State of Michigan

Department of Technology, Management and Budget
State Facilities Administration
Design and Construction Division

DCSPEC
Bidding and Contract Document
Minor Projects

File No. 751/18306.TAP
MDNR-Shingleton FRD Unit, Delta County
Fish Dam Creek Crossing
GPS Coordinates:
N45º53.272’ – W86º29.559’ (WGS84)

February, 2021

DTMB-0401D (R 02/19)

BID SUMMARY

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET

STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
3111 W. St. Joseph Street
Lansing, Michigan 48917

Bids must be submitted electronically through the SIGMA VSS website at
https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService

FILE NUMBER	FUNDING CODE	DEPARTMENT/AGENCY	
751/18306.TAP	NA	Natural Resources	
CONTRACT TIME(S)	PROJECT NAME		LOCATION
September 1, 2021	Fish Dam Creek Crossing		GPS Coordinates: N45º53.272' – W86º29.559' (WGS84)
BID OPENING DA		FOR AN EXAMINATION OF THE SITE CONTACT:	
April 28, 2021 at 2:00 pm Local Time		**Bob Burnham** **burnhamr2@michigan.gov**	

SEE SECTION 00100 INSTRUCTIONS TO BIDDERS AND SECTION 00700 GENERAL CONDITIONS PROVIDED WITH THE BIDDING DOCUMENTS.
BID: WE PROPOSE TO FURNISH, PERFORM AND COMPLETE THE ENTIRE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS IN CONSIDERATION OF THE BID PRICE (S) STATED BELOW.

FIRM NAME AND COMPLETE ADDRESS	TELEPHONE NUMBER and E-MAIL ADDRESS
	FEDERAL I.D. NUMBER (**LAST 4 ONLY**)
☐ Qualified Disabled Veteran	(protected information required for processing payments)
BIDDER'S SIGNATURE AND TITLE DATE	WITNESS' SIGNATURE DATE

By signing this bid above, bidder certifies their enclosed Qualified Disabled Veteran and Michigan-Based Business Certifications.

BASE BID FROM BID SCHEDULE (Include specified Allowances):

_____ Dollars $_____
(use words) (in figures)

Alternate1: (Add/Subtract) _____ Dollars $ _____
(use words) (in figures)

Alternate 2: (Add/Subtract) _____ Dollars $ _____
(use words) (in figures)

Alternate 3: (Add/Subtract) _____ Dollars $ _____
(use words) (in figures)

Builders Risk Insurance is NOT provided by the State of Michigan and is NOT required for this project. (Section 00700 Article 3.4).

A PERFORMANCE BOND AND A PAYMENT BOND ARE REQUIRED FOR ALL BIDS OVER $50,000.00. EACH BID MUST BE ACCOMPANIED BY A FIVE (5) PERCENT BID GUARANTEE.

BIDDERS ARE ALSO CAUTIONED TO FAMILIARIZE THEMSELVES WITH ALL OF THE OTHER CONDITIONS OF THE CONTRACT.

Project Scope of Work:
Removal of the existing two undersized corrugated metal pipe culverts and replacement with concrete box culvert including approaches and embankment and other details per the drawings and specifications.

The site is located along Trail No. 415 and is a two-track seasonal road that intersects highway US-2 between the Garden Corner (at intersection of US-2 and M-183) and Schoolcraft/Delta County line just to the east. The road entrance at US2 between mile markers 219 and 220 on the passing lane stretch of US2. The site is 1.0 miles south of US2. GPS Coordinates: N45º53.272' – W86º29.559' (WGS84).

The Bidder must figure its Base Bid on the specified, or Addendum-approved, materials and equipment **only**. No "or equal" or substitution proposals will be permitted after Bid opening, except as provided in the General Conditions.

Addenda: Bidder acknowledges receipt of Addenda: No. ___ dated: _____, No. ___ dated: _____ No. ___ dated: _____

FIRM NAME	TELEPHONE NUMBER and E-MAIL ADDRESS

BID SCHEDULE

Base Bid Schedule - The Bidder will complete the Work and accept as full payment, for the Work items listed, the following Unit Prices and/or Item Bid Prices, as applicable:

Base Bid Item No.	**Bid Quantity**	**Description (Bidder to write price in Words)**	**Unit Price**	**Item Bid Price**
Mobilization	**1 LS**			
Culvert Removal	**1 LS**			
Site Work	**1 LS**			
Culvert Install	**1 LS**			
		ALLOWANCE AMOUNT	**$10,000**	**$10,000**
TOTAL (This amount should equal the Base Bid amount on the Bid Summary Form)				**$**

Base Bid (Sum of Item Bid Prices for all Base Bid Items):

_____ Dollars $_____

(use words) (in figures)

Schedule of Alternates - The Bidder will complete (or deduct from the Contract) the parts of the Work designated by the Alternates that follow and accept in full payment (or allow in full credit) for those parts of the Work the following Item Bid Prices:

Alternate Item No.	Bid Quantity	Description (Bidder to write price in Words)	Unit Price	Item Bid Price

The Bidder further acknowledges and agrees that the separate prices bid on this "Schedule of Alternates," where they are applicable and deemed acceptable by the **Owner**, will be used if incorporated into the Contract when the **Owner** issues the Notice of Award.

Schedule of Unit Prices or Contingent Change Order Prices - The Bidder shall use this "Schedule" to quote unit prices identified in the bid documents or propose other contingent Change Order prices. The proposed Unit Prices or contingent Change Order prices set forth in this schedule, at the sole discretion of the **Owner,** may, or may not be incorporated into the Contract Documents. The **Owner** reserves the right to negotiate Unit Prices or contingent Change Order prices set forth herein prior to their possible incorporation into the Contract Documents.

Item No.	Units or Quantity	Description (Bidder to write price in Words)	Bidder's Bid Price	Price Proposed By The Owner

Design & Construction Division

Qualified Disabled Veteran (QDV) Business Representation

'Qualified Disabled Veteran,' means a business entity that is 51% or more owned by one or more veterans with a service-connected disability.

'Qualified Disabled,' means a business entity that is 51% or more owned by one or more with a service-connected disability.

The vendor represents that it IS _____, a qualified disabled veteran.

The contractor represents and warrants that the company meets the above (when checked) and has attached supporting documentation per the following:

Each bid requesting the Qualified Disabled Veterans (QDV) preference, in accordance with Public Act 22 of 2010, MCL 18.1241.3 shall include a DD214 Proof of Service and Discharge, a Veterans Administration rating decision letter, proof of disability (if the disability is not indicated on the DD214), and appropriate legal documents setting forth the 51% natural persons QDV ownership.

Fraudulent Certification as a Qualified Disabled Veteran may result in debarment under MCL 18.264.

Certification of a Michigan Based Business

(Information Required Prior to Contract Award for Application of State Reciprocity Provisions)

To qualify as a Michigan Based Business:

Vendor must have, during the 12 months immediately preceding this bid deadline:
or
If the business is newly established, for the period the business has been in existence, it has:

(check all that apply):

- ☐ Filed a Michigan single business tax return showing a portion or all of the income tax base allocated or apportioned to the State of Michigan pursuant to the Michigan Single Business Tax Act, 1975 PA 228, MCL 208.1 – 208.145; or
- ☐ Filed a Michigan income tax return showing income generated in or attributed to the State of Michigan; or
- ☐ Withheld Michigan income tax from compensation paid to the bidder's owners and remitted the tax to the Department of Treasury; or

I certify that **I have personal knowledge** of such filing or withholding, that it was more than a nominal filing for the purpose of gaining the status of a Michigan business, and that it indicates a significant business presence in the state, considering the size of the business and the nature of its activities.

I authorize the Michigan Department of Treasury to verify that the business has or has not met the criteria for a Michigan business indicated above and to disclose the verifying information to the procuring agency.

Bidder shall also indicate one of the following:

- ☐ Bidder qualifies as a Michigan business (provide zip code: _____)
- ☐ Bidder does not qualify as a Michigan business (provide name of State: _____).
- ☐ Principal place of business is outside the State of Michigan, however service/commodity provided by a location within the State of Michigan (provide zip code: (_____).

Fraudulent Certification as a Michigan business is prohibited by MCL 18.1268 § 268. A BUSINESS THAT PURPOSELY OR WILLFULLY SUBMITS A FALSE CERTIFICATION THAT IT IS A MICHIGAN BUSINESS OR FALSELY INDICATES THE STATE IN WHICH IT HAS ITS PRINCIPAL PLACE OF BUSINESS IS GUILTY OF A FELONY, PUNISHABLE BY A FINE OF NOT LESS THAN $25,000 and subject to debarment under MCL 18.264.

BID BOND

BID SUBMITTED ON the _____ day of _____, 20____.

Bid Security **is in the form of: a Bid Bond _____ Bid Bond form has been duly executed _____; or**

A Bank Certified or Cashier's check ___ or Money Order ___ is attached to this page ____ (***If Bid Security is by Check or Money Order, the original check or money order must be delivered to the issuing office before Bid Due Time. ALL other SIGMA bid submittals are also still to be made).***

If the Bidder is an Individual:

Name of Individual: _____

Name & Title of Person Authorized to sign: _____

Signature: _____
(If not the Individual, Attach Power of Attorney) Date

Doing Business as: _____

Business Address: _____

County of registration _____

Telephone: _____ FAX: _____

If the Bidder is a Partnership:

By: _____
(True Name of the Partnership)

_____
Partner Authorized to Sign Date

Signature: _____
(Attach evidence of Authority to sign) Date

Business Address: _____

County of registration _____

Telephone: _____ FAX _____

If the Bidder is a Corporation:

By: _____
(Legal Corporation Name)

Name & Title of Authorized Officer: _____

Signature: _____
(Attach evidence of Authority to sign) Date

Name & Title of Officer Attesting: _____

Signature: _____
Date

Business Address: _____

Telephone: _____ FAX _____

(State of Incorporation): _____

If The Bidder is A Joint Venture: JOINT VENTURE SIGNATURES MUST BE AS PROVIDED IN INSTRUCTIONS TO BIDDERS. EACH JOINT VENTURER SIGNING THE BID MUST SIGN IN THE MANNER INDICATED FOR AN INDIVIDUAL, A PARTNERSHIP OR A CORPORATION. IF MORE THAN TWO JOINT VENTURERS OF THE SAME TYPE ARE INCLUDED, USE ADDITIONAL PAGES. JOINT VENTURE STATE OF INCORPORATION _____ OR COUNTY OF REGISTRATION _____

POST-BID SUBMITTALS

The PSC will request this submittal after bid opening. Complete and submit these items within two business days after the request.

BIDDER'S EXPERIENCE MODIFICATION RATING (EMR) _____
Attach letter of explanation if the Bidder does not have an EMR.

PROPOSED PROJECT SUPERINTENDENT _____
Attach brief resume or list of similar successful projects.

LIST OF SIMILAR PROJECTS COMPLETED BY THE BIDDER
Please list at least three completed projects of similar size and complexity to the project being bid, with reference contact information

_____

REFERENCE #___

Owner: _____

Project/Contract Name: _____

Location of Project/Contract: _____

Contract Price: _____ Project/Contract Started: _____ Completed: _____

Owner's Representative (Name and Telephone): _____

_____

Scope of Project/Contract: _____

_____

REFERENCE #___

Owner: _____

Project/Contract Name: _____

Location of Project/Contract: _____

Contract Price: _____ Project/Contract Started: _____ Completed: _____

Owner's Representative (Name and Telephone): _____

_____

Scope of Project/Contract: _____

_____

REFERENCE #___

Owner: _____

Project/Contract Name: _____

Location of Project/Contract: _____

Contract Price: _____ Project/Contract Started: _____ Completed: _____

Owner's Representative (Name and Telephone): _____

_____

Scope of Project/Contract: _____

POST BID SUBMITTALS: LIST OF SUBCONTRACTORS

The Apparent Low Bidder shall nominate for each Division of Specification and/or trade category, the Subcontractor to be awarded Sub-agreements, including the apparent Low Bidder if work is to be self-performed. Nominated subcontractors shall not be removed, replaced or added to except by written request for good reason, subject to Owner acceptance.

Division, Specification Section and/or Trade	Nominated Subcontractor(s)	Amount of Subcontract	Minority, Woman, Handicapped?
1._____	_____	_____	_____
2._____	_____	_____	_____
3._____	_____	_____	_____
4._____	_____	_____	_____
5._____	_____	_____	_____
6._____	_____	_____	_____
7._____	_____	_____	_____
8._____	_____	_____	_____
9._____	_____	_____	_____
10._____	_____	_____	_____
11._____	_____	_____	_____
12._____	_____	_____	_____
13._____	_____	_____	_____
14._____	_____	_____	_____

The undersigned Apparent Low Bidder _____ certifies that all the information and data furnished in this List of Subcontractors are current, accurate and complete as of the date stated below.

Signed by:_____Name_____ Title _____

on this _____ day of _____, 20_____.

PERFORMANCE BOND

SURETY COMPANY REFERENCE No. _____

That "the **Contractor**," _____, a corporation ___, individual ___, partnership ___, joint venture ___ of the State of _____, qualified to do business in the State of Michigan, as Principal, and "the Surety," _____, of the State of _____, as surety, are held and bound unto the State of Michigan, "the **Owner**," as Obligee, in the amount of _____ Dollars ($_____), for the payment of which the **Contractor** and Surety bind themselves, their respective heirs, successors, legal representatives and assigns, jointly and severally, in compliance with 1963 PA 213, as amended, MCL 129.201 et seq.

The **Contractor** has entered into "the Contract" with the **Owner** for _____ _____, "the Work," covered by the Contract Documents, which are incorporated into this Performance Bond by this reference;

If the **Contractor** faithfully performs and fulfills all the undertakings, covenants, terms, conditions, warranties, indemnifications and agreements of the Contract Documents within the Contract Time (including any authorized changes, with or without notice to the Surety) and during the Correction Period, and if the **Contractor** also performs and fulfills all the undertakings, covenants, terms, conditions, warranties, indemnifications and agreements of any and all duly authorized modifications of the Contract Documents, then THIS OBLIGATION IS VOID, OTHERWISE TO REMAIN IN FULL FORCE AND EFFECT.

A. No change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion or other revision) releases the Surety of its obligations under this Section 00610 Performance Bond. The Surety expressly waives notice of any such change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion or other revision).

B. This Performance Bond must be solely for the protection of the **Owner** and its successors, legal representatives or assigns.

C. It is the intention of the **Contractor** and Surety that they must be bound by all terms and conditions of the Contract Documents (including, but not limited to General Conditions and this Performance Bond). However, this Performance Bond is executed pursuant to 1963 PA 213, as amended, MCL 129.201 et seq., and if any provision(s) of this Performance Bond is/are illegal, invalid or unenforceable, all other provisions of this Performance Bond must nevertheless remain in full force and effect, and the **Owner** must be protected to the full extent provided by 1963 PA 213, as amended, MCL 129.201 et seq.

IMPORTANT: The Surety must be authorized to do business in the State of Michigan by the Department of Licensing and Regulatory Affairs – Insurance Bureau, must be listed on the current U.S. Department of the Treasury Circular 570, and, unless otherwise authorized by the **Owner** in writing, must have at least an A– Best's rating and a Class VII or better financial size category per current A. M. Best Company ratings.

Name, Address and Telephone of the Surety:

Address and Telephone of Agent, who is either a resident of, or whose principal office is maintained in, the State of Michigan

Signed and sealed this _____ day of _____, 20_____.

THE **CONTRACTOR**: (Print Full Name and Sign) By:_____

WITNESS _____ Name & Title: _____

Telephone No. _____

THE SURETY: (Print Full Name and Sign) Agent: _____

WITNESS _____ Attorney-in-Fact: _____

Telephone No. _____

PAYMENT BOND

SURETY COMPANY REFERENCE No._____

"the **Contractor**," _____, a corporation ___, individual ___, partnership ___, joint venture ___ of the State of _____, qualified to do business in the State of Michigan, as Principal, and "the Surety," _____, of the State of _____, as surety, are held and bound unto the State of Michigan, "the **Owner**," as Obligee, in the amount of _____ Dollars ($_____), for the payment of which the **Contractor** and Surety bind themselves, their respective heirs, successors, legal representatives and assigns, jointly and severally, in compliance with 1963 PA 213, as amended, MCL 129.201 et seq.

The **Contractor** has entered into "the Contract" with the **Owner** for _____ _____, "the Work," covered by the Contract Documents, which are incorporated into this Payment Bond by this reference;

If the **Contractor** promptly pays all claimants supplying labor or materials to the **Contractor** or to the **Contractor's** Subcontractors in the prosecution of the Work, then THIS OBLIGATION IS VOID, OTHERWISE TO REMAIN IN FULL FORCE AND EFFECT.

A. All rights and remedies on this Payment Bond are solely for the protection of all claimants supplying labor and materials to the **Contractor** or the **Contractor's** Subcontractors in the prosecution of the Work, and must be determined in accordance with Michigan Law.

B. No change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion or other revision) must release the Surety of its obligations under this Payment Bond. The Surety hereby expressly waives notice of any such change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion or other revision).

C. It is the intention of the **Contractor** and Surety that they must be bound by all terms and conditions of the Contract Documents (including, but not limited to this Payment Bond). However, this Payment Bond is executed pursuant to 1963 PA 213, as amended, MCL 129.201 et seq., and if any provision(s) of this Payment Bond is/are illegal, invalid or unenforceable, all other provisions of this Payment Bond must nevertheless remain in full force and effect, and the **Owner** must be protected to the full extent provided by 1963 PA 213, as amended, MCL 129.201 et seq.

IMPORTANT: The Surety must be authorized to do business in the State of Michigan by the Department of Licensing and Regulatory Affairs – Insurance Bureau, must be listed on the current U.S. Department of the Treasury Circular 570, and, unless otherwise authorized by the **Owner** in writing, must have at least an A– Best's rating and a Class VII or better financial size category per current A. M. Best Company ratings.

Name, Address and Telephone of the Surety:

Address and Telephone of Agent, who is either a resident of, or whose principal office is maintained in, the State of Michigan

Signed and sealed this _____ day of _____, 20_____.

THE **CONTRACTOR**: (Print Full Name and Sign) By:_____

WITNESS _____ Name & Title: _____

Telephone No. _____

THE SURETY: (Print Full Name and Sign) Agent: _____

WITNESS _____ Attorney-in-Fact: _____

Telephone No. _____

TABLE OF CONTENTS

CONTRACT FORMS

BID SUMMARY FORM
BID SCHEDULE
QUALIFIED DISABLED VETERAN (QDV) BUSINESS REPRESENTATION
CERTIFICATION OF A MICHIGAN BASED BUSINESS
BID BOND
POST-BID SUBMITTALS
PERFORMANCE BOND
PAYMENT BOND

TABLE OF CONTENTS

DIVISION 00 BIDDING REQUIREMENTS AND CONTRACT CONDITIONS

SECTION	TITLE	PAGES THRU
00010	PRE-BID INFORMATION	00-1
00100	INSTRUCTIONS TO BIDDERS	00-5 TO 00-8
00120	SUPPLEMENTARY INSTRUCTIONS	00-8
00200	INFORMATION TO BIDDERS	00-8 TO 00-9
00700	GENERAL CONDITIONS	00-9 TO 00-19
00750	SPECIAL WORKING CONDITIONS	00-19 TO 00-20
00800	SUPPLEMENTARY CONDITIONS	00-20
00850	FEDERALLY FUNDED WAGE DETERMINATION SCHEDULE (NA)	00-20
00900	ADDENDA	00-20

DIVISION 01 - GENERAL REQUIREMENTS

01010	SUMMARY OF WORK	01-1
01020	ALLOWANCES	01-1
01025	MEASUREMENT AND PAYMENT	01-1
01030	ALTERNATES	01-1
01040	COORDINATION	01-1 TO 01-2
01050	FIELD ENGINEERING	01-2
01060	REGULATORY REQUIREMENTS	01-2 TO 01-4
01090	REFERENCES	01-4
01100	PROJECT PROCEDURES	01-4 TO 01-5
01200	PROJECT MEETINGS	01-5
01300	SUBMITTALS	01-5 TO 01-6
01400	QUALITY CONTROL	01-6 TO 01-7
01500	CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS	01-7 TO 01-8
01600	MATERIAL AND EQUIPMENT	01-8
01650	FACILITY START-UP	01-8
01700	CONTRACT CLOSE-OUT	01-8 TO 01-9
01800	MAINTENANCE	01-9
013000	ADMINISTRATIVE REQUIREMENTS	

DIVISION 31 – EARTH WORK

310513	SOILS FOR EARTHWORK
310516	AGGREGATES FOR EARTHWORK
310519	GEOTEXTILES FOR EARTHWORK
311000	SITE CLEARING
312213	ROUGH GRADING
312316	EXCAVATION
312318	ROCK REMOVAL
312319	DEWATERING
312323	FILL
312513	EROSION CONTROLS

DIVISION 32 – EXTERIOR IMPROVEMENTS

321123 AGGREGATE BASE COURSES
329119 LANDSCAPE GRADING
329219 SEEDING
VEGETATIVE EROSION CONTROL GUIDELINES FOR NATURAL RESOURCE MANAGEMENT
GRASS LAND MANAGEMENT

APPENDIX I – GLOSSARY
APPENDIX II – SPECIAL WORKING CONDITIONS
APPENDIX III – SPECIAL PROJECT PROCEDURES
APPENDIX IV – REQUIRED PROJECT SIGN
APPENDIX V – EGLE PERMIT

SCHEDULES - BOUND HEREIN

TITLE	**PAGE NOS.**

DRAWINGS - BOUND HEREIN

TITLE	**PAGE NOS.**

DRAWINGS - BOUND SEPARATELY

TITLE	**SHEETS THRU**
PROJECT TITLE SHEET	**G100**
GENERAL PLAN AND PROFILE	**C101**
CULVERT DETAILS	**C501**
DETAILS	**C502**

DIVISION 00

BIDDING REQUIREMENTS AND CONTRACT CONDITIONS

SECTION 00010 PRE-BID INFORMATION

1. **Invitation to Bid (ITB)** – Your firm is invited to submit a Bid. The State of Michigan as the Owner will receive **bids electronically through the SIGMA VSS website at https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService,** for Fish Dam Creek Crossing until 2:00 p.m., local time, on April 28, 2021. The State reserves the right to cancel this Invitation to Bid (ITB) or change the date and time for submitting Bids by announcing same at any time before the established date and time for Bid opening. Bids must remain open for acceptance by the Owner for no less than the Bid hold period. Contractor may agree to extend the Bid hold period. However, any such extension must be based upon no increase in the Bid Price and/or Contract Time.

2. **Work Description** – Fish Dam Creek Crossing, Agency No. 751, Funding Code. NA ,DTMB File No. 751/18306.TAP includes, but is not necessarily limited to: Removal of the existing two undersized corrugated metal pipe culverts and replacement with a concrete box culvert including approaches and embankment and other details per the drawings and specifications.

   The site is located along Trail No. 415 and is a two-track seasonal road that intersects highway US2 between the Garden Corner (at intersection of US2 and M183) and Schoolcraft/Delta County line just to the east. The road entrance at US2 between mile markers 219 and 220 on the passing lane stretch of US2. The site is 1.0 miles south of US2. GPS Coordinates: N45º53.272' – W86º29.559' (WGS84), as shown on the Drawings.

3. **Bidding Documents** – Sets of Bidding Documents may be obtained at https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService .

4. **Bid Security** – Each Bid must enclose Bid Security, in the amount of five percent (5%) of the Bidder's Base Bid, paid to the "State of Michigan" in the form of a certified or cashier's check or money order drawn upon a bank insured by an agency of the Federal Government or a bid bond with an authorized surety company. *If Bid Security is by check or money order, such certified or cashier's check or money order must be delivered in original copy before the Bid Due Time to:*

   State Facilities Administration
   Design & Construction Division
   3111 W. St. Joseph Street
   Lansing, Michigan 48917

   All other Bid information must be submitted via SIGMA as per standard bidding procedure

5. **Pre-Bid Conference** – A mandatory pre-bid conference will be held at MDOT Rest Area just east of Garden Corner on US-2, Delta County, MI on April 15, 2021 at 12:30 p.m. Local Time. A tour will be held on the same day, starting at 12:30 p.m. local time. All prospective Bidders are required to attend the tour, if held. Other parties interested in the Work are encouraged to attend the tour. Addenda may be issued, in response to issues raised at the pre-bid conference and tour, or as the Owner and/or Professional may otherwise consider necessary.

   The purpose of the pre-bid conference and inspection is to answer questions and provide an inspection tour of the Project site at the scheduled time on the day of the meeting. A representative will be available to assist the Contractors. Other inspection visits may be allowed if needed. Individuals needing special services to fully participate in the meeting due to a disability may contact Bob Burnham at burnhamr2@michigan.gov 906-420-1645.

   FOR CORRECTIONAL FACILITIES ONLY: All contractor/vendor representatives attending a Pre-Bid Walk Through Meeting must submit a Vender/Contractor LEIN Request five business days prior to the meeting date, (Lein Request For CAJ-1037 attached to Bid posting). Send the LEIN Request form, filled out and signed, by email to Daniel T. Smith at email address: SmithD76@michigan.gov. The email "Subject" must include (Facility Name, Project Name, Date & Time of Pre-Bid Walk Through Meeting).

6. **Equal Employment Opportunity** – Covenants to not discriminate in employment by Contractors, Subcontractors and Suppliers required by Law are contained in Instructions to Bidders and General Conditions and are applicable to the Work and any Sub-agreement under the Contract.

7. **Contract Times** – The Contract Times and the associated liquidated damages are specified in the Contract.

8. **Contact Person** – All requests or inquiries concerning the Bidding Documents or the Work must be addressed to: U.P. Engineers & Architects, Jeremy K. Gagnon (906) 635-0511 or jgagnon@upea.com., Questions will be accepted until April 22, 2021, at 5:00 p.m. Local Time.

9. **Award** – Subject to any agreed extension of the period for holding Bids, Bids must remain valid for acceptance by the Owner for 60 Calendar Days after the date of Bid opening. In addition, the Owner expressly reserves the right, within the Owner's sole discretion, to reject any or all Bids, to waive any irregularities, to issue post-Bid Addenda and re-bid the Work without re-advertising, to re-advertise for Bids, to withhold the award for any reason the Owner determines and/or to take any other appropriate action.

10. Performance and Payment Bonds – A performance bond and a payment bond are required for all contracts over $50,000.00.

END OF SECTION 00010

SECTION 00100 INSTRUCTIONS TO BIDDERS

1. PREPARATION OF BID: Execute Bid fully and properly. Bid Summary Form (DTMB -0401D) and Bid Form Attachments must be used and completely filled out for the Bid to be considered responsive and meeting the requirements of the contract solicitation. All Bid prices must be printed or typed in both words and figures.

2. BID CHECKLIST: Submit Bid Summary Form with original signatures plus Bid Form Attachments in accordance with the electronic bidding procedures on the SIGMA VSS website.

A complete Bid will consist of the following forms, which are included immediately following the Bid Summary Form:

Bids	**SUBMIT THESE Bid Forms and Bid Form Attachments**
All Bids	☐ **Signed** and completed Bid Summary Form (DTMB-0401D);
	☐ Bid Schedule;
	☐ Qualified Disabled Veteran (QDV) Business Representation;
	☐ Bid Security in the amount of 5% of Base Bid Price;

If Bid Security is by check or money order, such certified or cashier's check or money order must be delivered in original copy before the Bid Due Time to:

State Facilities Administration
Design & Construction Division
3111 W. St. Joseph Street
Lansing, Michigan 48917

All other Bid information must be submitted via SIGMA as per standard bidding procedure

	☐ Signature Authorization or copy of the partnership agreement if signed by all partners;
	☐ Other Forms;
Over $50K	☐ Forms listed under All Bids;
	☐ Payment and Performance Bond (upon issuing the Notice of Award).
Over $100K	☐ Forms listed under All Bids;
	☐ Certification of a Michigan Based Business;
	☐ Payment and Performance Bond (upon issuing the Notice of Award).
Over $250K	☐ Forms listed under All Bids;
	☐ Certification of a Michigan Based Business;
	☐ Payment and Performance Bond (upon issuing the Notice of Award).

Apparent Low Bidders ONLY (upon request from the Professional)

☐ Experience Modification Rating (EMR), or a letter stating why the Bidder does not have one.

☐ Identification of the proposed project superintendent, with a resume or list of similar projects handled by that individual.

☐ A list of at least three (3) projects completed by the Bidder, within the last three (3) years of similar size and complexity, with contact information for references for each.

☐ A list of nominated sub-contractors, including proposed self-performed categories, for each Division/Trade/etc.

3. BID SUBMISSION: **Bids must be submitted electronically through the SIGMA VSS website at https://sigma.michigan.gov/webapp/PRDVSS2X1/AltSelfService**.

4. **BID GUARANTEE:** Each proposal must be accompanied by either a bank certified or cashier's check on an open, solvent bank or a bid bond with an authorized surety company (the surety must be listed on the current U.S. Department of the Treasury Circular 570) in the amount of five percent of the base bid payable to the State of Michigan, as a guarantee of good faith. If the successful Bidder fails to furnish satisfactory bonds and insurance within fifteen Calendar Days after Notice of Award, such guarantee must be forfeited to the State as liquidated damages. *If Bid Security is by check or money order, such certified or cashier's check or money order must be delivered in original copy before the Bid Due Time to the Issuing Office.* The bid security, exclusive of bid bonds, of all unsuccessful Bidders will be returned when an award is made or upon substitution of a bid bond. The bid security of the successful Bidder will be returned when the performance bond and labor and material bond are approved.

5. **CERTIFICATE OF AWARDABILITY:** Not required.

6. **MICHIGAN BASED BUSINESS CERTIFICATION**: All Bidders submitting Bids in excess of $100,000.00 must complete the Certification of Michigan Based Business. This information will determine if a Bidder qualifies as a "Michigan" business for purposes of application of reciprocity where applicable.

7. **POST-BID SUBMITTAL: For all projects, the Professional may request a Post-Bid Submittal from the** Apparent Low Bidders. The Apparent Low Bidders must submit to the Professional, within **two** Business Days after receipt of the Professional's request,

   - Experience Modification Rating (EMR), or a letter stating why the Bidder does not have one.
   - Identification of the proposed project superintendent with a resume or list of similar projects managed by that individual.
   - A list of at least three (3) projects completed by the Bidder, within the last three (3) years of similar size and complexity, with contact information for references for each.

   Failure to provide the submittals may disqualify the Bid.

8. **SIGNATURES:** All Bids, notifications, claims, and statements must be signed as follows:

   (a) **Corporations:** Signature of official must be accompanied by a certified copy of the Resolution of the Board of Directors authorizing the individual signing to bind the corporation.
   (b) **Partnerships:** Signature of one partner must be accompanied by a signed copy of the legal document (e.g. Power of Attorney or partnering agreement) authorizing the individual signing to bind all partners. If Bid is signed by all partners, no authorization is required.
   (c) **Individual:** No authorization is needed. Each signature must be witnessed.

9. **BID PRICES:** The Bidder's Base Bid and Alternate Bid prices must include, and payment for completed Work will compensate in full for: all services, obligations, responsibilities, management, supervision, labor, materials, devices, equipment, construction equipment, general conditions, permits, patent fees and royalties, testing, inspection and approval responsibilities, warranties, temporary facilities, small tools, supplies, Bonds, insurance, taxes, mobilization, close-out, overhead and profit and all connections, appurtenances and any other incidental items of any kind or nature, as are necessary to complete the Work, in a neat, first quality, workmanlike and satisfactory manner in accordance with the Drawings and Specifications and as otherwise required to fulfill the requirements of the Bidding Documents. For each Cash Allowance item, the Bidder must include, within the Bid, all labor costs, construction equipment costs, insurance and Bond premiums and other general conditions costs and Fees (Bidder's and Subcontractors') to complete Work associated with the material, equipment or other designated item to be furnished under the Cash Allowance. For each Provisionary Allowance, the Bidder must include, within the Bid, insurance, premiums (not recoverable as labor burden) and Bond premiums required to complete Work that may be ordered under a Provisionary Allowance.

10. **INSPECTION OF BIDDING DOCUMENTS AND SITE CONDITIONS:** The Bidder must carefully review and inspect all documents referenced and made part of this ITB, site conditions, all applicable statutes, regulations, ordinances and resolutions addressing or relating to the goods and services under this contract. Failure to do so or failure to acquire clarifications and answers to any discovered conflicts, ambiguities, errors or omissions in the Bidding Documents will be at the Bidder's sole risk.

11. **SAFETY REQUIREMENTS AND LAWS:** The Bidder awarded the Contract must comply with all applicable federal, state and local Laws including health and safety regulations, environmental protection, permits and licensing.

12. **INTERPRETATIONS AND ALTERATIONS TO THE BID AND BIDDING DOCUMENTS:** All requests for clarification or interpretation of the Bidding Documents, all proposals for any modifications to the Bidding Documents, all requests for information and all other questions or inquiries about the Bidding Documents and/or the Work shall be submitted in writing to the Contact Person identified in the Bid Documents. Requests or inquiries received less than seven Calendar Days before the date of Bid opening will be answered only if (a) the response can be given through an Addendum made available at least seventy-two hours before Bid opening (counting Business Days only), (b) the Bid opening is postponed by Addendum, or (c) the Work is rebid without readvertising following the issuance of post-Bid Addenda.

Bidders must not rely upon any oral statements or conversations regarding interpretations, clarifications, corrections, additions, deletions or other revisions or information to the Bidding Documents. Any addition, limitation or provision made with or attached to the Bid may render it non-responsive and/or irregular and be a cause for rejection. The Owner reserves the right to issue a post-Bid Addendum after opening the Bids and set a new date for the receipt and opening of sealed Bids. The Bidder acknowledges that any quantities of Unit Price Work given in this ITB are approximate only and payments will be made only for actual quantities of Unit Price Work completed in accordance with the Contract Documents.

13. MODIFICATION OF BID: The entire bid must be resubmitted on the SIGMA VSS website.

14. BID WITHDRAWAL: Except for timely filed claims of mathematical or clerical errors granted by the State, no Bid may be withdrawn within sixty Calendar Days after the Bid Opening time and date or before the Bid expiration date without forfeiting Bid security. The request to withdraw a Bid due to error must be submitted in writing along with the supporting documents within two Business Days after the date of Bid Opening. The claim must describe in detail the error(s), include a signed affidavit stating the facts of the alleged error(s) and request that the Bidder be released from its Bid. The review of the claim and its supporting documents by the State is only for the purpose of evaluating the Bidder's request and must not create duty or liability on the State to discover any other Bid error or mistake. The sole liability of any Bid error or mistake rests with Bidder.

15. OBJECTION TO THE AWARD: A Bidder may file a written protest with the Director-SFA to object to the Apparent Low Bidder. This objection must be filed within seven Calendar Days after the date of Bid opening and must describe in detail the basis for the protest and request a determination. The Director-SFA will either dismiss or uphold the protest and notify the protestor within ten Calendar Days after receipt of the written protest.

16. BID IRREGULARITIES: The following irregularities on any Bid Form or Bid Form Attachment must be resolved as follows:

(a) between SIGMA entry and signed Bid Summary attachment, the signed Bid Summary attachment will be used;
(b) between words and figures, the words must be used;
(c) between any sum, computed by the Bidder, and the correct sum, the sum computed by the Bidder must be used;
(d) between the product, computed by the Bidder, of any quantity and Bid Unit Price and the correct product of the Unit Price and the quantity of Unit Price Work, the product extended by the Bidder must be used;
(e) between a stipulated Allowance and the amount entered, the Allowance must be used;
(f) any mobilization pay item exceeding the maximum specified must be ignored and the Bid must remain unchanged;
(g) if any Bidder fails or neglects to bid a Unit Price for an item of Unit Price Work but shows an "Bid Price" for that item, the missing unit price must be computed from the respective quantity and the Item Bid Price shown;
(h) if any Bidder fails or neglects to show a "Bid Price" for an item of Unit Price Work but bids a unit price, the missing Bid Price must remain as "zero"; and
(i) if any Bidder fails or neglects to enter a Bid Price in both words and figures, the Bid Price printed or typed, whether in words or figures, must be used.

17. CERTIFICATION: The bidder certifies to the best of its knowledge and belief that, within the past three (3) years, the bidder, an officer of the bidder, or an owner of a 25% or greater interest in the bidder:

(a) Has not been convicted of a criminal offense incident to the application for or performance of a contract or subcontract with the State of Michigan or any of its agencies, authorities, boards, commissions, or departments.
(b) Has not had a felony conviction in any state (including the State of Michigan).
(c) Has not been convicted of a criminal offense which negatively reflects on the bidder's business integrity, including but not limited to, embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, negligent misrepresentation, price-fixing, bid-rigging, or a violation of state or federal anti-trust statutes.
(d) Has not had a loss or suspension of a license or the right to do business or practice a profession, the loss or suspension of which indicates dishonesty, a lack of integrity, or a failure or refusal to perform in accordance with the ethical standards of the business or profession in question.
(e) Has not been terminated for cause by the Owner.
(f) Has not failed to pay any federal, state, or local taxes.
(g) Has not failed to comply with all requirements for foreign corporations.
(h) Has not been debarred from participation in the bid process pursuant to Section 264 of 1984 PA 431, as amended, MCL 18.1264, or debarred or suspended from consideration for award of contracts by any other State or any federal Agency.
(i) Has not been convicted of a criminal offense or other violation of other state or federal law, as determined by a court of competent jurisdiction or an administrative proceeding, that in the opinion of DTMB indicates that the bidder is unable to perform responsibly or which reflects a lack of integrity that could negatively impact or reflect upon the State of Michigan, including but not limited to, any of the following offenses under or violations of:
    1. The Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.101 to 324.90106.
    2. A persistent and knowing violation of the Michigan Consumer Protection Act, 1976 PA 331, MCL 445.901 to 445.922.
    3. A finding that the bidder failed to pay the wages and/or fringe benefits due within the time period, as may be required by applicable law.
    4. Repeated or flagrant violations of 1978 PA 390 MCL 408.471 to 408.490 (law relating to payment of wages and fringe benefits).
    5. A willful or persistent violation of the Michigan Occupational Health and Safety Act, 1974, PA 154, MCL 408.10001 to 408.1094, including: a criminal conviction, repeated willful violations that are final orders, repeated violations that are final orders, and failure to abate notices that are final orders.

6. A violation of federal or state civil rights, equal rights, or non-discrimination laws, rules, or regulations.
7. Been found in contempt of court by a Federal Court of Appeals for failure to correct an unfair labor practice as prohibited by Section 8 of Chapter 372 of the National Labor Relations Act, 29 U. s. C. 158 (1980 PA 278, as amended, MCL 423.321 et seq).

(j) Is not an Iran-Linked Business as defined in MCL 129.312.

A false statement, misrepresentation or concealment of material facts on this certification may be grounds for rejection of this proposal or termination of the award and may be grounds for debarment.

18. REJECTION OF BID: The Bidder acknowledges the right of the Owner to reject any Bids and to waive any informality, defects or irregularity in any Bid received. In addition, the Bidder recognizes the right of the Owner to reject a Bid if:

(a) the Bid is in any way incomplete or irregular;
(b) the Bidder, Subcontractor or Supplier is not responsible as determined by the Owner;
(c) the Bidder's performance as a Contractor was unsatisfactory under a prior Contract with the Owner for the construction, repair, modification or demolition of a facility with the Owner, or under any other Contract, which was funded, directly or indirectly, by the Owner;
(d) there are reasonable grounds for believing that collusion or unlawful agreements exists between any Bidders, that a Bidder is interested in more than one Bid, or that the Bid is not genuine;
(e) the Bid exceeds the funds available.

19. MATERIALS AND EQUIPMENT SUBSTITUTION: Any Bidder wishing to use manufacturers or materials other than those specified must submit a written request to the Professional not later than seven days before due date for Bids. Request must be accompanied by product data to permit evaluation and comparison with specified products or materials. The Person submitting the request will be responsible for its prompt delivery. The Professional and the Owner will examine and evaluate the product data and if found acceptable, an Addendum will be issued and mailed or delivered to each Person who has received a set of Drawings and Specifications. All Addenda issued must be made a part of the Contract requirements. Contractor will be responsible for any extra work and expense incurred to satisfactorily and completely incorporating each substitute product into the Project.

20. MICHIGAN PRODUCTS AND RECYCLED PRODUCTS: All Contractors and Suppliers are encouraged to provide Michigan-made products and/or recycled products and/or green products and/or environmentally-friendly products whenever possible where price, quality, and performance are equal to, or superior to, non-Michigan products and the requirements of the Contract Documents. The Contractor will be required to use alternatives to landfills for waste disposal such as reuse or recycle of asphalt, bricks, concrete, masonry, plastics, paint, glass, carpet, metals, wood, drywall, insulation and any other waste materials to the extent practical.

21. PRE-AWARD PRODUCT SUBMITTALS: If requested, the Apparent Low Bidders must submit a summary of preliminary technical data on each product listed in NA. The Apparent Low Bidders will furnish this summary data to the Professional within forty-eight hours of the Bid Opening. These submittals will be used to evaluate the Bid before the award. Failure to provide the submittals may disqualify the Bid.

22. CONTRACT AND CONTRACT AWARD: The Owner intends to award a Contract to the responsive and responsible best value bidder, except as provided below relative to veteran's preference.

22.1 Determination of the lowest three Bidders shall be on the basis of the sum of the Base Bid and any additive and deductive Alternates the Owner accepts, in the order in which they are listed only. The Owner will accept an Alternate only if all other previously listed Alternates are also accepted, unless acceptance by the Owner of Alternates in a different order does not affect determination of the lowest three bidders in any way.

22.2 The bids will be evaluated for best value based on price and qualitative components by comparing the qualitative components of the three lowest responsive and responsible Bidders. The comparison may also include other Bidders whose bids are within 10% of the lowest responsive and responsible Bidder.

22.3 If a Qualified Disabled Veteran meets the requirements of the contract solicitation, provides acceptable responses to both Part One and Part Two of the Best Value Construction Bidder Evaluation to achieve a Best Value recommendation and with the veteran's preference is the lowest responsive, responsible, best value Bidder, the Owner will award the contract to the Qualified Disabled Veteran bidder. A determination as to whether the requirements of the bid solicitation have been met will be based solely on the Owner's and Professional's evaluation of the Bid Summary, Bid Attachments, Bidder-provided documents, and interview.

22.4 For the purpose of evaluating and determining the low responsive bid, 10% of the lowest responsive bid (the bid that would otherwise receive the contract award if the preference were not being considered) will be deducted from all QDV bids. If the low responsive QDV bid, less the 10% preference, is less than the lowest responsive bid, then the QDV bid will be declared the official low responsive bid. The original QDV bid amount will be the basis of the contract award.

Example:

Lowest Responsive Bid	$100,000
Lowest Responsive QDV Bid	$109,000
Preference (10% of the Lowest Responsive Bid)	$ 10,000
Lowest Responsive QDV Bid Less Preference	$ 99,000 ($109,000 - $10,000)
Official Low Responsive Bid	**$109,000**

22.5 The Apparent Low Bidders will be evaluated for responsiveness and responsibility based on the following:

- Compliance with the bid specifications and requirements.
- The Bidder's financial resources.
- The Bidder's technical capabilities.
- The Bidder's technical experience.
- The Bidder's past performance.
- The Bidder's insurance and bonding capacity.
- The Bidder's business integrity.

Some qualitative components that may be evaluated are:

- Technical approach.
- Quality of proposed personnel.
- Management plans.

22.6 For contracts under $250,000, best value will primarily be based on the lowest responsive and responsible bid.

23. **CONTRACT TIME; LIQUIDATED DAMAGES:** Work of all trades as specified in the Contract Documents must be completed by September 1, 2021 based on Notice-to-Proceed except for minor replacement, correction, or adjustment items which do not interfere with the complete operation and utilization of all parts of the Contract Work. This Contract Time is of the essence and liquidated damages for each Calendar Day that expires after this Substantial Completion of the entire Work must be in the amount of $500. Liquidated damages are not a penalty, are cumulative and represent a reasonable estimate of the Owner's extra costs and damages, which are difficult to estimate with accuracy in advance. Liquidated damages for each Calendar Day that expires after Final Completion of the entire Work must be in the amount of $ 250.

24. MOBILIZATION: If used in the Specifications/Bid schedule, all the up-front costs incurred by the Contractor must be covered by the mobilization. The costs to establish temporary site offices, to obtain required permits for commencing the Work and for bonds and insurance premiums are examples of costs to the Contractor that are covered by mobilization pay item. This cost must not exceed four percent (4%) of the Base Bid, unless otherwise expressly provided in the Bidding Documents.

25. SOIL EROSION AND SEDIMENTATION CONTROL: All Work under this Contract must meet the storm water management requirements of the Project and comply with the applicable Soil Erosion and Sedimentation Control (SESC) rules and regulations and specific provisions for same within the Contract Documents. SESC measures will be monitored and enforced by the State Facilities Administration, or another authorized enforcing agency if so delegated, through the review of the Contractor's implementation plans and site inspections. State Facilities Administration or the Professional will notify the Contractor in writing of any violation(s) of the applicable SESC statutes and/or the corrective action(s) undertaken by the Owner and may issue stop work orders. State Facilities Administration has the right to assess a fine to the Contractor for noncompliance with the provisions of the Contract Documents and/or SESC regulations applicable to this Work and fines must be in addition to any other remediation costs or liquidated damages applicable to the Project and may exceed the value of the Contract.

END OF SECTION 00100

SECTION 00120 SUPPLEMENTARY INSTRUCTIONS

The provisions of this Section amend or supplement Section 00100 Instructions to Bidders and those other provisions of the Bidding Requirements that are indicated below. All other Bidding Requirements that are not so amended or supplemented remain in full force and effect.

END OF SECTION 00120

SECTION 00200 INFORMATION FOR BIDDERS

1. UNDERGROUND UTILITIES

Information or data about physical conditions of existing Underground Utilities, which have been used by the Professional in preparing the Bidding Documents, is shown or indicated in the Drawings and technical Specifications and those Underground Utility drawings itemized immediately below. NA

2. PERMITS, APPROVALS, LICENSES AND FEES

2.1 If the Owner has secured or will secure any permits, approvals and licenses and has paid or will pay any associated charges and fees, any such permits, approvals and licenses are itemized in this paragraph: See Addendum V - EGLE Permit

2.2 If any permits, approvals and licenses itemized above have been obtained by the Owner and the fees have been paid, copies of those permits, approvals, licenses and corresponding fee receipts, are attached to this Section 00200 Information for Bidders.

Except for any permits, approvals, licenses and fees identified above, the Contractor shall be responsible for all permits, approvals, licenses and fees applicable to Work.

3. SEQUENCING REQUIREMENTS

Refer to the technical Specifications, including, but not limited to the General Requirements, for information, data and criteria on sequences of Work restraints, construction and maintenance of service to existing facilities, which, if provided, must govern the selection of Work sequences. Each Bidder must be responsible for any conclusions or interpretations the Bidder makes related to the selection of sequences and Means and Methods, based on the technical data made available, and/or those additional investigations or studies made or obtained by that Bidder.

4. SUBSURFACE CONDITIONS

In preparing the bidding documents, the PSC used the reports of explorations and tests of subsurface conditions itemized immediately below. Soil boring information attached.

4.1 Information or data contained in those reports that may be properly considered Authorized Technical Data concerning subsurface conditions include (NOTE: All other information or data excluded from the list below represent Non-Technical Information or Data, interpretations or opinions): NA

4.2 In preparing the bidding documents, the PSC has not used the following reports of explorations and tests of subsurface conditions itemized immediately below. NA

5. OTHER PHYSICAL CONDITIONS

5.1 The Drawings and technical Specifications and those drawings itemized immediately below contain information or data that have been used in the preparation of the Bidding Documents, and that may be properly considered Authorized Technical Data concerning physical conditions of existing surface and subsurface facilities. NA

5.2 The reference documents itemized immediately below have not been used in the preparation of the Bidding Documents, and are available for review or purchase. Information and data contained in those reference documents, including, but not limited to dimensions, locations and conditions of existing surface and subsurface structures, roadways, piping, raceways, equipment, etc. may not accurately or reliably reflect actual conditions. Neither the Owner nor Professional warrants that this list identifies all existing relevant documents. NA

END OF SECTION 00200

SECTION 00700 GENERAL CONDITIONS

1. Interpretations: Any requests for clarifications or interpretations of the Contract Documents must be in writing to the Professional, who will issue written clarifications or interpretations as appropriate. If the Contractor believes that such clarification or interpretation justifies an adjustment to the Contract Price/Time, the Contractor must promptly notify the Professional in writing before proceeding with the Work Involved.

1.1 **Standards**: The Contract Documents describe the entire Work. The provisions of the Contract Documents must govern over any standard specifications, manual or code of any technical society, organization or association but, if lower than the standards set by any Law applicable to the Work or the Project, the higher standards must govern. The Contractor's responsibilities extend to cover Subcontractors and Suppliers if liable as a result of their actions or obligations.

1.2 **Contract Time Computation**: The time to complete the Work must be made in Calendar Days and must include both the first and last day. The first day is established by the Notice-to-Proceed.

1.3 **Technical Specifications and Priority:** The following applies whenever priority is called for in Contract Documents: specifications must govern Drawings; figured dimensions must govern scaled dimensions; detail drawings must govern general drawings; Drawings must govern Submittals.

1.4 **Indemnification:** The Contractor is required to defend, indemnify and hold harmless the Owner and the Professional, their employees, agents, servants, and representatives from and against all claims, suits, demands, actions of whatever type and nature and all judgments, costs, losses and damages, whether direct, indirect or consequential including, but not limited to, charges of architects, engineers, attorneys and others and all court, hearing and any other dispute resolution costs arising from:

(a) any patent or copyright infringement by the Contractor;
(b) any damage to the premises or adjacent lands, areas, properties, facilities, rights-of-way and easements, including loss of use to the business and property of others as a result of Contractor's operations;
(c) any bodily injury, sickness, disease or death, or injury to or destruction of property, including loss of use due to or related to the Work and caused in whole or in part by the Contractor or Subcontractor or Supplier's negligence, omissions or failure to maintain the required insurance and coverage and;
(d) a failure by the Contractor to appropriately handle Hazardous Materials for the Work or the Contractor's operations in compliance with the Owner requirements and/or applicable Laws and regulations.

The indemnification obligations are not affected by the limitation on the amount and types of damages, compensation or benefits payable by or for the Contractor or Subcontractor or Supplier under worker's or workman's compensation acts, disability benefit acts or other employee benefit acts.

1.5 **Contract Documents Ownership:** The State is the owner of the Contract Documents. The Contractor, Subcontractor or Supplier must not reuse any of the documents on any other Project without prior consent of the State and Professional. The Professional will furnish on behalf of the Owner at no cost to the Contractor, one (1) electronic copy of the Drawings and Project Manual. If the **Contractor**, or the Contractor's Subcontractors or Suppliers request hard copy sets, reproduction of these documents will be the responsibility of the **Contractor**.

2. GENERAL PROVISIONS

2.1 **Owner:** The Project Director and/or Owner Field Representative will represent the Owner. Neither the Project Director nor the Owner Field Representative has the authority to interpret the requirements of the Contract Documents or to authorize any changes in the Work or any adjustment in Contract Price/Time. The State will provide the necessary easements for permanent structure and permanent changes in existing lands, areas, properties and facilities. However, the Contractor must obtain, at no increase in Contract Price/Time, permits for any other lands, areas, properties, facilities, rights-of-way and easements required by the Contractor for temporary facilities, storage, disposal of soil or waste material or any other purpose. The Contractor must submit copies of the permits and written agreements to the Owner. The Contractor must engage a registered land surveyor to establish the necessary reference points and/or base lines for construction and must be responsible for protecting them including benchmarks and Project elevations.

2.2 **Professional:** Acting as the Owner's representative during the Contract Time period, the Professional will endeavor to guard the Owner from Defective work and to keep the Owner informed of the progress of the Work. Unless delegated by specific written notice from the Owner, the Professional and the Professional's representatives do not have the authority to authorize any changes in the Work or any adjustment in Contract Price/Time. The On-site Inspections by the Owner Field Representative and/or the Professional do not relieve the Contractor from its obligation to provide the Work in accordance with the Contract Documents or represent acceptance of Defective Work.

2.3 **Contractor:** The Contractor must manage, supervise, and direct the Work competently, applying the management, supervision, skills, expertise, scheduling, coordination and attention necessary to provide the Work in accordance with the Contract Documents with a minimum disturbance to or interference to the business operations on site or adjacent properties. The Contractor must assign and maintain a competent full-time **superintendent** on the Work, as its representative, at all times while Work is being done on site and must not be replaced without the Owner's consent. The Contractor shall enforce good order among its employees and shall not employ on the work any disorderly, intemperate, or unfit persons, or not skilled in the work assigned to them. The Contractor is solely responsible for his Means and Methods, safety precautions and programs related to safety, the Contractor's failure to execute the Work in accordance with the Contract Documents and any act of omissions by the Contractor, Subcontractor or Supplier. The Contractor must **compare Contract Documents for conflicts**, unworkable or unsafe specified Means and Methods and verify against manufacturer's recommendations for installations and handling and must notify the Professional in writing of the discovery of any such conflicts or errors. The Contractor is required to furnish certifications that lines and grades for all concrete work were checked before and after placing concrete, and that final grades are as required by the Contractor Documents. Wherever required, the Contractor must be responsible for all cutting, fitting, drilling, fixing-up, and patching of concrete, masonry, gypsum board, piping and other materials that may be necessary to make in-place Work and dependent Work fit together properly. The Contractor must restore to pre-existing conditions all walks, roadways, paved or landscaped areas and other real and personal property not designated for alteration by the Contract

Documents. The Contractor must maintain at the site one copy of safety data sheets (SDS) and one copy of all **as-built/Record Documents** in good order and annotated in a neat and legible manner to show:

(a) all revisions made,
(b) dimensions noted during the furnishing and performance of the Work, and
(c) all deviations between the as-built installation and the Contract Documents, all approved Submittals and all clarifications and interpretations.

The Contractor must maintain and furnish promptly to the Owner and the Professional upon their request **daily field reports and photos** recording the on-site labor force and equipment (Contractor and Subcontractors); materials/equipment received; visits by Suppliers; significant in-progress and completed trade Work within major areas; and other pertinent information. The Contractor is obligated to act to prevent threatened damage, death, injury or loss without any special instruction in **emergencies** and must give the Owner prompt written notice of any changes in Work resulting from the action taken for review and approval.

2.4 **Subcontractors and Suppliers:** The Owner assumes no contractual obligations to anyone other than the Contractor. All trade construction Drawings must be field coordinated before fabrication and/or installation. The Owner reserves the right to reject or revoke, for its convenience, any approved Subcontractor/Supplier. Work performed by any Subcontractor or Supplier must be through an appropriate written agreement that:
(a) expressly binds the Subcontractor/Supplier to the requirements of the Contract Documents,
(b) requires such Subcontractor or Supplier to assume toward the Contractor all the obligations that the Contractor assumes toward the Owner and the Professional, and
(c) contains the waiver of rights and dispute resolution provisions.

2.5 **Access to Payroll Records:** The Contractor and its Subcontractors must, to the extent applicable, comply with the Prevailing Wage Rates for the county where the Project is located, and must maintain and keep, in accordance with generally accepted accounting principles, records pertaining to the bidding, award and performance of the Work, including, but not limited to certified payroll, employment records and all data used in estimating the Contractor's prices for the Bid, Change Order, proposal or claim. The Owner or its representative must have access to those records, must have the right to interview the Contractor's employees and must be provided with appropriate facilities for the purpose of inspection, audit/review and copying for five years after final payment, termination or date of final resolution of any dispute, litigation, audit exception or appeal. The payroll and other employment records of workers assigned to the site must contain the name and address of each worker, correct wage classification, rate of pay, daily and weekly number of hours worked, deduction made and actual wages paid. The Contractor must maintain records that show: (a) the anticipated costs or actual costs incurred in providing such benefits, (b) that commitment to provide such benefits is enforceable, and (c) that the plan or program is financially responsible and has been communicated in writing to the workers affected.

3. Bonds and Insurance:

3.1 Both the Performance Bond and Payment Bond must remain in effect from the date of Contract Award until final completion of the Work or the end of Correction Period, whichever comes later. The surety bonds required for a Construction Contract will not be accepted by SFA unless the surety bonding company is listed in the current United States Government, Department of Treasury's, Listing of approved sureties (bonding/insurance companies), Department Circular 570. Copies of the current Circular listing may be obtained through the internet web site https://www.fiscal.treasury.gov/fsreports/ref/suretyBnd/c570.htm.

Insurers must have an "A-" A.M. Best Company Rating and a Class VII or better financial size category as shown in the most current A.M. Best Company ratings. Insurance must be provided by insurers authorized by the Department of Insurance and Financial Services (DIFS) to do business as an insurer in Michigan. The insurance company and must attach evidence of the authorization. These certificates must specify the Project File No., Funding Code., Project Title, and a description of the Project. The Contractor agrees that insurance coverage afforded under the policies as such coverage relate to the State under this Contract as determined by the Contractor will not be modified or canceled without at least thirty calendar days prior written notice to the State. The latest A.M. Best's Key Ratings Guide and the A.M. Best's Company Reports (which include the A.M. Best's Ratings) are found at: http://www.ambest.com. The Contractor must not perform any part of the Work unless the Contractor has all the required insurance in full force and effect.

3.2 The Contractor is required to provide proof of the minimum levels of insurance coverage as indicated below. The purpose of this coverage must be to protect the State from claims which may arise out of or result from the Contractor's performance of services under the terms of this Contract, whether such services are performed by the Contractor, or by any subcontractor, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.

The Contractor waives all rights against the State for recovery of damages to the extent these damages are covered by the insurance policies the Contractor is required to maintain pursuant to this Contract. The Contractor also agrees to provide evidence that all applicable insurance policies contain a waiver of subrogation by the insurance company.

All insurance coverages provided relative to this Contract/Purchase Order is PRIMARY and NON-CONTRIBUTING to any comparable liability insurance (including self-insurances) carried by the State.

The Insurance must be written for not less than any minimum coverage herein specified or required by law, whichever is greater. All deductible amounts for any of the required policies are subject to approval by the State.

The State reserves the right to reject insurance written by an insurer the State deems unacceptable.

BEFORE THE CONTRACT IS SIGNED BY BOTH PARTIES OR BEFORE THE PURCHASE ORDER IS ISSUED BY THE STATE, THE CONTRACTOR MUST FURNISH TO THE DIRECTOR-SFA CERTIFICATE(S) OF INSURANCE VERIFYING INSURANCE COVERAGE. THE CERTIFICATE MUST BE ON THE STANDARD "ACCORD" FORM. THE CONTRACT OR PURCHASE ORDER NUMBER MUST BE SHOWN ON THE CERTIFICATE OF INSURANCE TO ASSURE CORRECT FILING. All such Certificate(s) are to be prepared by the Insurance Provider and not by the Contractor. All such Certificate(s) must contain a provision indicating that coverages afforded under the policies WILL NOT BE CANCELLED, MATERIALLY CHANGED, OR NOT RENEWED without THIRTY days prior written notice, except for 10 days for non-payment of premium, having been given to the Director-SFA Such NOTICE must include the CONTRACT NUMBER affected and be mailed to the Project Director.

The Contractor is required to provide the type and amount of insurance below:

(a) Commercial General Liability Insurance with a limit of not less than $1,000,000 *(*** increase this amount if the hazards/risks for personal injury and/or property damage are very high***)* each occurrence. If such CGL insurance contains a general aggregate limit, it must apply separately to this project.

The Contractor must list the State, its departments, divisions, agencies, offices, commissions, officers, employees and agents as ADDITIONAL INSUREDS on the Commercial General Liability policy.

(b) Vehicle Liability Insurance for bodily injury and property damage as required by law on any auto including owned, hired and non-owed vehicles used in the Contractor's business.

The Contractor must list the State, its departments, divisions, agencies, offices, commissions, officers, employers and agents as ADDITIONAL INSUREDS on the vehicle liability policy.

(c) Worker's disability compensation, disability benefit or other similar employee benefit act with minimum statutory limits.

NOTE:

(i) If coverage is provided by a State fund or if Contractor has qualified as a self-insurer, separate certification must be furnished that coverage is in the state fund or that Contractor has approval to be a self-insurer;
(ii) Any citing of a policy of insurance must include a listing of the States where that policy's coverage is applicable; and
(iii) This provision must not be applicable where prohibited or limited by Michigan law.

(d) Employer's Liability Insurance with the following minimum limits:

$1,000,000 each accident
$1,000,000 each employee by disease
$1,000,000 aggregate disease

(e) Pollution Liability Insurance in the amounts of not less than $1,000,000 per occurrence is required.

3.3 **Liability Insurance:** Liability insurance must be endorsed to list as additional insureds the Professional's consultants and agents. Worker's Compensation, Employer's Liability Insurance and all other liability insurance policies must be endorsed to include a waiver of rights to recover from the Owner, Professional and the other additional insureds. The Contractor's liability insurance must remain in effect through the Correction Period and through any special correction periods. For any employee of the Contractor who is resident of and hired in Michigan, the Contractor must have insurance for benefits payable under Michigan's Worker's Compensation Law. For any other employee protected by Worker's Compensation Laws of any other state, the Contractor must have insurance or participate in a mandatory state fund, where applicable, to cover the benefits payable to any such employee. These requirements must not be construed to limit the liability of the Contractor or its insurers. The Owner does not represent that the specified coverage or limits of insurance are sufficient to protect the Contractor's interests or liabilities.

3.4 **Builder's Risk Insurance:** Unless indicated otherwise in the bid document, the Contractor will purchase and maintain property insurance for 100% of actual cash replacement value of the insurable Work while in the course of construction, including foundations, additions, attachments, and all fixtures, machinery and equipment belonging to and constituting a permanent part of the building structures. The property insurance also will cover temporary structures, materials and supplies to be used in completing the Work, only while on the building site premises or within five hundred feet of the site. The property insurance insures the interests of the Owner, Contractor and all Subcontractors and Suppliers at any tier as their interest may appear. The property insurance insures against "all risk" of physical loss or damage to the extent usually provided in policy forms of insurers authorized to transact this insurance in Michigan. A copy of the master insurance policy will be available for review by the State, upon request.

3.5 The Owner and Contractor intend that the required policies of property insurance must protect all the parties insured and provide primary coverage for all losses and damages caused by the perils covered. Accordingly, to the extent that the insurance company pays claims, the Owner and the Contractor and its Subcontractors/Suppliers waive all rights against each other for any such losses and damages and also waive all such rights against the Professional and all other persons named as insureds or additional insureds.

4. Prosecutions; Substantial Completion:

4.1 The Contractor must not start the Work at the site before the first day established by the Notice to Proceed and/or before all insurance is in effect. A pre-construction conference will be held with the Contractor to review its Progress Schedule, qualifications of its key personnel, its proposed access to the site, traffic and parking, procedures for submittal, change orders, etc., and to exchange emergency contact information. The Contractor must use its accepted Progress Schedule when making proposals or claims for adjustment in Contract Time/Price.

4.2 Except in an Emergency, all Work at the site must take place during normal working hours; 6:00 AM to 6:00 PM, during Business Days and in accordance with the special working conditions for the Agency. If the Contract Documents allow work outside the normal hours, the Contractor must provide a written notice to the Owner twenty-four hours before performing such Work and must reimburse the Owner any related increase in the costs incurred by the Owner such as overtime charges of the Professional and payments for custodial and security personnel.

4.3 If, upon inspection and completing all pre-requisite testing of the Work, the Contractor considers that a portion of the work or all of the Work is substantially completed, it must provide a list of items to be corrected or completed to the Owner and the Professional for joint inspection. Within ten Calendar Days of this joint inspection, the Professional will deliver to the Owner and Contractor a list of incomplete/Defective work or a Certificate of Substantial Completion with a Punch List. The certificate must:

(a) fix a reasonable date of Substantial Completion,
(b) fix a date for completion of the Punch List, and
(c) recommend the division of responsibilities between the Owner and Contractor for utilities, security, safety, insurance, maintenance, etc.

Upon issuing the Certificate of Substantial Completion, the Owner will pay for the completed Work subject to (a) withholding of two hundred percent of the value of any uncompleted Work, as determined by the Professional, and (b) any other deductions as the Professional may recommend or may withhold to cover Defective work, liquidated damages and the fair value of any other items entitling the Owner to a withholding. Prerequisites for Substantial Completion, over and above the extent of Work completion required, include (a) receipt by the **Owner** of operating and maintenance documentation, (b) all systems have been successfully tested and demonstrated by the **Contractor** for their intended use, and (c) the **Owner** having received all required certifications and/or occupancy approvals from the State and those Political Subdivisions having jurisdiction over the Work. Receipt of all certifications and/or occupancy approvals from those Political Subdivisions with jurisdiction in and of itself does not necessarily connote Substantial Completion. The Contractor must provide all related operating and maintenance (O&M) documentation to the Owner before training if training is required and not later than Substantial Completion otherwise. The Contractor must give the Owner the final O&M documentation (with revisions made after Substantial Completion) before the request for final payment.

4.4 The Owner may decide to use, at its sole option, any functioning portion of the Work and will inform the Contractor in writing of the decision. The portion of Work to be used must be jointly inspected to determine the extent of completion if it has not undergone the inspection for Substantial Completion. The Professional must prepare a list of items to be corrected/completed and the Owner will allow the Contractor reasonable access to correct/complete the listed items and finish other work.

5. Warranty; Tests, Inspections and Approvals; Corrections of Work:

5.1 **Warranty:** The Contractor must furnish the State with a written guarantee to remedy any defects due to faulty materials or labor which appear in the Work within one year from the date of final acceptance by the State. This warranty excludes defect or damage caused by (a) abuse, modification by others, insufficient or improper operation or maintenance, or (b) normal wear and tear under normal usage. Manufacturer warranties for materials and equipment received by the Contractor must be assigned and promptly delivered to the Owner at Substantial Completion. The warranties period starts from the date of the substantial completion and must be in full force and effect for the entire duration of the Correction Period.

Roof Warranty: For roofing systems, the following warranties are required as minimum:

(a) A two-year contractors warranty against any defects due to faulty materials or labor;
(b) A fifteen-year manufacturer's total system warranty; and
(c) A twenty-year membrane/shingles/tiles warranty.

5.2 **Tests, Inspections and Approvals:** The Owner will perform or retain a professional/agency to perform inspections, tests or approvals for those materials required to meet quality control standards specified in the Contract Documents. However, the Contractor must assume full responsibility for any testing, inspection or approval
(a) required to meet code requirements, as promulgated by code inspecting authorities;
(b) required by Law;
(c) indicated or required by the Contract Documents;
(d) required for the Professional's acceptance of a Supplier, materials or equipment or mix designs submitted for prior approval by the Contractor; or
(e) Defective work, including an appropriate portion of the Delay and costs occasioned by discovery of Defective work. The Contractor must (a) pay all related costs; (b) schedule related activities; and (c) secure and furnish to the Professional the required certificates of inspection, testing or approval. The Contractor must provide proper and safe access to the site for inspection, testing or approval. The Contractor must provide the Professional a timely notice whenever any Work is ready for inspection, testing or approval. If the Contractor covers any Work without proper approval by the Professional as required by the Contract Documents, the Contractor must, at its own expense, uncover, expose or otherwise make available, when requested by the Professional or Owner, for testing, inspection or approval of the covered Work.

5.3 **Correction of Work:** If any testing, inspection or approval reveals Defective Work and the Work is rejected by the Professional, the Contractor, at its sole expense, must promptly, as directed, correct or remove the Defective Work from the site and replace it with non-Defective Work within the Correction Period. The Contractor must bear responsibility for its proportionate share of the Delay and costs resulting from the correction and/or removal and replacement of Defective Work. If the Contractor, within reasonable and agreed upon time after receipt of written notice, (a) fails to correct Defective Work or remove and replace rejected Work, or (b) fails to correct or complete items on any Punch List, or (c) fails to perform Work in accordance with the Contract Documents, or (d) fails to comply with any other provision of the Contract Documents, the Owner, directly or through others, after seven Calendar Days from the date of the written notice to the Contractor, may correct and remedy the Defective Work. To the extent necessary to correct and remedy such Defective Work, the Owner must be allowed to exclude the Contractor from all or part of the site; take possession of all or part of the Work and stop related operations of the Contractor; take possession of the Contractor's tools, plant and office and construction equipment at the site; and incorporate into the Work materials and equipment for which the Owner has paid the Contractor. The Contractor must allow the Owner and the Professional easy access to the site to correct such Defective Work. The Owner must be entitled to an appropriate decrease in Contract Price for all claims, costs, losses, damages and Delay incurred or sustained by the Owner which are attributable to the Contractor. Such costs may include, but not limited to, costs of correction or removal and replacement of Defective Work, costs of repair and replacement of other work destroyed or damaged by the action and related charges of the Professional. If the discovery of the Defective Work takes place after final payment and the Contractor fails to correct and pay the Owner any of these costs, the Owner must demand due performance under the Performance Bond. Until the period of limitation provided by Michigan Law, the Contractor must promptly, and upon receipt of written notice from the Owner, correct Defective Work. In the event of an Emergency or unacceptable risk of loss or damage or if appropriate under the circumstances, the Owner, directly or through others under contract with the Owner, may correct or remove and replace the Defective Work. The specified correction of Work requirements have no limitation on the rights of the Owner to have Defective Work corrected or removed and replaced, if rejected, except as otherwise provided by the Michigan Law.

5.4 **Special Correction Period Requirements:** Whenever the Owner undertakes any portion of the Work because the Contractor's act or omission Delays completion of the Work or it is eligible for Partial Use, the warranties for all materials and equipment incorporated into that portion of the Work must remain in full force and effect between the start of such Partial Use and the date when the Correction Period starts. The Correction Period for any Defective Work that is corrected or rejected and replaced within the last three months of the Correction Period must be extended by an additional six months, starting on the date such Work was made non-Defective.

5.5 **Special Maintenance Requirements:** If the Contract Documents specify that the entire Work, or a portion of the Work, upon reaching Substantial Completion, must not be placed in use by the Owner, the Contractor must maintain the Work, or specified part of the Work, in good order and proper working condition and must take all other actions necessary for its protection between the certified date of Substantial Completion and the date when the Work, or designated part of the Work, is placed in use. If no separate price for such special maintenance period was requested and made part of the Contract Documents, the Owner will amend the Contract Documents to appropriately increase the Contract Price.

6. Changes:

6.1 **Changes in the Work:** The Owner may, at any time, without notice to sureties, make any changes bilaterally or unilaterally, by a written Change Order, in the Work within the general scope of the Contract, including but not limited to changes in the Specifications, materials, or Contract Time. In a bilateral change order, the Owner may direct the Professional to prepare a Bulletin describing the change being considered. Upon receiving the Bulletin, the Contractor establishes the cost and returns it to the Professional for review within 15 calendar days. The Contractor's proposal must be irrevocable for 60 Calendar Days

after it is submitted to the Professional. If the Professional recommends acceptance of the Bulletin and the Owner agrees with the changes, the Owner issues a written bilateral Contract Change Order to amend the Contract Documents. However, the Owner may issue a unilateral Change Order if the Owner and Contractor are unable to agree on the adjustment in Contract Price or Time. If the Contractor disagrees with such unilateral Contract Change Order, the Contractor must complete the Work and may deliver notice of a claim in accordance with the claim submittal process.

6.2 Differing Site Condition: The Owner does not warrant that any technical data, including the Project reference points, provided by the Owner is necessarily sufficient and complete for the purpose of selecting Means and Methods, initiating, maintaining and supervising safety precautions and programs or discharging any other obligation assumed by the Contractor under the Contract Documents. If different or unknown site conditions are discovered, the Contractor must notify the Owner in writing before the conditions are disturbed or before proceeding with the affected Work. Upon review, if the Owner decides to agree with the differing site conditions, with the Professional's advice, the Owner may issue a written Contract Change Order to amend the Contract Price or Time through the Bulletin authorization process. If the Owner decides to disagree with the Contractor and the Contractor disagrees with the Owner's decision, the Contractor must complete the Work and may deliver notice of a claim in accordance with the claim submittal process. No proposal or claim by the Contractor due to differing site conditions will be allowed (a) if the Contractor knew of their existence before submitting its Bid or if those conditions could have been discovered by any reasonable examinations for which the Contractor, as Bidder, was made responsible under the Bidding Requirements and/or (b) unless the Contractor's written notice is provided within not more than 21 days after the contractor first recognizes the condition giving rise to the proposal or claim and gives the Owner adequate opportunity to investigate the asserted differing site conditions. A full and detailed breakdown of cost and time requested, with supporting documentation, if not provided with the initial notice shall be delivered to the Professional and Owner within 15 days of the notice, unless otherwise agreed in writing, by the Owner prior to expiration of such time.

6.3 Responsibilities for Underground Utilities: The Contractor must comply with the 1974 PA 53, as amended, MCL 460.701 et seq., and all other Laws concerning Underground Utilities. Before performing site Work, all Underground Utilities, lines and cables (public and private) must be located and marked. The Contractor must notify MISS DIG to locate and mark utilities on properties that are not State properties. In addition, the Contractor must be responsible for immediately notifying the Owner of any contact with or damage to Underground Utilities, and for the safety, protection of and repairing any damage done to any Work, surface and subsurface facilities. If the Contractor encounters Underground Utilities that inaccurately located by the Contract Documents or not previously located/marked, which could not be reasonably have been seen, the Owner may issue a written Contract Change Order to amend the Contract Price or Time through the Bulletin authorization process.

6.4 Hazardous Material Conditions: If the Contractor encounters material reasonably believed to be Hazardous Material, which was not described in the Drawings and/or Specifications and was not generated or brought to the site by the Contractor, the Contractor shall immediately stop all affected work, give written notice to the Owner of the conditions encountered, and take appropriate health and safety precautions in accordance with all federal, State and local laws. Upon receipt of the notice, the Owner will investigate the conditions and (a) may stop the Work and terminate the affected Work or the Contract for convenience; (b) may contract others to have the Hazardous Material removed or rendered harmless or; (c) issue a written Contract Change Order to amend the Contract Price/Time through the Bulletin authorization process. If the Hazardous Material is brought to site by the Contractor or as a result in whole or in part from any of its violation of any Law covering the use, handling, storage, disposal of, processing, transport and transfer or from any other act or omission within its control, the Contractor is responsible for the Delay and costs to clean up the site, remove and render harmless the Hazardous Material to the satisfaction of the Owner, State and all Political Subdivisions with jurisdiction.

6.5 Incidents with Archaeological Features: The Contractor must immediately notify the Owner in writing of any Archeological Feature deposits encountered at the site and must protect the deposits in a satisfactory manner. If the Contractor encounters such features, which result in an anticipated change to the Contract Price/Time, the Owner may issue a written Contract Change Order through the Bulletin authorization process.

6.6 Unit Price Work: Quantities as listed have been carefully estimated but are not guaranteed. The Owner reserves the right to increase or decrease the quantities of the Work to be performed at the Unit Price by amounts up to 20 percent of the listed estimated quantities. For Unit Price Work, the Contractor must promptly inform the Professional in writing if actual quantities differ from the estimated quantities for any item. For quantities over 120% or below 80% of the estimated quantity, the Owner may negotiate a Unit Price with the Contractor, or direct a unilateral change, or bid that Work under separate contract. Any adjusted Unit Price agreed upon by the Owner will only apply to the actual quantities above 120% or below 80% of the estimated quantity. No adjustment due to quantity variations must be allowed (a) unless the Contractor met the notice requirements, or (b) if any Unit Price increase results in whole or in part from any act or omission within the control of the Contractor (errors in the Contractor's Bid, unbalanced Unit Prices, etc.). If a dispute arise between the Owner and the Contractor on the adjusted Unit Price, the Contractor must carry on the Work with due diligence during the disputes/disagreements.

6.7 Cash Allowances; Provisionary Allowances: The Contractor must obtain the Professional's and Project Director's written acceptance before providing materials, equipment, or other items covered by Cash Allowance. Work authorized under any Provisionary Allowance may consist of (a) changes required by actual conditions, as determined by the **Professional**, and (b) any other Work authorized and completed under the pertinent provisions of the Contract Documents.

6.8 Changes in Contract Price:

6.8.1 The Contractor's proposals or claims for Work Involved must detail all affected items of Work, whether increased, revised, added or deleted, and must be fully documented and itemized as to (a) individual adds and deducts in Work quantities and labor man-hours; (b) corresponding itemized cost of Work Involved; (c) materials and equipment cost including transportation, storage and suppliers' field services; and (d) Fee.

6.8.1.1 No proposal or claim by the Contractor on account of any asserted change not issued as a Bulletin by the PSC or Owner, shall be allowed unless initiated by written notice of such proposal or claim to the Professional and Owner within 21 days after the occurrence of the event giving rise to the proposal or claim. A full and detailed breakdown of cost and time requested, with supporting documentation, if not provided with the initial notice shall be delivered to the Professional and Owner within 15 days of the notice, unless otherwise agreed in writing, by the Owner prior to expiration of such time.

6.8.2 For Contractor's proposals or claims for adjustments in Contract Price arising from Delays, the Contractor's estimates must be as comprehensive and detailed as may be appropriate to support the proposal or claim. Examples of related information include labor manpower levels, production data and Progress Schedule revision.

6.8.3 If the Contract Documents use lump sum or Unit Prices for the Work Involved, those prices must be used in estimating the price change. Otherwise, the Owner may direct the Contractor to proceed (a) on a negotiated lump sum; or (b) on an actual cost basis with or without a guaranteed maximum; or (c) through a unilateral Change Order on a lump sum basis or a not-to-exceed basis, based on the Professional's estimate of the anticipated Cost of the Work Involved and a fee. Items making-up the Cost of the Work Involved must be allowable to the extent (a) consistent with those prevailing in the Project locality, (b) necessary, reasonable and clearly allocable to the Work Involved, and (c) limited to labor costs, subcontract costs, material and equipment costs, construction equipment costs and general conditions costs.

6.8.4 In estimating any additional cost by the Contractor or its Subcontractor, the rates for the craft labor man-hour used in estimating changes in Contract Price must not exceed the rates in Means Cost Data (Means) or other cost guide acceptable to the Owner. If the rates exceed the acceptable cost guides, the Contractor must provide proper justifications acceptable to the Professional and the Owner. The payroll costs may be used to quote a Bulletin. However, the payroll costs must include wages, labor burdens and a factor for field supplies and purchase costs (less market values if not consumed) of tools not owned by the workers. Labor burdens must be certified by an authorized financial representative of the Contractor and may include social security, unemployment, taxes, workers' compensation, health and retirement benefits, vacation and holiday pay. The factor for field supplies and tools (individually valued at less than $1,000.00) must not exceed 4% of the wages without burdens, unless detailed data, which supports higher costs, is provided. Rates for owned, rented or leased construction equipment must be in accordance with the contract price rates. Otherwise, the appropriate hourly, daily, weekly or monthly rates listed in Means must be used. However, if the total rental or lease cost of an item to the Project exceeds the reasonable purchase price of the rented or leased item, the Owner reserves the right to pay only the purchase price of the item and take title to the item. Operating cost must not exceed the hourly operating rate in Means and for multiple shifts, rates must not exceed the shift work adjustments recommended in the cost guide.

6.8.5 The cost of any Work Involved may include necessary general conditions costs to the extent those costs increase or decrease on account of, or are directly attributable to, the performance of the furnishing and/or performance of the additional Work Involved, or are required due to an extension in Contract Times or Delays. Such costs may include payroll costs of personnel, temporary facilities at the site, liability insurance and bond premiums, Subcontractors, royalty payments and fees for permits and licenses and taxes on the Work Involved.

6.8.6 A contractor or subcontractor who performs the Work may charge a fee of up to 15% of the cost of Work involved for overhead and profit. Contractor may charge a mark-up fee of up to 5% of its Subcontractor's cost excluding fees if the Work is performed by the Subcontractor. If Work is to be performed by lower tier subcontractor(s), intermediate subcontractors must share a fee of up to 5% of the lowest tier subcontractor's cost excluding fees. The total mark-up fees for the Work must not exceed 20% of the lowest tier subcontractor's cost excluding fees. If the adjustment to the Contract Price incorporates a contractor reservation of rights to claim additional adjustments, the fees must be reduced by one-third. Contractor's administrative costs and home office overhead must be non-reimbursable expenses covered by the Fee for the Work.

6.9 Changes in Contract Time:

6.9.1 If a justified extension beyond the Contract Time is not reasonably anticipatable under the circumstances, the Owner may approve an extension to the Contract Time through the Bulletin authorization process at no additional cost to the Owner. Examples of events that may justify an extension in the Contract Time include acts of God; acts of the public enemy; fires; floods; and strikes.

6.9.2 If, at any time during the life of this Contract, the Contractor finds that for reasons beyond its control, it will be impossible to complete the Work on or before the Contract completion date, a written request for a change to the Contract extending the time of completion must be submitted. Such a request must set forth in precise detail the reasons believed to justify an extension and must be in such format as the State may require.

6.9.3 When submitting a quotation for a Contract change authorization for extra work or change in plans, the Contractor must include as part of the quotation, a statement requesting any extra time necessary to complete the related Work. Lack of such a statement will serve as notification that the extra time will not be required to complete the Contract work and will waive the right to a later claim. The Owner will not pay additional compensation to the Contractor for performing Contract Work during any extension period granted.

6.9.4 If the Progress Schedule and the funding allow for an early completion date, the Contractor may submit to the Owner for approval, a request to shorten the Contract Time. If approved by the Owner, the new Contract Time applies to the Project and liquidated damages, if any, will be assessed for any delays after the new completion date.

6.10 Price Reduction for Defective Cost or Pricing Data: Whenever the Contractor signs a proposal for a change in the Contract or claim settlement, the Contractor will be deemed to have certified on behalf of itself, Subcontractors and Suppliers, to its best knowledge and belief that the proposal and its contents (a) were made in good faith and are consistent with the facts and the provisions of the Contract; and (b) are current, complete and accurate. If the Contract Price/Time is increased by any Change Order, claim or dispute settlement because the Contractor, Subcontractor or Supplier, at any tier, represented or furnished cost or pricing data of any kind that were false, contained math errors or were incomplete, the Contract Price must be correspondingly reduced by Change Order. If there is a good cause to doubt the Contractor's compliance with the Defective cost and pricing data requirements, the Owner must be entitled to make an appropriate withholding from any payment otherwise owed to the Contractor.

7. Payments

7.1 **Schedule of Values:** The Schedule of Values must be approved by the Professional and accepted by the Owner and must divide the Work into pay items for significant Sections and areas, facilities or structures, with subtotals for first tier Subcontractors. As required or as noted in Division 1, the accepted Schedule of Values must be supported by a more detailed breakdown allocating the pay items to the Progress Schedule Activities. It must tabulate labor costs, Subcontract costs and material and equipment costs. Labor costs must include appropriate sums for construction equipment costs, general conditions costs, administrative costs and profit, unless separate pay items are itemized for those costs. The Schedule of Values must include two percent of the Contract Price for each of the following close-out pay items: (a) fire safety inspection, certificate of occupancy and other code approvals, as specified in the Contract Documents, (b) manufacturer warranties, finalized operating and maintenance documentation, Owner training documentation, and test and balance reports, and (c) finalized as-built/Record Documents.

7.2 **Requests for Payment:** Not more than once every thirty Calendar Days, the Contractor may submit to the Professional a Request for Payment on the Owner's form signed by the Contractor certifying Work completed and enclosing all supporting documentation. A draft copy of the payment request must be submitted to the Owner Field Representative for review and comments. For projects under $50,000, the Contractor may not submit more than two requests in addition to the final payment request. Each Request for Payment must certify that all monies owed by the Contractor to Subcontractors and Suppliers for which payment previously has been sought has been paid from payments received. No Request for Payment must include amounts for a Subcontractor or Supplier if the Contractor does not intend to use the payments requested, when received, to reduce the Contractor's outstanding obligations on the Work. The Owner will pay the Contractor within thirty Calendar Days after the Owner receives and approves a certified Request for Payment from the Professional. The Contractor will provide a certification in writing that the payment request submittal is true and accurate. If payment is requested based on materials and equipment stored at the site or at another location agreed to in writing, the Request for Payment also must be accompanied by (a) consent of surety, (b) a bill of sale, invoice or other documentation warranting that the Owner has received the materials and equipment free and clear of all liens, and (c) evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect them and the Owner's interests. The Contractor warrants and guarantees that title to all Work, materials and equipment covered by any Request for Payment, whether incorporated in the Work or not, will pass to the Owner free and clear of all liens no later than at the time of payment by the Owner to the Contractor.

7.3 **Review of Request for Payment; Intent of Review:** Within ten Calendar Days after receipt of a Request for Payment, the Professional must certify to the Owner the amount the Professional determines to be due, or must return the Request for Payment to the Contractor indicating the reasons for withholding certification. The Professional's certification of any Request for Payment constitutes a representation to the Owner that the Work has progressed to the point indicated; that to the best of the Professional's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents; and that the Contractor is entitled to payment in the amount certified. In the case of final payment, the Professional's certification of final payment and recommendation that the Work is acceptable must be a further representation that conditions governing final payment to the Contractor have been met.

7.4 **Refusal to Make or to Recommend Payment:** The Owner may withhold from any payment an amount based on the (a) Professional's refusal to recommend payment or (b) Owner's estimate of the fair value of items included in the payment request. The Owner will give the Contractor reasonably prompt written notice supporting such action. The Professional may refuse to recommend any part of any payment, or because of subsequently discovered evidence, inspections or tests or the value of the Punch List, nullify all or any portion of any payment previously recommended, as the Professional may consider necessary to protect the Owner from loss because:

(a) the Work is Defective or completed Work has been damaged requiring correction or replacement,
(b) the Contract Price has been reduced by Change Order,
(c) it has been necessary that the Owner correct Defective Work or complete Work,
(d) reasonable evidence exists that all or a part of the Work will not be completed within the corresponding Contract Time,
(e) the Contractor failed to comply with any material requirements of the Contract, including, but not limited to the failure to submit Progress Schedule Submittals or as-built/Record Documents when due,
(f) stored materials for which payment has been made or is sought has been determined by the Professional or the Owner Field Representative to be damaged or missing, or
(g) the Professional reasonably believes or knows of the occurrence of an event justifying termination for cause.

7.5 **Request for Final Inspection:** The Contractor must complete the Substantial Completion Punch List within the Contract Time and date. The Contractor must assemble all required documentation before requesting final inspection in writing. The Contractor may request final inspection of the entire Work, or the part of the Work for which final payment is specified in the Contract Documents. Upon this written notice, and if deemed appropriate by the professional, the Professional will make a final completion inspection with the Owner and Contractor and notify the Contractor of all incomplete or Defective Work revealed by the Final Inspection. The Contractor must immediately correct and complete the Work.

7.6 **Close-out Documents:** The Contractor must prepare and submit the following documentation before requesting final inspection or final payment: final operating and maintenance documentation (with revisions made after Substantial Completion), warranties, inspection certificates, as-built/Record Documents, release of payment claim forms, and all other required documents.

7.7 **Request for Final Payment:** The Contractor may request final payment after correcting or completing the Work to the satisfaction of the Professional and delivering close-out documentation (7.6). The Contractor's request for final payment must also enclose:

(a) evidence of completed operations insurance and an affidavit certifying that the insurance coverage will not be canceled, materially changed, or renewal refused,
(b) an affidavit certifying that the surety agrees that final payment does not relieve the surety of any of its obligations under the Performance Bond and Payment Bond,
(c) a completed DTMB-0460 Form close out checklist,
(d) a list of all pending insurance claims rising out of or resulting from the Work being handled by the Contractor and/or its insurer
(e) Contractor's 'Guarantee and Statement' (DTMB-0437) containing a statement of guaranteed indebtedness acceptable to the Owner in the full amount of the Contract Price, or a release of payment claims in the form of a release of liens, or a Bond or other security acceptable to the Owner to indemnify the Owner against any payment claim.

7.8 **Final Payment and Acceptance:** If the Professional is satisfied that the entire Work, or the part of the Work for which final payment is specified in the Contract Documents, is complete and the Contractor's other obligations under the Contract Documents has been fulfilled, the Professional will furnish to the Owner and Contractor the Professional's certification of final payment and acceptance within thirty Calendar Days after receipt of the final payment request. If the Professional is not satisfied, the Professional will return the request to the Contractor indicating in writing the reasons for not certifying final payment. If the final payment request is returned, the Contractor must correct the deficiencies and re-request final payment. If the Owner concurs with the Professional's certification of final payment the Owner will, within thirty Calendar Days after receipt of the Professional's certification of final payment, pay the balance of the Contract Price subject to those provisions governing final payment specified in the Contract Documents. If the Owner does not concur with the Professional's determination, the Owner will return the request for final payment to the Contractor with written reasons for refusing final payment and acceptance.

7.9 **Contractor's Continuing Obligation:** The following does not constitute acceptance of the Work in the event the Work or any Work is not in accordance with the Contract Documents, and therefore does not release the Contractor from its obligation to perform and furnish the Work in accordance with the Contract Documents:

(a) a certification by the Professional of any Request for Payment or final payment;
(b) the issuance of a Substantial Completion certificate;
(c) any payment by the Owner to the Contractor;
(d) any Partial Use;
(e) any act of acceptance by the Owner or any failure to do so;
(f) any review and approval of a Shop Drawing, sample, test procedure or other Submittal;
(g) any review of a Progress Schedule;
(h) any On-Site Inspection;
(i) any inspection, test or approval;
(j) any issuance of a notice of acceptability by the Professional; or
(k) any correction of Defective Work or any completion of Work by the Owner.

7.10 **Waiver of Claims:** The making of final payment does not constitute a waiver by the Owner of any rights as to the Contractor's continuing obligations under the Contract Documents, nor will it constitute a waiver of any claims by the Owner against the Contractor still unsettled, or arising from unsettled payment claims, Defective Work appearing after final inspection or failure by the Contractor to comply with the Contract Documents or the terms of any special warranties provided by the Contract Documents or by Law. The acceptance of final payment will constitute a waiver of all claims by the Contractor against the Owner, other than those claims previously made in writing, on a timely basis.

8. Other Work: During the Contract Time, the Owner may self perform or Contract for other work at the site. By doing so, the Owner or its representative will coordinate the operations of the Contractor and the other work. Whenever the other work interfaces with the Contractor's Work on site, the Contractor must coordinate its activities with the interfacing work, inspect the other work and promptly report to the Professional in writing if the other work is unavailable or unsuitable. The Contractor's failure to do so will constitute an acceptance of such other work as fit and proper for integration with the Work except for latent or non-apparent defects and deficiencies in the other work. The Contractor must provide proper and safe access to the site for handling, unloading and storage of their materials and equipment and for the execution of the other work. The Contractor must do all cutting, fitting, patching and interfacing of the Work that may be required to make any part of the Work come together properly and integrate with other work. If the Contractor becomes party to a dispute or claim due to damages caused to its Work/property or other work/their property, the Contractor must promptly attempt, without involving the Owner or the Professional or their agents, to settle with the other party by agreement or otherwise resolve the claim. If the Owner determines that the other work resulted in a delay to the Work to be performed by the Contractor and such delay justifies a Change Order, the Owner will authorize the necessary adjustment in Contract Price and/or Time.

9. Stop Work Orders and Suspension of Work: The Owner may order the Contractor in writing to defer, stop, suspend or interrupt all or part of the Work, in the event any of the following situations:

(a) any Work is Defective,
(b) any Work, when completed, will not conform to the Contract Documents,
(c) any materials or equipment are unsuitable,
(d) any workers are insufficiently skilled,
(e) failure of the Contractor to implement appropriate measures for the SESC, or
(f) as the Owner may determine appropriate for its convenience. The Contractor is responsible for the Delays and any additional costs if at fault. Any justified increase in Contract Price/Time due to suspension of Work must be submitted within twenty-one Calendar Days of knowing the extent of Delays and before submitting the final payment.

10. Termination:

10.1 **Termination for Breach**: The Owner may elect to terminate all or any part of the Work if:

(a) the Contractor fails to complete the Work, or a specified part of the Work, within the corresponding Contract Time; fails or refuses to supply sufficient management, supervision, workers, materials or equipment; or otherwise fails to prosecute the Work, or any specified part of the Work, with the diligence required to comply with the Contract Time(s);
(b) the Contractor persistently disregards the authority of the Professional or violates or disregards a provision of the Contract Documents or the Laws of any Political Subdivision with jurisdiction;
(c) the Contractor admits in writing, or the Owner otherwise establishes, the Contractor's inability or refusal to pay the Contractor's debts generally as they become due;
(d) in response to the Owner's demand, the Contractor fails to provide adequate, written assurance that the Contractor has the financial resources necessary to complete the Work within the Contract Time;
(e) the Contractor fails to comply with the Michigan Residency requirements (1984 PA 431, as amended, MCL 18.1241a); or is found to be in violation of Section 4 of 1980 PA 278 concerning unfair labor practices, or any nondiscrimination requirements imposed by Law;
(f) at any time, the Contractor, Subcontractor or Supplier is in violation of unfair labor practices prohibited by Section 8 of Chapter 327 of the National Labor Relations Act, 29 U.S.C. 158; or
(g) the Contractor violates or breaches any material provision of the Contract Documents, which provides contractually for cause termination or rescission of the Contract or of the Contractor's right to complete the Work.

Within seven Calendar Days after the Contractor receives a notice requiring assurance of due performance for any of the above occurring non-conformances, the Contractor must meet with the Owner and present the Contractor's plan to correct the problems. If the Owner determines that the Contractor's plan provides adequate assurance of correction, that determination does not waive the Owner's right to subsequently default the Contractor or affect any rights or remedies of the Owner against the Contractor and/or surety then existing or that may accrue in the future. The Owner, after giving the Contractor and surety seven Calendar Days' written notice of intent to default, may declare the Contractor in default and terminate the services of the Contractor for cause. Unless otherwise agreed between the Owner and Contractor, at the expiration of the Seven-Calendar Day (intent to default) period, the Contractor must immediately stop all Work and proceed in accordance with the Owner's instructions. Following the expiration of the Seven-Calendar Day (intent to default) notice, the Contractor will be sent a default letter – notice of termination for cause. The Owner will issue a Contract Change Order to revise the name of the contract party to the name of the surety company. The surety company must undertake to perform and complete the

Work, in accordance with the Contract Documents, in place of the Contractor, either through the surety's agents or by executing agreements with qualified contractors (excluding the Contractor and any of the Contractor's affiliates), or both.

The Owner may issue a fifteen-Calendar Day notice of intent to default the surety company if they fail to execute in a timely manner the completion of the Contract Work. Without an adequate plan of correction, the Owner may issue a notice of termination for cause letter to the surety. If a termination of the contract with the surety occurs, the Owner reserves the right to complete the Work.

If the Owner has terminated the Contractor, any such termination will not affect any rights or remedies of the Owner against the Contractor or surety, or both, then existing or that may accrue after termination. All provisions of the Contract Documents that, by their nature, survive final acceptance of the Work must remain in full force and effect after a termination for cause of the Contractor or default of the surety, or both. The Owner may, in its sole discretion, permit the Contractor to continue to perform Work when the Contractor is in default or has been defaulted. Such decision by the Owner in no way operates as a waiver of any of the Owner's rights under the Contract Documents or Performance Bond, nor in the event of a subsequent default, entitle the Contractor or surety to continue to perform or prosecute the Work to completion.

10.2 **Termination on Non-Bonded Project**: For non-bonded projects, the Owner will follow the termination protocol in Paragraph 10.1 without involving a surety.

10.3 **Termination for Convenience of the Owner**: Upon fifteen Calendar Days' written notice to the Contractor and surety, or sooner if reasonable under the circumstances, the Owner may, without cause and without prejudice to any other right or remedy it may have, elect to terminate any part of the Work, or the Contract in whole or in part, as the Owner may deem appropriate for its convenience. Upon receipt of any such termination notice, the Contractor must immediately proceed in accordance with any specific instructions, protect and maintain the Work, and make reasonable and diligent efforts to mitigate costs associated with the termination. In such termination, the Contractor must be paid in accordance with the terms of this Contract for only services rendered before the effective date of termination. Upon termination for convenience, the Contractor must be released from any obligation to provide further services and the Owner must have full power and authority to take possession of the Work, assume any agreements with Subcontractors and Suppliers that the Owner selects, and prosecute the Work to completion by Contract or as the Owner may deem expedient.

10.4 **Termination for Lack of Funding:** If expected or actual funding is withdrawn, reduced or limited in any way before the completion date set forth in this Contract or in any amendment, the State may, upon written notice to the Contractor, terminate this Contract in whole or in part in accordance with Paragraph 10.3.

11. Disputes: All claims, counterclaims, disputes and other matters in question between the Owner and Contractor arising out of or relating to the Contract Documents must be submitted in writing to the Professional and otherwise processed and resolved as provided in this Article. *Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker (Professional/PSC). Claims by either party must be initiated within 21 days after the occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognized the condition giving rise to the claim. Provided such timely notice is delivered, a full and detailed breakdown of cost and time requested, with supporting documentation, if not provided with initial notice shall be delivered to Professional and Owner within 15 days of the notice, unless otherwise agreed in writing, by the Owner prior to expiration of such time*. The Contractor must carry on the Work with due diligence during all disputes or disagreements. Work must not be delayed or postponed pending resolution of any disputes or disagreements. The Contractor must exercise reasonable precautions, efforts and measures to avoid situations that would cause delay.

11.1 **Notice of Claim**: Except for Owner claims for liquidated damages, no claim is valid unless it is based upon written notice delivered by the claimant to the other party and the Professional/PSC within 21 days of the event giving rise to the claim. The notice must state the nature of the dispute, the amount involved, if any, and the remedy sought. The claim submittal with all supporting data must be delivered within thirty (30) Calendar Days after the initial notice, unless the Professional allows an extension by written approval. A claim by the Contractor must be submitted to the Professional and Project Director for a recommendation or decision from the Professional. A claim by the Owner must be submitted to the Contractor and the Professional for a written recommendation or decision by the Professional. The Owner reserves the right to audit any Contractor claim (or claim package) that the Contractor values at more than $50,000.00. Pending final resolution of any claim under this Article, the Contractor must proceed diligently with the Work and comply with any decision of the Owner and/or Professional. For all Contractor claims seeking an increase in Contract Price or Contract Time, the Contractor must submit an affidavit, certifying that the amount claimed accurately reflects any Delay and all costs that the Contractor is entitled from the occurrence of the claimed event and that supporting cost and pricing data are current, accurate, complete and represent the Contractor's best knowledge and belief. The affidavit must be signed in the same manner as required in Item 6 of Section 00100.

11.2 **Recommendations or Decisions from the Professional:** For claims under $100,000.00, if requested in writing by the Contractor, the Professional will render a recommendation or decision within thirty Calendar Days after the request and the Owner will issue, if necessary, a determination within thirty Calendar Days after the Professional's recommendation or decision. For claims exceeding $100,000.00, the Professional will issue its recommendation or decision and the Owner, if necessary, will issue its determination, within sixty Calendar Day.

If the Professional denies a Contractor claim or agrees with an Owner claim, that decision must be final and binding on the Contractor, without any determination by the Owner, unless the Contractor files a request for a presentation with the Director-DCD within thirty Calendar Days. To the extent that any recommendation from the Professional is partly or wholly adverse to a claim from the Owner, that determination must be final and binding on both the Owner and Contractor unless either party files a request for a presentation with the Director-DCD within thirty Calendar Days. If the Professional recommends payment of any Contractor claim which increases the Contract Price, that recommendation is subject to the Owner's written approval. In the event any such determination from the Owner is partly or wholly adverse to the preceding recommendation from the Professional, that determination must be final and binding on the Contractor unless the Contractor files suit in the Michigan Court of Claims within thirty Calendar Days after receipt of such determination. The claim is waived if not made in accordance with these requirements.

If either the Contractor or Owner is not satisfied with any decision of the Professional on a claim, that party must, within thirty Calendar Days of receiving that decision, file a written appeal with complete supporting documentation with the Director-DCD. The Director-DCD has discretion concerning the allowability of evidence submitted and is not bound to any rules of evidence. If the right to a presentation is waived or if a presentation is conducted and the dispute remains unresolved, the Director-DCD, at the Director-DCD's sole option, must specify in which forum the dispute must be conducted by issuing a written determination to the Contractor that the dispute if the Contractor so elects, be submitted in writing to the Michigan Court of Claims. The Director-DCD's determination on the dispute is final and binding on the Contractor unless the Contractor files a lawful action in the Michigan Court of Claims within thirty Calendar Days after receiving the Director-DCD's determination. After settlement or final adjudication of any claim, if payment by the Contractor is not made to the Owner, the Owner may offset the appropriate amounts against (a) payments due to the Contractor under any other Contract between the Owner and the Contractor, or (b) any amounts for which the Owner may be obligated to the Contractor in any capacity. The Director-DCD may designate someone to fulfill the Director-DCD's duties under these terms and conditions.

END OF SECTION 00700

SECTION 00750 SPECIAL WORKING CONDITIONS

1. The Work is for the Department of Natural Resources and their special working conditions are included in Appendix II. Contractor must comply with all security regulations. Access to and egress from the buildings and State Agency grounds must be via routes specifically designated by the State Agency. Whenever the Contractor has caused an operating security or fire system to go out of service, or left unsecured openings in existing facilities or security fences, the Contractor must furnish a security guard or fire watch acceptable to the Owner to maintain security of the facility outside of normal working hours and will be held responsible for any losses from the facility.

2. The Contractor must maintain at all times dust control measures to the satisfaction of the Owner.

END OF SECTION 00750

SECTION 00800 SUPPLEMENTARY CONDITIONS

1. The following conditions must supplement the general conditions: NA

END OF SECTION 00800

SECTION 00850 FEDERALLY FUNDED PROJECT PREVAILING WAGE REQUIREMENTS/SCHEDULE

If a project is funded in whole or in part by federal dollars, the Contractor and all Subcontractors must comply with all Laws pertaining to occupational classifications and to the following requirements:

1. If applicable, the Contractor (and its Subcontractors) for prime construction contracts in excess of $2,000 must comply with the Davis-Bacon Act (40 USC 3141-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction").

2. The Contractor (and its Subcontractors) shall pay all mechanics and laborers employed directly on the site of the work, unconditionally and at least once a week, and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the advertised specifications, regardless of any contractual relationship which may be alleged to exist between the Contractor or subcontractor and the laborers and mechanics;

3. The Contractor will post the scale of wages to be paid in a prominent and easily accessible place at the site of the work;

4. There may be withheld from the Contractor so much of accrued payments as the contracting officer considers necessary to pay to laborers and mechanics employed by the Contractor or any Subcontractor on the work the difference between the rates of wages required by the Contract to be paid laborers and mechanics on the work and the rates of wages received by the laborers and mechanics and not refunded to the Contractor or Subcontractors or their agents.

Prevailing wages not required for this project.

END OF SECTION 00850

SECTION 00900 ADDENDA

1. Each Bid submittal must include acknowledgement of receipt and review of all Addenda issued during the Bidding period.

END OF SECTION 00900

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01010 SUMMARY OF WORK

1. **General**

1.1 General information covering the "Scope of Work" is specified on the Invitation to Bid. Additional information is as follows:

(a). Removal of the existing two undersized corrugated metal pipe culverts and replacement with a concrete box culvert including approaches and embankment and other details per the drawings and specifications.

The site is located along Trail No. 415 and is a two-track seasonal road that intersects highway US2 between the Garden Corner (at intersection of US2 and M183) and Schoolcraft/Delta County line just to the east. The road entrance at US2 between mile markers 219 and 220 on the passing lane stretch of US2. The site is 1.0 miles south of US2. GPS Coordinates: N45º53.272' – W86º29.559' (WGS84).

1.2 The Agency will provide the following Work:

(a) State Salvage: The State reserves the right to salvage certain items and equipment and those salvaged items will be identified to the Bidder at the time of their inspection of the proposed Work. The State will remove salvaged items before commencement of the Work.

(b) Moving Furnishings and Equipment: The Contractor must give timely notice to the State Agency representative identified in the pre-construction meeting of all furnishings, window covering and movable equipment that will interfere with the Work or which the Contractor cannot protect with coverings of paper, plastic, drop cloths or clean tarpaulin. The Contractor must furnish, install, maintain and remove all coverings used to protect furnishings, window coverings and movable equipment.

END OF SECTION 01010

SECTION 01020 ALLOWANCES

1. **Allowances**

1.1 **Cash Allowances:**

(a) Bidders must include in their Base Proposal Sum an allowance of $0. The base bid shall include bonds and insurance on the value of the allowance.
(b) Monies in the allowance will be used only if directed in writing by the Project Director and Professional.
(c) Payments under a Cash Allowance must be on actual cost and exclude cost for supervision, handling, unloading, storage, installation, testing, fee, premiums for bond and insurance, etc.
(c) Unused allowances will be deducted from the contract amount through contract change order.

1.2 **Provisional/Contingency Allowances:**

(a) Bidders must include in their Base Proposal Sum a contingency allowance of $10,000. The base bid shall include bonds and insurance on the value of the allowance.
(b) Monies will be used in the contingency allowance only if directed in writing by the Project Director and Professional.
(c) Payments under a Provisionary Allowance will include not only the purchase/furnished cost of the materials and equipment involved, but also all related labor costs, subcontract costs, construction equipment costs, general conditions costs and Fee, provided they are calculated in accordance with the requirements of the contract documents.
(c) Unused allowances will be deducted from the contract amount through contract change order.

END OF SECTION 01020

SECTION 01025 MEASUREMENT AND PAYMENT

1. **Schedule of Values**: Unless noted otherwise, before mobilization and start of construction, the Contractor must submit a Schedule of Values to the Professional for review and approval, of the various tasks that must be performed to complete all the Work. The schedule must show each task and the corresponding value of the task, including separate monies allocated for General Condition items and Project close-out. The aggregate total value for all tasks must be equal to the total Contract sum.

END OF SECTION 01025

SECTION 01030 ALTERNATES

1. **Use of Alternates**: Determination of the lowest three Bidders shall be on the basis of the sum of the Base Bid and any additive and deductive Alternates the Owner accepts, in the order in which they are listed only. The Owner will accept an Alternate only if

all other previously listed Alternates are also accepted, unless acceptance by the Owner of Alternates in a different order does not affect determination of the lowest three bidders in any way.

2. **Execution:** (a) Coordinate pertinent related Work and modify surrounding work as required to complete the Project for each alternate.
(b) Description of Alternates: None

END OF SECTION 01030

SECTION 01040 COORDINATION

1. **Project Coordination:**

(a) Before beginning Work the Contractor must coordinate with the State Agency representative to implement the schedule for the Project. Once the Project is started, it must be carried to completion without delay.(b)Any building utility service interruptions or outages including security required by the Contractor in performing the Work must be prearranged with the staff of the State Agency and must occur only during those scheduled times.(c) The Contractor is not responsible for removing room furnishings unless is required by the Contract Documents.

2. **Cutting and Patching:**

(a) The Contractor must do all cutting, fitting or patching of the Work that may be required to make its several parts fit together properly or make new Work join with the existing structure. The Contractor must take proper precautions so as not to endanger any existing Work. The Contractor must not cut or alter existing structural members or foundations unless specifically required by the Contract Documents.
(b) Holes or openings cut in exterior walls and roofs for installation of materials or equipment must be waterproofed by appropriate, approved materials and methods.
(c) All adjacent finished surfaces that are damaged by the new Work must be patched with materials matching existing surfaces. Joints between patched and existing material must be straight, smooth and flush. Workers skilled in its installation must apply all patching material.

END OF SECTION 01040

SECTION 01050 FIELD ENGINEERING

1. When applicable, the Contractor must employ a surveyor who must establish and maintain all lines and levels required for laying out and constructing the Work. The Contractor agrees to assume all responsibility due to inaccuracy of any Work of the surveyor, and including incorrect bench marks, their loss or disturbance. Upon completion of the Project, the Contractor must submit two copies of site layout Drawings prepared for the Project and certified by the surveyor.

END OF SECTION 01050

SECTION 01060 REGULATORY REQUIREMENTS

1. **Laws:** The Contractor and its Subcontractors/Suppliers must comply with all Federal, State and local Laws applicable to the Work and site.

2. **Codes:** All Works must be provided in accordance with the State Construction Code Act, 1972 PA 230, as amended, MCL 125.1501 et seg,, International Building and Residential Codes and all applicable Michigan construction codes and fire safety including but not limited to: Michigan Building Code, Michigan Residential Code, Michigan Uniform Energy Code, Michigan Electrical Code, Michigan Rehabilitation Code for Existing Buildings, Michigan Mechanical Code, Michigan Elevator Code and Michigan Plumbing Code. If the Contractor observes that any Contract Document conflicts with any Laws or the State Construction Code or any permits in any respect, the Contractor must promptly notify the Professional in writing. If the Contractor provides any Work knowing or having to reason to know of such conflict, the Contractor must be responsible for that performance.

3. **Permits:** All required construction permits must be secured and their fees including inspection costs must be paid by the Contractor. The time incurred by the Contractor in obtaining construction permits must constitute time required to complete the Work and does not justify any increases to the Contract Time or Price, except when revisions to the Drawings and/or Specifications required by the permitting authority cause the Delays. The Contractor must pay all charges of Public Utilities for connections to the Work, unless otherwise provided by Cash Allowances specific to those connections. The following permit fees will be paid by the Owner. EGLE Permit

4. **Taxes:** The Contractor must pay all Michigan sales and use taxes and any other similar taxes covering the Work that are currently imposed by legislative enactment and as administered by the Michigan Department of Treasury, Revenue Division. If the Contractor is not required to pay or bear the burden or obtains a refund of any taxes deemed to have been included in the

Bid and Contract Price, the Contract Price must be reduced by a like amount and that amount, whether as a refund or otherwise, must ensure solely to the benefit of the State of Michigan.

5. **Safety and Protection:** The Contractor and its Subcontractors/Suppliers must comply with all applicable Federal, State and local Laws governing the safety and protection of persons or property, including, but not limited to the Michigan Occupational Safety and Health Act (MIOSHA), 1974 PA 154, as amended, MCL 408.1001 et seq., and all rules promulgated under the Act. The Contractor is responsible for all damages, injury or loss to the Work, materials, equipment, fines, penalties as a result of any violation of such Laws, except when it's due to the fault of the Drawings or Specifications or to the Act, error or omission of the Owner or Professional. The Contractor is solely responsible for initiating, maintaining and supervising all safety precautions and programs and such responsibility must continue until such time as the Professional is satisfied that the Work, or Work inspected, is completed and ready for final payment. In doing the Work and/or in the event of using explosives, the Contractor must take all necessary precautions for the safety of, and must erect and maintain all necessary safeguards and provide the necessary protection to prevent damage, injury or loss to: (a) all employees on the Work and other persons who may be affected by the Work, (b) all the Work and materials and equipment to be incorporated into the Work, whether stored on or off the site, and (c) other property at or adjacent to the site, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Utilities not designated for removal, relocation or replacement. In the event of severe weather, the Contractor must inspect the Work and the site and take all reasonably necessary actions and precautions to protect the Work and ensure that public access and safety are maintained.

6. **Fire Hazard Conditions:**

(a). The fire hazard classification of finish materials where used in the specification must be in accordance with the current Michigan Building Code.

(b) Classification must be determined by tunnel test in accordance with National Fire Protection Association (NFPA-255), American Society for Testing Materials (ASTM E-84) or Underwriters' Laboratories, Inc. (UL-723).

7. **Flame/Smoke Resistance Standards**: The Contractor must provide carpeting complying with "Class B" requirements as set forth in Michigan Department of State Police State Fire Safety Board "Health Care Facilities Fire Safety Rules' R29.1243, Rule 243, when tested in accordance with the following procedures:

(a) Tunnel Test: Test for surface burning characteristics, with ratings for flame spread, fuel contribution, and/or smoke density; ASTM E 84, UL 723, or NFPA No. 255.
(b) Pill Test: Test for flammability; ASTM D 2859, or DOC FF-1-70.
(c) Floor Radiant Panel Test: Test for burning under varying radiant energy levels; ASTM E 648, with minimum average radiant flux ratings not less than 0.45 watts/sq. cm.
(d) Smoke Density Test: Test in radiant heat chamber, with and without flame, for density of smoke generated; ASTM E 662, or NFPA No. 258, also known as NBS Smoke Density Chamber Test.

8. **Michigan Right-To-Know Law:** The Contractor and its Subcontractors/Suppliers must comply with MIOSHA, Michigan Right-to-Know Law (Public Act 80 of 1986) and the rules promulgated under it. The Act places certain requirements on employers to develop a communication program designed to safeguard the handling of hazardous chemicals through labeling of chemical containers and development and availability of Safety Data Sheets (SDS), and to provide training for employees who work with these chemicals and develop a written hazard communications program. The Act also provides for specific employee rights, including the right to be notified of the location of SDS and to be notified at the site of new or revised SDS within five Business Days after receipt and to request SDS copies from their employers. The Contractor, employer or Subcontractor must post and update these notices at the site.

9. **Environmental Requirements:** The Contractor and its Subcontractors/Suppliers must comply with all applicable Federal, State and local environmental Laws, standards, orders or requirements including but not limited to the National Environmental Policy Act of 1969, as amended, Michigan Natural Resources and Environmental Protection Act, P.A. 451 of 1994, as amended, the Clean Air Act, as amended, the Clean Water Act, as amended, the Safe Drinking Water Act, as amended, Pollution Prevention Act, as amended, Resource Conservation and Recovery Act, as amended, National Historic Preservation Act, as amended and Energy Policy and Conservation Act and Energy Standards for Buildings Except Low-Rise Residential Buildings, ANSI/ASHRAE/IESNA Standard 90.1-1999.

10. **Nondiscrimination:** For all State Contracts for goods or services in amount of $5,000 or more, or for Contracts entered into with parties employing three or more employees; in connection with the performance of Work under this Contract, the Contractor and its Subcontractors and Suppliers must comply with the following requirements:

10.1 Not to discriminate against any employee or applicant for employment because of race, color, religion, national origin, age, sex *(as defined in Executive Directive 2019-09)*, height, weight or marital status and take affirmative action to ensure that applicants are employed and the employees are not subject to such discrimination. Such action must include, but is not be limited to, the following: employment, upgrading, demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training.

10.2 To state in all solicitations or advertisements for employees that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, age, sex, height, weight or marital status.

10.3 To send, or have its collective bargaining representative send, each labor union or representative of workers with which there is a collective bargaining agreement or other contract or understanding, a notice advising the labor unions or workers' representative of the commitments under this provision.

10.4 To comply with the Elliot-Larsen Civil Rights Act, 1976 PA 453, as amended , MCL 37.2201 et seq.; the Michigan Persons With Disability Civil Rights Act, 1976 PA 220, as amended, MCL 37.1101 et Seq.; *Executive Directive 2019-09;* and all published rules, regulations, directives, and orders of the Michigan Civil Rights Commission (MCRC) which may be in effect on or before the date of Bid opening.

10.5 The Contractor must furnish and file compliance reports within the times, and using the forms prescribed by the MCRC. Compliance report forms may also elicit information as to the practices, policies, programs, and employment statistics of the Contractor and Subcontractors. The Contractor must permit access to Records by the MCRC and its agent for purposes of ascertaining compliance with the Contract and with rules, regulations, and orders of the MCRC.

10.6 If, after a hearing held under its rules, the MCRC finds that the Contractor has not complied with the Elliott-larso requirements of the Contract Documents, MCRC may, as part of its order, certify its findings to the Administrative Board of the State of Michigan, which may order the cancellation of the Contract and/or declare the Contractor ineligible for future contracts with the State until the Contractor complies with the MCRC's order.

11. Michigan Residency for Employees: Fifty percent of the persons employed on the Work by the Contractor must have been residents of the State of Michigan for not less than one year before beginning employment on the Work. This residency requirement may be reduced or waived to the extent that Michigan residents are not available or to the extent necessary to comply with the federal funds used for the Project. This requirement does not apply to employers who are signatories to collective bargaining agreements that allow for the portability of employees on an interstate basis.

END OF SECTION 01060

SECTION 01090 REFERENCES

1. References will be made in an abbreviated alpha numeric form to specific standard specifications, reference publications and building codes of federal or state agencies, manufacturers, associations or trade organizations. Such references will be identified by the alphabetic abbreviation which identifies the government agency, the association or organization followed by the rule, section or detail number that are to form a part of these specifications, the same as if fully set forth herein, and must be of latest issued date in effect three months before the Bid opening date shown on the Proposal and Contract. The abbreviations used are referred to as follows:

Abbreviation	Agency, Association or Organization
ACI	American Concrete Institute
AISC	American Institute of Steel Construction, Inc.
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute, Inc.
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineering
ASTM	American Society of Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
BOCA	Building Officials and Code
CDA	Copper Development Assn., Inc.
CLFMI	Chain Link Fence Manufacturer's Institute
CISPI	Cast Iron Soil Pipe Institute
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard
F/M	Factory Mutual Research Corporation
FS	Federal Specifications
HEW	United States Department of Health Education and Welfare
MDOT	Michigan Department of Transportation
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation Testing Laboratory, Inc
NSWMA	National Solid Waste Management Association
PCA	Portland Cement Association
PDI	Plumbing and Drainage Institute
SMACNA	Sheet Metal & Air Conditioning Contractors

UL	Underwriters Laboratories, Inc.
USBM	United States Bureau of Mines
USDC	United States Department of Commerce

END OF SECTION 01090

SECTION 01100 PROJECT PROCEDURES

1. **Signage and Safety:** The Contractor must post appropriate construction signs to advise the occupants and visitors of occupied facilities of the limits of construction work areas, hardhat areas, excavations, construction parking and staging areas, etc. Advertising signage by contractors, subcontractors, or suppliers is not allowed. The Contractor must maintain safe and adequate pedestrian and vehicular access to fire hydrants, commercial and industrial establishments, churches, schools, parking lots, hospitals, fire and police stations and like establishments. The Contractor must obtain written approval from the Owner ten Calendar Days before connecting to existing facilities or interrupting the services on site.

2. **Required Project Sign:** For projects costing in excess of $500,000, the Contractor must provide and install a project sign conforming to the requirements shown in Appendix IV. The Project Director will designate the wording for the sign.

3. **Barrier and Enclosures**:

   (a) The Contractor must furnish, install and maintain as long as necessary and remove when no longer required adequate barriers, warning signs or lights at all dangerous points throughout the Work for protection of property, workers and the public. The Contractor must hold the State of Michigan harmless from damage or claims arising out of any injury or damage that may be sustained by any person or persons as a result of the Work under the Contract.

   (b) **Temporary Fence**: The Contractor must entirely enclose the Contract area by means of woven wire or snow fence having minimum height of four feet. Gates must be provided at all points of access. Gates must be closed and secured in place at all times when Work under the Contract is not in progress. The fence must be removed and grounds restored to original condition upon completion of the Work.

   (c). **Street Barricades**: The Contractor must erect and maintain all street barricades, signal lights and lane change markers during the periods that a traffic lane is closed for their operations. There must be full compliance with rules and ordinances respecting such street barricading and devices must be removed when hazard is no longer present.

4. **Construction Aids:**

   (a) The Contractor must furnish, install, and maintain as long as necessary and remove when no longer required, safe and adequate scaffolding, ladders, staging, platforms, chutes, railings, hoisting equipment, etc., as required for proper execution of the Work. All construction aids must conform to Federal, State, and local codes or Laws for protection of workers and the public.
   (b) **Debris Chute**: The Contractor must use a chute to lower debris resulting from their Work. The chute must be the enclosed type with its discharge directly into the truck or approved container.
   (c) **Pumping and Drainage**: The Contractor must provide all pumping necessary to keep excavations and trenches free from water the entire period of Work on the Contract. The Contractor must construct and maintain any necessary surface drainage systems on the Work site so as to prevent water entering existing structures or to flow onto public or private property adjacent to the Agency's land, except for existing drainage courses or into existing drainage systems. The Contractor must prevent erosion of soils and blockage of any existing drainage system.

END OF SECTION 01100

SECTION 01200 PROJECT MEETINGS

1. **Pre-Construction Conferences**: The Project Director will schedule a pre-construction conference to be attended by the Professional, State Agency staff, and the Contractors. A project procedure as outlined in Form DTMB-0460, will be established for the Work during the pre-construction meeting. When no organizational meeting is called, the Contractor, before beginning any Work, must meet with the staff of the Agency and arrange a Work schedule for the Project. Once the Project has been started, the Contractor must carry it to completion without delay.

2. **Progress Meetings**: The Professional will schedule progress meetings to be held on the job site whenever needed to supply information necessary to prevent job interruptions, to observe the Work or to inspect completed Work. The Contractor must be represented at each progress meeting by persons with full authority to act for the Contractor in regard to all portions of the Work.

END OF SECTION 01200

SECTION 01300 SUBMITTALS

1. **Shop Drawings, Samples and Technical Submittals**: .

1.1 Contractor's Review: Before each submission, the Contractor must:
(a) determine and verify all field measurements, quantities, dimensions, instructions for installation and handling of equipment and systems, installation requirements (including location, dimensions, access, fit, completeness, etc.), materials, color, catalog numbers and other similar data as to correctness and completeness, and
(b) have reviewed and coordinated that technical Submittal with other technical submittals and the requirements of the Contract Documents.

1.2 Notice of Variation: The Contractor must give the Professional specific written notice of any variation from the requirements of the Contract Documents.

1.3 Contractor's Approval: The Contractor shall not submit unapproved submittals. Each submittal shall be stamped/certified to indicate that the submittal satisfies the requirements of the Contract Documents before submission to the Professional.

1.4 Responsibility and Authority: Neither the Owner's authority to review any of the Submittals by the Contractor, nor the Owner's decision to raise or not to raise any objections about the Submittals, creates or imposes any duty or responsibility on the Owner to exercise any such authority or decision for the benefit of the Contractor/Subcontractor/Supplier, any surety to any of them or any other third party. The Contractor is not relieved of responsibility for errors or omissions in shop drawings, product data, samples, or similar submittals just because the Professional approved them.

1.5 Final As-Built/Record Documents and Submittals: The approved Submittals are a part of the final As-Built/Record Documents required for processing final payment to the Contractor.

1.6 Submissions: Contractor must submit to the Professional:

(a) 2 paper copies and 1 electronic copy of all submittals. A 3-inch wide by 2-inch high clear space for State approval stamp must be provided on the Title Sheet of the shop drawings.
(b) all required samples; and
(c) all other technical submittals (test, results, test and safety procedures, O&M manuals, etc.) that are required by the Contract Documents

1.7 Professional's Review and Return: Submittals will be returned to the Contractor within fifteen Calendar Days. The Contractor is responsible for any time Delay and any cost incurred by the Professional, Contractor or Subcontractors/Suppliers as a result of resubmissions and re-reviews of a particular Submittal. The Contractor shall revise and correct submittals returned for revision and resubmittal until approval by the Professional is achieved. Time consumed by resubmissions and reviews of a particular submittal

2. Progress Schedule:
2.1 SUMMARY
A. The **Contractor** will submit CPM Progress Schedules to the **Owner** depicting its approach to prosecution of the Work. This includes, but is not limited to the **Contractor's** approach to recovering schedule and managing the effect of changes, substitutions and Delays on Work sequencing.
B. The Progress Schedule will include the Rev. 0 Submittal (par. 2.14), Update Submittals (par. 2.15) and Revision Submittals (par. 2.16). Each Submittal will be assigned a unique number. For a resubmission, the initial number will be modified by the letter A, B, C, etc., as appropriate.
C. Through the Progress Schedule, the **Owner** will seek to stay current on progress, updated Activity and Milestone Dates, and the **Contractor's** approach to Work remaining.
D. References to the Critical Path Method (CPM) are to CPM construction industry standards that are consistent with the requirements of this Section.
2.2 RELATED SECTIONS
A. Section 00700 General Conditions; and Section 00800 Supplementary Conditions.
2.3 GLOSSARY OF TERMS
A. Capitalized terms not already defined in any Division 0 Specification have the following intent and meanings:
1. Milestone–A key point of progress, designating interim targets toward the Contract Times. They may pinpoint critical path foundations, key deliveries, building framing, start of MEP rough-in, building enclosure, partitions, interior finishes, conditioned space, commissioning stages, Substantial Completion and other events of like import.
2. Official Schedule–The most recent Revision Submittal returned to the **Contractor** as Resubmittal Not Required. The Rev. 0 Official Schedule is the *As-Planned* Schedule.
3. Revision 0 Submittal–Progress Schedule submitted by the **Contractor** depicting the entire Work as awarded.
4. Update Submittal–A monthly Progress Schedule update reflecting progress and minor adjustments on the Activities, sequencing and restraints for Work remaining.
2.4 QUALITY ASSURANCE

A. The **Contractor** will obtain a written interpretation from the **Professional,** if the **Contractor** believes the selection of Activities, logic ties or restraints requires an interpretation of the Contract Documents. With each submission, the **Contractor** will point out by specific, written notation, any Progress Schedule feature that may reflect variations from any requirements of the Contract Documents.
B. The **Contractor** is responsible to obtain information from each Subcontractor and Supplier when scoping their respective Activities, Values, logic ties and restraints
C. No review of any Progress Schedule by or on behalf of the **Owner** will relieve the **Contractor** from complying with the Contract Times and any required sequence of Work or from completing Work omitted from the Progress Schedule. No review will imply approval of any variation from or interpretation of the Contract Documents, unless approved by the **Professional** through a written interpretation or by means of a separate, written notation.

2.5 ALLOWANCES

A. Work covered by Cash Allowances will be completed within the Contract Times. To the extent reasonable and consistent with the **Contractor's** plan, Work authorized by provisionary contingency allowances will be completed within the Contract Times. The Progress Schedule will incorporate the **Contractor's** best estimate of the Activities, logic and restraints required, using the information in the Contract Documents or as indicated by the **Professional** in writing.

2.6 "OR EQUALS" AND SUBSTITUTIONS

A. Activities in the Rev. 0 Progress Schedule will be based on materials and equipment required by the Contract Documents, and will not reflect any "or equal" or substitute materials or equipment, even if the **Contractor** intends to pursue "or equal" and substitution proposals. This limitation also applies to any Means and Methods indicated in or required by the Contract Documents.

2.7 MEASUREMENT AND PAYMENT

A. The Schedule of Values will include a Progress Schedule *pay item*. Fifteen percent (15%) of this *pay item* will be eligible for payment upon delivery of the *complete* Rev. 0 Submittal. The balance of this *pay item* will be eligible for payment, on a prorated basis, with each Request for Payment attaching an Update Submittal.

2.8 PROGRESS SCHEDULE SUBMITTALS

A. Each Progress Schedule Submittal will consist of an electronic copy the **Contractor's** files, a narrative and a PDF file of the project schedule report and plots, each file appropriately titled for the schedule version and date of publishing.
B. The CPM scheduling software will be Primavera Project Planner®, SureTrak® or Microsoft Project®.
C. In addition to the monthly update schedule submittal, **Contractor** shall provide prior to each Progress Meeting, a 2-week look ahead schedule extracted from the current overall schedule and providing sufficient additional activity detail to appropriately define the expected activity during the upcoming 2-week period.

2.9 PRINTOUTS

A. Schedule Reports will include Activity (ID) code and description, duration, calendar, Early Dates, Late Dates and Total Float, all of which will comport with the requirements of paragraph 8.3.4 of Section 00700 General Conditions.
1. Late Finish Date for an Activity pinpointing a Contract Time will equal that Contract Time. Early Start Date for an Activity designating a Contract restraint will equal the proper Notice to Proceed date. Schedule Reports may or may not append CPM Plots (time-scaled Activity/logic).
2. For Precedence Diagram Method, separate Schedule Reports will tabulate, for each Activity, all preceding and succeeding logic types and lead times, whether CPM Plots displaying vertical logic ties are appended or not.
B. CPM Schedule Plots will be plotted on a suitable time scale and identify the Contract Times, Critical Paths and sub-Critical Paths. Activities will be shown on the Early Dates with Total Floats noted by Late Date flags.
c. Line of Balance Plots will reflect industry practice for repetitive construction and will segregate the production lines for all trades within the hammock Activities.

2.10 NARRATIVE REQUIREMENTS

A. In general, a narrative will describe the **Contractor's** approach to prosecution of the Work, subject to the requirements of the Contract Documents. Further, each narrative will list the Critical Path Activities and compare Early and Late Dates with Contract Times and Milestone Dates. The basis for restraint dates will be explained.
B. For each Update Submittal, the narrative will compare current Dates to the respective Milestone Dates, describe changes in crewing and construction equipment and identify new Delays. For each Revision Submittal, the narrative also will itemize changes in Activities, logic ties and restraint dates made necessary by each change, Delay, schedule recovery, substitution and **Contractor**-initiated revision occurring since the previous Submittal.

2.12 ACTIVITY REQUIREMENTS

A. The Progress Schedule will detail Work sequencing only to the extent necessary to allow the **Owner** to correlate percent complete, compare actual dates with Milestones and Contract Times and the data in Requests for Payment.
B. Separate Activities will designate permits, construction, Submittal preparation/review (and resubmission and re-review, for same); MEP coordination drawings; deliveries; commissioning; and Punch List. Separate Activities will designate **Owner**-furnished items, interface with other work and the **Owner** and **Professional's** responsibilities.
C. Activities will be detailed only to the extent required to show the transition of trade Work. Activities will detail the progression through site/excavation, foundations, building framing, start/completion of interior partitions, MEP rough-in, building enclosure, interior finishes, conditioned space and commissioning.

1. Submittal Activities will segregate long-lead items, any item requiring structural access and other procurements that, in the **Contractor's** judgment, may bear on the rate of progress. Separate MEP coordination drawing Activities will be used for each floor. Beyond these requirements, it is not necessary to burden the Progress Schedule with Activities for less significant Submittals and deliveries.
2. For multiunit Work (e.g., rough-in overhead MEP for each floor, etc.), detailed Activities will be shown for a typical (often, the first) unit). Other or follow-on units may be replicated, as appropriate, or modeled with a hammock Activity combining the sum total of the typical detailed Activities. Separate Activities, as may be suitable to the Divisions of Work involved, will be identified

for single-unit Work. This requirement applies to such scope as Work in mechanical rooms, building framing, commissioning, etc.

3. Activities will not combine separate or non-concurrent items of Unit Price or lump sum Work, Work in separate structures and Work in distinct areas, locations or floors within an area or structure; or rough-in and finish Work.

D. Activity durations will equal the Business Days required to sufficiently complete the Work designated by the Activity (i.e., when finish-to-start successors may start, even if the Activity is not quite 100% complete). Installation Activities will last from twenty (20) to forty (40) Days.

E. Activities will be assigned consistent descriptions and identification codes. Sort codes will group Activities by building or structure, floor or area, Change Order and Change Authorization and other meaningful schemes.

2.13 FLOAT TOLERANCES

A. Any Progress Schedule with Early Dates after a Contract Time will yield negative Total and Contract Floats, whether shown/calculated or not. Any Revision Submittal with less than negative twenty (20) Days of Float will be returned as "Revise and Resubmit," unless a time extension is requested, or the **Owner** withholds liquidated damages or asserts intent to do so in the event schedule is not recovered.

B. Floats calculated from the definitions given in Section 00020 Glossary supersede any conflicting Float values calculated within any early completion Progress Schedule.

2.14 REVISION 0 (Rev. 0) SUBMITTAL

A. The complete Revision 0 Submittal will be due with the first Request for Payment. The Rev. 0 Submittal will show the Work as awarded, without Delays, "or equal" or substitutions, Change Orders or Change Authorizations.

1. The Rev. 0 narrative will detail the **Contractor's** management of the site (lay down, parking, etc.). Further, the Rev. 0 narrative will identify shifts, weekend Work, Activity calendars, Delays since award and all pending and anticipated "or equal" and substitution proposals.

B. Once endorsed by the **Owner** and returned as "Resubmittal Not Required," the Rev. 0 Progress Schedule (or Rev. 0A, etc.) will be the As-Planned Schedule and the basis for Update Submittals until the Rev. 1 Official Schedule is established. Once the As-Planned Schedule is established, the **Owner** will select Milestones and note Milestone Early and Late Dates. As the Official Schedule evolves, Milestone Dates will be revised accordingly.

D. If the **Owner** refuses to endorse the Rev. 0 Submittal (or Rev. 0A, for a resubmission) as "Resubmittal Not Required," the As-Planned Schedule will not be established. In that event, the **Contractor** will continue to submit Update and Revision Submittals reflecting progress and the **Contractor's** approach to remaining Work. The **Owner** will rely on the available Update and Revision Submittals, subject to whatever adjustments it determines appropriate.

2.15 UPDATE SUBMITTALS

A. Update Submittals with progress up to the closing date and updated Early and Late Dates for progress and remaining Activities will be due with each Request for Payment. As-built data will consist of actual start dates, percent complete, actual finish dates, changes, Delays and other significant events occurring before the closing date.

2.16 REVISION SUBMITTALS

A. Progress Schedule Revisions will be submitted with the third Request for Payment and every two (2) months after that, or more often, if necessary due to schedule recovery or other Progress Schedule revisions. Revisions will revise the Update Submittal attached to the prior Request for Payment.

B. Progress Schedule revisions will detail all impacts on pre-existing Activity scope, logic ties and restraint dates and reflect the Contractor's current approach to Work remaining. Revisions may be required because of changes in the Work, substitutions, schedule recovery and Delays.

C. Once endorsed by the **Owner** and returned as "Resubmittal Not Required," a Revision Submittal becomes the Rev. 1, Rev. 2, etc. Official Schedule and the basis for subsequent Update Submittals until a more current Official Schedule is established. If the **Owner** refuses to endorse a Revision Submittal as "Resubmittal Not Required," the **Contractor** will continue to submit Update and Revision Submittals when and as required in this Section.

2.17 RETROSPECTIVE DELAY ANALYSIS

A. If the **Owner** refuses to endorse any Revision Submittal as "Resubmittal Not Required," the **Contractor** and **Owner** will use the latest Official Schedule when evaluating the effect of Delays on Contract Time and/or Contract Price. The procedure will consist of progressively revising the latest Official Schedule at key Revision Submittal closing dates. For each Progress Schedule iteration, slippage between actual Milestone Dates and Rev. 0 Milestone Dates will be correlated to Delays occurring solely in that iteration. Revisions affecting Work after any iteration will be included only to the extent consented by the **Owner** at that time and/or if actually confirmed by as-built progress.

3. Shop Drawings: The Contractor shall deliver shop drawings of products, materials, assemblies, or equipment to the Professional.

Item of Work	Section Number
Materials Source/Test Results	310513
Submit Samples	310516
Test Results	312213
Excavation Protection Plan	312316
Silt Fencing	312513

4. Samples: The Contractor must deliver all samples of material or equipment to the job site for examination by the State Agency and the Professional. Samples will be examined by the Professional for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The Contractor must furnish all Work in accordance with approved samples. The following general classifications of material and equipment require submission of samples. Samples of other items may be requested by the Professional at any time.

Item of Work	Type of Sample	Section Number
NA		

END OF SECTION 01300

SECTION 01400 QUALITY CONTROL

1. **Testing Laboratory Services**: All tests required by the Owner must fulfill ASTM, ANSI, Commercial and other Standards for testing. The Contractor must submit a minimum of three copies of each test report to the Professional for evaluation and subsequent distribution. The following general classifications of Work require submission of test reports and/or certificates of inspection. Additional submissions may be requested by the Professional at any time.

Item of Work	Test Type	Section Number
Fill/Earthwork	Sieve Analysis	312213

2. **Tests:**

   (a) Paid by Owner: Sieve Analysis
   (b) Paid by Contractor: All Other

3. **Concrete/Asphalt Materials**: Before placement of any concrete, the Contractor must submit for the Professional's approval complete data on the trial concrete mix formulation and a testing laboratory report for ASTM C94, twenty-eight-day standard cylinder test for compressive strength of a sample of the concrete mix. For asphalt paving, the Contractor must submit the data and testing reports for ASTM D946, AC-5. The mix must have 4.5 to 6 percent of asphalt cement by weight for binder course and 5 to 7 percent of asphalt cement by weight for surface course in accordance with Asphalt Institute Manual MS-4, MS-13 and the current Michigan Department of Transportation (MDOT) Standard Specifications for Construction.

   (a) The Contractor must furnish to the Professional tickets showing mix formulation, Contractor's name, Project name, mix identification for each load of concrete/asphalt delivered and installed. If the technical specifications allow added water to the concrete mix after leaving the batch plant, the delivery ticket must reflect the added water. The Owner Field Representative must receive a copy of each delivery ticket for transmittal to the Professional for evaluation.

   (b) The Professional may require the Contractor to core drill questionable cast-in-place concrete/asphalt for laboratory testing. Should the laboratory analysis indicate the concrete/asphalt fails to meet specification requirements, the Contractor must pay all costs for core drilling and testing in the laboratory and replace the concrete/asphalt found to fail meeting the specification requirements. Should the laboratory analysis confirm that the concrete/asphalt meets specification requirements, the Owner will pay the Contractor for their costs for core drilling, concrete/asphalt patching and the laboratory fee for testing of the concrete/asphalt core samples.

END OF SECTION 01400

SECTION 01500 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1. The Contractor must furnish and install all temporary facilities and controls required by the Work, must remove them from State property upon completion of the Work, and the grounds and existing facilities must be restored to their original condition.

2. If water or electricity is available in the area where Work will be performed, the Contractor will not be charged for reasonable use of these services for construction operation. The Contractor must pay costs for installation and removal of any temporary connections including necessary safety devices and controls. Use of services must not disrupt or interfere with operations of the State Agency.

3. **Temporary Sanitary Facilities**:

   (a) **Portable Toilets**: The Contractor must provide and maintain a sufficient number of portable temporary toilets in locations approved by the State Agency. They must comply with all Federal, State and local code requirements. The Contractor must maintain the temporary toilets in a sanitary condition at all times and must remove them when the Work under this Contract is complete. The Contractor's employees are not allowed to use any existing State toilet facility.

(b) **State Toilets**: ~~If available, the State Agency will designate a permanent toilet facility on the premises for use by personnel employed in the Work. The Contractor must repair any damage to the toilet facility caused by their employees and maintain it in a clean and sanitary condition.~~

4. **Field Office**:

(a) **On Site Trailer:** At the beginning of the Work, the Contractor may provide a field office and storage building at the site in a location acceptable to the Owner. The building may be a trailer. The Contractor may provide such other temporary buildings as he may require for the use of workers and safe storage for tools and materials. Job signs with the Contractor's name, logos, specialty, … etc., are not allowed.

~~(b) On site trailers are not allowed.~~

5. **Temporary Heating**: Until the new heating system is ready to provide heat, the Contractor must provide adequate temporary heaters to maintain the temperature in those areas of the building where Work is being conducted between 55 degrees F. and 70 degrees F. during working hours.

END OF SECTION 01500

SECTION 01600 MATERIAL AND EQUIPMENT

1. The Contractor must furnish and be responsible for all materials, equipment, facilities, tools, supplies and utilities necessary for completing the Work. All materials and equipment must be provided as described in the Contract Documents and of good quality, free of defect and new and must be applied, installed, connected, erected, used, cleaned and conditioned following the manufacturer's and Suppliers' instructions.

2. **Delivery, Storage, and Handling**: All materials and equipment delivered to and used in the Work must be suitably stored and protected from the elements. The areas used for storage must only be those approved by the State Agency. The Owner assumes no responsibility for stored material. The ownership and title to materials will not be vested in the Owner before materials are incorporated in the Work, unless payment is made by the Owner for stored materials and equipment. After delivery, before and after installation, the Contractor must protect materials and equipment against theft, injury or damage from all causes. For all materials and equipment, the Contractor must provide complete information on installation, operation and preventive maintenance.

(a) The Contractor must cover and protect bulk materials while in storage which are subject to deterioration because of dampness, the weather or contamination. The Contractor must keep materials in their original sealed containers, unopened, with labels plainly indicating manufacturer's name, brand, type and grade of material and must immediately remove from the Work site containers which are broken, opened, watermarked and/or contain caked, lumpy or otherwise damaged materials.

(b) The Contractor must keep equipment stored outdoors from contact with the ground, away from areas subject to flooding and covered with weatherproof plastic sheeting or tarpaulins.

(c) The Contractor must certify that any materials stored off-site are:

a) Stored on property owned or leased by the Contractor or owned by the agency.
b) Insured against loss by fire, theft, flood or other hazards.
c) Properly stored and protected against loss or damage.
d) In compliance with the plans and specifications.
e) Specifically allotted, identified, and reserved for the project.
f) Itemized for tracking and payment.
g) Subject to these conditions until the items are delivered to the project site.

END OF SECTION 01600

SECTION 01650 FACILITY START-UP

1. **Tests**: The complete installation consisting of the several parts of equipment and systems installed according to the requirements of the Contract Documents must be ready in all respects for use by the State Agency and must be subjected to a test at full operating conditions and pressures for normal conditions of use.

2. **Adjustments**: Contractor must adjust and replace the Work which is necessary to fulfill the requirements of the Contract Documents and to comply with the directions and recommendations of the manufacturer of the several parts of equipment, and to comply with all provisions of architectural and/or engineering drawings/specifications and all codes and regulations which may apply to the entire installation.

3. **Demonstration**: Contractor must provide an on-site demonstration and training of all systems operations to the Owner when it is substantially completed.

END OF SECTION 01650

SECTION 01700 CONTRACT CLOSE-OUT

1. **Substantial Completion**: The Contractor must notify the Professional, the Project Director and the Agency when the Work will be substantially complete. If the Professional, Owner, and Agency agree that the project is Substantially Complete, the Professional and Project Director will inspect the Work. The Professional, upon determining that the Work, or a portion of the Work inspected, is substantially complete, will prepare a Punch List and will attach it to the respective Certificate of Substantial Completion. The Contractor must be represented on the job site at the time this inspection is made and thereafter must complete all Work by the date set for final acceptance by the Owner.

2. **Cleaning**:

   (a) **Regular Cleaning**: The Contractor must remove all scrap or removed material, debris or rubbish from the Project work site at the end of each working day and more frequently whenever the Owner Field Representative deems such material to be a hazard. The Contractor cannot discard materials on the grounds of the State Agency without the express permission of the Project Director. No salvage or surplus material may be sold on the premises of the State Agency. No burning of debris or rubbish is allowed. Any recyclable materials must be recycled and the Contractor will be required to provide recycling plan.

   (b) **Final Cleaning**: Before final acceptance by the State, the Contractor must clean all of the Work and existing surfaces, building elements and contents that were soiled by their operations and make repairs for any damage or blemish that was caused by the Work.

END OF SECTION 01700

SECTION 01800 MAINTENANCE

1. The Contractor is responsible for maintaining the following parts of Work in good order and proper working conditions and must take all necessary actions for their protection until they are placed for use by the Owner: NA

END OF SECTION 01800

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Coordination and project conditions.

B. Preconstruction meeting.

C. Progress meetings.

D. Pre-installation meetings.

E. Cutting and patching.

F. Special procedures.

1.2 COORDINATION AND PROJECT CONDITIONS

A. Coordinate scheduling, submittals, and Work of various sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.

1.3 PRECONSTRUCTION MEETING

A. Architect will schedule meeting after Notice of Award.

B. Attendance Required: Owner, Architect, Contractor and Manufacturer’s Field Representative.

C. Agenda:
1. Execution of Owner-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
5. Designation of personnel representing parties in Contract and Architect.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Scheduling.
8. Use of premises by Owner and Contractor.
9. Owner's requirements and partial occupancy.

10. Construction facilities and controls provided by Owner.
11. Temporary utilities provided by Owner.
12. Security and housekeeping procedures.
13. Schedules.
14. Application for payment procedures.
15. Procedures for testing.
16. Procedures for maintaining record documents.

D. Architect will record minutes and distribute copies within two days after meeting to Owner and Contractor. Contractor shall provide copies to those affected by decisions made.

1.4 PROGRESS MEETINGS

A. Architect will schedule and administer meetings throughout progress of the Work at maximum monthly intervals.

B. Owner will make arrangements for meetings; architect will preside at meetings.

C. Attendance Required: Job superintendent, major subcontractors and suppliers, Owner, Architect, as appropriate to agenda topics for each meeting.

D. Agenda:
1. Review minutes of previous meetings.
2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Identification of problems impeding planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of off-site fabrication and delivery schedules.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedule and coordination.
13. Other business relating to Work.

E. Architect will record minutes and distribute copies within two days after meeting to Owner and Contractor. Contractor shall provide copies to those affected by decisions made.

1.5 PRE-INSTALLATION MEETINGS

A. Convene pre-installation meetings at Project site prior to commencing work of specific section.

B. Require attendance of manufacturer’s representative, superintendent, and other parties directly affecting, or affected by, Work of specific section.

C. Date of Pre-installation meeting shall be coordinated with pre-construction meeting.

D. Prepare agenda and preside at meeting:

1. Review conditions of installation, preparation and installation procedures.
2. Review coordination with related work.
3. Refer to individual specifications sections for agenda items.

E. Record minutes and distribute copies within two days after meeting to participants, with copies to Architect, Owner, and those affected by decisions made.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform cutting and patching.

B. Submit written request in advance of cutting or altering elements affecting:
1. Structural integrity of element.
2. Integrity of weather-exposed or moisture-resistant elements.
3. Efficiency, maintenance, or safety of element.
4. Visual qualities of sight exposed elements.
5. Work of Owner or separate contractor.

C. Execute cutting, fitting, and patching to complete Work, and to:
1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install or correct ill-timed Work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Execute work by methods to avoid damage to other Work, and to provide proper surfaces to receive patching and finishing.

E. Cut masonry and concrete materials using masonry saw or core drill.

F. Restore Work with new products in accordance with requirements of Contract Documents.

G. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material to full thickness of penetrated element.

J. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.

K. Identify hazardous substances or conditions exposed during the Work to Architect for decision or remedy.

3.2 SPECIAL PROCEDURES

A. Materials: As specified in product sections; match existing with new products for patching and extending work.

B. Employ original installer to perform alteration work.

C. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

D. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

E. Remove debris and abandoned items from area and from concealed spaces.

F. Prepare surface and remove surface finishes to permit installation of new work and finishes.

G. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.

H. Remove, cut, and patch Work in manner to minimize damage and to permit restoring products and finishes to specified condition.

I. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

END OF SECTION

SECTION 31 05 13

SOILS FOR EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Subsoil materials.
   2. Topsoil materials.

B. Related Sections:
   1. Section 31 05 16 - Aggregates for Earthwork.
   2. Section 31 10 00 - Site Cleaning.
   3. Section 31 22 13 - Rough Grading.
   4. Section 31 23 16 - Excavating.
   5. Section 31 23 23 - Fill.
   6. Section 31 25 13 – Erosion Control.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:
   1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:
   1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)).
   2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).
   3. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

1.3 SUBMITTALS

A. Section 01300 - Submittal Procedures.

B. Materials Source: Submit name of imported materials source.

C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements. Provide current test results verifying materials meet requirements.

1.4 QUALITY ASSURANCE

A. Furnish each subsoil material from single source throughout the Work.

B. All work to be in accordance with the current Michigan Department of Transportation (MDOT) Standard Specifications for Construction.

PART 2 PRODUCTS

2.1 SUBSOIL MATERIALS

A. Subsoil Type S1 - Embankment: Conforming to 2012 MDOT Standard Specifications for Construction.

B. Subsoil Type S2:
   1. Excavated and re-used material.
   2. Clean granular and graded.
   3. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.

2.2 TOPSOIL MATERIALS

A. Topsoil Type S4:
   1. Excavated and reused material.
   2. Graded.
   3. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.
      a. Screening: Single screened.

B. Topsoil Type S5:
   1. Imported borrow.
   2. Friable loam.
   3. Reasonably free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds, and foreign matter.
      a. Screening: Single screened.
   4. Acidity range (pH) of 5.5 to 7.5.
   5. Containing minimum of 4 percent and maximum of 25 percent inorganic matter.

C. Topsoil materials shall conform to 2012 MDOT Standard Specifications for Construction.

2.3 SOURCE QUALITY CONTROL

A. Testing and Analysis of Subsoil Material: Perform in accordance with ASTM D698, ASTM D1557, AASHTO T180.

B. Testing and Analysis of Topsoil Material: Perform in accordance with ASTM D698, ASTM D1557, AASHTO T180.

C. When tests indicate materials do not meet specified requirements, change material and retest.

D. Furnish materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXCAVATION

A. Excavate topsoil from areas designated. Strip topsoil to full depth of topsoil in designated areas.

B. Stockpile excavated material meeting requirements for topsoil materials.

C. Remove excess excavated materials not intended for reuse, from site.

D. Remove excavated materials not meeting requirements for topsoil materials from site.

3.2 STOCKPILING

A. Stockpile materials on site at an Owner/Engineer approved location. A 1-on-3 maximum slope shall be required at all times.

B. Stockpile in sufficient quantities to meet Project schedule and requirements.

C. Separate differing materials with dividers or stockpile apart to prevent mixing.

D. Stockpile topsoil 8 feet high maximum.

E. Prevent intermixing of soil types or contamination.

F. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

G. Stockpile unsuitable materials on impervious material and cover to prevent erosion and leaching, until disposed of.

3.3 STOCKPILE CLEANUP

A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

SECTION 31 05 16

AGGREGATES FOR EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Coarse aggregate materials.
   2. Fine aggregate materials.

B. Related Sections:
   1. Section 31 05 13 - Soils for Earthwork.
   2. Section 31 10 00 - Site Cleaning.
   3. Section 31 22 13 - Rough Grading.
   4. Section 31 23 16 - Excavating.
   5. Section 31 23 23 - Fill.
   6. Section 31 25 13 – Erosion Control.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:
   1. AASHTO M147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses.
   2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:
   1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
   2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)).
   3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).
   4. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
   5. ASTM D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.3 SUBMITTALS

A. Section 01300 – Submittal Procedures: Requirements for submittals.

B. Materials Source: Submit name of imported materials suppliers.

C. Samples: Submit, in air-tight containers, each type of aggregate for testing.

D. Manufacturer's Certificate: Certify Products meet or exceed specified requirements. Provide current tests verifying materials meet requirements.

1.4 QUALITY ASSURANCE

A. Furnish each aggregate material from single source throughout the Work. Change of source requires Engineer approval.

B. All work to be in accordance with the current Michigan Department of Transportation (MDOT) Standard Specifications for Construction.

PART 2 PRODUCTS

2.1 MATERIALS

A. Type A1, 6A Gradation: For Footing Bedding material; Conforming to 2012 MDOT Standard Specifications for Construction.

B. Type A2, 22A Gravel: Conforming to 2012 MDOT Standard Specifications for Construction.

C. Type A3, 23A Gravel: Conforming to 2012 MDOT Standard Specifications for Construction.

D. Type A4, Plain Riprap: Conforming to 2012 MDOT Standard Specifications for Construction.

E. Type A5, Class II: For pipe bedding envelope, special backfill, pavement subbase, conforming to 2012 MDOT Standard Specifications for Construction. For pipe bedding envelope, only materials up to 1-1/2” diameter are allowable within a minimum of 6” of the installed pipe.

F. Type A6, Class III: Conforming to 2012 MDOT Standard Specifications for Construction.

2.2 SOURCE QUALITY CONTROL

A. Testing and inspection services.

B. Testing and Analysis: Perform in accordance with ASTM D698, ASTM D1557, AASHTO T180, ASTM D4318, and ASTM C136.

C. Submit analysis of aggregate materials from stock piles or from source of native material. Resubmit if product change.

D. When tests indicate materials do not meet specified requirements, change material and retest. Contractor is responsible for all material verification and testing, at no cost to Owner. Results for material compliance with specified requirements shall be provided to Architect/Engineer at preconstruction.

PART 3 EXECUTION

3.1 EXCAVATION

A. Remove excess excavated materials not intended for reuse, from site.

3.2 STOCKPILING

A. Stockpile materials on site at an Owner/Engineer approved location. A 1-on-3 maximum slope shall be required at all times.

B. Stockpile in sufficient quantities to meet Project schedule and requirements.

C. Separate different aggregate materials with dividers or stockpile individually to prevent mixing.

D. Stockpile soils 8 feet high maximum.

E. Prevent intermitting of soil types or contamination.

F. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

G. Stockpile unsuitable materials on impervious material and cover to prevent erosion and leaching, until disposed of.

3.3 STOCKPILE CLEANUP

A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

3.4 RIP RAP PLACEMENT

A. Shape and compact slope to required grade and cross section.

B. Place on geotextile liner if required on plans.

C. Place and compact a uniform layer to thickness and configuration as shown on the plan.

D. Finished surface shall be tight and even.

END OF SECTION

SECTION 310519

GEOTEXTILES FOR EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Turf reinforcement mats (TRMs).
2. Geotextile material.
3. Cellular Confinement Systems

B. Related Requirements:

1. Section 310513 - Soils for Earthwork
2. Section 312316.13 - Trenching
3. Section 312500 - Erosion and Sedimentation Controls
4. Section 313700 – Riprap
5. Section 321123 - Aggregate Base Courses

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.

B. ASTM International:

1. ASTM D4355/D4355M - Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus.
2. ASTM D4491/D4491M - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
3. ASTM D4533/D4533M - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
4. ASTM D4632/D4632M - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
5. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.
6. ASTM D4833/D4833M - Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.
7. ASTM D4873 - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples.
8. ASTM D4884/D4844M - Standard Test Method for Strength of Sewn or Bonded Seams of Geotextiles.

9. ASTM D4886 - Standard Test Method for Abrasion Resistance of Geotextiles (Sand Paper/Sliding Block Method).
10. ASTM D6524 - Standard Test Method for Measuring the Resiliency of Turf Reinforcement Mats (TRMs).
11. ASTM D6525/D6525M - Standard Test Method for Measuring Nominal Thickness of Rolled Erosion Control Products.
12. ASTM D6566 - Standard Test Method for Measuring Mass per Unit Area of Turf Reinforcement Mats.
13. ASTM D6567 - Standard Test Method for Measuring the Light Penetration of a Turf Reinforcement Mat (TRM).
14. ASTM D6575 - Standard Test Method for Determining Stiffness of Geosynthetics Used as Turf Reinforcement Mats (TRMs).
15. ASTM D6818 - Standard Test Method for Ultimate Tensile Properties of Rolled Erosion Control Products.

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information including tensile strength, elongation, thickness, UV resistance, and other material specifications.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of geotextile material, including placement depth.

1.5 QUALITY ASSURANCE

A. All work to be in accordance with the current Michigan Department of Transportation (MDOT) Standard Specifications for Construction.

B. Install per manufactures requirements and recommendations

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Comply with ASTM D4873.

D. Store materials according to manufacturer instructions.

E. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

PART 2 - PRODUCTS

2.1 TRM

A. Manufacturers:

1. Channel Mat: Propex – Landlok 300
2. Substitutions: Engineer Approved Equal

2.2 GEOTEXTILE MATERIALS

A. Manufacturers:

1. Woven Geotextile Separator Fabric:
   a. Mirafi 500x
   b. Propex – Geotex 111f
   c. Substitutions: Engineer Approved Equal

B. Manufacturers:

1. Non-Woven Geotextile Separator Fabric:
   a. Mirafi - 140 NC
   b. Propex – Geotex 401
   c. Substitutions: Engineer Approved Equal

2.3 Cellular Confinement Systems

A. Manufacturers:

1. Road Surfaces:
   a. Presto Geosystems – GW30V6 – 6 inch
   b. Substitutions: Engineer Approved Equal
2. Turf Surfaces:
   a. Presto Geosystems – GW40V3 – 3 inch
   b. Substitutions: Engineer Approved Equal

2.4 ACCESSORIES

A. Sewing Thread:

1. Per manufacturers recommendations and installation instructions

B. Securing Pins:
1. Per manufactures recommendations and installation instructions

C. Wire Staples:
1. Per manufactures recommendations and installation instructions

2.5 SOURCE QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for testing, inspection, and analysis.

B. Provide shop inspection and testing of completed assembly.

C. Certificate of Compliance:
1. Specified shop tests are not required for Work performed by approved manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that underlying surface is smooth and free of ruts or protrusions that could damage geotextile material.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Subgrade Material and Compaction Requirements: As specified in Section 31 05 16, 31 23 23 and per manufactures recommendations and installation instructions

3.3 INSTALLATION

A. Geotextile Material:

1. Lay and maintain smooth and free of tensile stresses, folds, wrinkles, or creases.
2. Ensure that material is in direct contact with subgrade.
3. Orientate with long dimension of each sheet **transverse** to direction of slope.
4. Minimum Unseamed Joints Overlap: 18 inches.
5. Per manufacturers installation instructions

B. Repairing Damaged Geotextiles:

1. Repair torn or damaged geotextile by placing patch of same type of geotextile over damaged area minimum of 12 inches beyond edge of damaged area, and fasten as recommended by geotextile manufacturer.
2. Remove and replace geotextile rolls which cannot be repaired.

C. Fill and Cover:

1. Place fill to prevent tensile stress or wrinkles in geotextile.
2. Place fill from bottom of side-slopes upward.
3. Do not drop fill from height greater than 3 feet.

3.4 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

3.5 PROTECTION

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Ballast: Adequate to prevent uplift of material by wind.

C. UV Exposure: Do not leave material uncovered for more than **14** days after installation.

D. Do not use staples or pins to hold geotextiles in place where located adjacent to other geosynthetic layers that could be damaged.

E. Do not operate equipment directly on top of geotextile.

3.6 SCHEDULE

See plans for locations or specific types, schedule is standard and not all items may apply to current job.

A. Channle Protection: TFM

B. Underdrain: Non-woven geotextile

C. Biofilter and Drainage separations: Non-woven geotextile

D. Riprap: Woven Geotextile

E. Road (as called out on plans): GW30V6

F. Turf: GV40V3 – in areas were sloped surface becomes steeper than 1v:2.5h

END OF SECTION 310519

SECTION 31 10 00

SITE CLEARING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Removing surface debris.
   2. Removing designated paving and curbs.
   3. Removing designated trees, shrubs, and other plant life.
   4. Removing abandoned utilities.
   5. Excavating topsoil.

B. Related Sections:
   1. Section 31 22 13 - Rough Grading.

1.2 QUALITY ASSURANCE

A. Conform to applicable Federal, State, and local code for environmental requirements, and disposal of debris. No burning of debris permitted on site.

B. Perform Work in accordance with 2012 MDOT Standard Specifications for Construction.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing plant life designated to remain is tagged or identified.

B. Identify waste area or salvage area for placing removed materials.

3.2 PREPARATION

A. Call Local Utility Line Information service not less than three working days before performing Work.
   1. Request underground utilities to be located and marked within and surrounding construction areas.

3.3 PROTECTION

A. Locate, identify, and protect utilities indicated to remain, from damage.

B. Protect trees, plant growth, and features designated to remain, as final landscaping. Repair/replace any damage at no expense to Owner.

C. Protect bench marks, survey control points, and existing structures from damage or displacement. Repair/replace any damage at no expense to Owner.

3.4 CLEARING

A. Clear areas required for access to site and execution of Work within the limits shown on the plan.

B. Remove trees and shrubs within marked areas. Remove stumps, main root ball, and root system to depth of 12 inches.

C. Clear undergrowth and deadwood, without disturbing subsoil.

3.5 REMOVAL

A. Remove debris, rock, and extracted plant life from site.

B. Remove paving and curbs within proposed utility trench limits, or at areas indicated on the drawings for replacement. Neatly saw cut edges and right angle to surface.

C. Remove abandoned utilities. Indicated removal termination point for underground utilities on Record Documents.

D. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.

E. Do not burn or bury materials on site. Leave site in clean condition.

3.6 DISPOSAL

A. The CONTRACTOR shall make his own arrangements for disposal of materials resulting from clearing and grubbing. Disposal shall be off the facility site and/or right-of-way and written permits for such disposal shall be obtained by the CONTRACTOR from the owner of the property on which the material is placed. Contractor shall supply Owner/Engineer a copy of all written permit(s).

3.7 ENVIRONMENTAL REQUIREMENTS

A. The CONTRACTOR shall comply with all requirements of the Department of Natural Resources which permit the open burning of weeds, brush, logs, limbs, stumps, roots and other debris which results from clearing and grubbing.

B. The CONTRACTOR shall also comply with all applicable local laws and ordinances regarding the disposal of trees (especially elm and ash) after removal, including their logs, stumps, branches and bark.

C. All waste generated from the burning of the clearing and/or grubbing material shall be disposed of in a safe and environmentally acceptable manner which meets the requirements of all the applicable State of Michigan Rules and Regulations, such as the Clean Air Act, the Solid Waste Act, the Inland Lakes and Streams Act, the Wetlands Protection Act, Soil Erosion and Sedimentation Act, Notice to Public Utilities Act, and the National Historic Preservation Act.

3.8 TOPSOIL EXCAVATION

A. Excavate topsoil from areas to be further excavated, relandscaped, or regraded, without mixing with foreign materials.

B. Do not excavate wet topsoil.

C. Stockpile in area designated on site to depth not exceeding 8 feet and protect from erosion. Stockpile material on impervious material and cover over, until disposal.

D. Remove excess topsoil not intended for reuse, from site.

3.9 SCHEDULES

A. None.

END OF SECTION

SECTION 31 22 13

ROUGH GRADING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Excavating topsoil.
2. Excavating subsoil.
3. Cutting, grading, filling, rough contouring, and compaction for utility installation and restoration.

B. Related Sections:
1. Section 31 05 13 - Soils for Earthwork.
2. Section 31 05 16 - Aggregates for Earthwork.
3. Section 31 10 00 - Site Cleaning.
4. Section 31 23 16 - Excavating.
5. Section 31 23 23 - Fill.
6. Section 31 25 13 – Erosion Control.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:
1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:
1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)).
3. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
4. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).
5. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
6. ASTM D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
7. ASTM D2434 - Standard Test Method for Permeability of Granular Soils (Constant Head).
8. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
9. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Submit test results for proposed aggregates and fill materials to be used as specified in individual specification sections.

1.4 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Contract Closeout: Closeout procedures.

B. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with ASTM C136, ASTM D2419, and ASTM D2434.

B. Perform Work in accordance with 2012 MDOT Standard Specifications for Construction.

PART 2 PRODUCTS

2.1 MATERIALS

A. Topsoil: as specified in Section 31 05 13.

B. Subsoil Fill: Type S1 or S2 as specified in Section 31 05 13.

C. Structural Fill: Type A1 or A5 as specified in Section 31 05 16.

D. Granular Fill: Type A5 as specified in Section 31 05 16.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of existing conditions before starting work.

B. Verify survey bench mark and intended elevations for the Work are as indicated on Drawings.

3.2 PREPARATION

A. Call Local Utility Line Information service at not less than three working days before performing Work.
   1. Request underground utilities to be located and marked within and surrounding construction areas.
   2. Comply with utility company requirements.

B. Identify required lines, levels, contours, and datum.

C. Notify utility company to remove or relocate utilities.

D. Protect utilities indicated to remain from damage.

E. Protect plant life, lawns, and other features remaining as portion of final landscaping.

F. Protect bench marks, survey control point, existing structures, and paving from excavating equipment and vehicular traffic.

3.3 TOPSOIL EXCAVATION

A. Excavate topsoil from designated areas, without mixing with foreign materials for use in finish grading, prior to any site excavation.

B. Do not excavate wet topsoil.

C. Stockpile in area designated on site to depth not exceeding 8 feet and protect from erosion. Stockpile material on impervious material and cover over with same material, until disposal.

D. Remove excess topsoil not intended for reuse, from site.

3.4 SUBSOIL EXCAVATION

A. Excavate subsoil from areas to be further excavated, re-landscaped, or re-graded.

B. Do not excavate wet subsoil or excavate and process wet material to obtain optimum moisture content.

C. When excavating through roots, perform Work by hand and cut roots with sharp axe.

D. Remove excess subsoil not intended for reuse, from site.

E. Stockpile subsoil in area designated on site to depth not exceeding 8 feet and protect from erosion.

F. Benching Slopes: Horizontally bench existing slopes greater than 1:4 to key placed fill material to slope to provide firm bearing.

G. Stability: Replace damaged or displaced subsoil as specified for fill.

H. Any over excavation for the proposed construction shall be at the Contractor’s expense, unless approved by Engineer/Architect. Contractor shall notify Engineer of differing site conditions prior to over-excavating.

3.5 FILLING

A. Fill areas to contours and elevations with unfrozen materials.

B. Place material in continuous layers as follows:
   1. Subsoil Fill: Maximum 12 inches compacted depth.
   2. Structural Fill: Maximum 8 inches compacted depth.

3. Granular Fill: Maximum 8 inches compacted depth.

C. Maintain optimum moisture content of fill materials to attain required compaction density.

D. Slope grade away from building minimum 2 percent slope for minimum distance of 10 ft, unless noted otherwise.

E. Make grade changes gradual. Blend slope into level areas.

F. Repair or replace items indicated to remain, damaged by excavation or filling.

3.6 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 1/10 foot from required elevation.

3.7 FIELD QUALITY CONTROL

A. Section 01 40 00 – Quality Requirements: Testing and inspection services.

B. Perform laboratory material tests in accordance with ASTM D1557, ASTM D698, AASHTO T180.

C. Perform in place compaction tests in accordance with the following:
1. Density Tests: ASTM D1556, ASTM D2922.
2. Moisture Tests: ASTM D3017.

D. When tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

3.8 SCHEDULES

A. Structural Fill:
1. Fill Type A1 or A5: To subgrade elevation. 8 inch thick layers.
2. Compact uniformly to minimum 98 percent of maximum density.

B. Subsoil Fill:
1. Fill Type S1, S2 or A6: To subgrade elevation. 12 inch thick layers.
2. Compact uniformly to minimum 95 percent of maximum density.
3. Any use of S1 or S2 must have prior approval by Engineer.

END OF SECTION

SECTION 31 23 16

EXCAVATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Excavating for building foundations.
   2. Excavating for paving and parking areas.
   3. Excavating for slabs-on-grade.
   4. Excavating for site structures.
   5. Excavating for landscaping.
   6. Excavation for underground utilities.

B. Related Sections:
   1. Section 31 05 13 - Soils for Earthwork.
   2. Section 31 05 16 - Aggregates for Earthwork.
   3. Section 31 10 00 – Site Clearing.
   4. Section 31 22 13 - Rough Grading.
   5. Section 31 23 23 - Fill.
   6. Section 31 25 13 – Erosion Control.

1.2 REFERENCES

A. Local utility standards when working within 24 inches of utility lines.

1.3 SUBMITTALS

A. Section 01300 – Submittal Procedures: Requirements for submittals.

B. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with 2012 MDOT Standard Specifications for Construction.

1.5 QUALIFICATIONS

A. Prepare excavation protection plan under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of Michigan.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 PREPARATION

A. Notify affected utility companies before starting work, and comply with all requirements. Request underground utilities to be located and marked within and surrounding construction areas.

B. Identify required lines, levels, contours, and datum.

C. Protect utilities indicated to remain from damage.

D. Protect plant life, lawns, rock outcroppings and other features remaining as portion of final landscaping.

E. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving and curbs from excavating equipment and vehicular traffic.

3.2 EXCAVATION

A. Underpin adjacent structures which may be damaged by excavation work.

B. Excavate subsoil to accommodate building foundations, slabs-on-grade, paving and site structures, construction operations and utilities. Excavation shall extend a sufficient distance to allow for connections to existing utilities and services.

C. Unless so directed by the Engineer, excavation shall not be carried below the elevations indicated on the drawings. Where the excavation is made below the elevations indicated on the drawings or directed by the Engineer due to fault of the Contractor, the excavations, if under slabs, shall be restored to the proper elevations; if under footings, the heights of the walls or footings shall be increased and the cost of such additional work shall be borne by the Contractor.

D. Excavate necessary trenches to the extent shown on the drawing plans and details for water and other required underground utilities.

E. Slope banks with machine to angle of repose or less until shored.

F. Do not interfere with 45 degree bearing splay of foundations.

G. Grade top perimeter of excavation to prevent surface water from draining into excavation.

H. Trim excavation. Remove loose matter.

I. Remove lumped subsoil, boulders, and rock up to 1 cu yd measured by volume. Remove larger material as specified.

J. Notify Architect/Engineer of unexpected subsurface conditions.

K. Correct areas over excavated with structural fill Type A1 or A5 specified in Section 31 23 23, as directed by Architect/Engineer.

L. Remove excess and unsuitable material from site.

M. Stockpile subsoil in area designated on site to depth not exceeding 8 feet and protect from erosion.

N. Repair or replace items indicated to remain, which are damaged by excavation, at no cost to Owner.

O. Contractor shall coordinate with Owner for disposal of excavated material.

3.3 FIELD QUALITY CONTROL

A. Perform inspection of excavation and controlled fill operations in accordance with 2012 MDOT Standard Specifications for Construction.

3.4 PROTECTION

A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.

B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

END OF SECTION

SECTION 31 23 18

ROCK REMOVAL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Removing discovered rock during excavation.
   2. Expansive tools or explosives to assist rock removal.

B. Related Sections:
   1. Section 31 22 13 - Rough Grading.
   2. Section 31 23 16 - Excavation.
   3. Section 31 23 17 - Trenching.
   4. Section 31 23 23 - Fill.

1.2 REFERENCES

A. National Fire Protection Association:
   1. NFPA 495 - Explosive Materials Code.

1.3 DEFINITIONS

A. Site Rock: Solid mineral material with volume in excess of 1 cu yd or solid material that cannot be removed with 1 cu yd capacity excavator without drilling or blasting.

B. Trench Rock: Solid mineral material with volume in excess of 1 cu yd or solid material that cannot be removed by trenching with a tracked trenching excavator (similar to a JD 790) in good working condition equipped with appropriate rock bucket; without drilling or blasting or mechanical hammering.

1.4 SUBMITTALS

A. Photography of external physical conditions of existing adjacent building, including internal walls, foundations and windows.

B. Shop Drawings: Indicate proposed method of blasting, delay pattern, explosive types, type of blasting mat or cover, and intended rock removal method.

C. Survey Report: Submit survey report on conditions of buildings near locations of rock removal.

D. Drilling Logs: Submit rock profile drilling logs to engineer as described in Section 01 12 00, 1.7, E.

1.5 QUALITY ASSURANCE

A. Seismic Survey Firm: Shall be a licensed company specializing in seismic surveys with

five years documented experience.

B. Explosives Firm: Shall be a company specializing in explosives for disintegration of rock, with five years documented experience.

1.6 PROJECT CONDITIONS

A. Conduct survey and document conditions of buildings near locations of rock removal, prior to blasting.

B. Advise owners of adjacent buildings or structures in writing, prior to executing seismographic survey. Explain planned blasting and seismic operations.

C. Obtain seismic survey prior to rock excavation to determine maximum charges that can be used at different locations in area of excavation without damaging adjacent properties or other work.

1.7 REGULATORY REQUIREMENTS

A. Conform to applicable OSHA code for explosive disintegration of rock and to NFPA 495 for handling storage and protection of explosion materials.

B. Obtain permits from authorities having jurisdiction before explosions are brought to site or drilling is started.

1.8 SCHEDULING

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Schedule Work to avoid disruption to occupied buildings nearby.

C. Conduct blasting operations between hours of 8:00 a.m. and 2:00 p.m. only.

PART 2 PRODUCTS

2.1 MATERIALS

A. Explosives: Type recommended by explosive firm following seismic survey and required by authorities having jurisdiction.

B. Delay Device: Type recommended by explosives firm.

C. Blast Mat Materials: Type recommended by explosives firm.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify site conditions and note subsurface irregularities affecting Work of this section.

C. Notify Engineer 24 hours in advance of rock profiling. Contractor to immediately notify engineer when encountering rock in the excavation process for documentation as required for measurement purposes.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Conduct survey and document conditions of buildings near locations of rock removal prior to blasting.

3.3 ROCK REMOVAL BY MECHANICAL METHOD

A. Excavate and remove rock by mechanical method, drill holes and utilize expansive tools or wedges to fracture rock, or use pneumatic hammer.

B. Cut away rock at bottom of excavation to form level bearing.

C. Remove shaled layers to provide sound and un-shattered base for foundations.

D. In utility trenches, excavate to 6 inches below invert elevation of pipe and 24 inches wider than pipe diameter.

E. Remove excavated materials from site and dispose of at an approved location.

F. All rock removal within trench shall be replaced with backfill material in accordance with backfilling and compacting requirements of Section 31 23 23, and is incidental.

3.4 ROCK REMOVAL BY EXPLOSIVE METHODS

A. When rock is encountered requiring explosives method for rock disintegration, notify Engineer.

B. Present certificate of “Blasters Insurance”. Advise Owner of adjacent buildings or structures in writing. Explain planned blasting and seismic operations.

C. Provide seismographic monitoring during progress of blasting operations.

D. Drill blasting holes within 12 feet of finished slope.

E. Disintegrate rock and remove from excavation.

F. Remove rock at excavation bottom to form level bearing.

G. Remove shaled layers to provide sound and un-shattered base for foundations.

H. In utility trenches, excavate to 6 inches below invert elevation of pipe and 24 inches wider than pipe diameter.

I. Remove excavated material from site and dispose of at an approved location.

J. All rock removal within trench shall be replaced with backfill material in accordance with backfilling and compacting requirements of Section 31 23 23, and is incidental.

3.5 FIELD QUALITY CONTROL

A. Request visual inspection by Engineer before continuing with subsequent work.

END OF SECTION

SECTION 31 23 19

DEWATERING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. The Contractor shall provide and maintain ample means and devices with which to promptly remove all water entering excavations, trenches, and other parts of the work and shall keep said excavations dry until the piping and/or structures to be built therein are completed. Under no circumstances shall any proposed water system components be subjected to water within the trench or excavation during construction. Trenches shall be kept water-free until the water mains, and other appurtenances are in place and sealed against the entrance of water. All bedding and backfill materials shall be kept dry throughout the installation and compaction procedures. No masonry/concrete shall be laid in water nor shall water be allowed to rise over masonry or concrete until the mortar or concrete has attained its final set. In no event shall water be allowed to rise over masonry or concrete until the concrete has set at least 24 hours. The Contractor must also guard against flotation of steel structures. When the water cannot be removed by the commonly used methods, such as in water bearing sand, the Contractor shall furnish and install a well point system with vacuum pump and self-jetting points and all other appurtenances of amply capacity to keep the excavation and/or trenches dry.

B. The Contractor shall dispose of water from the work in a suitable manner without damage to adjacent property, utilities, or sewers. All removal of water and handling of water necessary to keep excavation, trenches and the work dry shall be at the expense of the Contractor.

C. The Contractor shall be responsible for keeping all system components dry until the work is accepted by the Owner. If at any time previous to acceptance the equipment or components become submerged, the Contractor shall correct any problems associated with the submergence. All expenses of any kind necessary to put the equipment or components mentioned in first class working order shall be paid for by the Contractor at no extra cost to the Owner.

D. In the event that the Contractor’s operations shall in any way adversely affect the proper performance of individual utility systems, the Contractor shall assume the cost and responsibility for taking such measures as are necessary to make corrections until the facilities proper operation has been restored.

E. Sedimentation Control shall be used with all discharges and any contaminants will be treated, if necessary, at no cost to the Owner.

F. All work associated with dewatering, bypass pumping, flumes, etc. is to be in accordance with the current Michigan Department of Transportation (MDOT) Standard Specifications for Construction and Details. Directions from all local, state and federal permits must also be followed and incorporated into this plan.

G. Dewatering is considered incidental to the work.

END OF SECTION

SECTION 31 23 23

FILL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Backfilling site structures to subgrade elevations.
2. Fill under slabs-on-grade.
3. Fill under paving.
4. Fill for over-excavation.

B. Related Sections:
1. Section 31 05 13 - Soils for Earthwork.
2. Section 31 05 16 - Aggregates for Earthwork.
3. Section 31 10 00 – Site Cleaning.
4. Section 31 22 13 - Rough Grading.
5. Section 31 23 16 - Excavation.
6. Section 32 25 13 - Erosion Control.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:
1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:
1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)).
2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).
4. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
5. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

A. Materials Source: Submit name of imported fill materials suppliers. Aggregate supplier shall provide current test results of materials supplied verifying that supplied products meet product requirements.

PART 2 PRODUCTS

2.1 FILL MATERIALS

A. Subsoil Fill: Type S1, S2 or A6 as specified in Section 31 05 13.

B. Structural Fill: Type A1 or A5 as specified in Section 31 05 16.

C. Granular Fill: Type A5 as specified in Section 31 05 16.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify underground equipment are secured to avoid flotation after backfilling.

B. Verify that forms are removed and excavation is free of trash and debris.

C. Verify structural ability of unsupported walls to support loads imposed by fill.

3.2 PREPARATION

A. Compact subgrade to density requirements for subsequent backfill materials.

B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with granular A5 fill and compact to density equal to or greater than requirements for subsequent fill material.

C. Scarify subgrade surface to depth of 6 inches.

D. Proof roll to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

3.3 BACKFILLING

A. Backfill areas to contours and elevations with unfrozen materials.

B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.

C. Place material in continuous layers as follows:
1. Subsoil Fill: Maximum 12 inches compacted depth.
2. Structural Fill: Maximum 8 inches compacted depth.
3. Granular Fill: Maximum 8 inches compacted depth.

D. Employ placement method that does not disturb or damage other work.

E. Maintain optimum moisture content of backfill materials to attain required compaction density.

F. Backfill against supported foundation walls. Do not backfill against unsupported foundation walls.

G. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.

H. Slope grade away from building minimum 2 percent slope for minimum distance of 10 ft, unless noted otherwise.

I. Make gradual grade changes. Blend slope into level areas.

J. Remove surplus backfill materials from site.

K. Leave fill material stockpile areas free of excess fill materials.

3.4 TOLERANCES

A. Section 01400 – Quality Requirements.

B. Top Surface of Backfilling Within Building Areas: Plus or minus 1 inch from required elevations.

C. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.

D. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

3.5 FIELD QUALITY CONTROL

A. Section 01 40 00 – Quality Requirements.

B. Perform laboratory material tests in accordance with ASTM D1557, ASTM D698 and AASHTO T180.

C. Perform in place compaction tests in accordance with the following:
1. Density Tests: ASTM D1556 and ASTM D2922.
2. Moisture Tests: ASTM D3017.

D. When tests indicate Work does not meet specified requirements, remove Work, replace and retest, at no cost to Owner.

E. Frequency of Tests:
1. Owner’s tester shall perform density testing of backfill materials prior to subsequent layer at a frequency of 1 test 250 feet of trench.

F. Proof roll compacted fill surfaces under slabs-on-grade and paving.

3.6 PROTECTION OF FINISHED WORK

A. Section 01700 – Contract Closeout: Protecting finished work.

B. Re-shape and re-compact fills subjected to vehicular traffic.

3.7 SCHEDULE

A. Exterior Slab-On-Grade:
   1. Fill Type A5, 8 inches thick layers, compacted to 95 percent.

B. Fill Under Grass Areas:
   1. Fill Type S1, S2 or A6, to 6 inches below finish grade, compact uniformly to 90 percent of maximum density.

C. Fill Under Asphalt Paving:
   1. Compact subsoil to 95 percent of its maximum dry density.
   2. Fill Type A5, to 10 inches below finish paving elevation, compact uniformly to 95 percent of maximum density.

D. Fill Under Concrete Paving:
   1. Compact subsoil to 95 percent of its maximum dry density.
   2. Fill Type A5, to depth indicated on plan details from finished paving elevation, compact uniformly to 95 percent of maximum density.

E. Pipe Bedding:
   1. Fill Type A5, 8 inch lifts, compacted uniformly to 95 percent of maximum density.

F. Area of Peat Excavation:
   1. Fill Type A1, 8 inch lifts, compacted uniformly to 98 percent of maximum density.

END OF SECTION

SECTION 31 25 13

EROSION CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Silt Fence.

B. Related Sections:
   1. Section 31 05 13 - Soils for Earthwork.
   2. Section 31 05 16 - Aggregates for Earthwork.
   3. Section 31 10 00 - Site Clearing.
   4. Section 31 22 13 – Rough Grading.
   5. Section 31 23 16 - Excavation.
   6. Section 31 23 23 - Fill.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:
   1. AASHTO T88 - Standard Specification for Particle Size Analysis of Soils.
   2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. American Concrete Institute:
   1. ACI 301 - Specifications for Structural Concrete.

C. ASTM International:
   1. ASTM C127 - Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate.
   2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)).
   3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).
   4. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
   5. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

A. Section 01300 – Submittal Procedures.

B. Product Data: Product Data: Submit data on geotextile silt fencing.

C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. Section 01700 – Contract Closeout: Closeout procedures.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with 2012 MDOT Standard Specifications for Construction.

PART 2 PRODUCTS

2.1 GEOTEXTILE MATERIALS

A. Geotextile Fabric: Furnish in accordance with 2012 MDOT Standard Specifications for construction.

2.2 PLANTING MATERIALS

Not Used

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of existing conditions before starting work.

B. Verify compacted subgrade is acceptable and ready to support devices and imposed loads.

C. Verify gradients and elevations of base or foundation for other work are correct.

D. Install Work in accordance with 2012 MDOT Standard Specifications for Construction.

3.2 GEOTEXTILE SEDIMENTATION FENCING

A. Install geotextile silt fence to extent of disturbance of existing soil, in accordance with 2012 MDOT Standard Specifications for Construction.

B. Install geotextile silt fence around all stockpiled, excavated and filled areas.

C. Install geotextile silt fence as indicated on plan details.

3.3 SITE STABILIZATION

A. Incorporate erosion control devices into the Project at the earliest practicable time.

B. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.

C. Stockpile and waste pile heights shall not exceed 8 feet. Slope stockpile sides at 1:3 or flatter.

D. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than 20 days.
   1. During non-germinating periods, apply mulch at recommended rates.
   2. Stabilize disturbed areas which are not at finished grade and which will be disturbed within one year 50 percent of permanent application rate with no topsoil
   3. Stabilize disturbed areas which are either at finished grade or will not be disturbed within one year permanent seeding specifications.

E. Stabilize diversion channels, sediment traps, and stockpiles immediately.

3.4 FIELD QUALITY CONTROL

A. Inspect erosion control devices on a weekly basis and after each runoff event. Make necessary repairs to ensure erosion and sediment controls are in good working order.

3.5 CLEANING

A. Section 01700 – Contract Closeout: Requirements for cleaning.

B. When sediment accumulation in sedimentation structures has reached a point one-third depth of sediment structure or device, remove and dispose of sediment.

C. Do not damage structure or device during cleaning operations.

D. Do not permit sediment to erode into construction or site areas or natural waterways.

E. Repair/Replace damaged areas of sediment device immediately upon inspection.

3.6 PROTECTION

A. Protect sedimentation control devices throughout duration of work, or until seeding is established.

END OF SECTION

DIVISION 32

EXTERIOR IMPROVEMENTS

SECTION

32 11 23	AGGREGATE BASE COURSES
32 91 19	LANDSCAPE GRADING
32 92 19	SEEDING

SECTION 32 11 23

AGGREGATE BASE COURSES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Aggregate base course.
   2. Aggregate surface course.

B. Related Sections:
   1. Section 31 05 16 - Aggregates for Earthwork.
   2. Section 31 22 13 - Rough Grading.
   3. Section 31 23 17 - Trenching.
   4. Section 31 23 23 - Fill.
   5. Section 32 12 16 - Asphalt Paving.
   6. Section 32 13 13 - Concrete Paving.
   7. Section 32 91 19 - Landscape Grading.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:
   1. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.
   2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:
   1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)).
   2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
   3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).
   4. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
   5. ASTM D2940 - Standard Specification for Graded Aggregate Material For Bases or Subbases for Highways or Airports.
   6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

C. Michigan Department of Transportation – 2012 Standard Specifications for Construction.

1.3 SUBMITTALS

A. Section 01 33 00 – Submittal procedures: Requirements for Submittals.

B. Samples: Submit one five gallon pail samples of each aggregate type for laboratory testing.

C. Materials Source: Submit name of aggregate materials suppliers. Supplier shall provide current test results verifying that supplied materials meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

A. Furnish each aggregate material from single source throughout the Work.

B. Perform Work in accordance with 2012 MDOT Standard Specifications for Construction.

PART 2 PRODUCTS

2.1 AGGREGATE MATERIALS

A. Base Coarse Aggregate: Fill Type A2 as specified in Section 31 05 16.

B. Surface Coarse Aggregate: Fill Type A3 as specified in Section 31 05 16.

2.2 ACCESSORIES

A. Geotextile Fabric: AASHTO M288; non-woven, polypropylene.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 – Administrative Requirements: Verification of existing conditions before starting work.

B. Verify compacted substrate is dry and ready to support paving and imposed loads.
   1. Remove soft substrate and replace with compacted fill as specified in Section 31 23 23.

C. Verify substrate has been inspected; gradients and elevations are correct, free of ruts or high spots.

3.2 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

B. Do not place fill on soft, muddy, or frozen surfaces.

C. Cut abutting pavement edges to be vertical and in straight lines.

D. The Contractor shall dispose of all waste bituminous material and similar debris at an approved disposal area approved by proper authority.

3.3 AGGREGATE PLACEMENT

A. Place base aggregate and aggregate surface in maximum 6-inch layers.

B. Roller compact aggregate to specified maximum density.

C. Level and contour surfaces to elevations, profiles, and gradients indicated.

D. Add small quantities of fine aggregate or moisture to coarse aggregate when required to assist compaction.

E. Maintain optimum moisture content of fill materials to attain specified compaction density.

F. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Variation from Flat Surface: 3/8 inch measured with 10 foot straight edge.

C. Maximum Variation From Thickness: 1/4 inch.

D. Maximum Variation From Elevation: 3/8 inch.

3.5 FIELD QUALITY CONTROL

A. Section 01 40 00 – Quality Requirements: Testing and Inspection Services.

B. Compaction testing will be performed in accordance with ASTM D1556, ASTM D1557, ASTM D698, AASHTO T180, ASTM D2922 and ASTM D3017.

C. When tests indicate Work does not meet specified requirements, remove Work, replace and retest, at no cost to Owner.

D. Frequency of Tests: Owner’s Tester shall perform one test for every 2000 square feet of each layer of compacted aggregate.

E. Contractor is required to provide a 3 business day notice prior to paving, but subsequent to the installation, grading and compaction of all aggregate base course scheduled to be paved.

F. Contractor shall meet density requirements without impeding the cross section or elevation of the finished base course. The Contractor, at no expense to the Owner, shall correct any variation from tolerances resulting in compaction efforts. Under no circumstances shall Contractor proceed with paving prior to base course approval by Engineer.

3.6 SCHEDULES

A. Asphalt Paving Base Course: Thickness per plan detail.
   1. Compact placed aggregate material Type A2 uniformly to achieve minimum 98 percent of maximum density.

B. Concrete Base Course: Thickness per plan detail.
   1. Compact placed aggregate material Type A5 uniformly to achieve minimum 95 percent of maximum density.

C. Surface Aggregate: Thickness per plan detail.
   1. Compact placed aggregate material Type A3 uniformly to achieve minimum 95 percent of maximum density.

END OF SECTION

SECTION 32 91 19

LANDSCAPE GRADING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Final grade topsoil for finish landscaping.

B. Related Sections:
   1. Section 31 22 13 - Rough Grading.
   2. Section 31 23 17 - Trenching.
   3. Section 31 23 23 - Fill.
   4. Section 32 92 19 - Seeding.

1.2 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Samples: Submit in air-tight container, one five-gallon pail sample of each type of topsoil to Engineer for approval.

C. Materials Source: Submit name of imported materials source.

1.3 QUALITY ASSURANCE

A. Furnish each topsoil material from single source throughout the Work.

B. Perform Work in accordance with 2012 MDOT Standard Specifications for Construction.

PART 2 PRODUCTS

2.1 MATERIAL

A. Topsoil: Fill Type S4 or S5 as specified in Section 31 05 13.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify trench backfilling have been inspected.

C. Verify substrate base has been contoured and compacted.

D. Verify Engineer has approved topsoil samples prior to starting work or placing any topsoil.

3.2 PREPARATION

A. Protect landscaping and other features remaining as final Work.

B. Protect existing structures, fences, sidewalks, utilities, paving, and curbs.

3.3 SUBSTRATE PREPARATION

A. Eliminate uneven areas and low spots.

B. Remove debris, roots, branches, stones, in excess of ½ inch in size. Remove contaminated subsoil.

C. Scarify surface to depth of 3 inches where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.4 PLACING TOPSOIL

A. Place topsoil in areas where seeding is required, to nominal depth of 6 inches. Place topsoil during dry weather.

B. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.

C. Remove roots, weeds, rocks, and foreign material while spreading.

D. Manually spread topsoil close to plant material, buildings, and paving to prevent damage.

E. Roll placed topsoil.

F. Shape and blend surplus topsoil to site as directed by Engineer or remove per Section 31 05 13.

G. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.5 TOLERANCES

A. Section 01 40 00 – Quality Requirements: Tolerances.

B. Top of Topsoil: Plus or minus ½ inch.

3.6 PROTECTION OF INSTALLED WORK

A. Section 01 70 00 – Contract Closeout: Requirements for protecting finished work.

B. Prohibit construction traffic over topsoil.

C. Reshape if rutted by vehicular traffic or washouts, at no cost to Owner.

3.7 SCHEDULES

A. Compacted, screened topsoil thicknesses:
   1. Seeded Grass: 6 inches.

END OF SECTION

SECTION 32 92 19

SEEDING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Fertilizing.
   2. Seeding.
   3. Hydroseeding.
   4. Mulching.
   5. Maintenance.

B. Related Sections:
   1. Section 31 22 13 - Rough Grading.
   2. Section 31 23 17 - Trenching.
   3. Section 32 91 19 - Landscape Grading.

1.2 SUMMARY OF WORK

A. Work includes seeding, mulching and maintenance. Furnish all labor, material and equipment necessary to perform the seeding and related work as indicated on the drawings.

1.3 REFERENCES

A. Michigan Department of Transportation – 2012 Standard Specifications for Construction.

B. Part V: Grassland Management – Grass Plantings

C. Appendix E: Vegetative Erosion Control Guidelines for Natural Resources Management

1.4 DEFINITIONS

A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.5 SUBMITTALS

A. Submit data for seed mix, fertilizer, and mulch to Engineer (six) 6 weeks prior to application. Submit seed samples in containers with ID and date showing seed mix composition and a guarantee of germination for approval by Engineer.

1.6 QUALITY ASSURANCE

A. Provide seed mixture in containers with ID showing percentage of seed mix, germination

percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

1.7 DELIVERY, STORAGE AND HANDLING

A. Section 01 60 00 – Product Requirements: Product storage and handling requirements.

B. Seed shall be delivered to the site in its original, unopened container, labeled as to weight, analysis, and manufacturer. Store any seed delivered prior to use in a manner safe from damage from heat, moisture, rodents, or other causes. Any seed damaged after acceptance shall be replaced by the Contractor at no cost to Owner. Seed in damaged packing is not acceptable.

C. Fertilizer shall be delivered to the site in original, sealed containers, and stored in a waterproof space. Containers shall bear the weight, manufacturer's name, analysis, trademark and guarantee.

1.8 PLANTING SEASON

A. The regular seeding season is considered May 1 through September 30.

B. Dormant seeding is considered after November 1 but not on frozen ground.

1.9 MAINTENANCE SERVICE

A. Section 01700 – Contract Closeout: Warranties/Guarantees.

B. Maintain seeded areas, including watering, immediately after placement until grass is well established and exhibits a vigorous growing uniform stand of grass through the Warranty period.

PART 2 PRODUCTS

2.1 MATERIALS

A. Grass Seed: All grass seed shall conform to the requirements of the Michigan State Statutes. Seed shall not be used later than one (1) year following the test date labeled.

B. Quality testing of seed shall be performed by a testing agency licensed in the State of Michigan. The agency shall receive representative materials proposed for use, test topsoil pH and analyze organic content, and provide recommendations for: a) soil additives to achieve desired pH factor; and b) nutrients to achieve the desired organic composition of the seeding bed.

C. Seed measurement shall be based on net masses of seed shipments, or by weight, using approved scales supplied by the Contractor. Any seed wasted during the course of installation, or otherwise unused, shall be deducted.

1. Seed Mix Type I: (Application Rate – 5 lbs./ 1000sf)
40% Creeping Red Fescue

30% Kentucky Bluegrass
30% Perennial Ryegrass

D. Water: Adequate supplies suitable for irrigation and free harmful materials.

E. Mulch: Sedge marsh hay (not from reed canary grass) shall be clean, small-grained and air-dry, well seasoned, and free of rot, mildew and seeds of noxious weeds.

F. Cellulose fiber mulch: Prepared cellulose processed into a uniform fibrous state, containing nothing to inhibit the growth of grass seedings.

G. Wood shaving mats: Woven, and can contain lightweight plastic netting on one or both sides.

H. Fertilizer:
1. Provide Class A fertilizer in accordance with MDOT Section 917, requirements for seeded lawn areas.

PART 3 EXECUTION

3.1 PREPARATION

A. Fine grade soil surface to eliminate uneven areas, ruts and low spots. Maintain lines, levels, profiles and contours. Seed shall be installed at the finish grade elevation(s) specified, on a surface prepared and finished to an even, loose and uniform surface.

B. Make changes in grade gradual. Blend slopes into level areas. Slope to drain. The area to be seeded shall be worked with discs, harrows or other appropriate equipment.

C. Remove foreign materials, weeds and undesirable plants and their roots. Remove contaminated soil.

D. Scarify soil surface prior to seeding where equipment has compacted the new soil, or where existing topsoil requires seeding due to construction operations.

E. No seeding shall occur on frozen ground or at temperatures lower than 32ºF (0º C).

3.2 DRY SEEDING

A. Seed applied with a cultipacker, or slit seeder shall be applied in two different directions within the top ¼” (6 mm) of the soil.

B. Seed applied with a drop-type or broadcast spreader shall be applied in two different directions within the top ¼” (6.4 mm) of the soil. A cultipacker or similar equipment shall be used to enhance soil/seed contact.

C. Do not sow immediately following rain, when ground is to dry, frozen, or during windy periods.

D. Immediately following seeding, straw mulch shall be applied at a thickness of ½” (1.3 cm). Cellulose fiber mulch shall be applied at a rate of 1,500 lbs./acre (1,700 kg/ha.).

Mulch should be stabilized either by anchoring tools, plastic netting, liquid binders, or cellulose fiber.

E. Do not seed areas in excess of that which can be mulched on same day.

F. Apply water with a fine spray immediately after each area has been mulched. Saturate soil.

3.3 HYDROSEEDING

A. Cellulose fiber included into a seed/water/fertilizer mix shall be diluted at a 1:2 fiber/water weight ratio.

B. Apply seed such that adjacent building surfaces remain clean and free of the mix.

C. Straw shall be applied by hand or by blower at a maximum thickness of ½" (2 ton per acre) and stabilized.

D. Apply water with a fine spray immediately after each area has been mulched. Saturate soil.

E. Repair ruts and surface damage from hydro seeding equipment. Hand seed and mulch repaired areas.

3.4 STABILIZATION

A. Lightweight Plastic netting shall be laid as per manufacturer's recommendations. Anchoring stakes are to be either driven into the ground or removed after establishment of seed.

B. Liquid mulch binders are to be applied as per manufacturer's recommendation and applied more heavily at edges where winds may affect the mulch.

C. Cellulose fiber binding used to anchor straw mulch shall be applied at a net dry weight of 750 lbs./acre (850 kg/hectare). If mixed with water, the mixture shall be of a 1:2 cellulose fiber/water weight ratio.

3.5 FERTILIZING

A. All chemical applications are to be performed in accordance with current federal, state and local laws, through EPA-registered materials and application techniques, and performed under the supervision of a licensed certified applicator.

B. Apply fertilizer in accordance with MDOT Section 816.

3.6 CLEANING AND REPAIR

A. Waste and excess material from the seeding operation shall be promptly removed. Adjacent paved areas are to be cleaned, and any damage to existing adjacent turf areas shall be repaired.

3.7 INSPECTION

A. Areas of installed seed shall be inspected by the Contractor and Landscape Architect at which time the work will be accepted or rejected.

3.8 MAINTENANCE

A. Maintenance work shall apply for the one year warranty period.

B. Watering: Seeded areas are to be watered daily to maintain adequate surface soil moisture for proper seed germination. Watering shall continue for not less than 30 days following seeding. Thereafter, apply ½" of water a minimum of twice weekly until final acceptance.

C. Immediately reseed areas which show bare spots to establish a uniform stand of grass.

D. Protect seeded areas with warning signs during maintenance period.

E. Repair, reseed and mulch washed-out areas.

3.9 QUALITY CONTROL

A. Provide calculations to assure coverage of seed and fertilizer at specified rate.

3.10 SCHEDULE

A. Lawns: Wherever existing mowed areas (lawns) are restored, use Seed Mix Type I seeding.

B. All other areas: Appropriate Seed mix for season/conditions based on Appendix E and Grass Plantings Attachments.

END OF SECTION

VEGETATIVE EROSION CONTROL GUIDELINES FOR NATURAL RESOURCE MANAGEMENT

Introduction

The purpose of this document is to provide information to facilitate the successful and timely re-establishment of vegetation following earth change activities. In most situations, vegetation is the best means of controlling wind or water erosion and preventing sediment transport and off-site sedimentation.

This document focuses on methods for the quick establishment of vegetative ground cover and establishing permanent native vegetative ground cover. It also discusses what environmental regulations apply regarding establishing vegetative cover for erosion control.

With respect to erosion control, the key legislation (and its administrative rules) that applies here is Part 91, Soil Erosion and Sedimentation Control (SESC), of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). As discussed in the manual, "Sustainable Soil and Water Quality Practices on Forest Land", Part 91 applies whenever there is an "earth change" (e.g. removal of the vegetative cover and soil disturbance by a bulldozer) that is one or more acres in size or within 500 feet of a water body. Refer to the manual's section 2, "Laws and Permits" and Appendix C – "List of Applicable Laws in Michigan", for more information regarding Part 91 and its requirements.

Natural revegetation of areas in which the vegetative ground cover has been removed rarely occurs with the rapidity or vigor required to prevent erosion. Consequently, methods that quickly re-establish vegetative ground cover are required. Seeding using grass species is the most commonly used and most effective means of re-establishing vegetation.

For erosion control, many governmental agencies and landowners have relied heavily on using certain non-native and invasive plant grass species. However, increasingly it is being recognized that these species can cause ecological damage. Alternatives are being sought to control erosion using grass species native to the region and state. An additional consideration is to use native plant species seed of a locally adapted genotype (seed from local populations of native species) as locally adapted genotypes often grow better in the long term.

Definitions That Apply To This Document

Native plants are naturally occurring species that existed in Michigan prior to European settlement.

Native plant genotypes are represented by genetic strains that have evolved in Michigan and are assumed to be adapted to Michigan's conditions.

Non-native species are species that were not naturally occurring in Michigan prior to European settlement. Some of these plants have had little impact on native species, others have had direct negative impacts on native species.

Invasive non-native plants are species that have had direct negative impact on our state's natural resources. These plants are very aggressive and out compete native plants. Examples include autumn olive and purple loosestrife.

Native and Introduced Species

Within the natural resource management field, as well as the general public, there is increasing concern regarding current and potential future damage to native ecosystems due to the establishment and spread of certain non-native plant species (e.g., garlic mustard, purple loosestrife, crownvetch). These non-native species are referred to as “invasive” as they disrupt native ecosystems that maintain or conserve native plant and animal biodiversity.

Many non-native grasses and other plant species introduced in the past and promoted for erosion control have proved to be less beneficial for their intended purpose than native species. Some of these introduced species have become invasive or noxious. However, many nonnative plant species, such as those used for erosion control, are economical and readily available relative to native plant species.

Native species can be expensive and only available from a limited number of suppliers. Despite these factors, forest land managers and others are realizing long-term ecological and economic benefits by re-establishing locally adapted genotypes of native vegetation for erosion control and other restoration efforts.

In Michigan, the Michigan Department of Natural Resources (MDNR) and federal land management agencies emphasize or, in some cases, require the use of native species vegetation, and, if available, locally adapted genotypes on the lands they manage. The MDNR encourages the use of native seed or native vegetation on private lands as well.

To meet legal requirements and prevent soil from eroding into a water body, certain introduced species may be used, especially if quick establishment of vegetative cover is needed. However, this document only recommends those non-native species that are not considered to be invasive, which are most likely to promote the natural succession of the site to native ground cover or are not likely to interfere with the native seed applied at a later date.

Planning and Site Assessment

Proper planning and site assessment is essential to insure erosion control and establishment of native ground cover. The selection of plant species to use and establishment procedures should match the plant’s adaptations to local site conditions, including:

- available sunlight
- slope
- topography
- local climate
- soil drainage class
- soil texture
- proximity to environmentally-sensitive areas or natural plant communities
- soil fertility
- soil pH

To ensure proper establishment, a soil test may need to be taken at the site and soil amendments (e.g., fertilizer and lime) may need to be applied. In many cases, soil amendments will not be necessary when using suitable native plants. Managers should plan to stockpile the topsoil that was removed from the site during road and landing construction, to later use when topsoil is needed for the re-establishment of vegetative ground cover.

Site Preparation

The purpose of site preparation is to have good contact between soil and seed to achieve acceptable levels of germination. For temporary roads, landings and primary skid trails, site preparation generally occurs after harvest operations have been completed. Where disturbed/bare soil sites are small and soil compaction is minimal, it may be suitable to use a hand rake to prepare the seedbed (e.g., secondary skid trails in a Riparian Management Zone (RMZ) on dry, upland or non-saturated soils).

Topsoil Use

It is essential for successful and quick revegetation to have a suitable depth of firm, but friable topsoil. Part 91 erosion control guidelines state that disturbed sites have a minimum of 3 to 4 inches of firm, but friable topsoil. However, these same guidelines allow for professional judgment and knowledge as to what depth of native topsoil will work as a suitable seedbed. Stockpiled topsoil that was removed from the site during road or landing construction should be re-applied when the constructed roads and landings are no longer required for operational or other forest management purposes (e.g. access to replant tree seedlings after a clearcut has occurred).

On sloped areas, prior to re-application of topsoil, roughen the subsoil to prevent a shear or smooth surface and slippage of the topsoil. Typically, surface roughening is accomplished by running tracked equipment (e.g. bulldozer) up and down the sloped area. If more topsoil is required to provide suitable seedbed germination, acquire topsoil from a source native to the area. Use topsoil that is not contaminated with non-native, weedy and invasive species.

Part 91 administrative rules state that a person shall complete permanent soil erosion control measures for all disturbed land areas within 5 calendar days after final grading or the final earth change has been completed. However, when seedbed preparation and/or seeding must be delayed due to weather, climate, seasonal conditions or certain resource management issues (pertinent to the site), then appropriate temporary erosion control (e.g. mulch) and sedimentation control measures (e.g. silt fence) shall be installed and maintained until seedbed preparation and seeding can commence.

Seeding and Erosion Control– Native and "Safe" Non-Native Species Use

Seed may be applied by hand, mechanical spreader, seed drill, or by hydro-seeding. Some native species must be applied with a drill.

Two objectives should be considered when seeding:

1) What is required to meet Part 91 requirements (quick establishment of vegetative cover and minimal erosion and sedimentation). 2) Long-term establishment of native vegetation.

To meet both of these objectives usually requires, at a minimum, the application of grass seed that is fast growing and provides fairly quick erosion control. As with other BMPs, there are a number of options based on the conditions of the site and when the seed is applied.

Seeding Recommendations

Seed Rates

All seeding rates, such as those stated in Table 2, are in pounds of "pure live seed" (PLS). In the case of certain native species, this can be significantly more than the weight of bulk seed.

When accounting for the amount of PLS, one will need to purchase and use more bulk seed than the weight per acre recommendations given for a particular seed species. Use the following formula to derive the required weight of bulk seed from the PLS rate. Germination, hard seed (a characteristic of legume seeds), and purity percentages are found on the information label attached to all commercially purchased seed.

$$\text{Pounds (lbs) of Bulk Seed} = \frac{\text{lbs PLS}}{(\text{purity}^* + \text{hard seed}^*)\ (\text{germination}^*)}$$

*express % purity, hard seed, and germination in hundredths; i.e. 97% = 0.97

For example, a seed label indicates Canada Wild Rye that has a germination rate of 90 percent, no hard seed content, and a purity of 97 percent. The "Cool Season" seed mix from Table 2 requires 4 pounds of Canada Wild Rye PLS/acre. Compute the bulk seed rate as follows:

$$\text{lbs of bulk Canada Wild Rye seed} = = \frac{44}{(0.97 + 0)\ (0.90)\ 0.873}$$

lbs of bulk Canada Wild Rye seed = 4.6 (which is the equivalent of 4 lbs of PLS)

Table 1 provides a list of native and non-native ground cover species (grasses and forbs) to consider for erosion control. Table 1 provides, by plant species, the soil texture, soil moisture, and sunlight requirements for successful germination and establishment. The comments portion contains information as to whether a species is native or non-native, perennial or annual, and (for grasses only) if it is considered a warm season or cool season grass.

Key for Information in Tables 1 and 2:			
SOIL	**MOISTURE**	**LIGHT**	**REGION**
S - Sand	D - Dry	S - Full Sun	UP-Upper Peninsula
L - Loam	M - Moist	P – Partial Shade	NLP-Northern Lower Peninsula
C - Clay	W - Wet	Sh – Shade	SLP -Southern Lower Peninsula
M - Muck			SW - Statewide

SPECIES NAMES Common (Latin)	**SOIL**	**MOISTURE**	**LIGHT**	**REGION**	**Comme**
Grasses:					
American beach grass (Ampophila breviligulata)	S	D	S	SW	Native pe dune stab use plugs
Annual rye (Lolium multiflorum)	S-L-C	D-M-W	S, P, Sh	SW	Non-nativ temporar

Table 1. Native And Non-Native Plant Species To Use For Erosion Control In Forest Land

Key for Information in Tables 1 and 2:			
SOIL	**MOISTURE**	**LIGHT**	**REGION**
S - Sand	D - Dry	S - Full Sun	UP-Upper Peninsula
L - Loam	M - Moist	P – Partial Shade	NLP-Northern Lower Peninsula
C - Clay	W - Wet	Sh – Shade	SLP -Southern Lower Peninsula
M - Muck			SW - Statewide

SPECIES NAMES Common (Latin)	**SOIL**	**MOISTURE**	**LIGHT**	**REGION**	**Comments**
Grasses:					
American beach grass (Ampophila breviligulata)	S	D	S	SW	Native perennial, dune stabilization – use plugs, not seed
Annual rye (Lolium multiflorum)	S-L-C	D-M-W	S, P, Sh	SW	Non-native annual, temporary cover
SPECIES NAMES Common (Latin)	**SOIL**	**MOISTURE**	**LIGHT**	**REGION**	**Comments**
Big bluestem (Andropogan gerardii)	S-L-C	D-M-W	S	SW	Native perennial, warm season grass*
Creeping red fescue (Festuca rubra)	S-L-C	D-M-W	S , P	SW	Non-native perennial
Indian grass (Sorghastrum nutans)	S-L-C	D-M-W	S-P	NLP, SLP	Native perennial, warm season grass*
June grass (Koelaria micrantha)	S-L-C	D-M	S, P	SW	Native perennial, cool season grass**
Little bluestem (Schizachyrium scoparius)	S-L	D-M	S, P	SW	Native perennial, warm season grass*, dune stabilization
Oats (Avena sativa)	S-L-C	D-M	S, P	SW	Non-native annual, temporary cover
Redtop (Agrostis gigantea)	L, C, M	M-W	S	SW	Non-native perennial, cool season grass**
Switchgrass (Panicum virgatum)	S-L-C	D-W	S	SW	Native perennial, warm season grass*
Wild-rye, Canada (Elymus canadensis)	S-L	D-M-W	S, P, Sh	SW	Native perennial, cool season grass**
Wild-rye, Virginia (Elymus virginicus)	L-C	M-W	S, P, Sh	SW	Native perennial, cool season grass**
Forbs (Wildflowers)					
Legumes:					
Alsike Clover (Trifolium hybridum)	L-M	D-M-W	S, P	SW	Non-native, perennial, good for forest roads in northern hardwoods
Lupine (Lupinus perennis)	S-L	D-M	S - P	SLP + Newaygo Co.	Native perennial, butterfly host, nectar source
Medium Red Clover (Trifolium pratense)	S-L-C	D-M-W	S, P	SW	Non-native, perennial legume, good for forest roads in northern hardwoods
Round-headed bush clover (Lespedeza capitata)	S-L	D-M	S	SLP + Newaygo Co.	Native perennial legume, wildlife food
White Dutch Clover (Trifolium repens)	L-C-M	D-M-W	S, P	SW	Non-native, perennial legume, good for forest roads in northern hardwoods
Other Wildflowers:					
Black-eyed Susan (Rudbeckia hirta)	L-C	D-M	S-P	SW	Showy native perennial, yellow
Butterflyweed (Asclepias tuberosa)	S-L	D-M	S	SW	Showy native perennial, orange
Common milkweed (Asclepias syriaca)	S-L	D-M	S-P	SW	Native perennial, pink, butterfly food
Horsemint (Monarda punctata)	S-L	D-M	S	SW	Native perennial, white/pink

Table 2. Two Examples of Seed Mixtures Using Native Plants

Other Items to Consider When Planting Native Species in a Forested Setting:

While Part 91 erosion control guidelines can contain helpful information, they were developed with the primary purpose of establishing grass cover on construction sites after final grading has been completed. The next paragraph provides a few additional considerations specifically designed for natural resource management purposes. For more specific technical information as to the proper timing, soils and general methods to insure long-term establishment of a native plant seeding, contact the firm from which you purchased the seed.

Key for Information in Tables 1 and 2:			
SOIL	**MOISTURE**	**LIGHT**	**REGION**
S - Sand	D - Dry	S - Full Sun	UP-Upper Peninsula
L - Loam	M - Moist	P – Partial Shade	NLP-Northern Lower Peninsula
C - Clay	W - Wet	Sh – Shade	SLP -Southern Lower Peninsula
M - Muck			SW - Statewide

SPECIES NAMES Common (Latin)	**SOIL**	**MOISTURE**	**LIGHT**	**REGION**
Grasses:				
American beach grass (Ampophila breviligulata)	S	D	S	SW

As with introduced grasses, native grass/wildflower seed germination success requires good seed contact with soil. Depending on the site conditions, prepare the soil as needed and either handsow or use a prairie drill such as the Tye drill, Truax drill, or the John Deere Rangeland drill. If handsowing, it is advisable to mix the seed with a contact mulch such as wetted sand or vermiculite. If handsowed, rake or drag the seed in so that it is lightly covered with soil. Roll the site with a roller or drive over it to firm seed into the soil. Do not roll the site if the soil is wet so as to avoid soil compaction. Hydro-seeding is generally not recommended for wildflower and prairie grass seeding, as it does not ensure firm seed-to-soil contact.

Mulch Use after Seed Application

In some cases, applying the detritus from the forest floor may be considered if erosion is not an immediate threat, the site is not near a water body and conditions are right for seed within the detritus to establish.

In most situations, it will be appropriate to apply a light covering of clean, weed-free straw with some moisture content, as this will increase germination rates. This is particularly helpful on dry sandy soils and heavy clay soils. Straw should just cover the soil surface, but not bury it. Some soil should be visible through the straw. Chopping and blowing the straw onto the area is the best method, as chopped straw is less susceptible to being blown away by the wind. On steep slopes, hold the straw in place by using biodegradable stakes and mesh over the straw. Never use field hay, as it invariably contains innumerable weed seeds.

Conclusion

These guidelines are just that, guidelines as of early 2007. Introduced plant species used for erosion control and site stabilization have been researched and used for a long time. Conversely, the amount of information available regarding the use of native plant species for erosion control and site stabilization is far less, especially with respect to what will work for the various ecological regions of a given state, such as Michigan. Hence, it is essential that users of these guidelines keep abreast of vegetation erosion guideline updates. Use professional judgment and past experience as to what will prevent erosion, meet Part 91 requirements, and result in the establishment of native vegetation genotypes adapted to the local site conditions.

The DNR and DEQ recognize that the use of native species is more expensive than using introduced species and are more difficult to obtain. However, native species with local region genotypes are the species best adapted to the site conditions and survival for the long-term, without harm to the environment or Michigan's biodiversity conservation efforts.

A number of Michigan firms which produce seed native to Michigan have formed an association called the Michigan Native Plant Producers Association. Their website is: http://www.mnppa.org/. Another source for information is the Michigan Wildflower Association. Their website is: http://www.wildflowersmich.org/. Another related site is the Michigan Association Conservation District's website on native plants. This website is: http://www.macd.org/nativeplants/nphome.html. Many county conservation districts sell native plants, as well as provide general and technical information regarding the uses and benefits of various native plant species.

PRIVATE LAND PARTNERSHIPS
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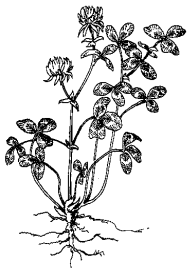
GRASS PLANTING

Grasses and/or grass legume mixtures can provide outstanding habitat for nesting, brood rearing, and winter survival of pheasants, quail, and many songbirds. Besides producing food for insects, which, in turn, become food for birds and other animals, the grasses produce seeds, another source of high-energy food. Rabbits, deer, and wild turkeys eat the green browse. Planted in the right location around your property, these habitats also provide an attractive landscape.



Cool season grasses grow most rapidly during spring and early summer when cool nights follow warm days. They include native Canada wildrye, redtop, June grass, and introduced species such as timothy, orchard grass, and brome grass. Cool season plants also include legumes such as birdsfoot trefoil, alfalfa, and several kinds of clover. Many landowners mix legumes with cool season grasses because the legumes contribute to soil fertility and create food and cover for wildlife.

Warm season grasses grow most rapidly during summer when warm nights follow hot days. They include the native or prairie species such as big blue-stem, little bluestem, Indiangrass, and switchgrass. Some landowners mix a half-pound of perennial native wildflower seeds (forbs) per acre to warm season grass plantings to create even more food and cover diversity and to add beauty. Many wildlife managers in Michigan prefer warm season grasses because they stand up better in snow than do cool season types, last longer, and are native to the state. Plantings of warm and cool season grasses next to each other will provide excellent variety and are the most valuable to wildlife.

Site Conditions

Site conditions to consider before planting include potential weed problems, drainage, erosion potential, and soil type, depth, texture, and fertility. Some grasses and legumes do better on dry sites, and others grow well on wet areas. Certain grass species have very narrow preferences, and others seem to do fine on most sites. Timothy grass, for example, grows well on sandy-loam soils that are fairly well drained. Switchgrass, on the other hand, performs on a variety of soil types. Certain clovers do better in wet areas whereas alfalfa responds best in well-drained soils of sandy loam.

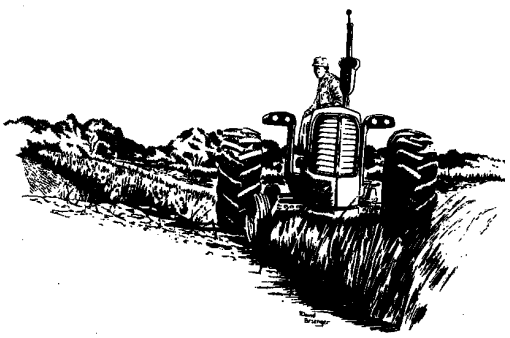
The panel below lists preferred soil type, moisture content, and tol-

SPECIES	SOIL	MOISTURE	SUN-SHADE
Grasses			
Big Bluestem	S-L	D-M	S
Little Bluestem	S-L	D-M	S
Indian Grass	S-L	D-M	S
Switchgrass	S-L-C	D-W	S
Canada Wildrye	S-L	D-M	S,Sh
Timothy	S-C	D-M-W	S
June Grass	L-M	D-M-W	S, Sh
Redtop	L-M	M-W	S
Orchard	C	D-M	S
Legumes			
Ladino	S-L-C	D-M	S
Alsike	L-M	D-M-W	S
Medium Red	S-L-C	D-M-W	S
White Dutch	L-C-M	D-M-W	S,Sh Sh
Sweet Clover	S-L-C	D	S
Alfalfa	S-L	D	S
	S- Sand L- Loam C- Clay M- Muck	D- Dry M- Moist W- Wet	S- Sunny S, Sh- Some Shade Sh- Shade

erance for sun or shade for many types of grasses and legumes. Your Natural Resource Conservation Service office will have a county soil survey map, which should include your property. The map may help you decide what type of grass to plant and where. Also, refer to the chapters on **Warm** and **Cool season Grasses** and **Prairie Restoration** in this section.

Proper soil pH and fertility are necessary for the intended crop. A soil test will determine needs and recommend rates of nutrient application. Your county Michigan State University Extension office has soil test kits available for a small fee and can analyze samples for you. Before planting cool season grasses and legumes, the soil pH should be between 5.5 and 7.0. If lime is needed to raise the pH level, apply it at least three to six months before planting or the fall before your planting season. The level of pH for warm season grasses is not that critical; lime is not required, for example, on sites with a pH above 5.5.

Follow the soil-test recommendations for adding nitrogen, phosphorus, and potash. The recommendations will vary, depending on what you intend to plant. For example, for cool season grass mixes containing legumes, 200 to 300 lbs. per acre of a starter fertilizer (such as 6-24-24 or 8-32-16) low in nitrogen and high in phosphorus is often recommended. Once the stand is established, the legumes will provide the necessary nitrogen.



Site Preparation and Planting Rates

There are two ways to plant grasses. Conventional tillage uses plowing and disking (and sometimes herbicides) to prepare the seed bed to ensure proper seed to soil contact and depth. The key is to get a firm surface before planting, and the way to do that is to follow the plow and disk with a cultipacker or roller. A site has been properly prepared when a footprint barely shows. No-till planting uses special equipment called a no-till drill that cuts a narrow trench through the sod and soil, drops seed into the trench at the correct depth and distance apart, and presses the soil back in place. No-till planting reduces the amount of work to prepare the site and also reduces the potential for erosion. The method relies on herbicides to control weed competition.

If planting into an area with tall grasses or sod, success demands that you kill unwanted vegetation the fall before. If no-till is your chosen planting method, then mow the area before the first frost or in mid-September. Two weeks later, spray a relatively safe, broad-spectrum herbicide such as Roundup, which will kill all emergent vegetation. Be sure to read and follow label directions. You can plant grass and grass mixtures with a no-till planter early in the spring before greenup occurs. If you are late with planting, you may have to kill weeds and other regrowth with another application of herbicide.

If you choose to use conventional tillage, you must eliminate all unwanted vegetation by plowing and disking, which you should do in the fall. The following spring, plow and disk once more if regrowth has occurred (or spray with herbicide). For smaller sites, a roto-tiller may do the job of cultivation.

A key reason that no-till is growing in popularity is that it does not disturb the soil, which may allow dormant weed seeds to germinate. No-till also reduces compaction because fewer trips across the field are needed. In addition, fuel and time are saved, and erosion potential minimized. Warm season and cool season grasses, as well as legumes, need only be planted 1/4 inch to 1/2 inch below the surface and require only 1/8 to 1/4 inch of soil as a cover. It is not uncommon to see seed sitting on top of the surface after planting.

Cool season grasses are usually planted as mixes of several plant types at a rate of 8 to 12 lbs. per acre. Legumes used in mixes should constitute 50 to 60 percent of the mix. Warm season grasses can also be mixed and are usually planted at rates of 4 to 6 lbs. per acre of Pure Live Seed. If using switchgrass in the mix, however, add only 0.5 lbs. to 1 lb. because switchgrass is aggressive and may take over the stand.

Warm season grass seeds tend to be fluffy and bulky. Pure Live Seed (PLS) takes into consideration that a pound of warm season grass includes seed hulls, inert materials, and seeds that will not germinate. To determine PLS producers multiply the percent of Pure Seed times the percent of Total Germination and list this information on a tag that comes with each bag of seed. Most warm season grasses will range from 50 to 95 percent PLS per bulk pound, and there will likely be a difference

Cool Season Mix	Pounds Per Acre
Orchard Grass	2
Timothy	2
Medium Red Clover	2
Sweet Clover	2
Cool Season Browse	**Pounds Per Acre**
Orchard	2
Ladino Clover	3
Alsike	2
Medium Red Clover	2
Warm Season Grass Winter Cover	**Pounds Per Acre**
Switchgrass	6

Cool Season Mix Wet Sites	Pounds Per Acre
Bluegrass	3
Red top	3
Med. Red Clover	2
White Dutch Clover	2
Warm Season Mix Wet Sites	**Pounds Per Acre**
Big Bluestem	4
Switchgrass	4
Warm Season Mix Winter/Nesting Cover	**Pounds Per Acre**
Little Bluestem	2
Big Bluestem	2
Indiangrass	2
Wildflowers	0.5

The above panel lists a variety of mixes that can be planted to benefit wildlife.

between each bag of seed or each grass type.

Grass and grass mixtures can be planted with a no-till drill, one of several mechanical spreaders, or broadcast by hand. Warm season grasses are more difficult to plant because of the fluffy nature of the seed. When run through typical broadcasters and no-till planters, the seed tends to bridge over the top of the mixing unit and will not flow properly. When broadcast planting, planting rates should be increased 25 percent above normal rates. Special no-till planters are now available that overcome this problem. Another option is to buy debearded seed, which has the fluff removed, although it will cost more and may be hard to find. Switchgrass seed is the only warm season grass type that is smooth and therefore will run through conventional planting equipment.

Plant during the period April 15 to June 15. If soil moisture and temperatures allow it, early seeding is preferred. You can also plant cool season grasses during August; however, spring plantings are more successful. In areas with little fall vegetation, such as a recently harvested bean field, frost seeding in late winter/early spring is an alternative. Broadcast seed over the site and the alternating thawing and freezing action will work the seed into the ground where it will germinate. Frost seeding is an especially good method to use on wet sites that equipment cannot reach during peak planting time.

Be sure to inoculate all legume seed before planting. The inoculant is a graphite-like bacteria that, when mixed with water and then applied to the seed, allows the plant to use nitrogen from the air. If frost seeding, double the rate of inoculant.

Post Planting Maintenance

Cool season grasses and legumes are usually evident in the first month after planting, and attractive, solid stands are often the norm by the end of the following spring. Because warm season grasses grow more slowly and in clumps, they require three to five years to establish themselves. After the first growing season, it is not uncommon to have only one plant per square yard. The grass may only be six to eight inches tall and difficult to recognize until it grows a seed head in late summer of its second year. After the second growing season, each plant may be one to two feet tall and occupy a square foot or so. By the end of the third growing season, you should have an established stand of native grass three feet tall or taller, depending on the species planted. Patience is the key to growing warm season grasses. Give them a full three years before deciding if your planting is a success.

To ensure success of any grass planting, you must control unwanted vegetation. If using a herbicide, choose a selective type like 2-4-D, which will kill broadleaf plants (including clover, other legumes, and forbs), and be sure to read and follow all label directions. Your county Michigan State University Extension office can also help identify the problem and will suggest an appropriate herbicide. Mowing before annual broadleaf weeds go to seed may be a better option. After planting warm season grasses in the spring, mow for the first time between July 15 and August 31. If weeds continue to be a problem the next year, mow again before April 1 . The best time to mow cool season grasses is July 15 to August 31. This avoids the nesting season of most birds. Always mow warm season grasses at a height of eight inches or more to avoid injuring plants. Cool season grasses and legumes should be mowed at four to six inches to stimulate late-season growth.

You can allow livestock to graze warm season grasses in late July and August. If you do not require winter cover for wildlife but want spring nesting cover, you can allow livestock to graze cool season grasses until October. Do not allow livestock to graze any type of grass below eight inches.

Grasses and legumes that are hayed or grazed (including heavy browsing by deer) should be "top dressed" with fertilizer or manure after each seasons' hay harvest or on a three-year rotation. Top dress with 100 to 200 lbs. of 6-24-24 fertilizer in a mixed grass legume stand or 19-19-19 fertilizer in pure grass or grass dominated stands.

Proper mowing or grazing and top dressing will help keep the stand in vigorous, high-quality grasses and legumes for many years. Disking is another method to stimulate regrowth and reduce competition from dogwood, sumac, aspen, and other invasive woody plants. If you plan a annual treatment, consider mowing or lightly disking about one-third of the grassland each year. Try to mow strips from 30 to 60 feet wide and leave undisturbed areas of 60 to 100 feet wide between them.

Burning is also a key management tool every three years or so for warm season grasses and wildflowers. If possible, burn one-third of the grassland each year. Carry it out in early spring when vegetation is dry and do it on a day with light wind. Discuss your plans with local authorities, obtain the necessary burning permit, and observe all restrictions and safety procedures. For more information see the **Prescribed Burning** chapter.

In summary, depending on your goals and current field conditions, there are a variety of grasses or combinatons of grasses you can plant to meet your needs. There are, as well, several planting methods available to get a successful grass stand established.

FOR ADDITIONAL CHAPTERS CONTACT:
Michigan United Conservation Clubs
PO Box 30235
Lansing, MI 48909
517/371-1041

MUCC

PRIVATE LAND PARTNERSHIPS
WORKING TOGETHER FOR WILDLIFE

Private Land Partnerships: This partnership was formed between both private and public organizations in order to address private lands wildlife issues. Individuals share resources, information, and expertise. This landowner's guide has been a combined effort between these groups working towards one goal: Natural Resources Education. We hope this manual provides you with the knowledge and the motivation to make positive changes for our environment.

FOR ADDITIONAL ASSISTANCE: *CONTACT YOUR LOCAL CONSERVATION DISTRICT*

APPENDIX I

GLOSSARY

GLOSSARY

Activity–An element in the Progress Schedule establishing a requisite step, or the time and resources required, for completing the part of the Work associated with that Activity.

Addenda–Written instruments that are used by the Owner and/or Professional to incorporate interpretations or clarifications, modifications and other information into the Bidding Documents. An Addendum issued after Bid opening to those Bidders who actually submitted a Bid, for the purpose of re-bidding the Work without re-advertising, is referred to as a **post-Bid** Addendum.

Agency- Any unit, section, division, department or other instrumentality of the State that benefits from the Work.

Alternate–Refers to work specified in the Bidding Documents for which the Bidder must bid a Bid Price.

Apparent Low Bidders: Those Bidders whose Base Bid, when added to those specific Alternates the Owner intends to accept, yields the three lowest sums of Bid and Alternates. Additional Bidders may be considered Apparent Low Bidders if their Bid, when added to those specific Alternates the Owner intends to accept, yields a sum within 10% of the lowest of the Apparent Low Bidder's sum. If a qualified disabled veteran meets the requirements of the contract solicitation, provides acceptable responses to both Part One and Part Two of the Best Value Construction Bidder Evaluation to achieve a Best Value recommendation and with the veteran's preference is the lowest responsive, responsible, best value Bidder it is considered the Apparent Low Bidder.

Archaeological Feature–Any prehistoric or historic deposit of archaeological value, as determined by a representative of a State agency that is duly authorized to evaluate such findings and render such judgments. An Archaeological Feature deposit may include, but is not limited to Indian habitations, ceremonial sites, abandoned settlements, treasure trove, artifacts or other objects with intrinsic archaeological value and that relate to the history and culture of the State of Michigan. The Archaeological Features are listed under Section 00800 Supplementary Conditions.

Authorized Technical Data–Information and data contained in a report of exploration and tests of subsurface conditions. Also, any physical data (dimension, location, conditions, etc.) contained in those Drawings of physical conditions of existing surface and subsurface facilities.

Best Value-The bids will be evaluated for best value based on price and qualitative components that may include but are not limited to technical design, technical approach, quality of proposed personnel, and management plans, per PA 430 of 2012.

Bid–Written offer by a Bidder for the Work, as specified, which designates the Bidder's Base Bid and Bid Prices for all Alternates. The term *Bid* includes a *re-bid*.

Bidder–The Person acting directly, or through an authorized representative, who submits a Bid directly to the **Owner**.

Bidding Documents–The proposed Contract Documents as advertised, and all Addenda issued before execution of the Contract.

Bid Price– The Bidder's price for a lump sum item of work, or the product of the Bidder's unit price for an item of Unit Price Work times the quantity given on the Bid Form for that item.

Bid Security–Security serving as a guarantee that the Bidder will conform to all conditions.

Bidding Requirements–The Advertisement, Instructions to Bidders, Supplementary Instructions, Information for Bidders, Bid Form, Bid Form Attachments and qualification submittals, as advertised and as modified by Addenda, and any other Section included within Division 0 of the Bidding Documents for the purpose of governing bidding and award of the Contract.

Board–The Administrative Board of the State of Michigan.

Bond– Security furnished by the **Contractor**, as required by the Contract Documents.

Business Day–Any Day except Saturdays, Sundays and holidays observed by the **Owner.**

Bulletin–A request used by the **Owner** to describe a change in the Work under consideration by the **Owner** and to request the **Contractor** to submit a proposal for the corresponding adjustment in Contract Price and/or Contract Time, if any.

Calendar Day–Every day shown on the calendar, Saturdays, Sundays and holidays included.

Cash Allowance–An **Owner**-specified sum included within the Contract Price to reimburse the **Contractor** for the actual purchase/furnished cost of materials and/or equipment or other designated items, as specifically provided in the Contract Documents. Although the scope (e.g., the required quantity) of any Work covered by a Cash Allowance is sufficiently detailed in the

Contract Documents for the purposes of bidding the required labor costs, Subcontract costs, construction equipment costs and general conditions costs and Fee, it is understood that the required materials, equipment or other designated items are of uncertain purchase cost at the time of Bid or are yet to be specified in more detail by the **Professional** as to quality, appearance, durability, finish and such other necessary features affecting purchase price.

Change Order–A written order issued and signed by the **Owner**, which amends the Contract Documents for changes in the Work or an adjustment in Contract Price and/or Contract Time, or both.

Contract Award–The official action of the **Board**, the **Director-SFA** or the **Director-DCD** awarding the Contract to the **Contractor**.

Contract Documents–Written and graphic documents that form the legal agreement between the **Owner** and the **Contractor**, consisting of this document, completed Bid and Contract forms, terms and conditions of the contract, specifications, drawings, addenda, Notice of Award, Notice-to-Proceed and contract change orders.

Contract Price–The total compensation, including authorized adjustments, payable by the **Owner** to the **Contractor** (subject to provisions for Unit Price Work).

Contract Times–The Contract Times for the entire Work are the periods allowed, including authorized adjustments, for Substantial Completion and final completion of the Work. The Contract Times for a designated portion of the Work are the periods allowed for Substantial Completion and final completion of any such portion of the Work, as specified in the Contract Documents.

Contractor–Business enterprise with which the **Owner** has entered into the Contract.

Correction Period–Period during which the **Contractor** must, in accordance with the Contract Documents, (a) correct or, if rejected, remove and replace Defective Work, and (b) maintain warranties for materials and equipment in full force and effect.

Cost of the Work Involved–The sum of all costs that would be, or actually were, necessarily incurred by the **Contractor** in providing any Work Involved with the related change, less the costs that would be, or would have been, incurred by the **Contractor** to provide such Work without the related **change**.

Defective–As determined by the Professional, an adjective which when referring to or when applied to the term "Work" refers to (a) Work not conforming to the Contract Documents or not meeting the requirements of an inspection, test or approval, or (b) Work itemized in a Punch List which the **Contractor** fails to complete or correct within a reasonable time after issuance of the Punch List by the **Professional**.

Delay–Any act or omission or other event that in any manner adversely affects or alters the schedule, progress or completion of all or any part of the Work. Delay is a generic term intended to include deferral, stoppage, slow down, interruption and extended performance, and all related hindrance, rescheduling, disruption, interference, inefficiency and productivity and production losses.

Department (DTMB)–Department of Technology, Management and Budget of the State of Michigan.

Director is the Director of the **Department.**

Director-SFA is the Director of **DTMB** State Facilities Administration.

Director-DCD is the Director of **DTMB** State Facilities Administration, Design and Construction Division.

Division–Each of the numbered, distinct parts (starting with Division 0) into which the Specifications are divided.

Drawings–Part of the Contract Documents showing the Work. Drawings must neither serve nor be used as Shop Drawings.

Emergency–A condition affecting the safety or protection of persons, or the Work, or property at or adjacent to the site.

State Facilities Administration (SFA)-Entity in the **Department** responsible for design, construction, and operations and maintenance of facilities.

Fee for the Work Involved (Fee)–An established, percentage mark-up on the Cost of the Work Involved which is allowed to the **Contractor** for (a) reasonable administrative costs, and (b) negotiated, reasonable profit on the Cost of the Work Involved.

Hazardous Material–Asbestos containing materials (ACMs), Polychlorinated biphenyls (PCBs), petroleum products, such construction materials as paint thinners, solvents, gasoline, oil, etc., and any other like material the manufacture, use, treatment, storage, transportation or disposal of which is regulated by federal, State or local Laws governing the protection of public health, natural resources or the environment.

Invitation To Bid (ITB) -The solicitation document presenting the terms and conditions that will become part of the Contract when the Bid is accepted.

Law(s)–Means federal, State and local statutes, ordinances, orders, rules and/or regulations.

MCL–The Michigan Compiled Laws of the State of Michigan.

Means and Methods–Includes means, methods, techniques, sequences and/or procedures applicable to the Work.

Notice of Award–Written notice accepting the Bid to the lowest responsive, responsible Bidder and designating the Contract Price (and establishing the Alternates accepted by the **Owner**).

Notice-to-Proceed–Written notice issued by the Project Director directing the Contractor to commence the construction activities and establishing the start date of the Contract Time.

On-Site Inspection–The **Professional's** on-site examination of the **Contractor's** completed or in progress Work to determine and verify to the Project Director that the quantity and quality of all Work complies with the requirements of the Contract Documents.

Owner–The State of Michigan, with whom the **Contractor** has entered into the Contract and for whom the Work is to be provided.

Owner Field Representative–A State employee or consultant, acting collaboratively with the Project Director, providing on-site, periodic observation and documentation of the Work for compliance with the Contract Documents.

Partial Use–Use by the **Owner** of a designated portion of the Work before accomplishing Substantial Completion of the entire Work. Partial Use does not mean Substantial Completion of the portion of the Work placed in use by the **Owner**.

Person–Individuals, partnerships, corporations, receivers, trustees, joint ventures or any other legal entity and any combinations of any of them.

Political Subdivision–Any county, city, village or other local unit of the State, including any agency, department or instrumentality of any such county, city, village or other local unit.

Post–Bid Submittal–A Qualification Submittal required of the Bidder selected under Section 00100 - 22 before Contract Award, and which is used by the Owner in the evaluation of the Bid of the selected Bidder.

Professional Services Contractor *(PSC or* ***Professional****)*–The individual or business entity who has the authority to practice the design disciplines required by the Contract Documents. An Agency with appropriate licensing may replace the PSC in their role if a consultant is not used.

Project–The total construction, which includes the Work and possibly other work completed by others, as indicated in the Contract Documents.

Project Director*-D*esignated State employee(s) (a) Responsible for directing and supervising the **Professional's** services during the period allowed for completion of the Work; and/or (b) Acting as representative for the **Owner** and for the enforcement of the Contract Documents, approving payment to the **Contractor** and coordinating the activities of the State, **Owner, Professional** and **Contractor.**

Project Schedule–Work Schedule that shows the **Contractor's** approach to planning, scheduling and execution of the Work and that accurately portrays completed Work as to sequencing and timing, as provided in the Contract Documents.

Project Specifications–The Contract Documents organized into Divisions. "Technical Specifications" means Divisions of the Specifications consisting of technical descriptions of materials, equipment, construction systems, standards and workmanship.

Provisionary Allowance–An amount included within the Contract Price to reimburse the **Contractor** for the cost to furnish and perform Work that is uncertain because, for example, it is indeterminate in scope and may not be shown or detailed in the Contract Documents.

Punch List–A list of minor items to be completed or corrected by the **Contractor,** any one of which do not materially impair the use of the Work for its intended purpose.

Qualified Disabled Veteran (QDV)-*QDV as defined by* Public Act 22 of 2010, MCL 18.1241.3 and supported by a DD214 Proof of Service and Discharge, a Veterans Administration rating decision letter, proof of disability (if the disability is not indicated on the DD214), and appropriate legal documents setting forth the 51% natural persons QDV ownership.

Record Documents–Drawings, Specifications, Addenda, Change Orders, Change Authorizations, Bulletins, inspection, test and approval reports, photographs, written clarifications and interpretations and all other documents recording, or annotated to show, all revisions and deviations between the as-built installation and the Contract Documents, all approved Submittals and all clarifications and interpretations.

Records–Books, reports, documents, electronic data, and other evidence relating to the bidding, award and furnishing and performance of the Work.

Recycled Material–Recycled paper products, structural materials made from recycled plastics, re-refined lubricating oils, reclaimed solvents, recycled asphalt and concrete, recycled glass products, re-treaded tires, ferrous metals containing recycled scrap metals and all other materials that contain (a) waste materials generated by a business or consumer, (b) materials that have served their intended purpose, and/or (c) materials that have been separated from solid waste for collection, recycling and disposition in the percentage determined by the State as provided by Law.

Request for Payment–The form provided by the **Owner** (Payment Request DTMB-0440) to be used by the **Contractor** in requesting payment for Work completed, which must enclose all supporting information required by the Contract Documents.

Schedule of Values–A schedule of pay items, which subdivides the Work into its various parts and which details, for each itemized part, cost and pricing information required for making payments for Work performed. The sum of all pay item costs in the Schedule of Values must equal the Contract Price for the Work.

Shop Drawings–Includes drawings, diagrams, illustrations, standard schedules, performance charts, instructions and other data prepared by or for the **Contractor** to illustrate some part of the Work, or by a Supplier and submitted by the **Contractor** to illustrate items of material or equipment.

Soil Erosion and Sedimentation Control–The planning, design and installation of appropriate Best Management Practices designed and engineered specifically to reduce or eliminate the off-site migration of soils via water runoff, wind, vehicle tracking, etc. Soil erosion and sedimentation control in the State of Michigan is regulated under The Natural Resources Environmental Protection Act; Soil Erosion and Sedimentation Control, 1994 PA 451, Part 91, as amended, MCL 324.9101 et seq. Soil erosion and sedimentation control associated with this Contract is monitored and enforced by the DTMB-SFA.

State–The State of Michigan in its governmental capacity, including its departments, divisions, agencies, boards, offices, commissions, officers, employees and agents. Non-capitalized references to a state refer to a state other than the State of Michigan.

State Construction Code–The Michigan State Construction Code Act, 1972 PA 230, as amended, MCL 125.1501 et seq.

Subcontractor–A Person having an agreement with the Contractor to provide labor at the site and furnishing materials and/or equipment for incorporation into the Work.

Submittals–Includes technical Submittals, Progress Schedules and those other documents required for submission by the Contract Documents. The term "technical Submittal" includes Shop Drawings, brochures, samples, Operation and Maintenance (O&M) Manuals, test procedures and any other Submittal the Contract Documents require the **Contractor** to submit to demonstrate how the items covered, after installation or incorporation into the Work, will conform to the information given in the Contract Documents and be compatible with the design of the completed Work as a functioning whole as indicated in the Contract Documents.

Substantial Completion–The Work, or a portion of the Work designated in the Contract Documents as eligible for separate Substantial Completion, has been completed in accordance with the Contract Documents as determined by the PSC, to the extent that the **Owner** can use or occupy the entire Work, or the designated portion of the Work, for the use intended without any outstanding, concurrent Work at the site, except as may be required to complete or correct Punch List items.

Supplier–A manufacturer or fabricator, or a distributor, material man or vendor representing a manufacturer or fabricator, who has an agreement with the Contractor to furnish materials and/or equipment.

Underground Utilities–Pipelines, piping, conduit, duct, cables, wells, tanks, tunnels and appurtenances, or other similar facilities, installed underground to convey or support conveyance of potable water, sprinkler or irrigation water, fire protection systems, electricity, gases, steam, petroleum products, sewerage and drainage removal, telephone, communications, cable TV, traffic or control systems.

Unit Price Work–Work involving specified quantities (i.e., related Work quantities) which when performed is measured by the **Professional** and paid using the measured quantities and unit prices contained in the Contract Documents. Performance of Unit Price Work for undefined quantities is contingent upon conditions encountered at the site, as determined and authorized by the **Professional**.

Unit Price Work, Specified–Work of specified and defined quantities (i.e., quantities are detailed in, and can be taken-off from, the Contract Documents) that when performed is measured by the **Professional** and paid based on the measured quantities and unit prices contained in the Contract Documents.

Work (as in *"the Work,"* "*the entire Work"*)–The entire *completed Construction* required by the Contract Documents. The Work results from furnishing and performing all services, obligations, responsibilities, management, supervision, labor, materials, equipment, construction equipment, general conditions, permits, taxes, patent fees and royalties, testing, inspection and approval responsibilities, warranties, temporary facilities, small tools, field supplies, Bonds, insurance, mobilization, close-out, overhead and all connections, devices and incidental items of any kind or nature required and/or made necessary by the Contract Documents.

Work Involved, any Work Involved–Existing or prospective Work (a) reflected in any notice, proposal or claim, or (b) reflected in changes ordered or in process, or (c) affected by Delay.

APPENDIX II

SPECIAL WORKING CONDITIONS

DEPARTMENT OF NATURAL RESOURCES

The Work comprising this Project will be performed at a site of the Department of Natural Resources. The Contractor must comply with all rules and regulations pertaining to such sites and must conform to the following rules:

1. The Contractor must provide a competent Superintendent satisfactory to the Department of Natural Resources on the work site at all times during working hours with full authority to act for him. It must be the Contractor's responsibility to furnish the Department of Natural Resources with the name, address and telephone number of the responsible person to contact for Emergency during after hour, weekend and holiday periods.

2. Access to and egress from the site must be via routes specifically designated by the Department of Natural Resources authorized representative.

3. All work will be coordinated so as to minimally interfere with the normal function of the boating access site which will be open and operational between the spring opening and fall closing. Specifically,

4. Areas on the site for employee parking, tool boxes, material lay down, etc., must be assigned by the Department of Natural Resources. All firearms, weapons, alcoholic beverages, or explosives must be removed from vehicles before entering the site.

5. Heavy equipment such as bulldozers and power shovels must be locked or immobilized in an acceptable manner when not in use. No tools, small pipe, copper or wire must remain on the site overnight, unless acceptably locked inside shanties or tool chests. There will be no exchange, loaning or borrowing of tools, equipment or manpower between the Department of Natural Resources and the Contractor.

6. The Contractor must comply with the special condition requirements of the Department of Natural Resources and the United States Army Corps of Engineers Permit Sections appended to these specifications.

7. Work Schedule: Contractor may work from 7 am to 7 pm 7 days a week.

APPENDIX III

SPECIAL PROJECT PROCEDURES

SOIL EROSION AND SEDIMENTATION CONTROL PROJECT PROCEDURES FOR CONTRACTORS ON DTMB OWNED AND MANAGED PROPERTIES

1. Comply with Part 91, Soil Erosion and Sedimentation Control of the Natural Resources and Environmental Protection Act 1994 PA 451, as amended.
2. Contact the DTMB, SFA, Design and Construction Division to discuss the implementation of soil erosion and sedimentation control (SESC) on the Project with DTMB SESC Officer. Phone **(517) 388-3045** or Email mcgarryc@michigan.gov.
3. Following the award of a contract, the Contractor will be required to prepare and issue for approval an SESC Implementation Plan, which indicates the Contractor's intended implementation of SESC on the project including a schedule and sequence. The Environmental Health and Safety Section, upon approval of the implementation plan, will issue to the Contractor an "Authorization to Proceed with Earth Change" document, which is to be posted at the job site. This document is issued in lieu of a permit from the county. Earthwork shall not begin prior to the issuance of this Authorization. Upon receipt of the Authorization document, the Contractor may begin earth change activities.
4. See below the "Checklist for Contractor's SESC Implementation Plan" for details of the required information necessary for the Contractor to create the SESC Implementation Plan. The intent of this plan is to ensure that the Contractor has reviewed and understands the SESC provisions within the plans and specifications.
5. CHECKLIST FOR CONTRACTOR'S SOIL EROSION AND SEDIMENTATION CONTROL IMPLEMENTATION PLAN (For projects that include earth changes or disturb existing vegetation):

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION, DESIGN AND CONSTRUCTION DIVISION
SOIL EROSION AND SEDIMENTATION CONTROL PROGRAM
P.O. Box 30026, Lansing, Michigan 48909

PROJECT TITLE:
PROJECT LOCATION:
PROJECT FILE NUMBER:
INDEX NUMBER:

Prior to the start of earthwork, the Contractor must submit a Soil Erosion and Sedimentation Control (SESC) Implementation Plan to the Michigan Department of Technology, Management and Budget, Soil Erosion and Sedimentation Control Program. The intent of this plan is to ensure that the Contractor has reviewed and understands the SESC provisions within the plans and specifications. The following checklist will provide Contractors with assistance in creating the SESC Implementation Plan.

The SESC Implementation Plan must include:

1. ☐ A written plan or letter demonstrating:
   - ☐ The Contractor's means and methods for the implementation of SESC provisions included within the plans and specifications and compliance with the provisions of Part 91 of PA 451 of 1994, as amended.
   - ☐ The Contractor's plan for dust control.
   - ☐ The Contractor's plan for inspection and maintenance of temporary SESCs.

2. ☐ A map, location plan, drawing, or amended copy of the Project SESC or grading plan showing:
   - ☐ The locations of any stockpiles of soil associated with the Project
   - ☐ The temporary SESC controls associated with stockpiles of soil
   - ☐ The Contractor's suggested or proposed additions or relocations of any temporary or permanent SESCs. associated with the Project plans and specifications (subject to approval by Engineer and DTMB)
   - ☐ Location of site entrances, exits and vehicle routes
   - ☐ Location of site superintendent's/project manager's site trailer or office (for SESC Inspector check-in)

3. ☐ A schedule for the installation and removal of temporary controls and the installation of permanent soil erosion and sedimentation controls in relation to the overall construction schedule.

Submit the above items to the above address.

Upon approval of the Contractor's plan, an "Authorization to Proceed with Earth Change" will be issued by DTMB, Design and Construction Division.

DEMOLITION/REMODELING PROJECT PROCEDURES

Furnish all equipment, materials, labor and services necessary to complete all building demolition required in connection with the existing building, in order to permit the installation of new Work. The goal of the Owner is to generate the least amount of waste or debris possible. However, inevitable waste and debris that are generated shall be reused, salvaged, or recycled, and disposal in landfills shall be minimized to the extent economically feasible. The Contractor will be required to prepare waste management plan for the collection, handling, storage, transportation and disposal of the waste generated at the construction site for the Owner's review and approval. The Contractor will be required to produce waste management progress reports.

1. Locations: Notations are made in various places on the Drawings to call attention to building demolition which is required; however, these Drawings are not intended to show each and every item to be removed. The Contractor and the Subcontractors for the various trades must remove the materials related to their respective trades as required to permit the construction of the new Work as shown.

2. Permits: The Contractor must secure from the appropriate agencies all required permits necessary for proper execution of the work before starting work on the project site. All fees for securing the permits must be paid by the Contractor, including all inspection costs which may be legally assessed by the Bureau of Construction Codes in accordance with the authority granted under the Public Act 1980 PA 371, as amended.

3. Enclosures: Where it is necessary to make alterations to walls, floors or roof of the existing building, the Contractor must provide and maintain dustproof partitions to separate the parts where Work is being done from the adjoining parts occupied by the State Agency. Where any parts are opened and exposed to the elements, the Contractor must provide weather tight enclosures to fully protect the structure and its contents.

4. Waste Management Plan: The management plan must address waste source identification and separation, returns, reuse and salvage, recycling, landfill options, alternatives to landfilling, materials handling procedures and transportation.

5. Preparation: Protect all existing Work that is to remain and restore in an approved manner any such Work that becomes damaged.

   5.1 Rubbish and debris resulting from the Work must be removed immediately from the site by the Contractor. However, any recyclable materials must be recycled; the Contractor will be required to use alternatives to landfills for waste disposal such as reuse or recycle of asphalt, bricks, concrete, masonry, plastics, paint, glass, carpet, metals, wood, drywall, insulation and any other waste materials to the extent practical.

   5.2 Unless otherwise specified, the Agency will remove existing furniture, drapery tracks, draperies, window blinds, and other equipment items, which might interfere with the new construction.

6. Coordination: Demolition work, in connection with any new unit of Work, must not be commenced until all new materials required for completion of that new item of Work are at hand.

7. Waste Management Plan Progress Reports: Submit an updated report with the payment requests. The progress reports shall include:
   a. The amount of waste sent to a landfill, tipping fees paid and the total disposal cost. Include supporting documents such as manifests, weight tickets, receipts and/or invoices.
   b. Records for each material recycled/reused/salvaged from the project including the amount, date removed from the job site, final destination, transportation cost, recycled materials and the net cost/ savings.
   c. Breakdown of waste by type generated to date.
   d. Recycling/salvage/landfill rates.
   e. Percent of waste recycled/salvaged to date.

HAZARDOUS MATERIALS PROJECT PROCEDURES

1. The Contractor must use, handle, store, dispose of, process, transport and transfer any material considered a Hazardous Material in accordance with all Federal, State and local Laws. If the Contractor encounters material reasonably believed to be a Hazardous Material and which may present a substantial danger, the Contractor must immediately stop all affected work, give written notice to the Owner of the conditions encountered, and take appropriate health and safety precautions.

2. This project has been identified by the DTMB-SFA as having a possibility of containing Hazardous Waste materials to be legally removed from the Project job site in order to complete the Work as described in the Proposal And Contract. If removal of friable asbestos material is required, the Contractor must contact the Air Quality Division, Department of Environmental Quality, at **(5I7) 284-6773**, for a permit and furnish all training, labor, materials, services, insurance, and equipment necessary to carry out the removal operations of all Hazardous Materials from the Project job site, as identified by the Scope of Work, or encountered on the Project job site, in accordance with State and Federal Hazardous Waste Codes. A Contract Change Order will be written to modify the existing Contract to pay for the additional cost.

3. Environmental Hazards (air, water, land and liquid industrial) are handled by the Waste and Hazardous Materials Division, Michigan Department of Environmental Quality (DEQ) in carrying out the requirements of the Federal Environmental Protection Agency (EPA). For general information and/or a copy of the latest regulations and publications call (517) 335-2690.

4. The Michigan Occupational Safety and Health Administration (MIOSHA) provides protection and regulations for the safety and health of workers. The Department of Licensing and Regulatory Affairs provides for the safety of workers. The Department of Community Health provides for the health of workers (517/373-3740) (TDD 517/373-3573).

   4.1 Contractor must post any applicable State and/or Federal government regulations at the job site in a prominent location.

   4.2 Contractor must be responsible for training their workers in safe work practices and in proper removal methods when coming in contact with hazardous chemicals.

5. Applicable Regulations:

   5.1 Natural Resources and Environmental Protection Act – PA 451 of 1994, as amended, including Part 111 – Hazardous Waste Management, Part 121 – Liquid Industrial Waste and Part 147 – PCB compounds.

   5.2 RCRA, 1976 - Resource Conservation and Recovery Act: This federal statute regulates generation, transportation, treatment, storage or disposal of hazardous wastes nationally.

   5.3 TSCA, 1979 – Toxic Substances Control Act: This statute regulates the generation, transportation, storage and disposal of industrial chemicals such as PCBs.

6. Definitions: Hazardous substances are ignitable, corrosive, reactive, and/or toxic, based on their chemical characteristics.

   6.1 Under Federal and Michigan Law, a Small Quantity Generator of hazardous waste provides from 220 to less than 2,000 lbs./month or never accumulates 2,200 lbs. or more.

   6.2 A Generator size provider of hazardous waste provides 2,200 lbs. or more/month or accumulates above 2,200 lbs.

7. Disposals: To use an off-site hazardous waste disposal facility, the Contractor must use the Uniform Hazardous Waste Manifest (shipping paper). Small quantities of hazardous waste may not be disposed of in sanitary landfills used for solid waste.

8. Federal, State and local Laws and regulations may apply to the storage, handling and disposal of Hazardous Materials and wastes at each State Agency. Contact the **Environmental Assistance Center** of the Michigan Department of Environmental Quality (MDEQ) at **1-800-662-9278**, Fax to: 517-241-0673 or e-mail to: DEQ-EAD-env-assist@michigan.gov for general MDEQ information including direct and referral assistance on air, water and wetlands permits; contaminated site clean-ups; underground storage tank removals and remediation; hazardous and solid waste disposal; pollution prevention and recycling; and compliance-related assistance. The Center provides businesses, municipalities, and the general public with a single point of access to MDEQ's environmental programs.

ASBESTOS ABATEMENT PROJECT PROCEDURES

Should this Work require the renovation or demolition of a building or structure initially constructed on or prior to 1980, the Contractor will use the attached copy of a Comprehensive Asbestos Building Survey for those portions of the building or structure being impacted and must plan his or her work to minimize disturbance of any known or assumed asbestos containing materials (ACM). In addition, if this building or structure was constructed on or prior to 1980, the Contractor's On-Site Superintendent and all Subcontractor On-Site Superintendents for trades that could potentially disturb known or assumed ACM, must, as a minimum, have and provide documentation of current Asbestos Awareness Training.

If the Comprehensive Asbestos Building Survey identifies known or assumed ACM that will potentially be disturbed as a part of the Contractor's renovation or demolition activities, the Contractor must remove, transport and dispose of these materials at no additional cost to the Owner and prior to any other work taking place within the immediate vicinity of said material. If required, the Contractor must provide the Owner a minimum of 10 working day notification prior to the start of any asbestos abatement activities with abatement in occupied buildings being completed even if they will be conducted during off hours (nights, weekends and state holidays).

If the Contractor encounters a suspected ACM that was not previously identified within the Comprehensive Asbestos Building Survey, the Contractor must immediately stop all affected work, give written notice to the Owner of the conditions encountered, and take appropriate health and safety precautions. If, after providing Owner notification, the Contractor is directed to sample and/or remove the suspected ACM in question, a Contract Change Order will be written to modify the existing Contract to pay for the additional cost. Any abatement shall be completed in accordance with the requirements of this Section.

If removal of ACM is required, removal must be completed by a contractor currently licensed to remove asbestos by the State of Michigan, Department of Licensing and Regulatory Affairs (DLARA) Asbestos Program and abatement must be performed in accordance with all Federal, State and local Laws and Regulations. Prior to commencing any asbestos abatement activities, the licensed abatement contractor must submit, as required by Federal, State and Local Laws and Regulations, a "Notification of Intent to Renovate/Demolish" to both the State of Michigan, Department of Environmental Quality (DEQ), Air Quality Division and to the DLARA, Asbestos Program, to comply with National Emission Standards for Hazardous Air Pollutants (NESHAP), and the Clean Air Act (CAA). All regulated ACM must be disposed of at an approved Type II (general refuse) landfill and must be in leak-tight wrapping or containers. ACM that is non friable and is not in poor condition or will not become regulated ACM at any time can be disposed of in a Type III (construction debris) landfill.

At the completion of each abatement activity, the Contractor must perform clearance testing in accordance with National Institute for Occupational Safety and Health (NIOSH) 582 "Sampling and Evaluating Airborne Asbestos Dust". All air samples shall indicate concentrations of less than 0.01 fibers/cc for clearance to be met. Clearance testing shall be performed by a third party Asbestos Consultant. The Asbestos Consultant selected by the Contractor shall be experienced and knowledgeable about the methods for asbestos air sampling and be able to select representative numbers and locations of samples. It is mandatory that the Asbestos Consultant's on-site hygienist performing sampling and analysis have certification that he/she has passed a NIOSH 582 or equivalent course.

The NESHAP asbestos regulations, notification form, guidelines and fact sheets are available on DEQ's web site www.michigan.gov/deq under heading Air; then click on Asbestos NESHAP Program. For guidelines on submitting notifications pursuant to the Asbestos Contractors Licensing Act, contact the DLARA, Occupational Health Division, Asbestos Program at (517) 322-1320 or visit DLARA's web site www.michigan.gov/asbestos.

LEAD ABATEMENT PROJECT PROCEDURES

Should this Work require the renovation or demolition of a building or structure, the workers are assumed to be exposed to lead or materials containing lead above acceptable levels until proven otherwise through personal air sampling and analysis. The Contractor shall take all steps necessary to assure that his/her employees, are not exposed to lead at concentrations greater than the Permissible Exposure Limit as per the State of Michigan Department of Licensing and Regulatory Affairs Occupational Health Standards Part 603 “Lead Exposure in Construction”. In addition, the Contractor shall convey this same requirement to all subcontractors that may be under his/her control.

The employer shall comply with the Michigan Lead Abatement Act, as amended, and the Lead Hazard Control rules and must communicate information concerning lead hazards according to the requirements of Michigan Occupational Safety and Health Administration (MIOSHA) Part 603 and the Occupational Safety and Health Administration’s (OSHA's) Hazard Communication Standard for the construction industry, 29 CFR 1926.59, including but not limited to safety equipment (e.g. personal fit-tested and approved respirators and protective clothing), worker rotation (on a short-cycle and regular basis), working practices (e.g. sanding, cutting, grinding, abraded, burning and heat-gun stripping of lead based paint are not allowed), the requirements concerning warning signs and labels, Safety Data Sheets (SDS), and employee information and training. Employers shall comply with the requirements of 29 CFR 1926.62(l) - Employee Information and Training.

If lead or materials containing lead will be disturbed as a part of the work to be performed, the Contractor must remove, transport and dispose of these materials at no additional cost to the Owner and prior to any other work taking place within the immediate vicinity of said material. The Contractor must provide the Owner a minimum 10 working day notification prior to the start of any lead abatement activities with abatement in occupied buildings being completed even if they will be conducted during off hours (nights, weekends and state holidays). Abatement is defined as an activity specifically designed to permanently remove lead paint, lead-contaminated dust or other lead containing materials, the installation of a permanent enclosure or encapsulation of lead paint or other lead containing materials, the replacement of lead-painted surfaces or fixtures, the removal or covering of lead-contaminated soil, and any preparation, cleanup, disposal and post-abatement clearance testing associated with these activities. Renovation, remodeling, landscaping, or other activity, that is not designed to permanently eliminate lead paint hazards, but is instead designed to repair, restore, or remodel a structure, or housing unit even though the activity may incidentally result in a reduction or elimination of a lead paint hazard is not considered abatement.

If abatement of lead or materials containing lead is required, abatement must be completed by a currently certified Lead Abatement Contractor as certified by the State of Michigan, Department of Community Health. In addition, the Lead Abatement Contractor’s workers and supervisors must also be currently certified by the State of Michigan, Department of Community Health. Lead abatement including clearance testing shall be performed in accordance with the State of Michigan, Lead Abatement Act, Part 54A Lead Abatement and with all other Federal, State and local Laws and Regulations that may apply. Prior to commencing any lead abatement activities, the abatement must be designed by a currently certified Lead Professional Project Designer. At the completion of abatement, the abated area shall meet clearance requirements with clearance testing to be performed by a Clearance Technicians currently certified by the State of Michigan Department of Community Health.

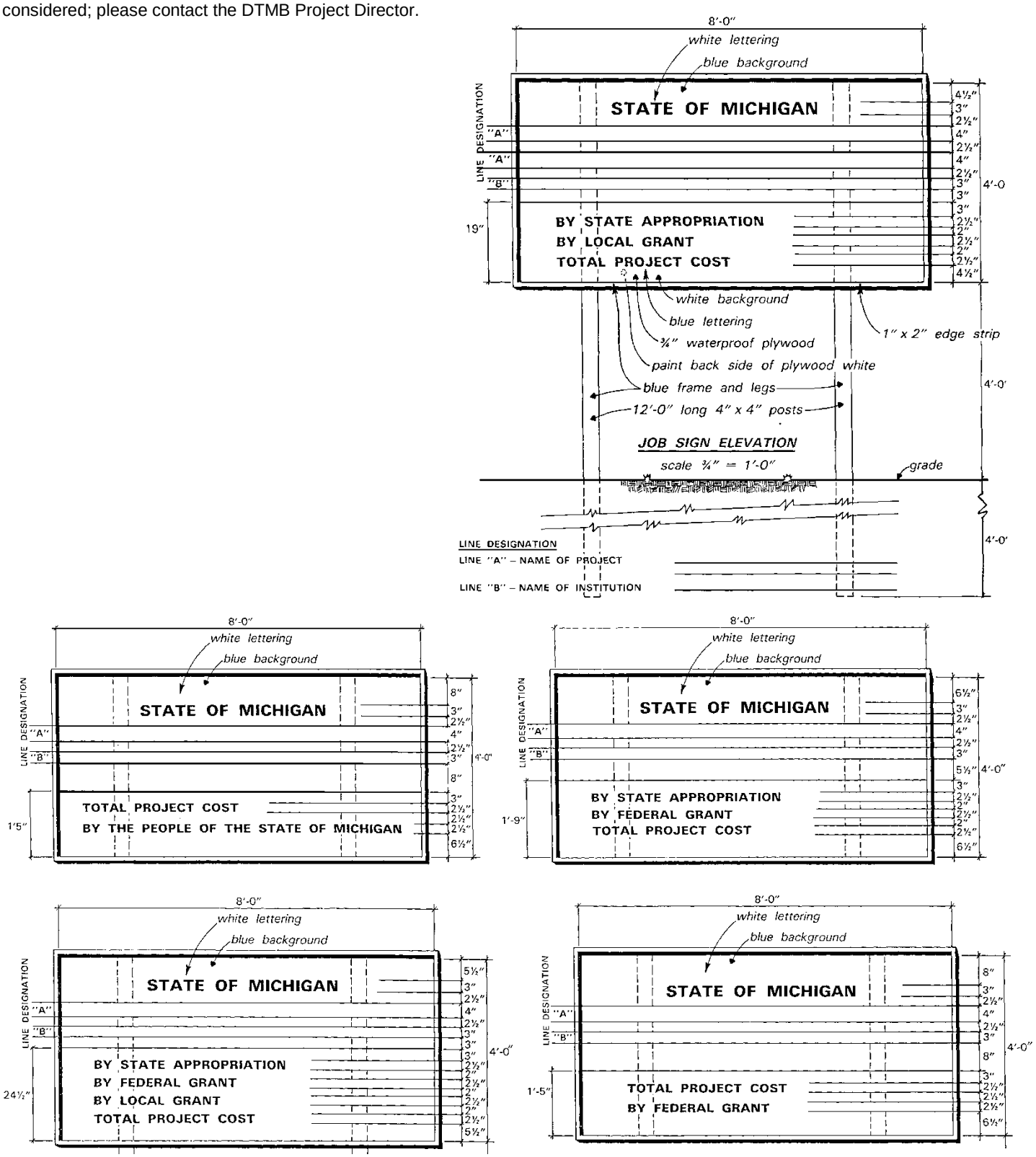
For additional information about certifications, guidance and regulations for lead hazard control activities, visit www.michigan.gov/leadsafe.

APPENDIX IV

PROJECT SIGN FOR PROJECTS COSTING IN EXCESS OF $500,000
Not Required

PROJECT SIGNS – PROJECTS IN EXCESS OF $500,000

Five examples of project signs. Sign lettering corresponds with the funding arrangement of the project. Alternate signs may be considered; please contact the DTMB Project Director.



APPENDIX V

EGLE PERMIT

EGLE

NOTICE OF AUTHORIZATION

Permit Number: WRP019613 v. 1 **Date Issued: November 20, 2019**
Site Name: 21-Fish Dam Creek crossing-Garden Twp **Expiration Date: November 20, 2024**

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, P.O. Box 30458, Lansing, Michigan 48909-7958, under provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; specifically:

- ☒ Part 31, Floodplain Regulatory Authority of the Water Resources Protection.
- ☒ Part 301, Inland Lakes and Streams.
- ☒ Part 303, Wetlands Protection.
- ☐ Part 315, Dam Safety.
- ☐ Part 323, Shorelands Protection and Management.
- ☐ Part 325, Great Lakes Submerged Lands.
- ☐ Part 353, Sand Dunes Protection and Management.

Authorized activity:

Excavate approximately 204 cubic yards of roadbed, then 2 feet below existing stream bed for removal of existing culverts. Place bedding gravel in streambed, and place new 46' long x 9.5' wide x 6.4' high concrete box culvert. Backfill culverts, and place 44 cubic yards of riprap for inlet and outlet stabilization, and an additional 15 cubic yards of riprap for slope stabilization.

All work shall be completed in accordance with the attached plans and the terms and conditions of this permit dated 11/20/2019.

To be conducted at property located in: Delta County, Waterbody: Little Fishdam Creek
Section 02, Town 40N, Range 18W, Garden Township

Permittee:
Michigan Department of Natural Resources
M-28, P.O. Box 67
Shingeton, MI 49884

Sean Soucy
Marquette District Office
Water Resources Division
906-250-0588

This notice must be displayed at the site of work.
Laminating this notice or utilizing sheet protectors is recommended.
Please refer to the above permit number with any questions or concerns.

EGLE-WRD
WRP019613 v1.0
Approved
Issued On:11/20/2019
Expires On:11/20/2024

EGLE

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
WATER RESOURCES DIVISION
PERMIT

Issued To:

Michigan Department of Natural Resources
Bob Burnham
M-28, P.O. Box 67
Shingeton, MI 49884

Permit No:	**WRP019613 v.1**
Submission No.:	**HNS-CSCS-06G01**
Site Name:	**21-Fish Dam Creek crossing-Garden Twp**
Issued:	**November 20, 2019**
Expires:	**November 20, 2024**

This permit is being issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); specifically:

- ☒ **Part 301, Inland Lakes and Streams**
- ☒ **Part 303, Wetlands Protection**
- ☐ **Part 315, Dam Safety**
- ☐ **Part 323, Shorelands Protection and Management**
- ☐ **Part 325, Great Lakes Submerged Lands**
- ☐ **Part 353, Sand Dunes Protection and Management**
- ☒ **Part 31, Water Resources Protection (Floodplain Regulatory Authority)**

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Authorized Activity:

Excavate approximately 204 cubic yards of roadbed, then 2 feet below existing stream bed for removal of existing culverts. Place bedding gravel in streambed, and place new 46' long x 9.5' wide x 6.4' high concrete box culvert. Backfill culverts, and place 44 cubic yards of riprap for inlet and outlet stabilization, and an additional 15 cubic yards of riprap for slope stabilization.

All work shall be completed in accordance with the attached plans and the terms and conditions of this permit dated 11/20/2019.

Waterbody Affected:	Little Fishdam Creek
Property Location:	Delta County, Garden Township, Town/Range/Section 40N18W02

Authority granted by this permit is subject to the following limitations:

A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.

EGLE-WRD
WRP019613 v1.0
Approved
Issued On:11/20/2019
Expires On:11/20/2024

B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31 of the NREPA.
C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with 2013 PA 174 (Act 174) and comply with each of the requirements of Act 174.
G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
I. This permit shall not be assigned or transferred without the written approval of EGLE.
J. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
K. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31 of the NREPA, and wetlands).
L. In issuing this permit, EGLE has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, EGLE may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
M. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the state: (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the state, and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act, 1969 PA 306, as amended, challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
N. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, EGLE may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
O. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from EGLE. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by EGLE prior to being implemented.
P. This permit may be transferred to another person upon written approval of EGLE. The permittee must submit a written request to EGLE to transfer the permit to the new owner. The new owner must also submit a written request to EGLE to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties that includes all the above information may be provided to EGLE. EGLE will review the request and, if approved, will provide written notification to the new owner.
Q. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.

EGLE-WRD
WRP019613 v1.0
Approved
Issued On:11/20/2019
Expires On:11/20/2024

R. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
S. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA).
T. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
U. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
V. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the water body are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
W. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the Michigan Department of Natural Resources, Fisheries Division.
X. Work to be done under authority of this permit is further subject to the following special instructions and specifications:
    1. Authority granted by this permit does not waive permit or program requirements under Part 91 of the NREPA or the need to acquire applicable permits from the CEA. To locate the Soil Erosion Program Administrator for your county, visit www.mi.gov/eglestormwater and select "Soil Erosion and Sedimentation Control Program" under "Related Links."
    2. The proposed 100-year floodplain elevation of the Little Fish Dam River is 637.9 ft. NGVD 29 at the stream crossing site.
    3. All materials remaining upon completion of the project shall be relocated to outside of the 100-year floodplain.
    4. Riprap shall be installed such that it will not narrow up the stream or interfere with flows into or out of the culvert.
    5. Any temporary dam constructed as part of this project shall have the dam crest placed at such an elevation that the dam will not cause upstream flooding in the event of high flow conditions. In no case shall the crest be set at an elevation greater than two feet above the ordinary high-water mark of the stream. "Ordinary high water mark" means the line between upland and bottomland that persists through successive changes in water levels, below which the presence and action of the water is so common or recurrent that the character of the land is marked distinctly from the upland and is apparent in the soil itself, the configuration of the surface of the soil, and the vegetation. The dam shall be removed within 14 days of placement.
    6. During work on the culvert, and until the site is stabilized, the stream shall be blocked off with clean stone and/or gravel bags and the water pumped around the crossing. Water shall be discharged into the watercourse with appropriate treatments to remove suspended particles and to dissipate energy. An extra pump shall be kept on site in the event of failure.
    7. The placement of the new culvert and the initial placement of fill in the stream shall be done in the dry or in such a manner that all flow is immediately passed through the culvert. The major placement of fill shall be done in the dry or in still water where erosion and siltation will be minimized. The fill material used in this initial placement shall be washed gravel, coarse aggregate, or rock and shall be placed at both ends of the culvert above normal water level before backfill material is placed.
    8. The culvert shall be installed to align with the center line of the existing stream at both the inlet and outlet ends and must be buried below the stream bed to provide a natural channel substrate through the structure as shown on the approved plans.
    9. All other road fill slopes, ditches, and other raw areas draining directly to the stream may be protected with riprap, sod and/or seed and mulch as may be necessary to provide effective erosion protection. The placement of riprap shall be limited to the minimum necessary to ensure proper stabilization of the side slopes and fill in the immediate vicinity of the structure.

EGLE-WRD
WRP019613 v1.0
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Issued On:11/20/2019
Expires On:11/20/2024

10. If the project, or any portion of the project, is stopped and lies incomplete for any length of time (other than that encountered in a normal work week) every precaution shall be taken to protect the incomplete work from erosion, including the placement of temporary gravel bag riprap, temporary seed and mulch, or other acceptable temporary protection.
11. No work shall be done in the stream during periods of above-normal flows except as necessary to prevent erosion.
12. The permittee is responsible for acquiring all necessary easements or rights-of-way before commencing any work authorized by this permit. All construction operations relating to or part of this project shall be confined to the existing right-of-way limits or other acquired easements.
13. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state, or federal approval or authorization necessary to conduct the activity.
14. No fill, excess soil, or other material shall be placed in any wetland, floodplain, or surface water area not specifically authorized by this permit, its plans, and specifications.
15. This permit does not authorize or sanction work that has been completed in violation of applicable federal, state, or local statutes.
16. The permit placard shall be kept posted at the work site in a prominent location at all times for the duration of the project or until permit expiration.
17. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by EGLE, will be for a five-year period beginning on the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.

Issued By: _____

Sean Soucy
Marquette District Office
Water Resources Division
906-250-0588

cc: Garden Township Clerk
Delta CEA
Aaron Jahnke, Agent
Linda Hansen, EGLE

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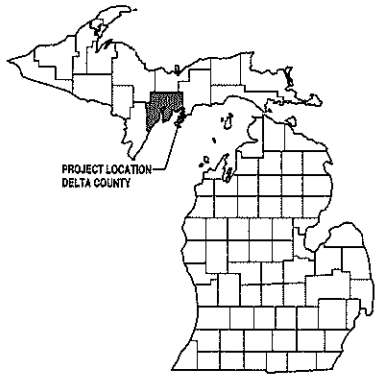
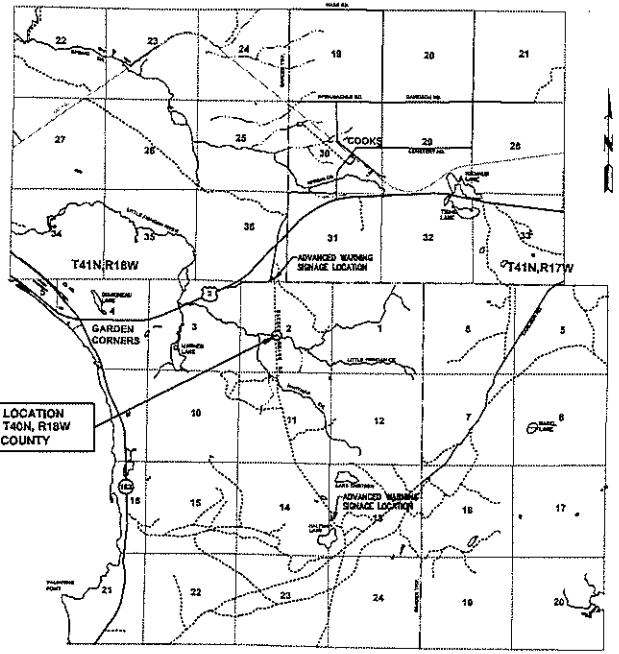
WRP019613 v1.0
Approved
Issued On:11/20/2019
Expires On:11/20/2024

MICHIGAN DEPT. OF TECHNOLOGY, MANAGEMENT & BUDGET
FISH DAM CREEK CROSSING
GARDEN TOWNSHIP, MICHIGAN
FILE NO.: 751/18306.TAP





CONTACT LIST:

DNR PROJECT DIRECTOR
THOMAS PAWLOWSKI
MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT & BUDGET

DNR FISH DAM CREEK
ROBERT BUNDHAM
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

PROFESSIONAL SERVICE CONTRACTOR
JEREMY CADNOR
PROJECT MANAGER
U.P. ENGINEERS & ARCHITECTS, INC
707 ASHMUN STREET
SAULT STE. MARIE, MICHIGAN 49783
(906) 635-0511
JCADNOR@UPEA.COM

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

GENERAL NOTES:

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

THE PROPOSED IMPROVEMENTS COVERED BY THESE PLANS ARE IN ACCORDANCE WITH AASHTO: A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2004.

THE EXISTING STRUCTURE SHALL BE CHECKED AT THE TIME OF STARTING CONSTRUCTION TO ENSURE THAT THE PROJECTS PROPOSED WORK IS AS SHOWN ON THESE PLANS. ANY DIFFERENCES REQUIRING CHANGES IN THE NEW WORK SHALL BE REPORTED TO THE PROJECT ENGINEER.

CONTRACTOR SHALL FIELD VERIFY ALL QUANTITIES.

DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

THE WORK COVERED BY THESE PLANS INCLUDES EXCAVATION, CONSTRUCTION OF PROPOSED CULVERT, PLACING STRUCTURE BACKFILL, SLOPE PROTECTION, CONSTRUCTION OF APPROACHES TO THE LIMITS SHOWN, REMOVAL OF EXISTING CULVERT, AND PLACING RIP RAP.

THE STATIONING AS SHOWN ON THESE PLANS FOR THE INTERSECTION OF THE CENTERLINE OF THE BRIDGE AND TRAIL CENTERLINE IS BELIEVED TO BE CORRECT. IT SHALL, HOWEVER, BE CHECKED AT THE TIME OF STARTING CONSTRUCTION, AND IF THE STATIONING SHOWN ON THE PLANS IS INCORRECT, IT SHALL BE REPORTED TO THE ENGINEER.

CONTRACTOR SHALL COORDINATE ALL OF THEIR WORK AND THE UTILITY COMPANIES RELOCATION WORK AT NO ADDITIONAL COST TO THE PROJECT.

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, THE CONTRACTOR SHALL DIAL "811" A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

CONTRACTOR TO PROVIDE BRIDGE OUT ROAD CLOSED SIGNAGE DURING CONSTRUCTION.

CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE FEDERAL, STATE, LOCAL AND TRIBAL LAWS.

ACCESS ROADS TO PROJECT USED BY THE CONTRACTOR SHALL BE MAINTAINED AND REPAIRED TO EXISTING OR BETTER CONDITION.

INDEX OF SHEETS

NUMBER	SHEET NAME
G100	PROJECT TITLE SHEET
C101	GENERAL PLAN AND PROFILES
C501	DETAILS

FILE NO.: 751/18306.TAP

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
FACILITIES AND BUSINESS SERVICES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ROBERT C. HALL, RA, NCARB, DIRECTOR

U.P. ENGINEERS & ARCHITECTS
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FISH DAM CREEK
CULVERT REPLACEMENT
MICHIGAN DEPT. OF NATURAL RESOURCES
DELTA COUNTY, MICHIGAN

ISSUED FOR:	DATE:
50% PLAN REVIEW	07/03/19
90% PLAN REVIEW	09/13/19
PERMIT APPROVAL	10/22/19

FISH DAM CREEK
CULVERT REPLACEMENT
MICHIGAN DEPT. OF NATURAL RESOURCES
PROJECT NO. N112-19331

DESIGNED BY: JG
DRAWN BY: JA
CHECKED: JG
APPROVED: JG

PROJECT TITLE SHEET

G001

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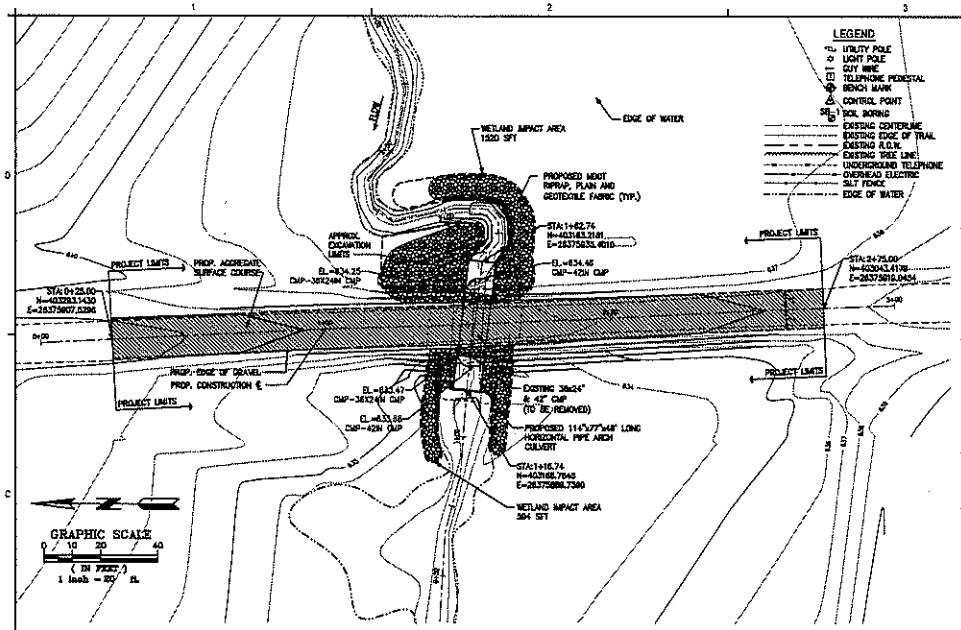
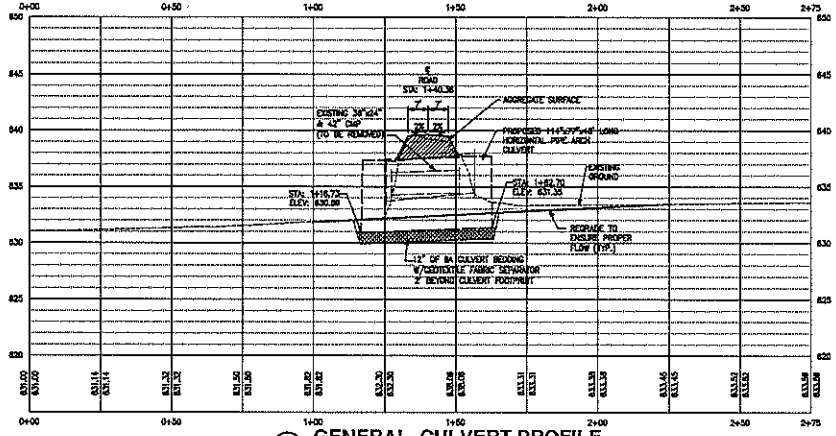


C2 **GENERAL PLAN OF SITE**
SCALE: 1" = 20'



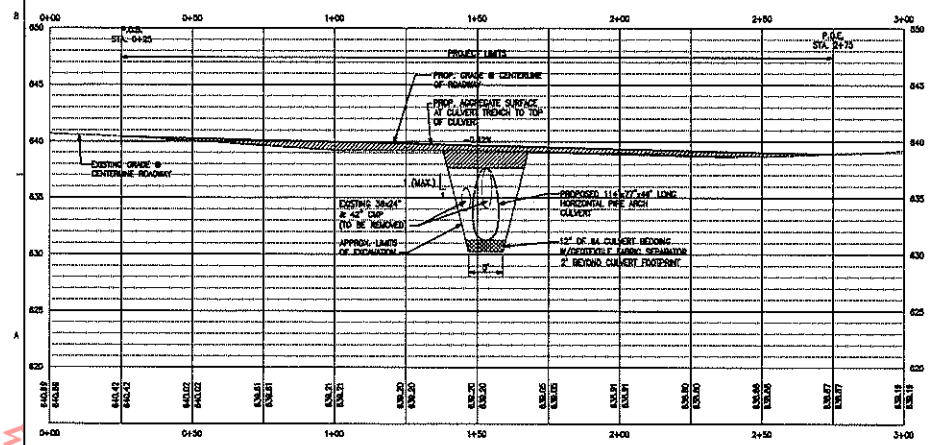
A2 **GENERAL CULVERT PROFILE**
SCALE: HORIZ.: 1" = 20'
VERT.: 1" = 5'

NOTE: ELEVATIONS ARE ALL FROM LOCAL DATUM

SUMMARY OF HYDRAULIC ANALYSIS

FLOOD DATA	DISCHARGE CUBIC FT/SEC	EXISTING		PROPOSED			
		WATER ELEVATION UPSTREAM FACE AT SURFACE OF STRUCTURE (FEET)	VELOCITY IN DOWNSTREAM CHANNEL IN FT/S	WATER ELEVATION UPSTREAM FACE AT SURFACE OF STRUCTURE (FEET)	VELOCITY IN DOWNSTREAM CHANNEL IN FT/S	WATERWAY AREA BELOW M.S. PROVIDED IN SQUARE FEET	CHANGE IN WATER SURFACE ELEVATION FROM FACE OF STRUCTURE UPSTREAM (FEET)
50-YEAR	180	639.90	3.39	636.76	3.39	48.35	-3.14
100-YEAR	250	640.23	3.62	637.83	3.62	112.51	-2.40

DRAINAGE AREA DETERMINED BY EGLE = 4.1 SQUARE MILES



A2 **GENERAL ROAD PROFILE**
SCALE: HORIZ.: 1" = 20'
VERT.: 1" = 5'

GENERAL NOTES:

1. THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO INSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.
2. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES FOR TEMPORARY AND PERMANENT RELOCATIONS FOR CONSTRUCTION OPERATIONS SUCH THAT UTILITIES DO NOT INTERFERE WITH THE TEMPORARY OR PERMANENT WORK TO BE COMPLETED.
3. WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION OF WATER LEVELS THAT WILL EXIST DURING CONSTRUCTION.
4. MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE EXISTING OR PROPOSED STRUCTURE. IF DEBRIS FALLS INTO THE WATERWAY IT SHALL BE REMOVED WITHIN 24 HOURS. SINCE DISTURBANCE OF THE WATERWAY BOTTOM MAY BE AS HARMFUL AS THE DEBRIS ITSELF, THE PREVENTIVE MEASURES MUST BE MADE AS EFFECTIVE AS POSSIBLE.
5. DATUM IS A LOCAL DATUM
6. SEDIMENTATION AND SOIL EROSION CONTROL REQUIRED FOR THE PROJECT SHALL BE IN ACCORDANCE WITH THE "MICHIGAN SOIL AND SEDIMENTATION CONTROL PART 91 OF PA 451, 1994, AND MDOT SECTION 208 STANDARD SPECIFICATIONS FOR CONSTRUCTION, (2012 EDITION). ALL ITEMS REQUIRED FOR SOIL EROSION CONTROL OF THIS PROJECT ARE INCLUDED IN PROJECT. SOIL EROSION CONTROL PLAN IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBMITTED FOR AGENCY APPROVAL.
7. CONTRACTOR TO PROVIDE PLAN FOR DE-WATERING AT PRE-CONSTRUCTION MEETING.
7. CONTRACTOR TO PROVIDE FLUME OR BYPASS PUMPING AND ALL DE-WATERING OF AREA AS NECESSARY TO FINISH THE WORK. TYPICAL BMPS SUCH AS FILTER BAGS, CHECK DAMS, AND SEDIMENTATION BASINS — ETC. BEYOND DEPICTED SILT FENCING SHALL BE INCLUDED AS REQUIRED TO OBTAIN REQUIRED EGLE PERMITS.
8. CONTRACTOR SHALL BE REQUIRED TO REMOVE ALL TREES AND STUMPS WITHIN THE SLOPE STAKE LINES REGARDLESS OF SIZE. TREE AND STUMP REMOVAL SHALL BE INCLUDED IN CONTRACTOR'S PRICE. MATERIALS CAN BE DISPOSED OF WITHIN THE CLEAR CUT AREA UTILIZED FOR STAGING. MATERIALS DISPOSED OF IN SUCH A MANNER WILL BE DISPERSED AROUND THE AREA AND STUMPS SHALL BE PLACED ROOTS DOWN.
9. IMMEDIATELY AFTER THE CONSTRUCTION IS COMPLETED, SLOPE PROTECTION AND SEEDING OR SODDING SHALL BE PLACED ON ADJACENT EMBANKMENT SLOPES.
10. THE WATER SURFACE ELEVATIONS SHOWN ON THE HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOODPLAIN. THE ELEVATIONS MAY BE USED, PROVIDED THEY ARE VERIFIED WITH THE LAND AND WATER MANAGEMENT DIVISION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY.
11. TRAFFIC DOES NOT NEED TO BE MAINTAINED DURING REMOVAL AND INSTALLATION OF PROPOSED CULVERT AND GRADING CONTRACTOR TO PROVIDE ADVANCED WARNING SIGNAGE THAT BRIDGE IS OUT AT OLD US HWY 2 INTERSECTION AND AT CARLSON ROAD INTERSECTION. SIGNAGE TO CONFORM TO MDOT 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND APPLICABLE STANDARD DETAILS. TYPE III BARRICADES (LIGHTED) WILL BE UTILIZED ON EACH SIDE OF STRUCTURE LOCATED NEAR CONSTRUCTION LIMITS.
12. ANY ADDITIONAL CLEARING OUTSIDE OF THE GRADING LIMITS MUST BE SUBMITTED IN ADVANCE AND APPROVED BY THE ENGINEER.
13. STAGING AREA SHALL BE AGREED UPON PRIOR TO THE START OF CONSTRUCTION WITH WRITTEN APPROVAL FROM THE ENGINEER. CONTRACTOR MAY UTILIZE TRAIL SHOULDERS AND AREAS BEHIND PROPOSED BARRICADES. ALL AREAS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED WITH TOPSOIL, SEED, MULCH AND FERTILIZER AS REQUIRED TO RETURN IT TO EQUAL OR BETTER CONDITION TO EXISTING. SILT FENCE WILL BE REQUIRED AROUND STAGING AREA IF UTILIZED.
14. CONTRACTOR SHALL ADHERE TO ALL LOCAL, STATE AND FEDERAL PERMITS THAT ARE OBTAINED BY OWNER OR CONTRACTOR.

SITE DEMOLITION NOTES:

1. ALL REMOVED MATERIALS FROM THE SITE BECOME THE PROPERTY OF THE CONTRACTOR WITH EXCEPTION TO THOSE MATERIALS CLAIMED BY A UTILITY'S RESPECTIVE UTILITY COMPANY OR OWNER.
2. ALL REMOVALS AND TRANSPORTATION OF THE REMOVED ITEMS SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND ALL LOCAL, STATE, AND FEDERAL LAWS.
3. REMOVALS SHALL BE COMPLETED TO DESCRIBED LIMITS AND ARE TO BE INCLUDED IN THE LUMP SUM CONTRACT.
4. CONTRACTOR SHALL PROVIDE CONSTRUCTION STAKING/LAYOUT.
5. ALL PERMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
6. PROPERTY BOUNDARIES ARE FOR REPRESENTATION PURPOSES ONLY AND MUST BE VERIFIED BY THE CONTRACTOR.
7. SITE WILL REQUIRE CLEARING, STRIPPING OF MUCK AND UNSUITABLE SOILS PRIOR TO FILLING AND CONSTRUCTION.
8. TREE REMOVAL REQUIRES PRE-APPROVAL BY DNR – CONTRACTOR TO COORDINATE MEETING AS NEEDED FOR APPROVAL.

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50% PLAN REVIEW	01/03/19
90% PLAN REVIEW	09/13/19
FINAL APPROVAL	10/23/19

FISH DAM CREEK
CULVERT REPLACEMENT
MICHIGAN DEPT. OF NATURAL RESOURCES
PROJECT NO. M112-19331

DESIGNED BY: JG
DRAWN BY: MP
CHECKED: JG
APPROVED: JG

EXISTING SITE PLAN

C101

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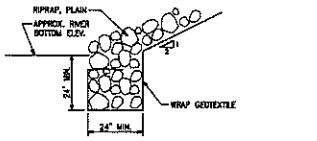
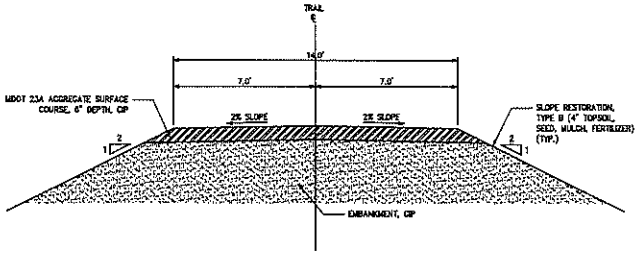
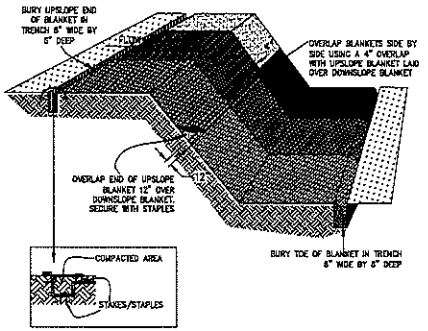


NOTE:
GEOTEXTILE AND HEADERS ARE INCLUDED IN THE ITEM "RIPRAP, PLAIN"

C1 RIPRAP HEADER DETAILS
SCALE: NONE

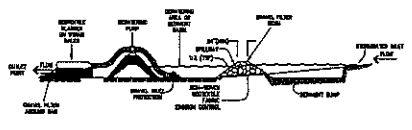


C3 TRAIL TYPICAL DETAIL
SCALE: NONE

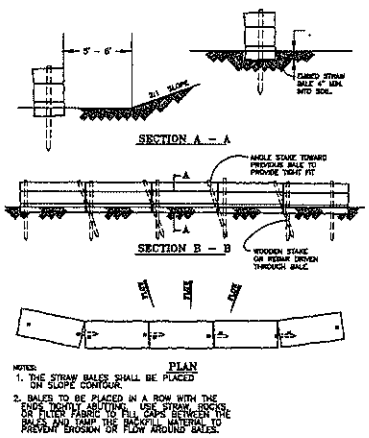


NOTES:
1. PLACE MULCH BLANKET PARALLEL TO FLOW AND ANCHOR SECURELY.
2. WHEN BLANKETS ARE USED IN FLOWING DITCH, BLANKETS SHOULD NOT OVERLAP IN DITCH CENTER PARALLEL TO FLOW.
3. STAPLES INSTALLED/SECURED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
4. WHERE POSSIBLE, CONSTRUCT WITH BIODEGRADABLE MATERIAL.

C4 TYPICAL MULCH BLANKET
SCALE: NTS

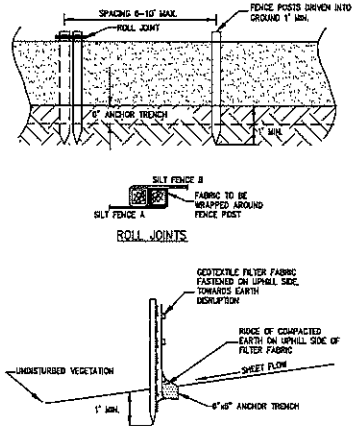


A1 DEWATERING TYPICAL
SCALE: NTS

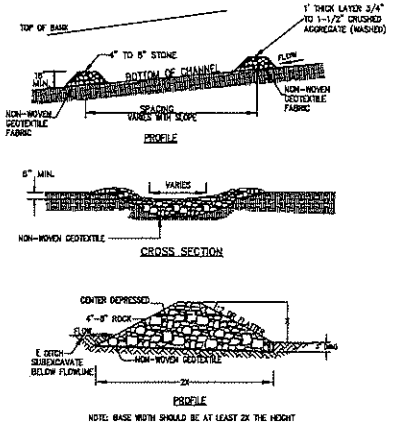


NOTES:
1. THE STRAW BALES SHALL BE PLACED ON SLOPE CONTOUR.
2. BALES TO BE PLACED IN A ROW WITH THE ENDS TIGHTLY ABUTTING. USE STRAW, ROCKS OR FILTER FABRIC TO FILL GAPS BETWEEN THE BALES AND TAMP THE BACKFILL MATERIAL TO PREVENT EROSION OR FLOW AROUND BALES.

A2 STRAW BALE CHECK
SCALE: NTS



A3 SILT FENCE TYPICAL
SCALE: NTS



NOTE: BASE WIDTH SHOULD BE AT LEAST 2X THE HEIGHT

B4 TYPICAL CHECK DAM
SCALE: NTS

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FISH DAM CREEK
CULVERT REPLACEMENT
MICHIGAN DEPT. OF NATURAL RESOURCES
PROJECT NO. M12-19331

DESIGNED BY: JG
DRAWN BY: MP
CHECKED: JG
APPROVED: JG

DETAILS

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