could be used. The Consultant shall be responsible for any revisions to the title sheet and the title sheet and map shall meet MDOT format and layout guidelines.
- B. Drainage Vicinity Sheets
- C. Alignment Sheets
- D. Note Sheet.
- E. Typical Cross-Sections.
- F. Project specific Special Details.
- G. Removal, Construction, and Profile Sheets
- H. Construction staging and traffic control plans.
- I. Workzone signing plan (s)
- J. Detail grade sheets for critical areas.
- K. Permanent signing plan(s).
- L. Pavement marking plan(s).
- M. Witness and benchmark sheet(s).
- I. Soil boring log sheet(s).

All plans, special provisions, estimates, and other project related items shall meet all MDOT requirements and detailing practices (i.e., format, materials, symbols, patterns, and layout) or as otherwise directed by the Project Manager. All plans, specifications, and other project related items are subject to review and approval by MDOT.

PROJECT SCHEDULE:

The Consultant shall use the following events to prepare the proposed implementation schedule as required in the Guidelines for the Preparation of Responses on Assigned Design Services Contracts. These dates shall be used in preparing the Consultant's Monthly Progress Reports.

	MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST	
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Please indicate with a check in the box next to each task number whether you believe that task will require consultant involvement on the job. Milestones (a specific event at a point in time) are italicized and underlined. See the [P/PMS Task Manual](#) for more details.

STUDY (EARLY PRELIMINARY ENGINEERING)

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY
YES	NO		(mm/dd/yyyy)
		<u>EPE SCOPING ANALYSIS</u>	
<input type="checkbox"/>	X	2120 Prepare Traffic Analysis Report	__/__/__
<input type="checkbox"/>	X	2130 Prepare Project Justification	__/__/__
<input type="checkbox"/>	X	<i><u>213M Concurrence by Regulatory Agencies with the Purpose and Need</u></i>	__/__/__
<input type="checkbox"/>	X	2140 Develop and Review Illustrative Alternatives	__/__/__
<input type="checkbox"/>	X	2155 Request/Perform Safety Analysis	__/__/__
<input type="checkbox"/>	X	2160 Prepare and Review EIS Scoping Document	__/__/__
<input type="checkbox"/>	X	<i><u>211M Public Information Meeting</u></i>	__/__/__
		<u>EPE DRAFT ANALYSIS</u>	
<input type="checkbox"/>	X	2310 Conduct Technical SEE Studies	__/__/__
<input type="checkbox"/>	X	2321 Prepare for Aerial Photography	__/__/__
<input type="checkbox"/>	X	2322 Finish/Print Aerial Photography	__/__/__
<input type="checkbox"/>	X	2330 Collect EPE Geotechnical Data	__/__/__
<input type="checkbox"/>	X	2340 Develop and Review Practical Alternatives	__/__/__
<input type="checkbox"/>	X	<i><u>233M Aerial Photography Flight</u></i>	__/__/__
<input type="checkbox"/>	X	2360 Prepare and Review EA or DEIS	__/__/__
<input type="checkbox"/>	X	<i><u>231M Draft Submission to FHWA</u></i>	__/__/__
<input type="checkbox"/>	X	2380 Circulate EA or DEIS	__/__/__
<input type="checkbox"/>	X	<i><u>232M Public Hearing</u></i>	__/__/__
		<u>EPE FINAL ANALYSIS</u>	
<input type="checkbox"/>	X	2510 Determine and Review Recommended Alternative	__/__/__
<input type="checkbox"/>	X	<i><u>250M Concurrence by Regulatory Agencies with Recommended Alternatives</u></i>	__/__/__
<input type="checkbox"/>	X	2525 Prepare and Review Engineering Report	__/__/__
<input type="checkbox"/>	X	2530 Prepare and Review Request for FONSI or FEIS	__/__/__
<input type="checkbox"/>	X	<i><u>252M Final Submission to FHWA</u></i>	__/__/__
<input type="checkbox"/>	X	2550 Obtain FONSI or ROD	__/__/__
		<u>CONTAMINATION INVESTIGATION</u>	
<input type="checkbox"/>	X	2810 Project Area Contamination Survey (PCS)	__/__/__
<input type="checkbox"/>	X	2820 Preliminary Site Investigation (PSI) for Contamination	__/__/__

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

PRELIMINARY ENGINEERING - DESIGN

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY
YES	NO		(mm/dd/yyyy)
		<u>DESIGN SCOPE VERIFICATION AND BASE PLAN PREPARATION</u>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3130 Verify Design Scope of Work and Cost	04/26/2010
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3310 Prepare Aerial Topographic Mapping	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3320 Conduct Photogrammetric Control Survey	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3321 Set Aerial Photo Targets	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3330 Conduct Design Survey	08/26/2010
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3340 Conduct Structure Survey	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3350 Conduct Hydraulics Survey	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3360 Prepare Base Plans	11/19/2010
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>331M Utility Notification</u>	11/19/2010
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3361 Review and Submit Preliminary ROW Plans	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>331M Preliminary ROW Plans Distributed</u>	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3370 Prepare Structure Study	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3375 Conduct Value Engineering Study	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3380 Review Base Plans	11/30/2010
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>332M Base Plan Review (Pre-GI Inspection)</u>	11/30/2010
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3390 Develop the Maintaining Traffic Concepts	11/30/2010
		<u>PRELIMINARY PLANS PREPARATION</u>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3510 Perform Roadway Geotechnical Investigation	8/16/2010
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3520 Conduct Hydraulic/Hydrologic and Scour Analysis	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3522 Conduct Drainage Study, Storm Sewer Design, and use Structural Best Management Practices	3/28/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3530 Conduct Structure Foundation Investigation	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3535 Conduct Structure Review for Architectural and Aesthetic Improvements	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3540 Develop the Maintaining Traffic Plan	03/28/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3551 Prepare/Review Preliminary Traffic Signal Design Plan	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3552 Develop Preliminary Pavement Marking Plan	03/28/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3553 Develop Preliminary Non-Freeway Signing Plan	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3554 Develop Preliminary Freeway Signing Plan	03/28/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3555 Prepare/Review Preliminary Traffic Signal Operations	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3570 Prepare Preliminary Structure Plans	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3580 Develop Preliminary Plans	03/28/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3581 Review and Submit Final ROW Plans	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>351M Final ROW Plans Distributed</u>	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3590 Review Preliminary Plans (Hold Plan Review Meeting)	05/13/2011
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>352M THE Plan Review (Grade Inspection)</u>	05/13/2011

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

PRELIMINARY ENGINEERING - DESIGN (cont'd)

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY
			(mm/dd/yyyy)
		<u>UTILITIES</u>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3610 Compile Utility Information	01/14/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3650 Coordinate RR Involvement for Grade Separations	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3655 Coordinate RR Involvement for At-Grade Crossings	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3660 Resolve Utility Issues	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i>360M Utility Conflict Resolution Plan Distribution</i>	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>361M Utility Meeting</i>	08/01/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3670 Develop Municipal Utility Plans	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3672 Develop Special Drainage Structures Plans	__/__/__
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3675 Develop Electrical Plans	__/__/__
		<u>MITIGATION/PERMITS</u>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3710 Develop Required Mitigation	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3720 Assemble Environmental Permit Applications	08/01/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3730 Obtain Environmental Permit	__/__/__
		<u>FINAL PLAN PREPARATION</u>	
		<u>PRE-OEC Plans</u>	09/09/2011
		<u>PRE- OEC Meeting</u>	09/23/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3821 Prepare/Review Final Traffic Signal Design Plan	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3822 Complete Permanent Pavement Marking Plan	10/21/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3823 Complete Non-Freeway Signing Plan	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3824 Complete Freeway Signing Plan	10/21/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3825 Prepare/Review Final Traffic Signal Operations	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3830 Complete the Maintaining Traffic Plan	10/21/2011
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3840 Develop Final Plans and Specifications	10/21/2011
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>380M Plan Completion</i>	10/21/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3850 Develop Structure Final Plans and Specifications	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3870 Hold Omissions/Errors Check (OEC) Meeting	11/18/2011
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>387M Omissions/Errors Checks Meeting</i>	11/18/2011
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>389M Plan Turn-In</i>	12/16/2011
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3880 CPM Quality Assurance Review	__/__/__

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

PRELIMINARY ENGINEERING – RIGHT OF WAY

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY
YES	NO		(mm/dd/yyyy)
		<u>EARLY RIGHT OF WAY WORK</u>	
<input type="checkbox"/>	X	4120 Obtain Preliminary Title Commitments	_/_/____
<input type="checkbox"/>	X	4130 Prepare Marked Final Right Of Way Plans	_/_/____
<input type="checkbox"/>	X	<i>413M Approved Marked Final ROW</i>	_/_/____
<input type="checkbox"/>	X	4140 Prepare Property Legal Instruments	_/_/____
		<u>ROW ACQUISITION</u>	
<input type="checkbox"/>	X	4411 Preliminary Interviews	_/_/____
<input type="checkbox"/>	X	<i>441M Post-Decision Meeting</i>	_/_/____
<input type="checkbox"/>	X	4412 Real Estate Services Assignment Proposal and Fee Estimate (Form 633s) for Appraisal Work Authorization	_/_/____
<input type="checkbox"/>	X	4413 Appraisal Reports	_/_/____
<input type="checkbox"/>	X	4420 Appraisal Review Reports	_/_/____
<input type="checkbox"/>	X	4430 Acquire Right Of Way Parcels	_/_/____
<input type="checkbox"/>	X	4510 Conduct Right Of Way Survey & Staking	_/_/____
		<u>ROW RELOCATION</u>	
<input type="checkbox"/>	X	4710 Relocation Assistance	_/_/____
<input type="checkbox"/>	X	4720 Prepare Improvement Removal Plan	_/_/____
<input type="checkbox"/>	X	<i>442M ROW Certification</i>	_/_/____

FOR YOUR INFORMATION

For questions on specific tasks, refer to the P/PMS Task Manual located on the MDOT Bulletin Board System.

For assistance in accessing this manual, please contact one of following:

Dennis Kelley: (517) 373-4614

Tonya Nobach: (517) 335-1927

CONSULTANT PAYMENT – Actual Cost Plus Fixed Fee:

Compensation for this project shall be on an **actual cost plus fixed fee** basis. This basis of payment typically includes an estimate of labor hours by classification or employee, hourly labor rates, applied overhead, other direct costs, subconsultant costs, and applied fixed fee.

All billings for services must be directed to the Department and follow the current guidelines. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's website. This document contains instructions and forms that must be followed and used for billing. Payment may be delayed or decreased if the instructions are not followed.

Payment to the Consultant for services rendered shall not exceed the maximum amount unless an increase is approved in accordance with the contract with the Consultant. Typically, billings must be submitted within 60 days after the completion of services for the current billing. The final billing must be received within 60 days of the completion of services. Refer to your contract for your specific contract terms.

Direct expenses, if applicable, will not be paid in excess of that allowed by the Department for its own employees in accordance with the State of Michigan's Standardized Travel Regulations. Supporting documentation must be submitted with the billing for all eligible expenses on the project in accordance with the Reimbursement Guidelines. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the activities of this project.

The use of overtime hours is not acceptable unless prior written approval is granted by the MDOT Region Engineer/Bureau Director and the MDOT Project Manager. Reimbursement for overtime hours that are allowed will be limited to time spent on this project in excess of forty hours per person per week. Any variations to this rule should be included in the priced proposal submitted by the Consultant and must have prior written approval by the MDOT Region Engineer/Bureau Director and the MDOT Project Manager.

The fixed fee for profit allowed for this project is 11.0% of the cost of direct labor and overhead.

ATTACHMENT A
SURVEY SCOPE OF WORK
I-94 Eastbound from Sawyer to Bridgman

ATTACHMENT B
CONSULTANT TRAFFIC CONTROL
I-94 Eastbound from Sawyer to Bridgman

ATTACHMENT C
Utility Listing
I-94 Eastbound from Sawyer to Bridgman

ATTACHMENT D
Scope Verification Meeting
I-94 Eastbound from Sawyer to Bridgman

ATTACHMENT A

SURVEY SCOPE OF WORK

SURVEY PREQUALIFICATIONS: Road Design

MAPPING LIMITS: A PORTFOLIO as outlined in this section IS REQUIRED.

NOTES: The Consultant shall discuss the scope of this survey with the MDOT Project Manager before submitting a PRICE proposal.

Kyle Rudlaff, MDOT project manager at the Coloma TSC at 269- (269) 849-2347 or rudlaffk@michigan.gov

Erik J. Schnepf, PS, Region Surveyor, prepared this survey scope and can be reached at 269-337-3922 or schneppe@michigan.gov

The Consultant surveyor must contact the Region Traffic and Safety Engineer for work restrictions and traffic control in the project area prior to submitting a proposal.

A **detailed Survey Work Plan** showing timeframe with a **spreadsheet estimate** of hours by specific survey task such as DTM creation, traversing, leveling, mapping, etc., **must** be included in the project PRICE proposal.

It is the responsibility of the Professional Surveyor to safeguard all corners of the United States Public Land Survey System, published Geodetic Control and any other Property Controlling corners that may be in danger of being destroyed by the proposed construction project.

GENERAL REQUIREMENTS

1. Surveys must comply with **all Michigan law** relative to land surveying.
2. Surveys must be done under the **direct supervision** of a Professional Surveyor licensed to practice in the State of Michigan.
3. Work in any of the following categories of survey: Road Design, Bridge, Hydraulic, Right-of-Way, Ground Control (Photogrammetric), and/or Geodetic control, must be completed by a survey firm which is pre-qualified by MDOT.
4. Surveys must meet all requirements of the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated March, 2009. Please contact the Design Survey office to clarify any specific questions regarding these standards.

5. The Consultant is responsible for using the latest MDOT CAiCE Feature Codes, files and tugboat (macro), available on the MDOT File Transfer Protocol (FTP) site. **The CAiCE software used must be Version 10.2 or newer. The Consultant must also use MicroStation Version 8.**
6. Consultants must obtain all necessary permits required to perform this survey on any public and/or private property. This includes an up-to-date permit from the MDOT Utilities Coordination and Permits Section
7. Prior to performing the survey, the Consultant must contact all landowners upon whose lands they will enter. The contact may be personal, phone or letter, but must be documented. This notice must include the reasons for the survey on private land, the approximate time the survey is to take place, the extent of the survey including potential brush cutting, and an MDOT contact person (the MDOT project manager).
8. The Consultant must contact any and all Railroads prior to commencing field survey on railroad property. The cost for any permit, flaggers and/or training that is required by the Railroad will be considered as a direct cost, but only if included in the Consultant's proposal.
9. The Consultant must adhere to all applicable OSHA and MIOSHA safety standards, including the appropriate traffic signs for the activities and conditions for this job.
10. Consultants are responsible for a comprehensive and conscientious research of all records, including MDOT records, essential for the completion of this project.
11. Measurements, stationing, recorded data, and computations must be in **International Feet.**
12. Coordinate values must be based on the Michigan Coordinate System of 1983 (MCS 83), Appropriate Zone. All elevations must be based on the North American Vertical Datum of 1988 (NAVD88).
13. Specific requirements concerning the Control, Alignment, property, mapping, misc., of each survey portfolio will be described in the MDOT REQUEST FOR CONSULTANT SURVEY SERVICES letter as shown in Appendix A.
14. **MDOT QA/QC CERTIFICATION CHECK LIST** dated March 2006 will be used which can be obtained on the MDOT FTP site.
15. Current MDOT symbology must be used exclusively as shown on the MDOT FTP site. The FTP site for consultants is:
<ftp://ftp.michtrans.net>
username: survcons
password: \$urvcon\$

16. All data, whether electronic or paper, must be recorded on non-rewritable Compact Discs (CD's). All paper files, including MicroStation files, must be scanned and/or converted to Adobe Acrobat .PDF format. CD's must be organized in the same manner as the portfolio, such as by Administrative section, Control section, etc. A Table of Contents in Adobe Acrobat format is required that has all .PDF pages of the CD bookmarked/linked so each place in the .PDF archive can be accessed with a single click of the computer mouse. Specified format files such as ASCII text, CAiCE and MicroStation must have separate access.

CD's must be labeled with the route, location, control section, job number, Consultant name, and data type.

17. Each category of survey must be packaged separately (i.e., Structure survey separate from Road survey). All sheets in a portfolio must be marked with the control section, job number, portfolio section name, and page number.
18. The Consultant representative shall record and submit typewritten minutes for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Consultant shall also distribute the minutes to all meeting attendees.
19. The MDOT Project Manager is the official contact for the Consultant. The Consultant must either address, or send a copy of all correspondence to the MDOT Project Manager. The MDOT Project Manager shall be made aware of all communications regarding this project. Any questions regarding this award or any subsequent project should be directed to the Design Survey Consultant Coordinator Erik Schneppe- schneppe@michigan.gov.

All field survey notes, all electronic data, and all research records obtained for this project will be considered the property of MDOT and **must be sent to:**

MDOT Design Division
Erik J. Schneppe, PS
1501 E. Kilgore,
Kalamazoo, MI. 49001

Please use MDOT's Form 222(3/99) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL" for all transmittals. A copy of this transmittal form must also be sent to the MDOT Project Manager for Design.

WORK RESTRICTIONS

The Consultant must call the MDOT Region or TSC Traffic and Safety Engineer before submitting the Price Proposal to inform him/her of surveying activity in the area. The Consultant must discuss a Traffic Control and Safety plan with the Traffic and Safety Engineer prior to submitting a proposal. A copy of the Traffic Control and Safety plan must be submitted with the Price Proposal and used as a basis of bid for traffic control devices by at least three sources.

Traffic shall be maintained by the Consultant throughout the project to the satisfaction of the Traffic & Safety Engineer at all times. Any deviation from the Traffic Control and Safety plan without the Traffic and Safety Engineer approval can result in project delays.

FIELD SURVEY

The purpose of the field survey is to obtain all information and data required by the project design engineer, to leave control in the field for future construction staking, and to provide a sufficient history of the area to enable the MDOT Design Survey Unit to perform dependable surveys in the future.

CONTROL

MDOT has previously established Primary control/intermediate control and benchmarks throughout the project. The coordinates are Michigan Coordinates System of 1983 (MCS83), South Zone NAD88.

Additional intermediate control must follow the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated March, 2009. It is suggested that any control points needed for mapping purposes be placed on back slopes where possible and at least 12-15 feet from the edge of shoulder. Horizontal and vertical control spacing shall be set to meet the interstate spacing as described in the March 2008 Design Survey standards. Benchmarks can be set in the bridge wing walls.

LEGAL ALIGNMENT

A legal alignment will be determined for this project, which will be determined by MDOT.

ROW

The Easterly of Eastbound I-94 ROW lines will be staked with 5/8" by 36" iron bars at every P.C., P.T., angle point, change in ROW width along the I-94 alignment following MDOT design survey standards. The ROW line coordinates shall be determined every 500 feet by the Professional Surveyor. The ROW staking and coordinates determination shall be made for the Easterly side of the ROW. These points shall be used for fencing alignments. These coordinates shall be shown on the alignment drawing. This drawing will need to be part of the plan submittal. The ROW shall be staked up to the local road. The ramp area ROW shall also be staked. MDOT staff will stake and determine the ROW.

MAPPING

Currently MDOT plans to complete the mapping of this project. MDOT staff plans to provide the selected consultant the following mapping items.

- Cross sections of Eastbound I-94 will be taken at approximately 100 feet intervals throughout the project limits. Sample features include, edge of gravel shoulder, bottom of bank, etc. The selected consultant will not need to obtain cross sections for the traveled roadway. These cross sections shall extend from the Easterly edge of bit shoulder of East bound I-94 to the Easterly ROW of I-94.
- Cross sections at 100 foot intervals in the median between EB I-94 and the easterly shoulder of West bound I-94. No DTM of Westbound I-94 shall be given to the selected consultant.
- Locate visible utilities within project limits.
- All drainage pipes and structures will need to be located. Include the flow line elevation, material, end treatment, and condition. By the drainage structures locate the centerline ditch of the water course until it leaves MDOT's ROW. Also locate all drainage courses throughout the project limits within MDOT's ROW of I-94. Include the culvert information on all culverts under the service roads and flow line elevations of drainage courses leaving the ROW (on the west side of service road).
- under-clearance measurements at all bridge locations at the edge of gravel shoulder line, lane lines, and edge of shoulder for both Eastbound and Westbound I-94. The bridges to measure the under clearance is Brown Town Road (S11-11015),
- MDOT will also provide to the consultant the DTM road surface of Eastbound I-94. MDOT will not provide a DTM of the median.
- Provide 300 hours for contingency mapping. This would be directed by the MDOT project manger during design.
- If MDOT staff is unable to complete the above mapping of the project 700 hours of survey mapping/office work contingency mapping maybe required by the consultant. This would be determined at the pre-price proposal meeting.

FINAL REPORT: DELIVERABLES

The final report for this project shall meet the guidelines outlined in the MDOT Survey Standards of Practice dated March 2009

MINIMUM MERGING TAPER LENGTH "L" (FEET)

OFFSET	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										TAPER LENGTH "L" IN FEET
FEET	25	30	35	40	45	50	55	60	65	70	
1	10	15	20	27	45	50	55	60	65	70	
2	21	30	41	53	90	100	110	120	130	140	
3	31	45	61	80	135	150	165	180	195	210	
4	42	60	82	107	180	200	220	240	260	280	
5	52	75	102	133	225	250	275	300	325	350	
6	63	90	123	160	270	300	330	360	390	420	
7	73	105	143	187	315	350	385	420	455	490	
8	83	120	163	213	360	400	440	480	520	560	
9	94	135	184	240	405	450	495	540	585	630	
10	104	150	204	267	450	500	550	600	650	700	
11	115	165	225	293	495	550	605	660	715	770	
12	125	180	245	320	540	600	660	720	780	840	
13	135	195	266	347	585	650	715	780	845	910	
14	146	210	286	374	630	700	770	840	910	980	
15	157	225	307	400	675	750	825	900	975	1050	

THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:

"L" = $\frac{W \times S^2}{60}$ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 40 MPH OR LESS

"L" = S x W WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER

L = MINIMUM LENGTH OF MERGING TAPER

S = POSTED SPEED LIMIT IN MPH
PRIOR TO WORK AREA

W = WIDTH OF OFFSET

TYPES OF TAPERS

UPSTREAM TAPERS

MERGING TAPER

SHIFTING TAPER

SHOULDER TAPER

TWO-WAY TRAFFIC TAPER

DOWNSTREAM TAPERS

(USE IS OPTIONAL)

TAPER LENGTH

L - MINIMUM

1/2 L - MINIMUM

1/3 L - MINIMUM

100' - MAXIMUM

100' - MINIMUM

(PER LANE)



TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

TABLES FOR "L", "D" AND "B" VALUES

DRAWN BY: CON:AE:djf

JUNE 2006

CHECKED BY: BMM

PLAN DATE:

M0020a

SHEET
1 OF 2

FILE: K:/DGN/TSR/STDS/ENGLISH/MNTTRF/M0020a.dgn

REV. 08/21/2006

DISTANCE BETWEEN TRAFFIC CONTROL DEVICES "D"
AND LENGTH OF LONGITUDINAL BUFFER SPACE ON
"WHERE WORKERS PRESENT" SEQUENCES

"D" DISTANCES	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)									
	25	30	35	40	45	50	55	60	65	70
D (FEET)	250	300	350	400	450	500	550	600	650	700

GUIDELINES FOR LENGTH OF
LONGITUDINAL BUFFER SPACE "B"

SPEED* MPH	LENGTH FEET
20	33
25	50
30	83
35	132
40	181
45	230
50	279
55	329
60	411
65	476
70	542

* POSTED SPEED, OFF PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

1 BASED UPON AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS (A POLICY ON GEOMETRIC DESIGN OF HIGHWAY AND STREETS), AASHTO. THIS AASHTO DOCUMENT ALSO RECOMMENDS ADJUSTMENTS FOR THE EFFECT OF GRADE ON STOPPING AND VARIATION FOR TRUCKS.



TABLES FOR "L", "D" AND "B" VALUES

DRAWN BY: CON:AE:djf

JUNE 2006

M0020a

SHEET

CHECKED BY: BMM

PLAN DATE:

2 OF 2

FILE: K:/DGN/TSR/STDS/ENGLISH/MNTTRF/M0020a.dgn

REV. 08/21/2006

END
ROAD WORK

PLACE THIS SIGN ALONG WITH THE
ADVANCE WORK ZONE SIGNING AS
DEPICTED ON THE APPROPRIATE
TYPICAL M0030a-M0080a.

END
ROAD WORK

PLACE THIS SIGN ALONG WITH THE
ADVANCE WORK ZONE SIGNING AS
DEPICTED ON THE APPROPRIATE
TYPICAL M0030a-M0080a.



SPEED
LIMIT
X X
R2-1

PLACE THROUGHOUT WORK AREA
AS INDICATED AND AFTER ALL
ENTRANCE RAMP AND ALL MAJOR
CROSSROADS IF PERMANENT SIGNS
ARE NOT IN PLACE.

SPEED
LIMIT
X X
R2-1

PLACE THROUGHOUT WORK AREA
AS INDICATED AND AFTER ALL
ENTRANCE RAMP AND ALL MAJOR
CROSSROADS IF PERMANENT SIGNS
ARE NOT IN PLACE.

KEY

- • • CHANNELIZING DEVICES
-  LIGHTED ARROW PANEL (CAUTION MODE)
-  TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT
- * USE THE "NEXT -- MILES" SIGN WHEN SHOULDER CLOSURE EXCEEDS 1 MILE IN LENGTH

SIGN = 148 ft±2 - TYPE B
PLUS ADDITIONAL R2-1's
THROUGHOUT WORK AREA

SPEED
LIMIT
X X
R2-1

WORK
ZONE
BEGINS
R5-18c

SPEED
LIMIT
X X
R2-1

WORK
ZONE
BEGINS
R5-18c

RIGHT
SHOULDER
CLOSED
W21-5a

RIGHT
SHOULDER
CLOSED
AHEAD
W21-5b

NEXT
-- MILES
W20-1a *

ROAD
WORK
AHEAD
W20-1

ROAD
WORK
AHEAD
W20-1

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

TYPICAL TEMPORARY TRAFFIC CONTROL
FOR A SHOULDER CLOSURE ON A
DIVIDED ROADWAY OR FREEWAY
NO SPEED REDUCTION

DRAWN BY: CON:AE:djf
CHECKED BY: BMM

JUNE 2006
PLAN DATE:

M0880a

SHEET
1 OF 2

NOT TO SCALE

FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0880a.dgn REV. 08/21/2007

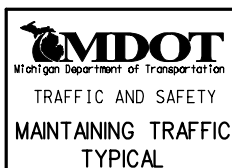
NOTES

1. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
1/3 L = MINIMUM LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER
SEE **M0020a** FOR "D," "L," AND "B" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, CHANNELIZING DEVICES SHALL BE LIGHTED PLASTIC DRUMS.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE 2005 EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
- 29A. THE TYPE OF REFLECTIVE SHEETING USED FOR THE W20-1a PLAQUE SHALL BE THE SAME AS THE TYPE USED FOR THE PARENT SIGN.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
W20-1a PLAQUE - 48" x 36"
R2-1 REGULATORY - 48" x 60"
R5-18c REGULATORY - 48" x 48"

NOT TO SCALE



TYPICAL TEMPORARY TRAFFIC CONTROL
FOR A SHOULDER CLOSURE ON A
DIVIDED ROADWAY OR FREEWAY
NO SPEED REDUCTION

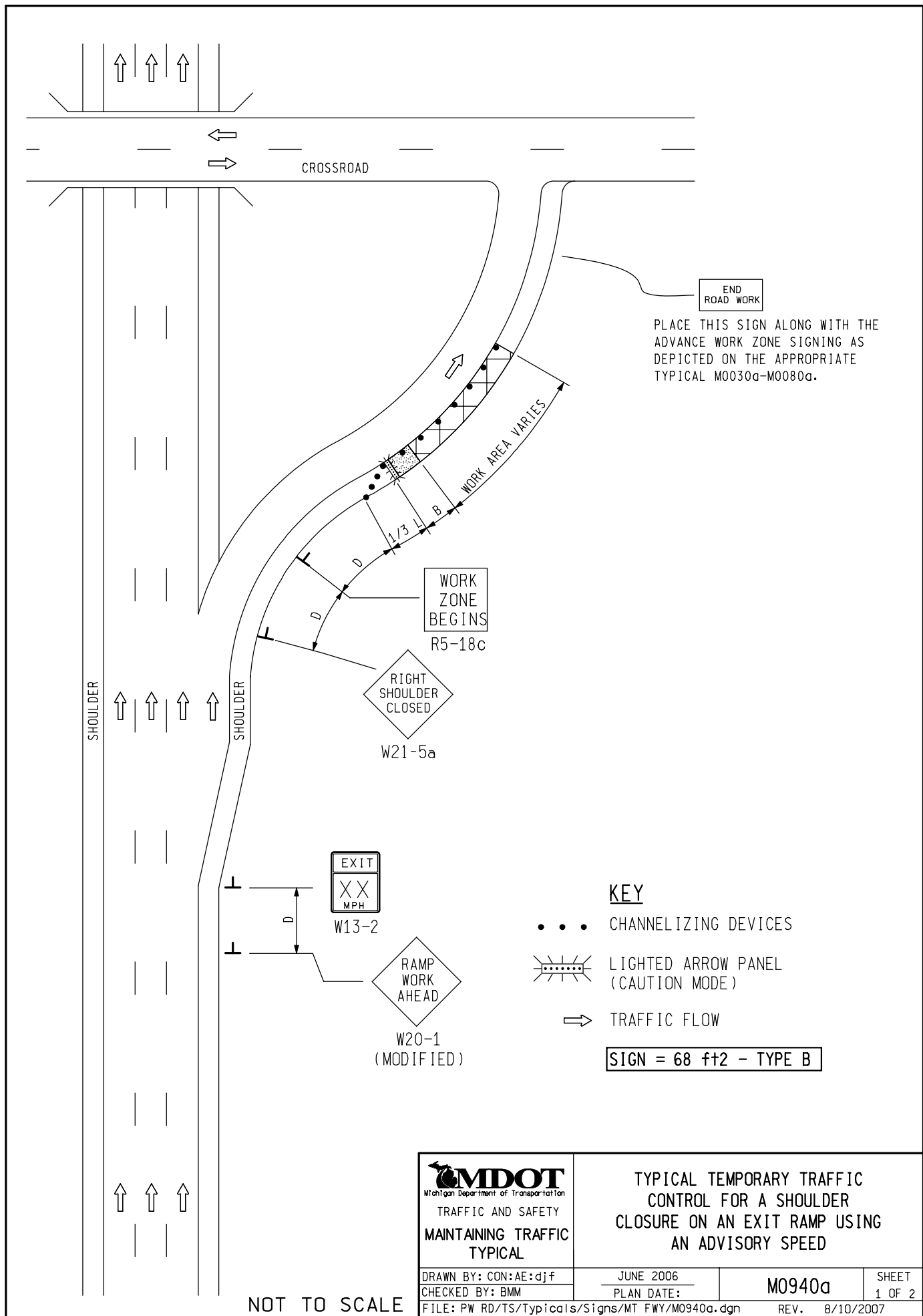
DRAWN BY: CON:AE:djf
CHECKED BY: BMM

JUNE 2006
PLAN DATE:

M0880a

SHEET
2 OF 2

FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0880a.dgn REV. 08/21/2007




NOTES

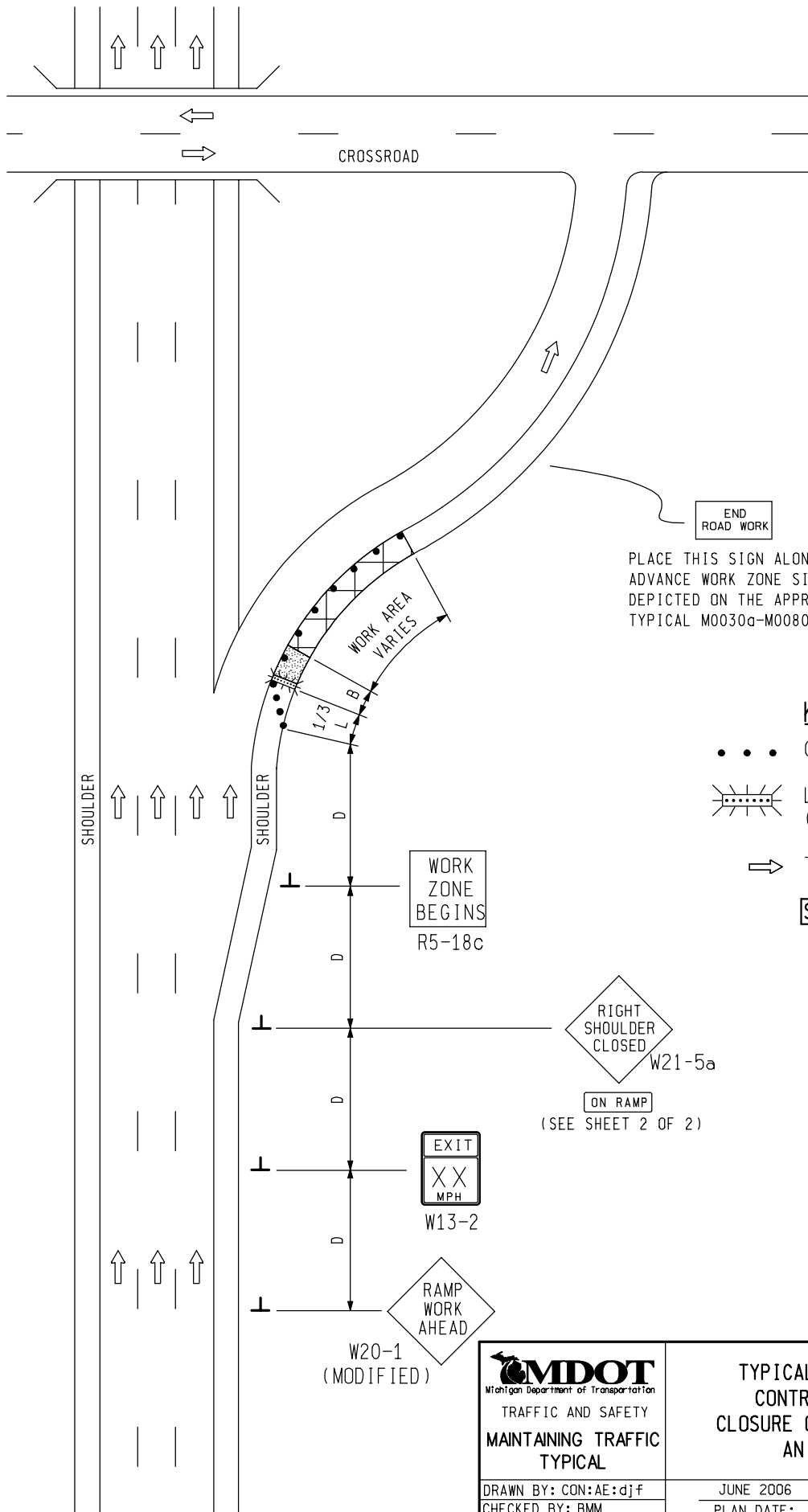
1. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
 $1/3 L$ = MINIMUM LENGTH OF TAPER
 B = LENGTH OF LONGITUDINAL BUFFER
 SEE **M0020a** FOR "D," "L," AND "B" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, CHANNELIZING DEVICES SHALL BE LIGHTED PLASTIC DRUMS.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE 2005 EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
 W13-2 WARNING - 48" x 60"
 R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL		TYPICAL TEMPORARY TRAFFIC CONTROL FOR A SHOULDER CLOSURE ON AN EXIT RAMP USING AN ADVISORY SPEED	
DRAWN BY: CON:AE:djf	JUNE 2006	M0940a	SHEET 2 OF 2
CHECKED BY: BMM	PLAN DATE:		
FILE: PW RD/TS/Typicals/Signs/MT FWY/M0940a.dgn REV. 8/10/2007			



PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

KEY

- • • CHANNELIZING DEVICES
- LIGHTED ARROW PANEL (CAUTION MODE)
- TRAFFIC FLOW

SIGN = 76 ft2 - TYPE B

NOT TO SCALE

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

DRAWN BY: CON:AE:djf
CHECKED BY: BMM

TYPICAL TEMPORARY TRAFFIC
CONTROL FOR A SHOULDER
CLOSURE ON AN EXIT RAMP USING
AN ADVISORY SPEED

JUNE 2006
PLAN DATE:

M0950a

SHEET
1 OF 2

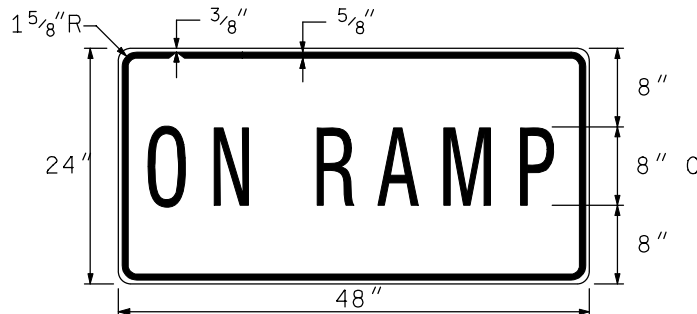
FILE: PW RD/TS/Typicals/Signs/MT Fwy/M0950a.dgn

REV. 8/10/2007

NOTES

1. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
 $\frac{1}{3} L$ = MINIMUM LENGTH OF TAPER
 B = LENGTH OF LONGITUDINAL BUFFER
 SEE **M0020a** FOR "D," "L," AND "B" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, CHANNELIZING DEVICES SHALL BE LIGHTED PLASTIC DRUMS.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE 2005 EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
29. THE TYPE OF REFLECTIVE SHEETING USED FOR THE "ON RAMP" PLAQUE SHALL BE THE SAME AS THE TYPE USED FOR THE PARENT SIGN.

SIGN DETAIL




COLORS

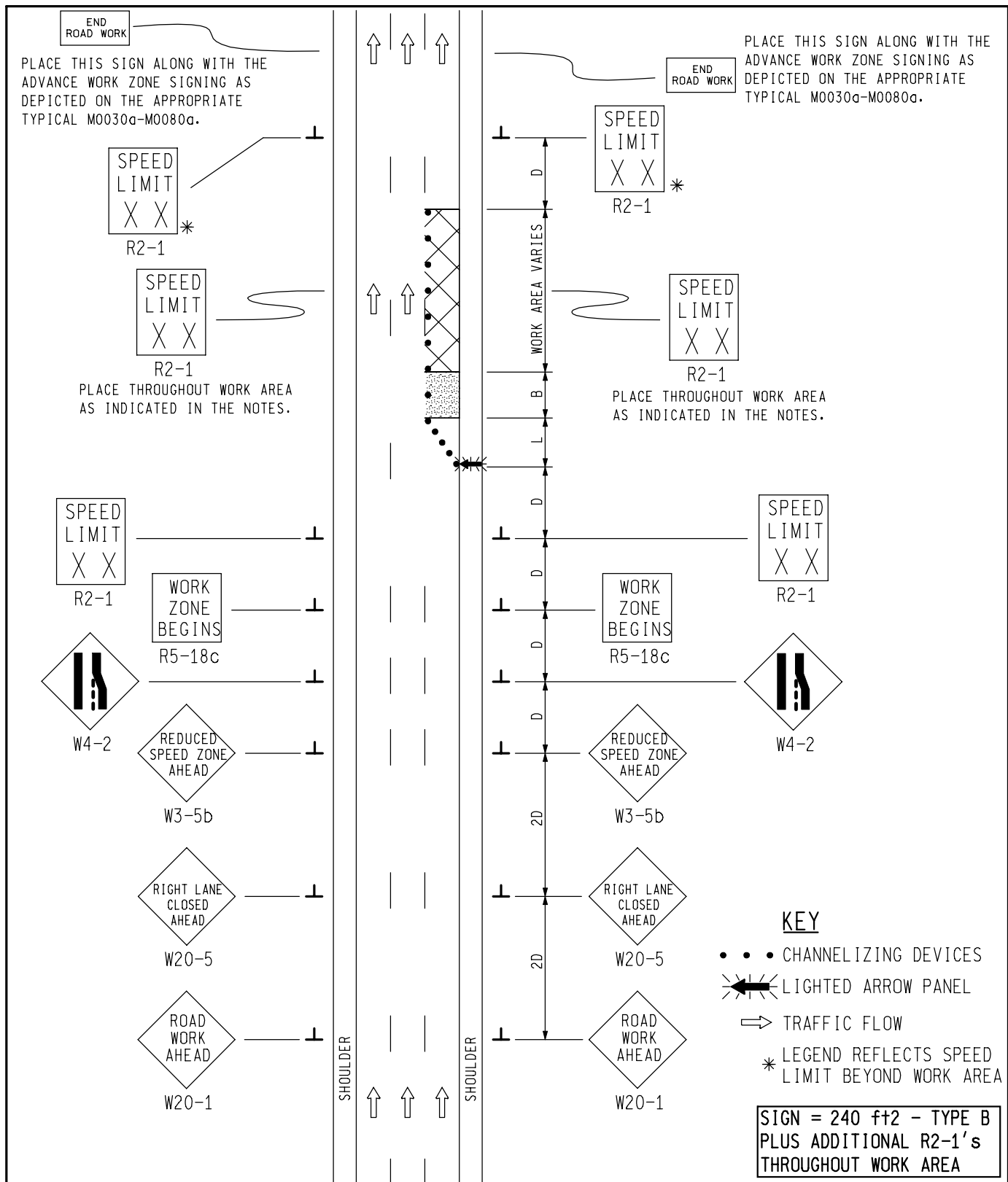
LEGEND AND BORDER - BLACK (NON-REFLECTORIZED)
 BACKGROUND - ORANGE (REFLECTORIZED)

SIGN SIZES

DIAMOND WARNING - 48" x 48"
 W13-2 WARNING - 48" x 60"
 PLAQUE - 48" x 24"
 R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 <p>TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL</p>		<p style="text-align: center;">TYPICAL TEMPORARY TRAFFIC CONTROL FOR A SHOULDER CLOSURE ON AN EXIT RAMP USING AN ADVISORY SPEED</p>	
DRAWN BY: CON:AE:djf		JUNE 2006	M0950a
CHECKED BY: BMM		PLAN DATE:	
FILE: PW RD/TS/Typicals/Signs/MT Fwy/M0950a.dgn		REV. 8/10/2007	SHEET 2 OF 2



NOT TO SCALE

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

TYPICAL TEMPORARY TRAFFIC CONTROL
FOR A ONE-LANE CLOSURE ON A FREEWAY
USING A SINGLE STEP DOWN IN
SPEED LIMIT

DRAWN BY: CON:AE:djf

JUNE 2006

M0980a

SHEET

CHECKED BY: BMM

PLAN DATE:

1 OF 2

FILE: PW RD/TS/Typicals/Signs/MT FWY/M0980a.dgn

REV. 08/13/2007

PW RD/TS/Typicals/Signs/MT FWY/M0980a.dgn


NOTES

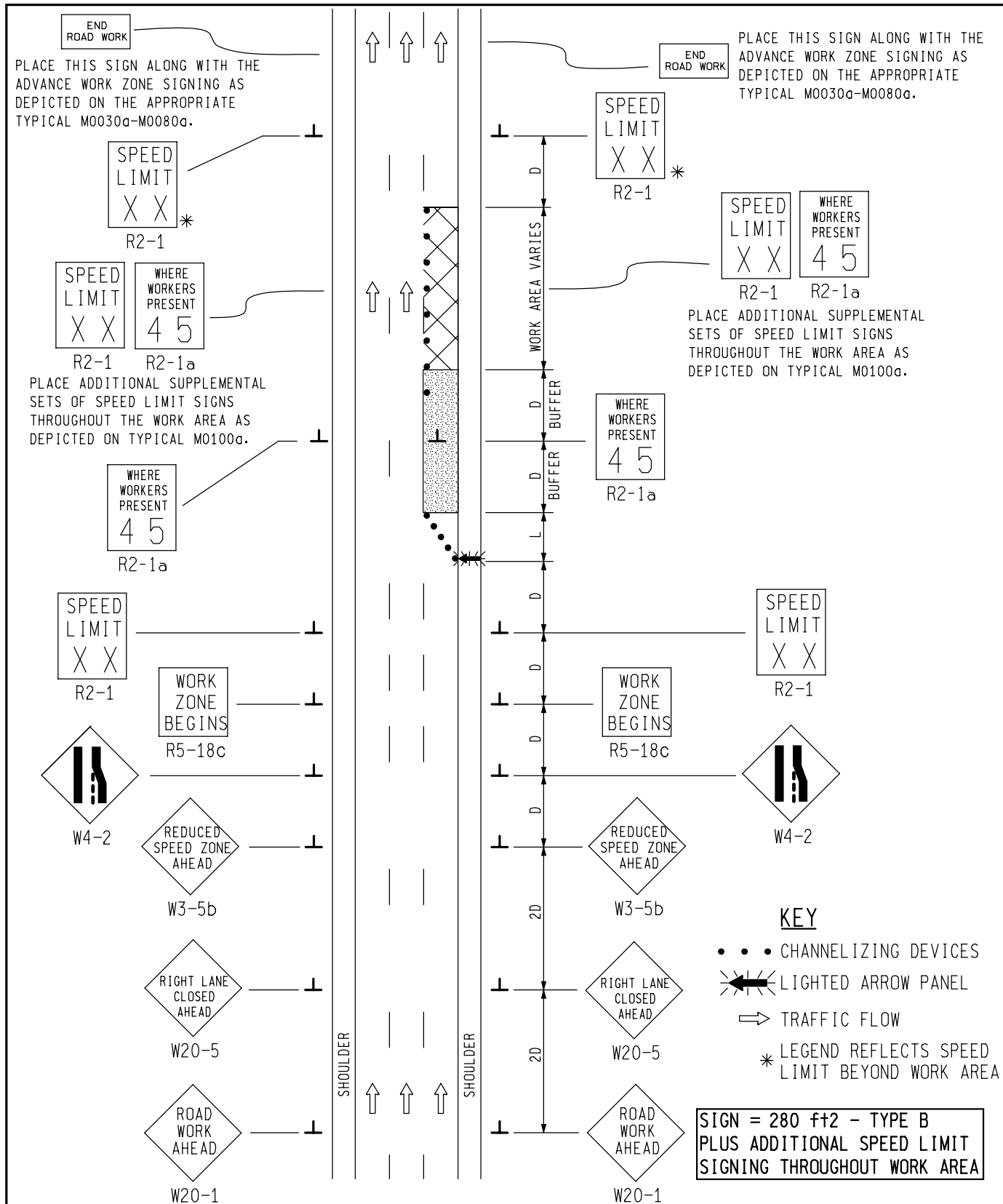
- 1B. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
L = MINIMUM LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER
SEE **M0020a** FOR "D," "L," AND "B" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
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8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
- 16B. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED SHALL BE PLACED BEYOND THE LIMITS OF THE REDUCED SPEED AS INDICATED.
- 16D. ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED SHALL BE PLACED AFTER EACH ENTRANCE RAMP THAT COMES ONTO THE FREEWAY WHERE THE REDUCED SPEED IS IN EFFECT AND AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED ARE MORE THAN TWO MILES APART.
- 16E. WHEN EXISTING SPEED LIMITS ARE REDUCED MORE THAN 10 MPH, THE SPEED LIMIT SHALL BE STEPPED DOWN IN NO MORE THAN 10 MPH INCREMENTS.
21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.
26. THE LIGHTED ARROW PANEL SHALL BE LOCATED AT THE BEGINNING OF THE TAPER AS SHOWN. WHEN PHYSICAL LIMITATIONS RESTRICT ITS PLACEMENT AS INDICATED, THEN IT SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
RECTANGULAR REGULATORY - 48" x 60"
R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL		TYPICAL TEMPORARY TRAFFIC CONTROL FOR A ONE-LANE CLOSURE ON A FREEWAY USING A SINGLE STEP DOWN IN SPEED LIMIT	
DRAWN BY: CON:AE:djf	JUNE 2006	M0980a	SHEET 2 OF 2
CHECKED BY: BMM	PLAN DATE:		
FILE: PW RD/TS/Typicals/Signs/MT FWY/M0980a.dgn			REV. 08/13/2007



NOT TO SCALE

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

DRAWN BY: CON:AE:djf
CHECKED BY: BMM
FILE: K:-DGN-TSR-STD5-ENGLISH-MNTTRF-M0990a.dgn

TYPICAL TEMPORARY TRAFFIC CONTROL
FOR A ONE-LANE CLOSURE ON A FREEWAY
USING REDUCED SPEED LIMIT
WHERE WORKERS PRESENT

JUNE 2006
PLAN DATE:

M0990a

SHEET
1 OF 2

REV. 08/13/2007


NOTES

11. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
AND LENGTH OF LONGITUDINAL BUFFERS
L = MINIMUM LENGTH OF TAPER
SEE **M0020a** FOR "D" AND "L" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4D. THE SPACING OF CHANNELIZING DEVICES SHOULD NOT EXCEED 45 FEET WHEN USED FOR TAPER CHANNELIZATION, AND SHOULD NOT EXCEED 90 FEET WHEN USED FOR TANGENT CHANNELIZATION.
5. FOR OVERNIGHT CLOSURES, CHANNELIZING DEVICES SHALL BE LIGHTED PLASTIC DRUMS.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE 2005 EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
- 16B. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED SHALL BE PLACED BEYOND THE LIMITS OF THE REDUCED SPEED AS INDICATED.
21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.
26. THE LIGHTED ARROW PANEL SHALL BE LOCATED AT THE BEGINNING OF THE TAPER AS SHOWN. WHEN PHYSICAL LIMITATIONS RESTRICT ITS PLACEMENT AS INDICATED, THEN IT SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
RECTANGULAR REGULATORY - 48" x 60"
R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL		TYPICAL TEMPORARY TRAFFIC CONTROL FOR A ONE-LANE CLOSURE ON A FREEWAY USING REDUCED SPEED LIMIT WHERE WORKERS PRESENT	
DRAWN BY: CON:AE:djf		JUNE 2006	M0990a
CHECKED BY: BMM		PLAN DATE:	
FILE: K:-DGN-TSR-STDs-ENGLISH-MNTTRF-M0990a.dgn		REV.	SHEET 2 OF 2

08/13/2007

ATTACHMENT C
Utility Listing
I-94 Eastbound from Sawyer to Bridgman

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 ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

JN 79871

CS 11015

NAME OF OWNER**KIND OF UTILITY****ANR Pipeline**

Gas Pipeline

Attention: Glen W. Merrill Jr.
11039 150th Avenue
Big Rapids, Michigan 49307
(231) 527-2135

Michigan Gas Utilities (Aquila)

Gas

Scott Purucker
711 Starlite Drive
Benton Harbor, Michigan 49022
(269) 927-5531
sjpurucker@michigangasutilities.com

Berrien County Drain Commissioner

County Drain

Attention: Roger Zilke
701 Main Street
St. Joseph, Michigan 49085
(269) 983-7111, ext.8261

Chikaming Township

Water, Sanitary

Attention: Jeanne Dudeck, Supervisor
13535 Red Arrow Hwy PO Box 40
Harbert, Michigan 49115

Comcast - Southern Berrien County

CATV

Attention: John Holmes
4045 Edison Lakes Parkway
Mishawaka, Indiana 46545
(574) 252-2562
john_holmes@cable.comcast.com

Indiana Michigan Power (AEP)

Electric

Attention: Kurt Schneider
2425 Meadowbrook Road
Benton Harbor, Michigan 49022
(269) 926-0683
[.keschneider@aep.com](mailto:keschneider@aep.com)

Level 3 Global Network Services - Berrien

Telecom

Attention: Art Clemons
9071 South State Road 39
Union Mills, Indiana 46382
Cell: (219) 229-0884
[.arthur.clemons@level3.com](mailto:arthur.clemons@level3.com)

Lake Charter Township

Water, Sanitary

Attention: John Gast, Supervisor
PO Box 818
Bridgman, Michigan 49106-0818
(269) 465-6601

Lincoln Charter Township

Water, Sanitary

Attention: Richard Stauffer, Supervisor
PO Box 279
Stevensville, Michigan 49127-0279
(269) 429-1589

New Buffalo Township

Water, Sanitary

Attention: Rosann Dudiak
17425 Red Arrow Highway
New Buffalo, Michigan 49117-9243
(269) 469-1011

AT&T - Berrien & Cass

Telecom

Attention: Joan Aalfs
Benton Harbor Engineering Office
1435 Milton
Benton Harbor, Michigan 49022
(269) 926-0233
[.ja1718@att.com](mailto:ja1718@att.com)

SEMCO Energy Gas Company

Gas

Attention: Bill Coquillard
1000 Bell Road
Niles, MI 49120
(269) 683-6810, ext. 5683
[.bill.coquillard@semcoenergy.com](mailto:bill.coquillard@semcoenergy.com)

St. Joseph Charter Township

Attention: Roger Seeley, Supervisor
PO Box 147
St. Joseph, Michigan 49085-0147
(269) 429-7703

Water, Sanitary,
Streetlights

Verizon Communications

Attention: Mr. Scott MacFarlane
601 North US 131
Three Rivers, Michigan 49093
269-273-0383
scott.macfarlane@verizon.com

Telecom

DATE: July 17, 2009

FROM: Kyle Rudlaff, Cost and Scheduling Engineer
Coloma Transportation Service Center (TSC)

SUBJECT: Scope Verification Meeting
CS 11015 – JN 79871C
I-94 Resurfacing from Sawyer Road (Exit 12) to north of Red Arrow Highway
(Exit 16)

Meeting Date: June 29, 2008
Meeting Time: 1:00 p.m.
Meeting Location: Coloma TSC

Attendees: Ann Lawrie Kyle Rudlaff
Gary Loyola Nick VanWoert
Lisa MarshMcCarty Sarah Woolcock

DISCUSSION ITEMS:

1. General Project Information

- a. Location: I-94 eastbound from Sawyer (Exit 12) to beyond the point of tangency of the I-94 eastbound curve that continues through the Red Arrow Highway interchange (Exit 16).
- b. Project Schedule: March 2012 Plan Completion and October 2013 Letting. Base plan step is scheduled for December 2010.
- c. Budget:

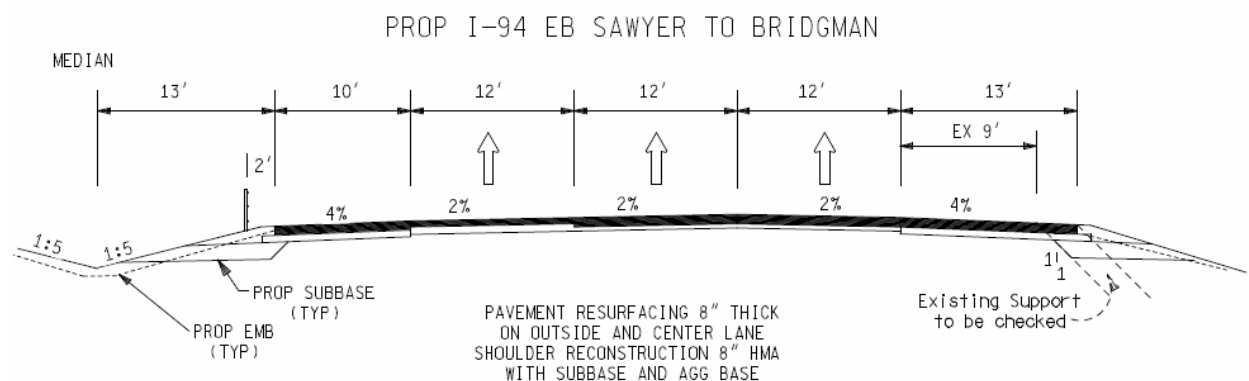
Preliminary Engineering	\$1,100,000
Real Estate Budget	\$150,000
Construction Engineering	\$800,000
Construction Contract	\$15,650,000
- d. Description: 4.1 miles of I-94 eastbound resurfacing. Project includes milling and two course HMA resurfacing, widening median and outside paved shoulders, median grading and drainage work, median barrier, guardrail, culvert replacement, freeway signing upgrade, and ROW fence.
- e. This project has FHWA oversight. Ruth Hepfer is the FHWA Area Engineer.
- f. MDOT Participants:

TSC Manager – Paul South, Coloma TSC
Delivery Engineer – Lucio Ramos, Coloma TSC
Development Engineer – Sarah Woolcock, Coloma TSC
Maintenance Supervisor – Lisa Marsh-McCarty, Sawyer Maintenance Garage

Project Manager – Kyle Rudlaff, Coloma TSC
Traffic Engineer – Gary Loyola, Coloma TSC
Utilities and Permit Engineer – Jarrett Burgess, Coloma TSC
Drainage Engineer – Munawar Azam, Southwest Region
Resource Specialist – Nick Vanwoert, Southwest Region
Environmental Clearance Coordinator – Ann Lawrie, Project Planning
Real Estate Agent – Sherry Piacenti, Southwest Region
Soils and Pavement Engineer, Greg Bills, Southwest Region
Surveyor – Erik Schnepf, Southwest Region
Designer – Consultant (to be determined)

2. I-94 Mainline Pavement

- Cold milling and two course HMA resurfacing.
- Milling at two percent grade control and five inches of HMA application.
- Deeper milling and an additional base course application is specified to reach through existing second layer of HMA and remove less stable layer of existing HMA in the center and outside lanes. This recommendation has been made by Greg Bills and is based on core samples collected in December 2008.
- Existing shoulders will be removed and replaced full depth at widths shown below.
- Crown relocation from center of center lane to between center and outside lane is to take place.
- Ramps are to be milled and resurfaced with new top course.



I-94 Mainline Treatment Concept

3. Geometrics

Level One Design Criteria Checklist – Existing and Proposed

Road: I-94 Eastbound
Design Year: 2009

CS 11015 – JN 79871C
2007 AADT 18400 – Eastbound Direction
37% Commercial Traffic

Enter the lane width provided, etc. in the appropriate column.

Design Criteria (provide numerical value for project, where indicated)	Reference	Do the existing conditions meet MDOT criteria?		
		Yes	No	Proposed Value
1. Design Speed: Mainline: 75 mph Ramps: mph	MDOT RDM Appendix 3A	75 mph		75 mph
2. Lane Width: Mainline: 12 ft Ramps: 16 ft	MDOT RDM Appendix 3A	12 ft 16 ft		12 ft 16 ft
3a. Uncurbed Sections – Shoulder Width adjacent to:				
Mainline Outside: 10 ft	MDOT RDM Appendix 3A		9 ft	13 ft
Mainline Inside: 10 ft			5 ft	10 ft
Ramp Outside: 7 ft		7 ft		7 ft
Ramp Inside: 4 ft		4 ft		4 ft
3b. Curbed Sections – Curb Offset:				
Mainline: ft				N/A
4. Bridge Clear Roadway Widths: S12- I-94 over Red Arrow Highway	MDOT BDM Appendix 12.02	Yes		
5. Structural Capacity: S12 – Red Arrow Highway: HS25 2004 Replacement	MDOT BDM Appendix 12.02	HS25		
6. Horizontal Curvature (Minimum Radius):	MDOT Standard Plan R-107-Series			
Curve at Sawyer Road PI Sta 376+57 Rmin = 2,344 ft		R = 3,819 ft		R = 3,819 ft
Curve S. Red Arrow Highway Exit 16, PI Sta 536+41 Rmin = 2,344 ft		R = 3,819 ft		R = 3,819 ft
Curve N. Red Arrow Highway Exit 16, PI Sta 576+20 Rmin = 2,344 ft		R = 2,864 ft		R = 2,864 ft
7. Superelevation Rate: N. Sawyer Road: R = 3,819 ft S. Red Arrow: R = 3,819 ft N. Red Arrow: R = 2,864 ft	RDM 3.04.03 Emin = 3.9% Emin = 3.9% Emin = 5.2%	Eex = 4.4% Eex = 4.4% Eex = 5.5%		Eprop = 4.4% Eprop = 4.4% Eprop = 5.5%
8a. Stopping Sight Distance – Horizontal Curves: 820 ft	2004 Green Book Exhibit 3-1	Offset > 25 ft OK		

8b. Stopping Sight Distance – Vertical Curves: Kmin = 312	2004 Green Book Exhibit 3-72		Red Arrow K = 247 (70mph)	K = 247 (*Design Exception 70 mph)
9. Maximum Grades: Level Terrain = 3% max	MDOT RDM Appendix 3A	Red Arrow +2.48% -2.80%		Red Arrow +2.48% -2.80%
10. Through Travel Lane Cross Slope: 2%	MDOT RDM Appendix 3A		3.5" Parabolic Crown (1964)	2%
11. Vertical Clearances: VCmin = 16' 0" Browntown Rd (S11-11015)	Michigan Road Design Manual 3.12	16' 5"		16' 2"
12. Accessibility Criteria for Handicapped Individuals:				N/A

** If a design criterion is not met, documentation must be provided that the TSC is aware and has approved the project scope of the sub-standard item.*

There is an additional geometric issue: Parallel ramp extensions for I-94 eastbound Exit 12 entrance ramp and I-94 eastbound Exit 16 exit ramp are to be included in the project.

4. Drainage

- Full replacement of median draining culverts and small culverts 36- and 24 inches diameter is specified. Install structure in median and construct new culvert under I-94 eastbound only. This is based on there being moderate joint separations in all existing concrete culverts.
- Proposed median section 1:5 V ditch.
- Outside ditches are generally deep enough.

No.	Size	Material	Cover	Comments
1	84"	Concrete	15 ft	South of Browntown Req. Inspection
2	24"	Concrete	3ft	Immediately South of Browntown – Replace
3	24"	Concrete	3ft	Immediately North of Browntown – Replace
4	24"	Concrete	8 ft	Hildebrant Culdesac – Replace
4A	36"	Concrete	10 ft	200 ft North of Hildebrant Culdesac – Replace
5	36"	Concrete	6 ft	Last 20 ft Separated – Replace
6	36"	Concrete	10 ft	Last 20 ft Separated, S. Marker #14, 100 ft – Replace
7	24"	Concrete	6 ft	North end Trailer Park on West side – Replace
8	24"	Concrete	7 ft	PC Exit 16 Curve – Replace
9	72"	Concrete	10 ft	South End of Lake, South of Exit 16. Good Condition – Retain
10	Uncertain	Concrete	20 ft	Under Exit and Entrance Ramp – Replace.
11	24"	Concrete	15 ft	Drains Pocket on North End of Bridge – Use In-Place Liner
12	24"	Concrete	5 ft	1,000 ft North of Red Arrow Bridge – Replace

- Flow calculations for watersheds under two square miles to be performed by prequalified design consultant. Discharge values for streams with over two square miles to be requested from MDEQ through MDOT Hydraulics unit. Culvert inspection has been requested for the existing 84 inch diameter concrete culvert south of Browntown Road.

5. Maintaining Traffic

- a. Initial Staging Concept is to maintain two lanes of traffic as much as possible. Utilize night work for paving the center lane, or otherwise maintaining one lane of I-94 eastbound traffic.
- b. All ramps maintained except at Bridgman (Exit 16) where deep culvert replacement will close ramps. Proposed ramp detour on Red Arrow Highway to interchanges north and south of Bridgman.
- c. Use night work to replace five culverts with six foot of cover or less out to center of center lane. Use sheeting and temporary barrier to replace the deeper culverts. Lisa Marsh-McCarty reported that the sandy soils encountered in this area are unfavorable for jack and bore operations. A number of these operations have resulted in there being voids created under I-94 pavement.
- d. Staging discussion for roadway paving to get more detailed later.

6. Survey

- a. Photogrammetry is available for plan graphics.
- b. Supplemental survey will be requested to collect cross sections for earthwork design and pavement cross slope data.
- c. Construction control points for ROW fencing and vertical control to be installed.

7. Miscellaneous Items

- a. Guardrail and cable barrier upgrade is included in this project.
- b. ROW fence upgrade is included along I-94 eastbound.
- c. Lisa Marsh-McCarty requested clearing of volunteer growth is to take place from edge of shoulder to the top of ditch backslope, or 12 feet laterally on backslope from ditch bottom, whichever is less. This value is recommended in the Southwest Region Mowing Guidelines.
- d. Median shoulder widening results in entire median being regraded with new structures and inlets at each culvert to discharge culvert flow from the median.

8. Utilities. The standard utility solicitation process will be followed in this project.

9. Safety. The crash analysis is attached.

10. Structure List

- a. S11 of 11015, Browntown Road over I-94, constructed in 1961, deck overlay and pin and hanger replacement in 2004. There is 16 feet 5 inches of underclearance for I-94 eastbound.
- b. S12-11015-3, I-94 eastbound over Red Arrow Highway, replaced in 2004. There is 14 feet 9 inches of underclearance for Red Arrow Highway.

11. Environmental

- a. A PACS is going to be requested from Chris Vera. There are known LUST sites at Sawyer and Bridgman. Lead based paint contamination is possible under the bridge at Browntown Road.
- b. Nick VanWoert will delineate wetlands in the field. The Design Consultant will be responsible for posting the locations on the plans.