

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

| | | | |
|----------------------|--------------------|----------------------|----------|
| | REQUISITION NUMBER | DUE DATE | TIME DUE |
| MDOT PROJECT MANAGER | JOB NUMBER (JN) | CONTROL SECTION (CS) | |

DESCRIPTION

| MDOT PROJECT MANAGER: Check all items to be included in RFP | | | CONSULTANT: Provide only checked items below in proposal |
|--|--|--|---|
| WHITE = REQUIRED ** = OPTIONAL Check the appropriate Tier in the box below | | | |
| <input type="checkbox"/> TIER I (\$50,000 - \$150,000) | <input type="checkbox"/> TIER II (\$150,000-\$1,000,000) | <input type="checkbox"/> TIER III (>\$1,000,000) | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input 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"/> | Organizational Chart |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Qualifications of Team |
| 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 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) | 7 pages (MDOT Forms not counted) | 14 pages (MDOT forms not counted) | Total maximum pages for RFP not including key personnel resumes. Resumes limited to 2 pages per key staff personnel. |

PROPOSAL AND BID SHEET EMAIL ADDRESS – mdot-rfp-response@michigan.gov

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 five (5) 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

5100J – Consultant Data and Signature Sheet (Required for all firms performing non-prequalified services on this project.)

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

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 Services Contracts) **AA**

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RFP SPECIFIC INFORMATION

ENGINEERING SERVICES BUREAU OF TRANSPORTATION PLANNING OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS
 NO YES DATED _____ THROUGH _____

| | |
|---|--|
| <input type="checkbox"/> Prequalified Services – See 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, 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 is required with proposal for all firms performing non-prequalified services on this project. |
|---|--|

Qualification Based Selection - Use Consultant/Vendor Selection Guidelines.

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

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.

Qualification Based Selection / 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. The vendor that has met established qualification threshold and with the lowest bid will be selected.

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.)

BID SHEET INSTRUCTIONS

Bid Sheet(s) are located at the end of the Scope of Services. Submit bid sheet(s) with the proposal, to the email address: mdot-rfp-response@michigan.gov. Failure to comply with this procedure may result in your bid being rejected from consideration.

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PARTNERSHIP CHARTER AGREEMENT

MDOT and ACEC created a Partnership Charter Agreement which establishes guidelines to assist MDOT and Consultants in successful partnering. Both the Consultant and MDOT Project Manager are reminded to review the [ACEC-MDOT Partnership Charter Agreement](#) and are asked to follow all communications, issues resolution and other procedures and guidance’s contained therein.

**NOTIFICATION
MANDATORY ELECTRONIC SUBMITTAL**

Proposals submitted for this project must be submitted electronically.

The following are changes to the Proposal Submittal Requirements:

- Eliminated the Following Requirements:
 - Safety Program
 - Communication Plan
 - Past Performance as *a separate section*
 - Separate section for DBE Statement of goals. Include information in Qualification of Team section

- Implemented the Following Changes:
 - All proposals require an Organization Chart
 - Resumes must be a maximum of two pages
 - Only Key (lead) staff resumes may be submitted
 - Tier III proposal reduced from 19 to 14 pages
 - Forms 5100D, 5100I, and 5100G combined – 5100D
 - Forms 5100B and 5100H combined – 5100B
 - RFP's will be posted on a weekly basis -- on Mondays

The following are Requirements for Electronic Submittals:

- Proposals must be prepared using the most current guidelines
- The proposal must be bookmarked to clearly identify the proposal sections (See Below)
- For any section not required per the RFP, the bookmark must be edited to include “N/A” after the bookmark title.
Example: Understanding of Service – N/A
- Proposals must be assembled and saved as a single PDF file
- PDF file must be 5 megabytes or smaller
- PDF file must be submitted via e-mail to MDOT-RFP-Response@michigan.gov
- MDOT's requisition number and company name must be included in the subject line of the e-mail. The PDF shall be named using the following format:
 - Requisition#XXX_Company Name.PDF
- MDOT will not accept multiple submittals
- Proposals must be *received* by MDOT on or before the due date and time specified in each RFP

If the submittals do not comply with the requirements, they may be determined unresponsive.

The Consultant's will receive an e-mail reply/notification from MDOT when the proposal is received. Please retain a copy of this e-mail as proof that the proposal was received on time. **Consultants are responsible for ensuring the MDOT receives the proposal on time.**

****Contact Contract Services Division immediately at 517-373-4680 if you do not get an auto response****

Required Bookmarking Format:

- I. Request for Proposal Cover Sheet Form 5100D
 - A. Consultant Data and Signature Sheet, Form 5100J (if applicable)
- II. Understanding of Service
 - A. Innovations
- III. Qualifications of Team
 - A. Structure of Project Team
 - 1. Role of Firms
 - 2. Role of Key Personnel
 - B. Organization Chart
 - C. Location
- IV. Quality Assurance / Quality Control Plan
- V. Resumes of Key Staff
- VI. Pricing Documents/Bid Sheet (if applicable)

2/14/12

**NOTIFICATION
E-VERIFY REQUIREMENTS**

E-Verify is an Internet based system that allows an employer, using information reported on an employee's Form I-9, Employment Eligibility Verification, to determine the eligibility of that employee to work in the United States. There is no charge to employers to use E-Verify. The E-Verify system is operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration. E-Verify is available in Spanish.

The State of Michigan is requiring, under Public Act 200 of 2012, Section 381, that as a condition of each contract or subcontract for construction, maintenance, or engineering services that the pre-qualified contractor or subcontractor agree to use the E-Verify system to verify that all persons hired during the contract term by the contractor or subcontractor are legally present and authorized to work in the United States.

Information on registration for and use of the E-Verify program can be obtained via the Internet at the DHS Web site: <http://www.dhs.gov/E-Verify>.

The documentation supporting the usage of the E-Verify system must be maintained by each consultant and be made available to MDOT upon request.

It is the responsibility of the prime consultant to include the E-Verify requirement documented in this NOTIFICATION in all tiers of subcontracts.

9/13/12

Michigan Department of Transportation

**SCOPE OF SERVICE
FOR
AS-NEEDED DESIGN SERVICES**

CONTROL SECTION(S): Various

JOB NUMBER(S): Various

PROJECT LOCATION: Various locations throughout the Southwest Region.

PROJECT DESCRIPTION: The Consultant will be expected to provide experienced personnel for design services on an **as-needed** basis for MDOT design projects. Such tasks would include but not be limited to work in the following areas of design:

- CPM Road Design
- Bridge Approach Design
- Freeway and Non-Freeway Mill and HMA Overlay Designs
- Traffic and Safety Projects such as Center Left Turn Lane Designs
- Associated Survey needed for these projects
- Associated Work Items with Design, such as MoT, TMPs, etc.

Up to three (3) firms will be selected for a two (2) year period.

The scope is for “as-needed” services, based on intermittent needs of the MDOT Southwest Region. It must be noted that this is not a guarantee of work.

ANTICIPATED SERVICE START DATE: May 1, 2015

ANTICIPATED SERVICE COMPLETION DATE: April 30, 2017

This selection is for a 2 year period.

PRIMARY PREQUALIFICATION CLASSIFICATION(S):

Roadway Rehabilitation & Rural Freeways

SECONDARY PREQUALIFICATION CLASSIFICATION(S):

Geotechnical Engineering Services
Hydraulic Surveys
Hydraulics
Maintaining Traffic Plans and Provisions
Municipal Utilities
Pavement Marking Plans
Permanent Freeway Traffic Signing Plans
Permanent Non-Freeway Traffic Signing Plans
Right of Way Surveys
Road Design Surveys

Safety Studies
Simple Traffic Signal Operations
Specialty Walls/Slopes
Traffic Capacity Analysis & Geometric Studies
Traffic Signal Design
Wetland Design

PREFERRED QUALIFICATIONS AND CRITERIA (FOR NON-CLASSIFIED SERVICES):

1) **UTILITY COORDINATION**

The Consultant and MDOT shall share responsibilities for project Utility Coordination. See attached “Scope of Services for Utility Coordination”.

DBE REQUIREMENT:

This Scope of Services has a 0% DBE qualification

MDOT PROJECT ENGINEER MANAGER:

Andrea Wilcox, PE
Region Design Engineer –Southwest Region MDOT
1501 E Kilgore Road
Kalamazoo, MI 49001
Phone Number (269) 337-3931
E-mail: WilcoxA2@michigan.gov

INDIVIDUAL AUTHORIZATION PROJECT MANAGERS:

Sarah Fedders, PE
Cost and Scheduling Engineer – Marshall TSC MDOT
15300 W Michigan Ave
Marshall, MI 49068
Phone Number (269) 789-0560 x229
E-mail: FeddersS@michigan.gov

Kyle Rudlaff, PE
Cost and Scheduling Engineer – Southwest Region MDOT
1501 E Kilgore Road
Kalamazoo, MI 49001
Phone Number (269) 337-3928
E-mail: Rudlaffk@michigan.gov

NUMBER OF CONSULTANTS & ESTIMATED CONTRACT COSTS:

Up to three (3) Consultants will be chosen for “as-needed” contracts up to \$400,000 each. The number of projects assigned to each Consultant will be determined by future workloads.

Estimated costs of construction will be provided for each REQUEST FOR CONSULTANT DESIGN STAFF LETTER. 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, Published MDOT Design Advisories, Drainage Manual, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

The Consultant is required to use the current version of Bentley MicroStation for CADD applications and Bentley GEOPAK for road design, as well as the most current workspace as published by MDOT monthly. The Consultant shall comply with all MDOT CADD standards and file naming conventions.

GENERAL INFORMATION:

The Consultant will need to get approval of the MDOT Project Manager prior to using personnel not included in this proposal.

Full time services will not be required on all projects at all times. This scope is for “as-needed” services, based on the intermittent needs of MDOT. It must be noted that this is not a guarantee that MDOT will use the Consultant’s services.

MDOT RESPONSIBILITIES:

- A. Schedule and/or conduct the following:
 - 1. Project related meetings
 - 2. Base Plan Review
 - 3. The Plan Review
 - 4. Omissions/Errors/Check
 - 5. Utility Coordination Meeting(s) - *Unless otherwise noted in the Scope of Service for Utility Coordination*
 - 6. Final Transport item cost estimates

- B. Furnish 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(s) - *Unless otherwise noted in the Scope of Service for Utility Coordination*
- F. Furnish FTP site for software download and instructions for the MDOT Stand Alone Proposal Estimator's Worksheet (SAPW).

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 Project Area Contamination Survey (PACS).
- 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, electronic copies (in Adobe PDF format) of the required specifications and plan set materials for distribution by MDOT for all reviews for this project.
- 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 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.
- P. 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.

- Q. 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 Coordinator 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.
- R. The Consultant shall be responsible for all traffic control required to perform the tasks as outlined in this Scope of Design Services.
- S. The Consultant shall be responsible for obtaining up to date access permits and pertinent information for tasks in MDOT Right of Way (ROW).
- T. This information can be obtained through Joe Rios, Utilities/Permits Section, Development Services Division at (517) 241-2103.
- U. On the first of each month, the Consultant Project Manager shall submit a monthly project progress report to the Project Manager.

DELIVERABLES:

The Consultant shall deliver all computer files associated with the project in their native format (spreadsheets, CADD files, GEOPAK files, Roadway Designer Templates 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. 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 published monthly to the MDOT website. 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 capture a legally signed document or a hard copy version of a document is all that exists.

Plan sheets shall be printed to an Adobe PDF set in 11" x 17" format. For final Plan Turn-In, a title sheet shall be printed, signed, sealed, and then scanned for inclusion with the Adobe PDF set. The original title sheet shall be sent to the MDOT Project Manager.

At final Plan Turn-In, Reference Information Documents (RID) shall be delivered to MDOT with standard naming conventions and content. The RID files included will depend on the design survey and work type of the project. These files range from CADD, existing terrain, proposed cross sections, 3D models and files generated for Automated Machine Guidance (AMG) and automated inspection/stakeout activities.

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 removal, construction, and profile sheets will require a scale of **1"=80'** or as approved by the Project Manager.

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

For questions on specific tasks, refer to the P/PMS Task Manual located on the [MDOT Website](#).
For assistance in accessing this manual, please contact:
Dennis Kelley: (517) 373-4614

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. Scheduling assistance may be accomplished with estimated completion dates. While not part of P/PMS, an Authorization Milestone and Post-Design Tasks have been included for your reference.

STUDY (EARLY PRELIMINARY ENGINEERING)

| | | P/PMS TASK NUMBER AND DESCRIPTION | DATE TO BE COMPLETED BY (mm/dd/yyyy) |
|---|--------------------------|---|---|
| | | CONSULTANT CONTRACT AUTHORIZATION/EXECUTION | / / |
| YES | NO | | |
| <u>INFORMATION GATHERING/STUDIES</u> | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 1115 Traffic Data Collection for Studies | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 1120 Prepare Traffic Analysis Report for Studies | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 1125 Traffic Capacity Analysis for Studies | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 1155 Request/Perform Safety Analysis for Studies | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 1300 Traffic Impact Study | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 1350 Determine Need for Interstate Access Change Request | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 1400 Feasibility Study | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 1500 Corridor Study | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 1555 Interstate Access Change Request | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <i><u>155M FHWA Approval of Interstate Access Change Request</u></i> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 1600 Access Management Study Plan | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 1700 Other Miscellaneous Studies | / / |
| <u>EPE SCOPING ANALYSIS</u> | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 2100 Scope Verification and Initiation of EPE Activities | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2115 Prepare Traffic Analysis Report for EPE/Design | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2120 Traffic Data Collection for EPE/Design | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2125 Traffic Capacity Analysis for EPE/Design | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2130 Prepare Project Purpose and Need | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <i><u>213M Concurrence by Regulatory Agencies with the Purpose and Need</u></i> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2140 Develop and Review Illustrative Alternatives | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2155 Request/Perform Safety Analysis for EPE/Design | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2160 Prepare and Review EIS Scoping Document | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <i><u>216M Public Information Meeting</u></i> | / / |

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

STUDY (EARLY PRELIMINARY ENGINEERING) (cont'd)

| | | P/PMS TASK NUMBER AND DESCRIPTION | DATE TO BE COMPLETED BY | |
|--------------------------|--------------------------|---|--|-----|
| YES | NO | | (mm/dd/yyyy) | |
| | | <u>EPE DRAFT ANALYSIS</u> | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 2310 | Conduct Technical SEE Studies | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2311 | Cultural Resources Survey | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2312 | Recreational Survey – Section 4(f)/6(f) | / / |
| | | <u>EPE DRAFT ANALYSIS (cont'd)</u> | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 2313 | Endangered Species Survey | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2314 | Wetland Assessment | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2315 | Wetland Mitigation | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2316 | Other Technical Reports | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2321 | Prepare for Aerial Photography | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2322 | Finish/Print Aerial Photography | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2330 | Collect EPE Geotechnical Data | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2340 | Develop and Review Practical Alternatives | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>233M</u> | <u>Aerial Photography Flight</u> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2360 | Prepare and Review EA | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>236M</u> | <u>Approval of EA by FHWA</u> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2370 | Prepare and Review Draft EIS | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>237M</u> | <u>Approval of Draft EIS by FHWA</u> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2380 | Distribute EA | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>238M</u> | <u>Public Hearing for EA</u> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2390 | Distribute DEIS | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>239M</u> | <u>Public Hearing for DEIS</u> | / / |
| | | <u>EPE FINAL ANALYSIS</u> | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 2510 | Determine and Review Recommended Alternative | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>250M</u> | <u>Concurrence by Reg Agencies with Recom Alternatives</u> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2525 | Prepare and Review Engineering Report | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2530 | Prepare and Review Request for FONSI | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>252M</u> | <u>Approval of FONSI by FHWA</u> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2540 | Prepare and Review FEIS | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>254M</u> | <u>Approval of FEIS by FHWA</u> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2550 | Obtain ROD | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>255M</u> | <u>ROD Issued by FHWA</u> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 2570 | ITS Concept of Operations | / / |
| | | <u>CONTAMINATION INVESTIGATION</u> | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 2810 | Project Area Contamination Survey (PCS) | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 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 (mm/dd/yyyy) |
|---|--------------------------|---|--|
| YES | NO | | |
| <u>DESIGN SCOPE VERIFICATION AND BASE PLAN PREPARATION</u> | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 3130 Verify Design Scope of Work and Cost | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3310 Prepare Aerial Topographic Mapping | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3320 Conduct Photogrammetric Control Survey | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3321 Set Aerial Photo Targets | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3325 Geotechnical Structure Site Characterization | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3330 Conduct Design Survey | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3340 Conduct Structure Survey | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3350 Conduct Hydraulics Survey | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3360 Prepare Base Plans | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>311M Utility Notification</u> | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3361 Review and Submit Preliminary ROW Plans | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>331M Preliminary ROW Plans Distributed</u> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3365 Pre-Conceptual ITS Design and Meeting | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3370 Prepare Structure Study | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3375 Conduct Value Engineering Study | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3380 Review Base Plans | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3385 Preliminary Load Rating | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>332M Base Plan Review (Pre-GI Inspection)</u> | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3390 Develop the Maintaining Traffic Concepts | / / |
| <u>PRELIMINARY PLANS PREPARATION</u> | | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3500 Develop Transportation Management Plan | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3510 Perform Roadway Geotechnical Investigation | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3520 Conduct Hydraulic/Hydrologic and Scour Analysis | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3522 Conduct Drainage Study, Storm Sewer Design, and use Structural Best Management Practices | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3530 Geotechnical Foundation Engineering Report | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3535 Conduct Str. Review for Arch. & Aesthetic Improvements | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3540 Develop the Maintaining Traffic Plan | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3551 Prepare/Review Preliminary Traffic Signal Design Plan | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3552 Develop Preliminary Pavement Marking Plan | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3553 Develop Preliminary Non-Freeway Signing Plan | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3554 Develop Preliminary Freeway Signing Plan | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3555 Prepare/Review Preliminary Traffic Signal Operations | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3570 Prepare Preliminary Structure Plans | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3580 Develop Preliminary Plans | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3581 Review and Submit Final ROW Plans | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>351M Final ROW Plans Distributed</u> | / / |

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

PRELIMINARY ENGINEERING - DESIGN (cont'd)

| | | P/PMS TASK NUMBER AND DESCRIPTION | DATE TO BE COMPLETED BY (mm/dd/yyyy) |
|--|--------------------------|---|--|
| YES | NO | | |
| <u>PRELIMINARY PLANS PREPARATION (cont'd)</u> | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 3585 Final ITS Concept Design and Meeting | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3590 Review Preliminary Plans (Hold Plan Review Meeting) | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>352M THE Plan Review (Grade Inspection)</u> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3595 Conduct ITS Structure Foundation Investigation | / / |
| <u>UTILITIES</u> | | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3610 Compile Utility Information | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3615 Compile ITS Utility Information | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3650 Coordinate RR Involvement for Grade Separations | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3655 Coordinate RR Involvement for At-Grade Crossings | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3660 Resolve Utility Issues | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>360M Utility Conflict Resolution Plan Distribution</u> | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | <u>361M Utility Meeting</u> | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3670 Develop Municipal Utility Plans | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3672 Develop Special Drainage Structures Plans | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3675 Develop Electrical Plans | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3680 Preliminary ITS Communication Analysis | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3690 Power Design (Power Drop in Field) | / / |
| <u>MITIGATION/PERMITS</u> | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 3710 Develop Required Mitigation | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3720 Assemble Environmental Permit Applications | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3730 Obtain Environmental Permit | / / |
| <u>FINAL PLAN PREPARATION</u> | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 3815 Geotechnical Structure Design Review | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3821 Prepare/Review Final Traffic Signal Design Plan | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3822 Complete Permanent Pavement Marking Plan | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3823 Complete Non-Freeway Signing Plan | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3824 Complete Freeway Signing Plan | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3825 Prepare/Review Final Traffic Signal Operations | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3830 Complete the Maintaining Traffic Plan | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3840 Develop Final Plans and Specifications | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>380M Plan Completion</u> | / / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3850 Develop Structure Final Plans and Specifications | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3870 Hold Omissions/Errors Check (OEC) Meeting | / / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3875 Final Load Rating | / / |

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

PRELIMINARY ENGINEERING - DESIGN (cont'd)

| | | P/PMS TASK NUMBER AND DESCRIPTION | DATE TO BE COMPLETED BY (mm/dd/yyyy) | |
|-------------------------------------|--------------------------|---|--|---|
| YES | NO | | | |
| | | <u>FINAL PLAN PREPARATION (cont'd)</u> | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <i>387M Omissions/Errors Checks Meeting</i> | / | / |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <i>389M Plan Turn-In</i> | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3880 CPM Quality Assurance Review | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 3890 Final ITS Communication Analysis | / | / |

PRELIMINARY ENGINEERING – RIGHT OF WAY

| | | | | |
|--------------------------|--------------------------|---|---|---|
| | | <u>EARLY RIGHT OF WAY WORK</u> | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 4120 Obtain Preliminary Title Commitments | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 4130 Prepare Marked Final Right Of Way Plans | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | <i>413M Approved Marked Final ROW</i> | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 4140 Prepare Property Legal Instruments | / | / |
| | | <u>ROW ACQUISITION</u> | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 4411 Preliminary Interviews | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | <i>441M Post-Decision Meeting</i> | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 4412 Real Estate Services Assignment Proposal and Fee Estimate (Form 633s) for Appraisal Work Authorization | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 4413 Appraisal Reports | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | | | |
| | | <u>ROW ACQUISITION (cont'd)</u> | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 4420 Appraisal Review Reports | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 4430 Acquire Right Of Way Parcels | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 4510 Conduct Right Of Way Survey & Staking | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | | | |
| | | <u>ROW RELOCATION</u> | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 4710 Relocation Assistance | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 4720 Prepare Improvement Removal Plan | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | <i>442M ROW Certification</i> | / | / |

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

POST LETTING/AWARD TASKS (for reference only)

| | | P/PMS TASK NUMBER AND DESCRIPTION | | DATE TO BE COMPLETED BY (mm/dd/yyyy) | |
|--------------------------|--------------------------|--|--|--|---|
| YES | NO | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | 4810 | Complete Acquisition Process | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 4820 | Manage Excess Real Estate | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 4830 | Provide Post-Certification Relocation Assistance | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 4910 | Conduct ROW Monumentation | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 5010 | Construction Phase Engineering and Assistance | / | / |
| <input type="checkbox"/> | <input type="checkbox"/> | 5020 | Prepare As-Built Drawings | / | / |

CONSULTANT PAYMENT – Actual Cost Plus Fixed Fee: As-Needed

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

This scope is for “as needed” services. As such, the hours provided are only an estimate. The Consultant will be reimbursed a proportionate share of the fixed fee based on the portion of the authorized total hours in which services have been provided to the Department. Fixed fee on “as needed” projects is computed by taking the percent of actual labor hours invoiced to labor hours authorized, then applying that percentage to the total fixed fee authorized.

All billings for services must be directed to the Department and follow the current guidelines. 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 hours provided are only an estimate. The Consultant will be reimbursed a proportionate share of the fixed fee based on the portion of the authorized total hours in which services have been provided to the Department. Fixed fee on “as needed” projects is computed by taking the percent of actual labor hours billed to labor hours authorized, then applying that percentage to the total fixed fee authorized.

MDOT reserves the right to request services on other projects located in the Region/TSC area that are not listed above, under the conditions of this “as needed” scope of services.

Full time services may not be required on all projects at all times. This scope is for “as needed” services, based on the intermittent needs of MDOT. It must be noted that this is not a guarantee that MDOT will use the Consultant’s services.

MDOT will reimburse the consultant for vehicle expenses and the costs of travel to and from project sites in accordance with MDOT’s Travel and Vehicle Expense Reimbursement Guidelines, dated May 1, 2013. The guidelines can be found at http://www.michigan.gov/documents/mdot/Final_Travel_Guidelines_05-01-13_420289_7.pdf?20130509082418. MDOT’s travel and vehicle expense reimbursement

policies are intended primarily for construction engineering work. Reimbursement for travel to and from project sites and for vehicle expenses for all other types of work will be approved on a case by case basis.

MDOT will pay overtime in accordance with MDOT's Overtime Reimbursement Guidelines, dated May 1, 2013. The guidelines can be found at http://www.michigan.gov/documents/mdot/Final_Overtime_Guidelines_05-01-13_420286_7.pdf?20130509081848. MDOT's overtime reimbursement policies are intended primarily for construction engineering work. Overtime reimbursement for all other types of work will be approved on a case by case basis.

MDOT REQUEST FOR CONSULTANT DESIGN STAFF

Date: **Consultant:**
Attn: **VIA: e-mail**
Address
City, State, zip

MDOT requests consultant design staff and services for the following project under the contract number xxxx-xxx(xx), Scope of Services for Consultants "As-Needed" Design Services for MDOT Southwest Region Development.

JOB NUMBER: xxxxxxC CONTROL SECTION: xxxxx

ROUTE:

STAFFING:

TYPE OF DESGIN SERVICE:

PROJECT DESCRIPTION:

The attached Design Scope of Work provides specific details.

PROJECT DELIVERABLES:

1. Project design, project meeting minutes and proposal packages, design record, monthly updates and consultant staff that worked on the project.
2. Utility conflict identification and coordination activities.
3. Maintaining traffic special provisions, staging plans and/or TMPs, if required.

PROJECT SCHEDULE:

The attached Design Scope of Work provides specific details.

Receipt of this request requires the Consultant to notify the undersigned regarding the availability of the Consultant’s staff to work on this project and acceptance of the above terms and conditions in writing within two working days. A detailed cost proposal with a breakdown of man hours and tasks will be required and reviewed prior to obtaining a final work authorization.

Sign/Date
Andrea Wilcox, P.E.
MDOT Southwest Region
Region Design Engineer

Sign/Date

Consultant Project Manager

ATTACHMENT A

SCOPE OF SERVICE FOR DESIGN SURVEYS

October 2014

Survey Limits: “As-needed” for Design, Right of Way, and Construction. A description of survey limits detailing length, width and cross roads must be included in the Survey Work Plan.

NOTES: The Selected Consultant shall discuss the scope of this survey with an MDOT Region Surveyor or an MDOT Lansing Design Surveyor before submitting a priced proposal.

The Selected Consultant surveyor must contact the Region or TSC Traffic and Safety Engineer for work restrictions in the project area prior to submitting a priced proposal.

A **detailed Survey Work Plan must** be included in the project proposal. A **spreadsheet estimate** of hours by specific survey task such as horizontal control, leveling, mapping, alignment determination, etc., **must** be included in the **priced 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, according to Public Act 299 of 1980.
3. Work in any of the following categories of survey: Road Design, Structure, Hydraulic, Right-of-Way, Photogrammetric Ground Control, and/or Geodetic Control must be completed by a survey firm which is pre-qualified by MDOT for that category.
4. Surveys must meet all requirements of the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated May 2014, except for naming conventions. Please contact the MDOT Design Survey office to clarify any specific questions regarding these standards.
5. Consultants must obtain all necessary permits required to perform this survey on any public and/or private property, including an up-to-date permit from the MDOT Utilities

Coordination and Permits Section.

6. 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 (which must be minimized), and an MDOT contact person (the MDOT Project Manager or designate).
7. 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 priced proposal.
8. 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.
9. Consultants are responsible for a comprehensive and conscientious research of all records, including MDOT records, essential for the completion of this project.
10. Measurements, stationing, recorded data, and computations must be in **International Feet**, unless specified otherwise by the MDOT Project Manager.
11. Coordinate values shall be based upon the Michigan State Plane coordinate system NAD83. All elevations must be based upon the North American Vertical Datum of 1988 (NAVD88). The datums must be clearly stated in the Survey Work Plan and subsequent submittal.
12. **If paper copies are required**, the survey notes must be submitted to the Design Survey Unit in 10" by 12" divided portfolios with flap covers. As many portfolios should be used as are needed to contain all of the required documents and Compact Discs (CD's) or DVD's. Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor." **Electronic submittal only unless specified otherwise.**
13. Each portfolio and CD must be labeled on the outside as in the following example:
Survey Notes for:
Route, Location and Project Limits [I-94 under Beaubien Street]
Control Section [S06 of 82024] Job Number [45197D] Date [of *submittal*]
By [Name of Firm]
Michigan Professional Surveyor [] License # []
14. Each submittal is to be divided into six sections. These sections are to be labeled as follows: **Administrative, Alignment, Control, Property, Mapping, and Miscellaneous.**
15. To be included in the Administrative section shall be a copy of the **Survey Project Portfolio QA/QC Check-off list**, May 2014 revision, available from the MDOT Survey Support Unit. This document shall be signed and certified by the Professional Surveyor

responsible for the project QA/QC. It is highly recommended that the consultant become familiar with this document prior to preparing the proposal and again prior to assembling the final portfolio. **Failure to use and include this document may result in the immediate return of the project portfolio for completion.**

16. **All data**, whether electronic or paper, **must be recorded on non-rewritable Compact Discs (CD's) or DVD's**. All paper files, including MicroStation files, must be scanned and/or converted to Adobe Acrobat .PDF format. It is not necessary to include raw survey data files in the Adobe file. 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 Microsoft Word and MicroStation must have separate access in native format outside of the .PDF file.
17. The MDOT Project Manager is the official contact for the Consultant. The Consultant must send a copy of all project correspondence to the MDOT Project Manager. The MDOT Project Manager shall be made aware of all communications regarding this project. Any survey related questions regarding this project should be directed to an MDOT Survey Consultant Project Manager or MDOT Region Surveyor. **The MDOT Project Manager must be copied on any and all correspondence.**

At the completion of this survey for this project, legible copies of 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** the MDOT, Design Division, Supervising Land Surveyor, P.O. Box 30050, Lansing, MI 48909. Please use MDOT's Form 222(5/01) 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.

Acceptance of this survey by the MDOT Supervising Land Surveyor and/or the MDOT Project Manager does not relieve the Consultant of any liability for the content of the survey.

WORK RESTRICTIONS

The Selected Consultant and the Selected Consultant only, is advised to discuss Traffic Control scenarios with the MDOT Traffic and Safety Engineer at the closest MDOT TSC prior to submitting a priced proposal. Add Name and phone #

No work shall be performed or lane closures allowed during the Memorial Day, July 4th, or Labor Day holiday periods, as defined by the MDOT Project Manager or representative specifically designated by the Project Manager (the Traffic & Safety Engineer at the MDOT TSC).

Work on weekends, if approved, shall be as directed by the MDOT Project Manager or Designate. The Consultant must call the MDOT Region or TSC Traffic and Safety Engineer before beginning work to inform him or her of surveying activity in the area. The MDOT Region or TSC must be notified at least two weeks prior to lane closures so advance notice can be posted on the Web site.

Traffic shall be maintained by the Consultant throughout the project in accordance with Sections 812, 922, 103.05 and 103.06 of the *Standard Specifications for Construction*, 2012 edition, <http://mdotwas1.mdot.state.mi.us/public/specbook/2012/> and any Supplemental Specifications currently in effect clarifying the Standard Specifications for Construction. All traffic control devices shall conform to the current edition, as revised, of the *Michigan Manual of Uniform Traffic Control Devices* (MMUTCD). All warning signs for maintenance of traffic used on this project shall be fabricated with prismatic retro-reflective sheeting, and shall be set up five feet above ground.

The Consultant shall use MDOT standard “maintaining traffic” typicals for any and all closures. Typical MDOT traffic control diagrams are available on line at <http://mdotwas1.mdot.state.mi.us/public/tands/plans.cfm>

COORDINATION WITH OTHER CONTRACTS IN THE VICINITY

The Consultant shall coordinate operations with contractors performing work on other projects within or adjacent to the Construction Influence Area (CIA).

MDOT maintenance crews and/or Contract Maintenance Agencies may perform maintenance work within or adjacent to the CIA. The Maintenance Division of MDOT and/or Contract Maintenance Agency will coordinate their operations with the MDOT Project Manager or Designate to minimize the interference to the Consultant.

The Consultant must contact the Development Engineer at the nearest MDOT TSC for information regarding project coordination.

The Consultant’s attention is called to the requirements of cooperation with others as covered in Article 104.08 of the 2012 Standard Specifications for Construction. Other contracts or maintenance operations may occur during the life of the project.

No claim for extra compensation or adjustment in contract unit prices will be allowed on account of delay or failure of others to complete work unit scheduled.

POST SURVEY CLEAN-UP

Once the survey is complete, all stakes must be removed from the MDOT median and ROW to aid the maintenance crews and adjacent property owners. All benchmarks and control points and their witnesses must remain in place.

FINAL REPORT: DELIVERABLES

The final report for this project shall include:

1. In the first directory on the CD, and first pocket of the portfolio if requested, labeled **ADMINISTRATIVE**, the following will appear:
 - a. MDOT's Form 222(5/01) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL"
 - b. The project's Professional Surveyor's Report on company letterhead, consisting of:
 - i) A comprehensive synopsis of the work performed on this project, signed and sealed by the project's Professional Surveyor.
 - ii) The source and methods used to establish the project horizontal and vertical control and alignment(s) for this project.
 - iii) A detailed explanation of anything discovered during the survey of this project that may create a problem for the designer or another surveyor.
 - c. CD or DVD with all documents scanned or converted into a Master PDF file, named (JN)123456C_TaskXXXX. Each Section and sub-section of this PDF file must be bookmarked for easy retrieval. An example can be provided upon request.
 - d. MDOT QA/QC Portfolio Checklist (revised May 2014).
2. In the second directory on the CD, and second pocket of the portfolio if requested, labeled **ALIGNMENT**, the following will appear:
 - a. An annotated MicroStation drawing of the alignment(s), showing:
 - i) A statement defining the alignment(s) as **legal or non-legal**, and a key box with description of type and origin of all alignments, such as 1958 Survey Alignment, 1966 Construction Alignment or, 2013 As Constructed Alignment
 - ii) Alignment files must use the naming conventions in the MDOT Design Wiki at http://mdotwiki.state.mi.us/design/index.php/Chapter_3__Standard_Naming_Conventions
 - iii) Stationing, source of stationing, and station equation to existing stationing
 - iv) Curve data, including coordinates of P.I.s, P.C.s, and P.T.s.
 - v) Physical alignment points found or set
 - vi) Control points
 - vii) Reference lines and angles of crossing (if appropriate)
 - viii) Government corners with bearing and distance ties to alignment along the government lines.

- b. Witness list for the alignment points found or set, which shows coordinates, stationing and four witnesses for each alignment point. **WITNESS LISTS MUST USE ONLY UPPER CASE LETTERS.**
 - c. LCRC's for legal alignment points with physical monumentation, found or set.
3. In the third directory on the CD, and third pocket of the portfolio if requested, labeled **CONTROL**, the following will appear:
- a. Documentation of horizontal and vertical datum sources.
 - b. OPUS documentation, long version.
 - c. Least squares adjustments for the horizontal and vertical control.
 - d. It is not necessary to submit electronic raw survey data in hardcopy form, nor in the .PDF file.
 - e. Text files which contain the witness lists for the horizontal alignment points, horizontal control points, benchmarks and government corners. All witness lists must note the datum(s), a combined scale factor for state plane grid-to-ground conversion, and an example thereof. **WITNESS LISTS MUST USE ONLY UPPERCASE LETTERS.**
 - f. An MDOT-formatted Microsoft Word file, **SurveyInfoSheet.doc**, showing the data in e. above, using **ONLY UPPER CASE LETTERS.**
4. In the fourth directory on the CD, and fourth pocket of the portfolio if requested, labeled **PROPERTY**, the following will appear:
- a. Tax maps and descriptions with owner names, addresses and phone numbers, if Right of Way is to be acquired, or if riparian ownerships are required.
 - b. Maps, plats, and recorded surveys.
 - c. Documents such as plats, Act 132 Certificates and/or tax maps marked with point numbers as property ties, if Right of Way is to be acquired.
 - d. Legible **recorded** copies of all Land Corner Recordation Certificates (LCRC) filed for the government corners (PLSS corners and Property Controlling Corners) used for computations and/or in danger of obliteration by impending construction.
5. In the fifth directory on the CD, and fifth pocket of the portfolio if requested, labeled **MAPPING**, the following will appear:
- a. Mapping files in MDOT MicroStation V8i format in the current MDOT workspace, and also converted to .PDF format. **ALL POINT AND LINE DESCRIPTIONS MUST USE ONLY UPPER CASE LETTERS.**

- b. File names must be as shown in the MDOT Design Wiki
http://mdotwiki.state.mi.us/design/index.php/Chapter_3__Standard_Naming_Conventions
 - c. All Geopak design files produced by survey, including: .xml alignment files, triangle.dgn file, .dtm, and .tin files.
 - d. All field survey notes and electronic mapping data used for the project. It is not necessary to submit electronic raw survey data in hardcopy form, nor in the .PDF file.
 - e. All supporting and supplemental information or data, such as drainage and utilities, electronically only if possible.
6. In the sixth directory on the CD, and sixth pocket of the portfolio if requested, labeled **MISCELLANEOUS**, the following will appear:
- a. Any photographs taken for clarity of an area
 - b. Any newspaper clippings related to the project
 - c. Any information not covered in this scope that will be of benefit to the designer or another surveyor

ATTACHMENT B
SCOPE OF SERVICE
FOR
HYDRAULICS SURVEY
Consultant Analysis

C.S. XXXXX Job No. XXXXXX
Route over Stream
XXXXXX County

The Consultant shall perform a hydraulics survey, which provides geometric data on the stream channel upstream and downstream of the structure. **Two weeks** prior to starting the hydraulics survey, the Consultant surveyor shall schedule a site visit with an MDOT Hydraulics engineer by contacting the Design Engineer-Hydraulics/Hydrology Chris Potvin at 517-335-1919 or Assistant Design Engineer-Hydraulics/Hydrology Larry Wiggins at 517-373-1713. The purpose of the site visit is to discuss details of the survey and to clarify the intent of the survey. Notes must be taken at the site visit and submitted promptly to the MDOT Project Manager, and MDOT Survey Coordinator or Region Surveyor.

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 or Consultant Survey Coordinator or Region Surveyor).

The Consultant must make every effort to minimize brush cutting on private property. The use of paint on private property is prohibited.

Cross-sections shall be taken at the limits and intervals specified by the MDOT Design Engineer-Hydraulics/Hydrology as shown in Attachment A. Channel cross-sections shall be taken normal to the direction of *flood* flow and tied to the project coordinate system so they can be accurately plotted. The sections shall be extended to the edge of the floodplain, to the elevation of the top of the road at the structure, or to a distance beyond the river bank agreed upon with the MDOT Hydraulics engineer at the site visit. Shots must be taken at approximately six foot intervals through the stream, and at significant break points. Any high water marks and date of occurrence (if available) shall be noted.

Since the hydraulics analysis is to be performed by Consultant staff, the Consultant shall meet the following requirements for hydraulics cross-sections:

1. Cross-sections shall be submitted electronically in a format acceptable to the Design Engineer-Hydraulics/Hydrology.
2. The highpoints of all berms such as roads, railroads, or driveways that cross the stream must be included as a separate chain. Each highpoints chain must also have a description or comment that identifies the type of centerline, such as “railroad berm” or “farm drive.” Each individual shot in the highpoints chain should have its own identifying Feature Code or description, such as centerline, sidewalk or top of wall.
3. Each cross-section shall be submitted with the points in the chain running all left to right, looking downstream.

4. The cross-sections generally must extend a minimum of 100 feet into the floodplain from the stream top of bank.
5. For each cross-section, the vegetation break point (the “friction point” between the natural channel and the surrounding vegetation) shall be shot. It should have a comment or description of “break point.”
6. Subsequent vegetation break points, if applicable, shall be shot with a comment or description such as “friction point – grass to shrub,” or “friction point – shrub to trees” as appropriate.
7. The water surface elevations at each cross section shall be taken at the left edge of water and right edge of water looking downstream. The Consultant must note if any stream bed cross sections were dry, and water surface elevation shots were unavailable.

The project surveyor must ensure that all required information is legible and in a form which is easily accessible to the Hydraulics/Hydrology Unit. A HEC-RAS file is acceptable. Other formats must be discussed in advance with the Survey Project Manager or MDOT Hydraulics Engineer.

All elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD88), or project datum, if established and different. If a project datum is used, the MDOT Hydraulics Engineer may require a reference to NAVD88 or National Geodetic Vertical Datum of 1929 (NGVD29). Two benchmarks must be established at the stream crossing, one on each side of the stream. All benchmarks must be accurately described. Benchmark leveling shall be a closed loop of at least third-order accuracy, which requires an error of closure between known benchmarks of not more than 0.06 feet times the square root of the distance in miles.

Note: It is not necessary to provide least squares analyses for horizontal and vertical control for a Hydraulics Survey upstream and downstream from the structure. Electronic evidence of horizontal and vertical closure is required. The surveyor must use professional judgment to determine whether the closures are acceptable for use on a Hydraulics Survey. It is necessary to provide accurate elevations for underclearances, road profiles, weirs, and anything that controls flow. It is not necessary to provide extremely accurate closures for vertical and horizontal control used for hydraulics cross-sections.

It is not necessary to provide a witness list of horizontal control points set for hydraulics cross-sections.

A list containing at least two benchmarks, one on either side of the bridge, with descriptions, elevations and datum, must be provided. Since these benchmarks will be used for road/bridge design and construction, least squares analysis is required.

THE PORTFOLIO FOR THE HYDRAULICS SURVEY MUST BE DELIVERED ELECTRONICALLY. All field measurements, notes, sketches, and calculations must be included in the final transmission.

ATTACHMENT AA

C.S. XXXXX Job No. XXXXXX

Route over Stream: Section XX, TXXX, RXXE

XXXXXX County

FINAL REPORT: DELIVERABLES FOR HYDRAULICS SURVEY

1. The **riparian owners and addresses** in the four quadrants of the structure and stream, clearly shown. It may be necessary to draw the stream on an Equalization map.
2. **First water access** of all buildings within the survey limits. These shots should use Feature Code **FF** in MicroStation. A description should be included noting exactly what element was shot, such as basement window, walkout basement, or first floor.
3. All **pertinent structure data** including water surface elevations, flow lines, invert or footing elevations, opening widths, length, pier thickness and underclearance elevations, both upstream and downstream, **at the stream structure**. Include an elevation view sketch of both sides of the structure showing this information. Note structure width across the road.
4. All **pertinent structure data** including water surface elevations, flow lines, invert or footing elevations, opening widths, length, and underclearance elevations, both upstream and downstream, at **any other structures** encountered within the reach of the survey. Include an elevation view sketch of both sides of all such structures showing this information. Note structure width across the roadway or railroad.
5. Water surface elevations at each section must be provided, with the date taken. The water surface elevations at each cross section shall be taken at the left edge of water and right edge of water. **All water surface elevations should be taken on the same day if possible**. If not, note the date taken and any event which may affect the evaluation.
6. A **profile of the highpoints of all berms** such as roads, railroads, or driveways that cross the stream must be included as separate chains, with a Feature Code of "HIPTC" and labeled as "HIPTC3, HIPTC1", etc. These HIPTC chains need not be in numerical sequence, but each HIPTC chain must have a description of 10, 20, 30, etc., in sequence, starting with 10 at the downstream end. Each HIPTC chain must also have a description that identifies the type of berm, such as "railroad berm" or "farm drive." The HIPTC chains are to have descriptions of 10, 20, 30, etc., sequenced separately from the HYDRO chains. Each individual shot in the HIPTC chain should have its own identifying Feature Code and alpha prefix such as CL, SW, or WALLT. Profile shots must be taken at the approximate reference lines of the structure, with an appropriate Feature Code and a description of "approximate reference line."
7. One **road profile** for a minimum of 600 feet along the **highpoints of the state trunkline**, as determined by the MDOT Hydraulics Engineer with a description or "**M-xx centerline**." The chain Feature Code must be HIPTC, with a description of "10", or as

sequenced in #6 above if there are berms downstream in the survey area. Each individual shot in the HIPTC chain should have its own identifying Feature Code, such as CL, SW or WALLT. Shots must be taken at the approximate reference lines of a structure, with an appropriate Feature Code and/or point name, such as DECK or SW, and a description of “approx reference line.” In the case of a culvert, a road profile shot must be taken at the highpoint at the approximate center of the culvert, with a description of “centerline culvert” that is shown on the Hydraulics MicroStation file.

8. A **point list in ASCII format** must be provided, containing columns for point number, North (or Y), East (or X), elevation, Feature Code, and description. The shots for each cross section must be grouped together in the same order that they are in the chain, and the cross section designation noted.
9. A MicroStation V8 drawing, **saved to .pdf format**, showing the relationship of the cross sections to the structure and the road, and noting the distance between cross sections. The stream footprint must be shown, as well as any first floor locations and elevations. A **MicroStation drawing, saved to .pdf format**, of the area at the stream crossing, showing a basic map of the bridge including abutments, the road(s), and cross section shots at the upstream and downstream faces of the structure (elevations in small text).
10. A **MicroStation drawing, saved to .pdf format**, of the area at the stream crossing, showing a basic map of the bridge including abutments, the road(s), and cross section shots at the upstream and downstream faces of the structure (elevations in small text).
11. **Benchmark list** with descriptions, elevations, and datum; and least squares analysis for benchmarks at the structure.
12. Two hydraulics cross sections, one at the upstream and one at the downstream face of the structure excluding roadway embankment.
13. **Upstream** of the structure, **hydraulics cross-sections must be defined by the MDOT Hydraulics Unit.**
14. **Downstream** of the structure, **hydraulics cross-sections must be defined by the MDOT Hydraulics Unit.**

ATTACHMENT C
SCOPE OF SERVICE
FOR
HYDRAULICS SURVEY
MDOT ANALYSIS

C.S. XXXXX Job No. XXXXXX
Route over Stream
XXXXXX County

The Consultant shall perform a hydraulics survey, which provides geometric data on the stream channel upstream and downstream of the structure. **Two weeks** prior to starting the hydraulics survey, the Consultant surveyor shall schedule a site visit with an MDOT Hydraulics engineer by contacting the Design Engineer-Hydraulics/Hydrology Chris Potvin at 517-335-1919 or Assistant Design Engineer-Hydraulics/Hydrology Larry Wiggins at 517-373-1713. The purpose of the site visit is to discuss details of the survey and to clarify the intent of the survey. The Consultant must take notes at the site visit and submit them promptly to the MDOT Survey Project Manager and MDOT Hydraulics engineer.

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 or Consultant Survey Coordinator or Region Surveyor).

The Consultant must make every effort to minimize brush cutting on private property. The use of paint on private property is prohibited.

Cross-sections shall be taken at the limits and intervals specified by the MDOT Hydraulics Engineer as shown in Attachment A. Channel cross-sections shall be taken normal to the direction of *flood flow* and tied to the project coordinate system so they can be accurately plotted. The sections shall be extended to the edge of the floodplain, to the elevation of the top of the road at the structure, or to a distance beyond the river bank agreed upon with the MDOT Hydraulics engineer at the site visit. Shots must be taken at approximately six foot intervals through the stream, and at significant break points. Any high water marks and date of occurrence (if available) shall be noted.

Since the hydraulics analysis is to be performed by MDOT staff, the Consultant shall meet the following requirements for hydraulics cross-sections:

1. Cross-sections shall be submitted electronically in a MicroStation software file.
2. Each cross-section shall be a separate chain named "HYDRO9, HYDRO2", etc. These **HYDRO** chain numbers need not be in sequence, but each HYDRO chain must have a description, labeled in MicroStation, of 10, 20, 30, etc., in sequence, starting with 10 at the

downstream end. Each individual point should have its own particular identifying MDOT Feature Code and the same alpha prefix, such as RBOT, VEGE, TB.

3. A profile of the **highpoints of all berms** such as roads, railroads, or driveways that cross the stream must be included as a separate chain in MicroStation, with a Feature Code of “**HIPTC**” and named “HIPTC3, HIPTC1”, etc. These HIPTC chain numbers need not be in sequence, but each HIPTC chain must have a description of 10, 20, 30, etc., in sequence, starting with 10 at the downstream end. Each HIPTC chain must also have a description, labeled in MicroStation, that identifies the type of centerline, such as “railroad berm” or “farm drive.” **HIPTC chains must be sequenced separately from the HYDRO Chains.** Each individual point should have its own particular identifying MDOT Feature Code and the same alpha prefix, such as CL, SW, WALLT.
4. Each HYDRO and HIPTC cross-section shall be submitted with the points in the chain running all left to right, looking downstream.
5. The cross-sections generally must extend a minimum of 100 feet into the flood plain from the stream top of bank, unless specified otherwise by the Hydraulics Engineer.
6. For each cross-section, the vegetation break point (the “friction point” between the natural channel and the surrounding vegetation) shall be shot with an alpha prefix and Feature Code of “**RBK**” or “**LBK**” on the right or left side of the waterway, looking downstream. It should have a description of “break point.”
7. Subsequent vegetation break points, if applicable, shall be shot with an alpha prefix and Feature Code of “**VEGE**” with a description such as “friction point – grass to shrub,” or “friction point – shrub to trees” as appropriate. The vegetation type closest to the stream shall be listed first.
8. The water surface elevations at each cross section shall have a Feature Code and alpha prefix and of “**LWS**” and “**RWS**”, taken at the left edge of water and right edge of water looking downstream. The Consultant must note if any stream bed cross sections were dry, and LWS/RWS shots were unavailable. The note should be shown on the MicroStation drawing. **These points are not to be included in the Hydro chains.**

The project surveyor must ensure that all required information is legible and in a form which is easily accessible to the Hydraulics/Hydrology Unit. A MicroStation software file, version **08.11.07.566** (as of 1October2012) is acceptable. Other formats must be discussed in advance with the MDOT Survey Project Manager or Region Surveyor. Only one MicroStation file per project is desired. The Consultant should not submit separate MicroStation files for Hydraulics and Road/Structure, unless the Hydraulics Survey is required to be delivered first, in which case the Road/Structure Survey MicroStation file would be continued/appended to the Hydraulics Survey file. Two Hydraulics-specific .dgn files, saved to .pdf format, are required, see Deliverables section.

All elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD88), or project datum, if established and different. If a project datum is used, the MDOT Hydraulics

Engineer may require a reference to the North American Vertical Datum of 1988 (NAVD88) or the National Geodetic Vertical Datum of 1929 (NGVD29). Two benchmarks must be established at the stream crossing, one on each side of the stream. All benchmarks must be accurately described. Benchmark leveling shall be a closed loop of at least third-order accuracy, which requires an error of closure between known benchmarks of not more than 0.06 feet times the square root of the distance in Miles.

Note: It is not necessary to provide least squares analyses for horizontal and vertical control for a Hydraulics Survey upstream and downstream from the structure. Electronic evidence of horizontal and vertical closure is required. The surveyor must use professional judgment to determine whether the closures are acceptable for use on a Hydraulics Survey. It is necessary to provide accurate elevations for underclearances, road and berm profiles, weirs, and anything that controls flow. It is not necessary to provide extremely accurate closures for vertical and horizontal control used for hydraulics cross-sections.

It is not necessary to provide a witness list of horizontal control points set for hydraulics cross-sections.

A list containing at least two benchmarks, one on either side of the bridge, with descriptions, elevations and datum, must be provided. Since these benchmarks may well be used for road/bridge design and construction, least squares analysis is required.

THE PORTFOLIO FOR THE HYDRAULICS SURVEY MUST BE DELIVERED ELECTRONICALLY. All field measurements, notes, sketches, and calculations must be included in the final transmission.

ATTACHMENT AA

C.S. XXXXX Job No. XXXXXX

Route over Stream: Section XX, TXXX, RXXX

XXXXXX County

FINAL REPORT: Deliverables for Hydraulics Survey

1. The **riparian owners** and addresses in the four quadrants of the structure and stream, clearly shown. It may be necessary to draw the stream on an Equalization map.
2. **First water access** of all buildings within the survey limits. These shots should use Feature Code **FF** in MicroStation. A description should be included noting exactly what element is depicted, such as basement window, walkout basement, or first floor.
3. All pertinent **structure data** including water surface elevations, flow lines, invert or footing elevations, opening widths, structure width, pier thickness and underclearance elevations, both upstream and downstream, at the stream structure. Include **elevation view sketches** of both sides of the structure showing this information. Note structure width across the road.
4. All pertinent **structure data** including water surface elevations, flow lines, invert or footing elevations, opening widths, structure width, and underclearance elevations, both upstream and downstream, at any other structures encountered within the reach of the survey. Include **elevation view sketches** of both sides of **all such structures** showing this information. Note structure width across the roadway or railroad.
5. Water surface elevations at each section must be provided, with the date noted as a description. The water surface elevations at each cross section shall be taken at the left edge of water (LWS) and right edge of water (RWS). **All water surface elevations should be taken on the same day if possible.** If not, note the date taken and any event such as rainfall which may affect the evaluation.
6. A **profile of the highpoints of all berms** such as roads, railroads, or driveways that cross the stream must be included as separate chains in MicroStation, with a Feature Code of “HIPTC” and labeled as “HIPTC3, HIPTC1”, etc. These HIPTC chains need not be in sequence, but each HIPTC chain must have a description of 10, 20, 30, etc., in sequence, starting with 10 at the downstream end. Each HIPTC chain must also have a description that identifies the type of berm, such as “railroad berm” or “farm drive.” The HIPTC chains are to have descriptions of 10, 20, 30, etc., sequenced separately from the HYDRO chains. Each individual shot in the HIPTC chain should have its own identifying Feature Code and alpha prefix such as CL, SW, or WALLT. Profile shots must be taken at the approximate reference lines of the structure, with an appropriate Feature Code and a description of “approximate reference line.”
7. One **road profile** for a minimum of 600 feet along the **highpoints of the state trunkline**, as determined by the MDOT Hydraulics Engineer with a description or “**M-xx centerline.**” The chain Feature Code must be HIPTC, with a description of “10”, or as sequenced in #6 above if there are berms downstream in the survey area. Each individual shot in the HIPTC chain

should have its own identifying Feature Code, such as CL, SW or WALLT. Shots must be taken at the approximate reference lines of a structure, with an appropriate Feature Code and/or point name, such as DECK or SW, and a description of “approx reference line.” In the case of a culvert, a road profile shot must be taken at the highpoint at the approximate center of the culvert, with a description of “centerline culvert” that is shown on the Hydraulics MicroStation file.

8. A **point list** in ASCII format must be provided, containing columns for point number, North (or Y), East (or X), elevation, Feature Code, and description. The shots for each HYDRO and HIPTC cross section must be grouped together in the same order that they are in the chain, and the cross section designation (10, 20, 30, etc.) noted.
9. A **MicroStation V8** drawing of the Hydraulics Survey, saved to .pdf format, utilizing MDOT Feature Codes and showing the relationship of the cross sections to the structure and the road, and noting the distance between cross sections. The HYDRO and HIPTC chains must show the description numbers of 10, 20, 30, etc. Point numbers must also be shown in small text. The RBK and LBK shots must be connected to show the stream footprint. First water access locations and elevations must be shown, along with a notation of what the first water access point is, e.g. basement window.
10. A **MicroStation drawing, saved to .pdf format**, of the area at the stream crossing, showing a basic map of the bridge including abutments, the road(s), and cross section shots at the upstream and downstream faces of the structure (elevations in small text).
11. **Benchmark list** with descriptions, elevations, and datum; and least squares analysis for benchmarks at the structure.
12. **Two HYDRO cross sections**, one at the **upstream face** and one at the **downstream face** of the structure, excluding roadway embankment.

Upstream of the structure, hydraulics **cross-sections must be defined by the MDOT Hydraulics Unit.**

Downstream of the structure, hydraulics **cross-sections must be defined by the MDOT Hydraulics Unit.**

ATTACHMENT D

SCOPE OF SERVICE
FOR
UTILITY COORDINATION

The Consultant is directly responsible for all aspects of the project's utility coordination. The Consultant is expected to provide technical assistance to MDOT, utilities and other stakeholders regarding utility identification, project utility coordination and utility conflict resolution.

A utility is defined as any privately, publicly, municipal or cooperatively owned line, facility, or system for producing, transmitting, or distributing communication, cable television, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, or any other similar commodity, including any fire or police signal system or street lighting system.

MDOT shall:

- Provide a preliminary list of utilities, with contact information, that may have facilities located within the project limits. This list may not be 100% accurate and/or complete.
- Provide assistance, if necessary, in contacting utilities to obtain facility records.
- Provide Consultant with utility responses and facility records if utility information solicitation has been performed.
- Organize and host a kick-off meeting with Consultant and MDOT prior to Consultant beginning utility coordination services.

Consultant shall:-

- Maintain a Utility Conflict Matrix* spreadsheet and deliver as the bi-weekly status report.
- Distribute form letters, plans, etc. as outlined in 14.16 (Request for Utility Information) and 14.26 (Distribution of Preliminary Plans to Utilities and Utility Coordination Meeting) of the MDOT Road Design Manual.
 - Identify existing/proposed utility owners and facilities.
 - Collect and compile utility responses.
 - Follow up with non-responsive utilities.
- Schedule and conduct utility meetings for the resolution of conflicts between utility facilities and proposed construction.
 - Identify conflicts, discuss possible design modifications, develop utility relocation schemes, discuss reimbursable relocations, and discuss project scope and schedule.
 - Identify the utility's design and construction contacts and ensure the plan's note sheet utility contact information is accurate.
 - Record meeting minutes and distribute to all attendees.
- Schedule and conduct field meetings with individual utilities to resolve conflicts.
- Schedule and conduct in meetings convened for the purpose of utility betterments.
- Ensure municipal utility relocations, betterments and reimbursements follow Chapter 9 of the MDOT Road Design Manual.
- Identify eligible reimbursable utility relocations, for public/private utilities, as outlined in

23 Code of Federal Regulations (CFR) Part 645 Subparts A and B – Utilities and ensure 23 CFR Part 635.410 - Buy America Requirements are met.

- Collect documentation to evaluate reimbursable utility relocations.
- Evaluate utility relocation plans for compatibility with the proposed project.
- Ensure utility relocation schedules do not impact the project schedule.
- Confirm utility relocation permit applications are submitted to the TSC.
- Prepare the “Utilities Status Report” (MDOT Form 2286) and “Notice to Bidders - Utility Coordination” documents.
- Track and monitor utility relocation progress.

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Deliverables (Provided to the TSC Utility Coordinator and Project Manager):

- Courtesy copies of all correspondence with the utilities
- Utility Conflict Matrix
- Utility coordination meeting minutes
- Reimbursable utility relocation documentation
- Utilities Status Report and Notice to Bidders - Utility Coordination

* The Utility Conflict Matrix (UCM) is located on the <http://www.trb.org/Main/Blurbs/166731.aspx> website under Training materials > Prototype 1 – Stand-alone UCM. The UCM was developed as part of the Transportation Research Board’s (TRB) second Strategic Highway Research Program (SHRP 2) Report S2-R15B-RW-1: Identification of Utility Conflicts and Solutions which provides concepts and procedures to identify and resolve utility conflicts. Tools described in the report include utility conflict matrices that enable users to organize, track, and manage conflicts that frequently arise.

ATTACHMENT E

SCOPE OF SERVICE FOR

SUBSURFACE UTILITY ENGINEERING (SUE)

DEFINITIONS:

SUE - A branch of engineering practice that involves managing certain risks associated with utility mapping at appropriate quality levels, utility coordination, utility relocation design and coordination, utility condition assessment, communication of utility data to concerned parties, utility relocation cost estimates, implementation of utility accommodation policies, and utility design. (ASCE Standard 38-02)

Utility Quality Level - A professional opinion of the quality and reliability of utility information. Such reliability is determined by the means and methods of the professional. Each of the four existing utility data quality levels is established by different methods of data collection and interpretation. (ASCE Standard 38-02)

ASCE Standard 38-02, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data" has been used as a guideline for the development of this Scope of Services. Depending on the project, the Consultant may be asked to provide some or all the work identified in utility quality levels A through D.

UTILITY QUALITY LEVEL D - Information derived from existing records or oral recollections.

MDOT shall:

- Provide a preliminary list of utilities, with contact information, that may have facilities located within the project limits. This list may not be 100% accurate and/or complete.
- Provide assistance, if necessary, in contacting utilities to obtain facility records.
- Provide Consultant with utility responses and facility records if utility information solicitation has been performed.
- Organize and host a kick-off meeting including Consultant, MDOT and utilities prior to Consultant beginning SUE services.

Consultant shall:

- Take appropriate steps to identify all known and unknown utility facilities within the project limits. Some sources of information may include utility owners, visual site inspection, internet search, Public Service Commission, County Clerk's office, Miss Dig Design Ticket, etc.
- Solicit utility information as outlined in Chapter 14 of the MDOT Road Design Manual, section 14.16 (Request for Utility Information), if not already completed by MDOT.
- Attend and participate in kick-off meeting with MDOT and utilities. Consultant is expected to provide an explanation of SUE services and what each participant's role is in the SUE process.

UTILITY QUALITY LEVEL C - Information obtained by surveying and plotting visible above-ground utility features and by using professional judgment in correlating this information to utility quality level D information.

Consultant shall:

- Complete utility quality level D, as necessary, in order to complete utility quality level C.
- Obtain all necessary permission or permits from MDOT, county, municipality, or other entity, which allow the Consultant to work within the project limits.
- Survey visible above-ground utility facilities and correlate this information with existing utility records.

UTILITY QUALITY LEVEL B - Information obtained through the application of appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities. Utility quality level B data should be reproducible by surface geophysics at any point of their depiction. This underground information is surveyed to plus or minus one foot accuracy and reproduced onto plan documents.

MDOT shall:

- Provide survey control for the purposes of tying the designated utilities to the State Plane Coordinate System, and vertical system being North American Vertical Datum of 1988 (NAVD88).
- MDOT will also furnish existing highway plans showing topography, horizontal alignments, etc. and/or design mapping using current MDOT Workspace, if available.

Consultant shall:

- Complete utility quality levels C and D, as necessary, in order to complete utility quality level B.
- Provide materials, equipment and personnel necessary for traffic control as directed by the appropriate MDOT Transportation Service Center (TSC) and the MDOT Workzone Mobility Policy. Consultant may be required to work off peak hours. Consultant shall not work on weekends, national holidays, state holidays, or days proceeding said holidays without written permission from the TSC.
- Provide materials, equipment and personnel, including surveying capability, to designate, mark, and record, the horizontal location of all existing underground utilities and major laterals. Storm sewers are not to be designated unless specifically required by MDOT. Typically, horizontal designating of underground utilities shall be accurate to plus or minus one foot.
- Prepare CADD files containing horizontal utility depictions using the conventions indicated in the MDOT Road Design Manual.

UTILITY QUALITY LEVEL A - Precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and

subsequent measurement of subsurface utilities, usually at a specific point. Minimally intrusive excavation equipment is used to reduce the potential for utility damage. Precise horizontal and vertical locations, as well as other utility attributes, are shown on plan documents. Accuracy is typically set to 0.05 decimal feet (approximately 5/8") vertical and to applicable horizontal survey and mapping accuracy as defined or expected by the Project Manager.

MDOT shall:

- Furnish preliminary highway plans showing areas requiring test holes.

Consultant shall:

- Complete utility quality levels B, C, and D, as necessary, in order to complete utility quality level A.
- Comply with State law requirements prior to performing excavation activities.
- Coordinate with the utilities as required.
- Excavate test holes in a manner such as vacuum excavation, hand digging, etc. that prevents damage to utility wrappings, coatings, or other protective coverings.
- Neatly cut and remove existing pavement, with cut area not to exceed 225 square inches, using a method enabling vertical and horizontal utility exploration.
- Be responsible for any damage to the utility during excavation.
- Backfill and compact test holes with approved material.
- Provide a permanent pavement restoration for test holes performed through the roadway pavement. If the test hole is performed in an area other than the roadway pavement, the area disturbed shall be restored to equal or better than the condition before excavation.
- Tie all vertical elevations to a minimum of two checked benchmarks. The accuracy of these benchmark checks shall be in accordance with surveying practices that ensure vertical surveying of underground utilities is accurate to 0.05 decimal feet.

DELIVERABLES - The final deliverables shall be sealed by a licensed professional civil engineer registered in the State of Michigan. The Consultant is responsible for the accuracy of all information presented to MDOT. Deliverables shall be sent to the MDOT Project Manager.

- CADD files containing horizontal utility depictions shall be submitted to MDOT on CD/DVD in CADD format utilizing MDOT's current version of MicroStation and MDOT Workspace.
- For all test holes performed, the following information shall be submitted to MDOT on CD/DVD in CADD format utilizing MDOT's current version of MicroStation and MDOT Workspace:
 - Elevation of top of utility tied to project vertical datum
 - Elevation of existing grade over utility at the test hole
 - Horizontal location referenced to project coordinate datum
 - Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems

- Size, type and owner of utility facility
- Utility structure material composition and condition, when possible