

PROJECT MANUAL

FOR

MENKAUNEE HARBOR IMPROVEMENTS

CITY OF MARINETTE

MARINETTE, WISCONSIN

JUNE 2014



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Ayres Associates Project No. 19-0277.35

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**MENKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN**

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Bidding Requirements

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ADVERTISEMENT FOR BIDS

PROJECT: Menekaunee Harbor Improvements
City of Marinette
Marinette, Wisconsin

BID DEADLINE: July 18, 2014
11:00 a.m., Local Time

NOTICE

Sealed bids for the above project will be received by Brian R. Miller, City Engineer, at Marinette City Hall, 1905 Hall Avenue, Marinette, WI 54143 until the Bid Deadline. Immediately thereafter, the bids will be publicly opened and read aloud.

In general the project consists of dredging approximately 72,500 cubic yards of material from the bed of the Menominee River within the Menekaunee Harbor for navigational and contaminant removal purposes, and removing existing timber pile shoreline wall and replacing it with a combination of riprap, ledge stone, and sheet pile wall.

A pre-bid meeting to review the project will be held on Tuesday, June 24, 2014, at 10:00 a.m. Meet in Room 214 of City Hall, 1905 Hall Avenue, Marinette, WI 54143. This meeting is mandatory for all prime bidders.

A single prime bid will be received for the work.

BID SECURITY

Bids must be accompanied by bid security in the amount of 5% of the maximum bid amount. Bid and bid security may not be withdrawn for a period of 60 days after the Bid Deadline.

Bid security will be retained if the Bidder is awarded the Work and fails to execute the Agreement and furnish 100% Performance and Payment Bonds.

FUNDING REQUIREMENTS

The contract awarded under this bid advertisement will be funded in part by financial assistance from the U.S. Environmental Protection Agency, administered by the Wisconsin Department of Natural Resources, and will be subject to regulations contained in appropriate federal regulations. Bidders agree to abide by Executive Order 11246, as amended, and the provisions for civil rights, equal employment opportunity, and affirmative action set forth in the Bidding Documents. This procurement is subject to regulations for solicitation of disadvantaged business enterprises (DBEs). We encourage DBEs, including MBEs and WBEs to submit bids.

WAGE RATES

Minimum salaries and fringes to be paid on the project shall be in accordance with the prevailing wage rate scales established by the Federal Department of Labor and the Wisconsin Department of Workforce Development. Attention is called to the fact that not less than the minimum salaries and fringes set forth in the Contract Documents must be paid on this project, and that the Contractor must ensure that employees and applications for employment are not discriminated against because of their race, color, religion, sex, national origin, or other protected class. Federal Labor standards program laws, including, but not limited to the Davis Bacon Act, the Copeland Anti Kickback Act, and the Contract Work Hours and Safety Standards Act apply to all work.

QUALIFICATIONS

Bidders shall prequalify by submitting a Bidder's Proof of Responsibility to the Owner no less than five days prior to the Bid Deadline in accordance with Wis. Stat. 66.0901(2).

RIGHTS RESERVED

Owner reserves the right to reject any or all bids and to waive informalities in any bid.

BIDDING DOCUMENTS

Bidding documents may be obtained:

- In Adobe Acrobat® electronic format by download from the Quest Construction Data Network website, accessible via www.AyresAssociates.com by clicking on the "Bidding" link, for \$20.00.
- In paper format from Ayres Associates, 3433 Oakwood Hills Parkway, Eau Claire, WI 54701-7698, 715.834.3161, upon payment of \$100.00 per set. Payment will not be refunded.

Published by authority of: City of Marinette, Wisconsin
Mr. Jim Anderson, City Clerk

To be advertised: June 9, 2014
June 16, 2014
June 23, 2014

INSTRUCTIONS TO BIDDERS

1. SUMMARY

A. The following document shall be completed and submitted no less than 5 days prior to the Bid Deadline by each bidder wishing to submit a prime bid:

1. Bidder's Proof of Responsibility.

B. The following documents shall be completed and submitted with each bid:

1. Bid Form.
2. Contractor's General Work Plan (see Article 10 of this Section).
3. Bid Security.
4. Certification for Contracts, Grants, Loans, and Cooperative Agreements (see form in this Project Manual).
5. Certification Regarding Debarment, Suspension, and Other Matters (see form in this Project Manual).
6. Documentation of DBE Solicitation Efforts (see the options described in Article 16 of this Section).

2. PREPARATION OF BIDS

A. Bids shall be prepared on the form provided in this Project Manual and submitted as specified. Bids will be received for the contract listed on the Bid Form. All blank spaces for bid prices shall be completed, in ink or typewritten, in both words and figures where provided. In case of discrepancy, written words shall govern over figures for lump sum bids and unit prices shall govern over extended amounts for unit price bids. Bidder must sign the bid.

B. Bids may be rejected for the following reasons: alterations of the form, additions to the form, alternates not specified, incomplete bids, erasures, unbalanced prices, and irregularities of any kind. The term "unbalanced prices" shall mean the use of one or more unit prices that do not reflect the reasonable actual costs of labor, equipment, materials, profit, overhead costs, and indirect costs of the bidder for the item(s).

C. Submit original Bid Form and required supporting documents in a sealed envelope. Remove Bid Form from Project Manual; do not submit entire Project Manual. Mark the exterior of the envelope as follows:

BID
(Project Name)
(Bidder's Name and Address)

D. If forwarded by mail, the sealed envelope containing the bid shall be enclosed in another envelope addressed as specified.

3. FAX TRANSMISSION AND E-MAIL

A. Fax transmission or e-mailing of Bid Form or required supporting documents to individual designated to receive bids will not be acceptable.

4. WITHDRAWAL OR MODIFICATION OF BID

A. Unless prohibited by laws and regulations, a bidder may withdraw or modify its bid, provided a written request is in the hands of the official or person authorized to receive bids prior to the Bid Deadline. Thereafter, a bid may not be withdrawn or modified during the bid holding period specified in the Advertisement for Bids.

5. BID SECURITY

A. Bids shall be accompanied by a bid bond, certified check, or bank cashier's check in the amount specified in the Advertisement for Bids made payable to Owner as a guarantee that the bidder will enter into a contract and furnish bonds. Certified checks shall be drawn on the account of the bidder. Bid bonds shall be executed by the bidder and by a surety corporation licensed to transact business in the state where the project is located.

B. Bidders shall require Attorneys-in-fact who execute bid bonds or contract bonds to affix thereto a certified and current copy of their power of attorney.

C. Bid security of the three lowest bidders will be released when the contract has been executed or, if no award has been made within the specified bid holding period, upon demand of the bidder at any time thereafter so long as bidder has not been notified of acceptance of its bid. All other bid securities will be released within 10 days after the opening of bids.

6. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

A. The successful bidder, upon failure or refusal to execute and deliver the contract and bonds required within 10 days after receiving Notice of Award, shall forfeit the bid security to Owner as liquidated damages for such failure or refusal.

7. QUALIFICATIONS OF BIDDER

A. Bidders shall pre-qualify with Owner by filing a Bidder's Proof of Responsibility form supplied by the Owner. Bidder's Proof of Responsibility form according to Wis. Stat. 66.0901(2) shall be filed with the Owner no less than five days before the Bid Deadline.

8. ADDENDA AND INTERPRETATIONS

A. No binding interpretation of the meaning or intent of the drawings, specifications, or other bidding documents will be made to any bidder orally. Requests for such interpretation shall be made to Ayres Associates in writing. Requests received less than 7 days prior to the Bid Deadline may not be answered. Interpretations or clarifications considered necessary by A/E in response to such requests will be issued by addenda mailed or delivered to all parties recorded by A/E as having received the bidding documents. All addenda so issued shall become part of the bidding documents and shall be acknowledged on the Bid Form. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under this bid as submitted.

9. SUBSTITUTIONS (BID PHASE)

A. Bids shall be based on those products, materials, and equipment specified or described in the bidding documents, or those substitute or "or equal" items approved by addendum.

B. Products, materials, and equipment identified in the bidding documents by reference to a manufacturer's name, catalog number, or model are identified for the purpose of establishing a standard of type, function, appearance, and quality. Bidders desiring to submit bids for manufacturers or products not previously named shall submit a substitution request for approval not later than 10 days prior to the Bid Deadline.

C. Requests for substitution of alternate products or use of "or equal" items shall be submitted with complete references to manufacturer's product identification and specification data indicating composition, guarantee, availability, applicable standards or agency approvals met or exceeded, restrictions imposed on product, and manufacturer's recommended method of application or installation. A substitution or an "or equal" item will be considered acceptable if the product will perform adequately the duties imposed by the general design and, in the opinion of the A/E, is of equal substance, quality, appearance, and function, unless the named item is necessary for interchangeability or if the named product has been demonstrated to be most cost-effective. If approved by addendum, the requested substitution or "or equal" item may be included in the Contract Bid amount.

10. CONTRACTOR'S GENERAL WORK PLAN

A. Bidders are required to submit, with the Bid Form, a general work plan which shall include, at a minimum, the following items:

1. Contractor's proposed dredging methodology/equipment (Mechanical, Hydraulic, Etc.)
2. Contractor's proposed dewatering process. Include information on any dewatering additives, dewatering pits/pads, dewatering bags, and site layout for dewatering.
3. Contractor's proposed wastewater treatment plan. Include information on collection, pumping, and on site facilities (if City's WWTP is not used).

11. LIST OF SUBCONTRACTORS

A. Bidders are required to submit, with the Bid Form, a list of subcontractors. Failure to complete this list may be considered cause to recommend rejection of the bid.

B. Bidders are specifically advised that any person, firm or other party to whom it is proposed to award a subcontract under this contract must be acceptable to Owner. If Owner, after due investigation, has reasonable objection to any proposed subcontractor or supplier, Owner may, before the Notice of Award is given, request apparent successful bidder to submit a substitute without an increase in the bid. If apparent successful bidder declines to make any such substitution, Owner may award the Contract to the next lowest bidder that proposes to use acceptable subcontractors and suppliers. Declining to make requested substitutions will not constitute grounds for forfeiture of the bid security of any bidder.

12. DISCLOSURE OF OWNERSHIP

A. Bidder shall disclose on the date of submitting a bid for this project, the name of any construction business of which bidder has had a 25% or greater interest as a shareholder, officer, partner, or owner at any time during the preceding three years, if said construction business has been found by the Wis. Dept. of Workforce Development to have failed to pay the prevailing wage rate or at least 1.5 times the hourly basic rate of pay for hours worked in excess of the prevailing hours of labor to any employee at any time within the preceding three years. The "Disclosure of Ownership" form may be obtained at no charge from the Department of Workforce Development, Equal Rights Division, P.O. Box 8928, Madison, Wisconsin 53708.

13. AWARD OF CONTRACT

A. A single prime contract will be awarded on the basis of lowest responsible, responsive total bid amount in the Owner's best interests.

B. The Owner reserves the right to reject any or all bids, including bids which, in the opinion of Owner, are excessive or not sufficient to properly carry out the work. The Owner reserves the right to reject the bid of bidders who have previously failed to properly perform or complete on time contracts of similar nature.

C. Bidder shall, if awarded a contract, deliver executed agreement forms within 10 days of the date of the Notice of Award, including satisfactory bonds which shall remain in effect for one year after acceptance of the work and component parts by the Owner. Said bonds shall be 100% Performance Bond and 100% Labor and Material Payment Bond in the amount of Bid and on forms furnished by Owner.

14. PAYMENTS TO CONTRACTOR

A. Progress payments to Contractor and retainage on progress payments will be in accordance with the Supplementary Conditions.

15. WAGE RATES

A. Minimum wages to be paid on the project shall be in accordance with the greater of State and Federal wage determinations included in this Project Manual.

16. DBE REQUIREMENTS

A. Contractor, in awarding subcontracts for construction work, equipment, raw materials, or supplies, shall provide disadvantaged business enterprises (DBEs), including minority business enterprises (MBEs) and women business enterprises (WBEs), an opportunity to compete for work related to the project in accordance with the requirements of EPA's Program for Utilization of Small, Minority, and Women's Business Enterprises contained in 40 CFR, Part 33 (see the Supplementary Conditions in this Project Manual).

B. Contractor shall use at least one of the following three options to comply with DBE solicitation requirements. Submit documentation of good faith efforts with the Bid Form. Failure to submit this documentation with the bid will, at Owner's option, be sufficient grounds to render the bid non-responsive.

C. Option No. 1 - Include Language in Bid Advertisements:

1. To make a good faith effort when subcontracting, a Contractor can advertise for subcontractors with an ad that includes a statement such as "DBEs, including MBEs and WBEs, are encouraged to submit proposals." If just one advertisement is published for all areas of work that may be subcontracted, it should indicate those types of work that could be subcontracted. The advertisement(s) must appear in an industry trade publication and/or the official newspaper of public record for the municipality. (The official newspaper for the City of Marinette is the Marinette Eagle Herald.)
2. To document good faith efforts, submit a copy of the advertisement(s) with the Bid Form.

D. Option No. 2 - Contact DBEs on a Unified Certification Program (UCP) List:

1. Contact DBEs on a Unified Certification Program (UCP) list to solicit bids from these firms (e.g., firms registered in the WisDOT UCP, <http://www.dot.wisconsin.gov/business/engrserv/dbe-firms.htm>).
2. To document good faith efforts, submit documentation of contacts with the Bid Form.

E. Option No. 3 - Utilize DBEs Registered with a Unified Certification Program (UCP) List:

1. Utilize DBEs registered with a UCP (e.g., WisDOT UCP, <http://www.dot.wisconsin.gov/business/engrserv/dbe-firms.htm>).
2. Submit documentation of proposed DBE subcontracts with the Bid Form using EPA Form 6100-4, DBE Utilization Form (copy included in this Project Manual).

17. INFORMATION AVAILABLE TO BIDDERS

A. Contaminated material and subsurface investigations have been performed pertaining to this project site. A copy of the available information is contained in Appendices of this Project Manual.

18. PRE-BID MEETING

A. A pre-bid meeting will be held at the place and time indicated in the Advertisement for Bids. Representatives of Owner and A/E will be present to discuss the project. Bidders are encouraged to attend and participate in the meeting. A/E will transmit to all bidding document holders of record such Addenda as A/E considers necessary in response to questions arising at the meeting.

B. This pre-bid meeting is mandatory for all prime bidders. Failure to attend the pre-bid meeting will be considered sufficient grounds for rejection of a bid.

BIDDER'S PROOF OF RESPONSIBILITY

PROJECT: Menekaunee Harbor Improvements
City of Marinette
Marinette, Wisconsin

This bidder's proof of responsibility shall be submitted to the Owner a minimum of five days prior to the Bid Deadline. Submit the form via mail, fax, or e-mail to:

Brian R. Miller, City Engineer
City of Marinette
1905 Hall Avenue
Marinette, WI 54143
Fax: 715.732.9419
E-mail: bmillerm@marinette.wi.us

The proof of responsibility shall be a full and complete statement sworn to before an officer authorized to administer oaths, of financial ability, equipment, experience in the work prescribed, and such other matters as the Owner may require for the protection and welfare of the public and itself.

The object of the questionnaire is not to discourage bidding or make it difficult for qualified bidders to file bids. It is intended to make it possible for the Owner to have exact information on financial ability, equipment, and experience in the field of the contract at hand in order to reduce the hazards involved in awarding contracts to parties apparently not qualified to perform them. The Owner reserves the right to require additional information before awarding the contract in order to determine qualification for the work.

The contents of this questionnaire will be considered confidential to the extent allowed by applicable laws and regulations.

If the Owner is not satisfied with the sufficiency of the answers to the questionnaire and financial statement, it may reject the bid or disregard the same or require additional information.

A list of the prequalified bidders for the project will be published on the City's web site: <http://www.marinette.wi.us>. This list will be updated as prequalifications are received and reviewed.

1. Name of Bidder _____
2. Bidder's Address _____
3. When Organized _____
4. Where Incorporated _____
5. How many years have you been engaged in the contracting business under the present firm name? _____
6. Contracts on hand (attach list of present contracts, including a schedule as to estimated completion date, estimated percent complete as of this date, and gross amount of each contract).
7. General character of work performed by your firm _____

8. Have you ever failed to complete any work awarded to you? Yes _____ No _____. If so, attach statement showing where and why.

9. Have you ever failed to complete within the Contract Time limits any work awarded to you?
Yes _____ No _____.

If yes, were Liquidated Damages, or Penalty paid? Yes _____ No _____.
Amount _____ (if answer to any part of question 9 is Yes, attach detailed explanation).

10. Have you ever defaulted on a contract? Yes _____ No _____. If so, attach statement showing where and why.

11. Attach list of the more important contracts completed by your firm including kind of work and approximated cost.

12. Attach list of your major equipment.

13. Attach a statement of your experience in the construction of work similar in importance to this project.

14. Attach statement of background and experience of the principal members of your personnel including the officers.

15. Credit available. Furnish written evidence, preferably from Banks.

16. Financial statement:

Condition at close of business on _____, 20____.

Assets:

a. Cash	\$ _____
b. Accounts receivable	\$ _____
c. Real estate equity	\$ _____
d. Materials in stock	\$ _____
e. Equipment, book value	\$ _____
f. Furniture and fixtures, book value	\$ _____
g. Other assets	\$ _____
Total assets	\$ _____

Liabilities:

h. Accounts, notes and interest payable	\$ _____
i. Other liabilities	\$ _____
Total liabilities	\$ _____
Net worth	\$ _____

17. Additional information may be submitted if desired.

Dated at _____ this _____ day of 20 ____.

Name of Organization _____

By _____

Title _____

State of _____

County _____

_____ being duly sworn

says that he/she is _____

of _____

(Name of Organization)

and that the answers to the foregoing questions and all statements contained herein are true and correct.

Signed _____

Subscribed and sworn to before me this _____

day of _____, 20 _____

_____ Notary Public

_____ County, _____

My Commission expires _____

Attachments: _____ Sheets

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BID FORM

PROJECT: Menekaunee Harbor Improvements
 City of Marinette
 Marinette, Wisconsin

BID DEADLINE: July 18, 2014
 11:00 a.m., Local Time

To: City of Marinette

We _____ (Name of Bidder) acknowledge that we have received the Contract Documents, prepared by Ayres Associates and dated June 2014, that are listed in the Project Manual Table of Contents and Drawing Index. We hereby agree to provide all labor, materials, equipment, and services required to complete the work in strict accordance with the Contract Documents for the following stated amount(s).

BID SCHEDULE

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Approx. Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
<u>Part 1 - Lot 24 Containment Site</u>					
1	Mobilization	LS	1	_____	_____
2	Erosion Control	LS	1	_____	_____
3	Clearing and Grubbing	LS	1	_____	_____
4	Topsoil Stripping and Stockpiling	CY	3,000	_____	_____
5	Perimeter Drainage Swale	LS	1	_____	_____
6	Site Preparation	LS	1	_____	_____
7	Site Operations	CY	22,500	_____	_____
8	Topsoil Covering/Site Closure	CY	3,300	_____	_____
9	Site Restoration	LS	1	_____	_____
<u>Part 2 - Menekaunee Harbor Site</u>					
10	Mobilization/Site Preparation	LS	1	_____	_____
11	Erosion Control	LS	1	_____	_____
12	Seawall Removal/Disposal	LF	1,500	_____	_____
13	Environmental Dredging/Disposal	Ton	41,250	_____	_____
14	Navigational Dredging/Disposal	CY	22,500	_____	_____
15	Beneficial Reuse Dredging	CY	22,500	_____	_____
16	Wastewater Collection and Treatment	LS	1	_____	_____
17	Earthwork/Site Grading	LS	1	_____	_____
18	Riprap	SY	7,200	_____	_____
19	Riprap Bedding	SY	7,200	_____	_____

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<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Approx. Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
<u>Part 2 - Menekaunee Harbor Site (Continued)</u>					
20	Stepped Ledge Stone	LF	200	_____	_____
21	Sheet Pile Wall	LF	150	_____	_____
22	Site Restoration	LS	1	_____	_____

Total Bid Amount, Items 1 thru 22, shall be _____ Dollars (\$ _____)

BID SECURITY

Accompanying this bid is a (bond) (certified check) (cashier's check) in the amount of _____ dollars (\$ _____) payable to Owner, which is at least five percent (5%) of the maximum bid amount, and will be retained by Owner as liquidated damages if the undersigned fails to execute agreements and furnish bonds within 10 days after Notice of Award.

WITHDRAWAL OF BID

It is agreed that this bid and bid security may not be withdrawn for a period of 60 days after the Bid Deadline.

TIME OF COMPLETION

The undersigned agrees, if awarded the contract, to start work within 10 calendar days after "Notice to Proceed" and to complete the work as follows:

1. Milestone 1: Acceptably complete not less than 50% of the Work (based on Contract Price), including preparation of the Lot 24 Containment Site to receive dredged materials, by the end of 2014.
2. Substantial Completion: Substantially complete all work on or before November 1, 2015.

Failure to complete the work within the stated times will result in liquidated damages as follows:

1. Milestone 1: Not applicable.
2. Substantial Completion: \$1,000.00 for each calendar day that expires after the time specified above for Substantial Completion until the work is substantially complete.

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BIDDER'S WARRANTY

By the act of submitting a bid for the proposed work, the bidder warrants that:

1. Bidder and its subcontractors have carefully and thoroughly reviewed the Contract Documents and have found them complete, free of ambiguities, and sufficient for the purpose intended; further that,
2. Bidder and all workers, employees, and subcontractors are skilled and experienced in the type of work represented by the Contract Documents; further that,
3. Bid is based solely upon the Contract Documents and properly issued written addenda and not upon any other representation; further that,
4. Bidder has carefully examined the site of the work and from its investigations is satisfied as to the nature and location of work, the character, quality, quantities of materials, and difficulties to be encountered, the kind and extent of equipment and other facilities needed for performance of the work, the general and local conditions, and other items which may, in any way, affect the work or its performance; and further that,
5. Neither the bidder nor its employees, agents, prospective suppliers, or subcontractors have relied upon any verbal representations allegedly authorized or unauthorized from the Owner, its employees or agents, including architects, engineers, and consultants, in assembling the bid.

LIST OF SUBCONTRACTORS

The following is a list of subcontractors whose bids were used in this bid. It is agreed that after submission of this list, no change may be made in subcontractors as listed without submitting change for Owner review in accordance with the conditions of the contract. If there are no subcontractors, state "None."

Subcontract:

Subcontractor:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

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ADDENDA

The undersigned acknowledges receipt of addenda _____ to _____ inclusive.

ORGANIZATION AND AUTHORITY

The undersigned hereby certifies that the bidder is organized as indicated below and that all statements herein are made on behalf of such bidder.

Business Name _____

Business Address _____

Telephone Number _____

Fax Number _____

E-Mail Address _____

State Contractor Registration/License No. (if applicable) _____

(Complete applicable paragraph 1, 2, 3, or 4.)

- 1. Corporation. Bidder is a corporation organized under the laws of the state of _____. Its corporate president is _____ and its corporate secretary is _____. The _____ is authorized to submit bids and sign construction contracts for the bidder by action of the board of directors.
- 2. Limited Liability Corporation. Bidder is a limited liability corporation organized under the laws of the state of _____. Its members are _____. The _____ is authorized to submit bids and sign construction contracts for the bidder.
- 3. Partnership. Bidder is a partnership consisting of partners _____ and _____.
- 4. Sole Trader. Bidder is an individual doing business as _____.

SWORN STATEMENT

I, being duly sworn, hereby certify that I have examined and carefully prepared this bid from the Contract Documents and have checked the same in detail before submitting this bid; that I have full authority to make such statements and submit this bid on behalf of the above bidder; and that said statements are true and correct.

Signature _____

Name and Title _____

(Seal, if bid is by a corporation)

Subscribed and sworn to before me this _____ day of _____, 20 _____

_____ Notary Public

_____ County, _____

My Commission expires _____

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BID BOND

Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

BID

Bid Due Date:

Description (*Project Name— Include Location*):

BOND

Bond Number:

Date:

Penal sum

\$

(Words)

(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

(Seal)

(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By:

Signature

By:

Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest:

Signature

Attest:

Signature

Title

Title

Note: Addresses are to be used for giving any required notice.

Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible Bidder that submitted a responsive Bid as determined by Owner for the work required by the Contract Documents, provided that:
 - 1.1 If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the penal sum set forth on the face of this Bond, and
 - 1.2 In no event shall Bidder's and Surety's obligation hereunder exceed the penal sum set forth on the face of this Bond.
 - 1.3 Recovery under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Signature of Authorized Certifying Official	Title
Applicant Organization	Date

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EPA Project Control Number

United States Environmental Protection Agency
Washington, D.C.

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
- (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

Typed Name & Title of Authorized Representative

Signature of Authorized Representative

Date

I am unable to certify to the above statements. My explanation is attached.

EPA Form 5700-49(11-88)

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Disadvantaged Business Enterprise (DBE) Program DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE¹ subcontractors² and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact	
Address			
Telephone No.		Email Address	
Issuing/Funding Entity:			

I have identified potential DBE certified subcontractors	__ YES	__ NO	
If yes, please complete the table below. If no, please explain:			
Subcontractor Name/ Company Name	Company Address/ Phone/ Email	Est. Dollar Amt	Currently DBE Certified?

Continue on back if needed

¹ A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

² Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

**Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Utilization Form**

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

Contracting Requirements

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**AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)**

THIS AGREEMENT is dated as of the _____ day of _____ in the
year _____ by and between _____

_____ ("Owner") and

_____ ("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 - WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

ARTICLE 2 - THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows:

ARTICLE 3 - ENGINEER

3.01 The Project has been designed by _____.

3.02 The Owner has retained _____ ("Engineer"), which is to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE 4 - CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Dates*

A. The Work will be substantially completed on or before _____, _____, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before _____.

B. Parts of the Work shall be substantially completed on or before the following Milestone(s):

1. Milestone 1:

4.03 Liquidated Damages

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. Substantial Completion: Contractor shall pay Owner \$ _____ for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
 - ~~2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$ _____ for each day that expires after such time until the Work is completed and ready for final payment.~~
 - ~~3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.~~
 - ~~4. Milestones: Contractor shall pay Owner \$ _____ for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of Milestone 1, until Milestone 1 is achieved.~~

ARTICLE 5 - CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

- A. For all Work other than Unit Price Work, a lump sum of:

All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.

- B. For all Unit Price Work, an amount equal to the sum of the extended price (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item). The extended prices are as indicated in Contractor's Bid, attached hereto as an exhibit. The estimated total of all extended prices for Unit Price Work is:

The extended prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

ARTICLE 6 - PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment ~~on or about the _____ day of~~ once each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract:

- a. 95 percent of the Work completed (with the balance being retainage). ~~If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and~~
- b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- c. At 50 percent completion, no additional amounts will be retained unless Engineer certifies that the Work is not proceeding satisfactorily, but amounts previously retained will not be paid to Contractor. At 50 percent completion or any time thereafter when the progress of the Work is not satisfactory, additional amounts may be retained but in no event will total retainage be more than 10 percent of the Work completed and materials and equipment delivered, suitably stored, and accompanied by required documentation.

- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 98 percent of the ~~Work completed~~ Contract Price (with the balance being retainage), less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less ~~_____ percent of~~ Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 - INTEREST

7.01 All moneys not paid when due shall bear interest at the rate of 12 percent per annum.

ARTICLE 8 - CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
 - E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.
 - F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 - G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
 - H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
 - I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
 - J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 - CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following:
1. This Agreement (pages 1 to _____, inclusive).
 2. General Conditions (pages _____ to _____, inclusive) which are bound separately in Project Manual.
 3. Supplementary Conditions (pages _____ to _____, inclusive) which are bound separately in Project Manual.
 4. Specifications as listed in the Project Manual table of contents and bound separately.
 5. Drawings as listed in the Drawing index and bound separately.
 6. Addenda (numbers _____ to _____, inclusive) which are bound separately in Project Manual.
 7. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages _____ to _____, inclusive) marked Exhibit _____.
 - b. Project Manual table of contents (pages _____ to _____, inclusive) marked Exhibit _____.
 - c. Drawing index (pages _____ to _____, inclusive) marked Exhibit _____.
 - d. Performance bond (pages _____ to _____, inclusive, plus attachments) marked Exhibit _____.
 - e. Payment bond (pages _____ to _____, inclusive, plus attachments) marked Exhibit _____.
 8. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 - MISCELLANEOUS

10.01 *Terms*

- A. Terms used in this Agreement will have the meanings indicated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Supplementary Conditions.

[Remainder of Page Intentionally Left Blank]

To Be Completed Upon Contract Award

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

This Agreement will be effective on the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver (which is the Effective Date of the Contract).

OWNER

CONTRACTOR

Signed: _____

Signed: _____

Title: _____

Title: _____

Date: _____

Date: _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

License _____
(Where applicable)

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

PERFORMANCE BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: None See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence,

to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims

for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

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PAYMENT BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location)*:

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: None See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

_____ *(seal)*

Contractor's Name and Corporate Seal

_____ *(seal)*

Surety's Name and Corporate Seal

By: _____

Signature

By: _____

Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____

Signature

Attest: _____

Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. **Definitions**
 - 16.1 **Claim:** A written statement by the Claimant including at a minimum:
 1. The name of the Claimant;
 2. The name of the person for whom the labor was done, or materials or equipment furnished;
 3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 4. A brief description of the labor, materials, or equipment furnished;
 5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 7. The total amount of previous payments received by the Claimant; and
 - 16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
 - 16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
 - 16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
18. Modifications to this Bond are as follows:
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.
 11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms,

General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.

32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products,

telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
 1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
 1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
 1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide:*
 1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and
 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such

individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or

during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. abnormal weather conditions;
 - 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 - 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but

such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
2. is of such a nature as to require a change in the Drawings or Specifications; or
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Possible Price and Times Adjustments:*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

- b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.
- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare

recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
 - D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
 - E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
 - F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
 - G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
 - H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
 - I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance

establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
 - 4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
 - 1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 - 2. claims for damages insured by reasonably available personal injury liability coverage.
 - 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

- C. *Commercial General Liability—Form and Content*: Contractor’s commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor’s contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, “Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured” or its equivalent.
- D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer’s liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor’s pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor’s operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds*: The Contractor’s commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor’s professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

- I. *General provisions:* The policies of insurance required by this Paragraph 6.03 shall:
 1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
 5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR’S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner’s written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 *“Or Equals”*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or equal” item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an “or equal” item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
- b. Contractor certifies that, if approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 Substitutes

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,

- 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
- c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
 - C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
 - D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
 - E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
 - F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
 - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of

any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
- G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*

- a. Contractor shall submit the number of Samples required in the Specifications.

- b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
 1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.
 8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.
- E. *Resubmittal Procedures:*
 1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
 2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
 3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 - 1. observations by Engineer;
 - 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. use or occupancy of the Work or any part thereof by Owner;
 - 5. any review and approval of a Shop Drawing or Sample submittal;
 - 6. the issuance of a notice of acceptability by Engineer;
 - 7. any inspection, test, or approval by others; or
 - 8. any correction of defective Work by Owner.
- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting,

excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.
- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the

claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER’S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer’s status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner’s duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner’s duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner’s identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner’s responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner’s responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner’s Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor’s failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner’s responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.

D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

1. *Change Orders:*

a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.

b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the

Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.
3. *Field Orders:* Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work

(determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.
 1. *Procedures*: Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it

is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.

2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
 - C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
 - D. *Mediation:*
 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.
 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
 - E. *Partial Approval:* If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
 - F. *Denial of Claim:* If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
 - G. *Final and Binding Results:* If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work:* The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work,

Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
 5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work

(except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:
- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 - 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 - 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 - 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 - 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.
- E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:* Contractor agrees that:
 - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor

shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to

reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement

of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

- c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially

complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

- A. *Application for Payment:*
 - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and

operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 Contractor May Stop Work or Terminate

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 Methods and Procedures

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 2. agree with the other party to submit the dispute to another dispute resolution process; or
 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 Giving Notice

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SUPPLEMENTARY CONDITIONS

1. GENERAL

A. These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2013 Edition). All provisions which are not so amended or supplemented remain in full force and effect.

2. DEFINITIONS

A. The terms used in these Supplementary Conditions have the meanings stated in the General Conditions.

B. The term Shop Drawings shall include submittals identified as "product data" in the Specifications.

3. COPIES OF DOCUMENTS

A. Amend the first sentence of Paragraph 2.02.A of the General Conditions to read as follows:

Owner shall furnish to Contractor three printed copies of the Contract Documents (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF).

4. COMMENCEMENT OF CONTRACT TIMES; NOTICE TO PROCEED

A. Delete paragraph 4.01.A of the General Conditions in its entirety and insert the following in its place:

A. The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within thirty days after the Effective Date of the Agreement, unless otherwise stated in the Agreement.

5. SUBSURFACE, PHYSICAL, AND HAZARDOUS ENVIRONMENTAL CONDITIONS

A. Supplement paragraph 5.03.A.1 of the General Conditions as follows: The following reports of explorations and tests of subsurface conditions at or adjacent to the Site are known to Owner: See Appendices to this Project Manual.

B. Supplement paragraph 5.03.A.2 of the General Conditions as follows: The following drawings of physical conditions relating to existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities) are known to Owner: None.

C. Supplement paragraph 5.06.A of the General Conditions as follows: The following reports and drawings regarding Hazardous Environmental Conditions at the Site are known to Owner: See Appendices to this Project Manual.

6. PERFORMANCE AND PAYMENT BONDS

A. Add the following to paragraph 6.01 of the General Conditions: The performance and payment bonds furnished for the project are for a public improvement contract. The bonds shall be construed to comply with Wis. Stats., s. 779.14.

7. CONTRACTOR'S LIABILITY INSURANCE

A. The limits of liability for the insurance required by paragraph 6.03 of the General Conditions shall be not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation and related coverages under paragraphs 6.03.A.1 and A.2 of the General Conditions:
 - a. State and Applicable Federal: Statutory

- b. Employer's Liability:

\$	100,000	Each Accident
\$	100,000	Disease, Each Employee
\$	500,000	Disease, Policy Limit

2. Contractor's Commercial General Liability under paragraphs 6.03.B and 6.03.C of the General Conditions:

- a. Each Occurrence (Bodily Injury and Property Damage):

\$	1,000,000
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- b. Personal and Advertising Injury:

\$	1,000,000
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- c. General Aggregate:

\$	2,000,000
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- d. Products-Completed Operations Aggregate:

\$	2,000,000
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3. Automobile Liability under paragraph 6.03.D of the General Conditions:

- a. Bodily Injury and Property Damage, Combined Single Limit:

\$	1,000,000
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4. Umbrella or Excess Liability under paragraph 6.03.E of the General Conditions:

- a. Each Occurrence

\$	1,000,000
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- b. General Aggregate:

\$	2,000,000
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5. Contractor's Pollution Liability under paragraph 6.03.F of the General Conditions:

- a. Each Occurrence

\$	1,000,000
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- b. General Aggregate:

\$	2,000,000
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6. Additional Insureds under paragraph 6.03.G of the General Conditions are as follows. The insurance afforded the additional insureds under Contractor's liability policies shall provide primary coverage for all claims covered thereby on a non-contributory basis.

- a. Owner: City of Marinette
- b. Other: Marinette Water Utility
- c. Other: Marinette Wastewater Utility
- d. Engineer: Ayres Associates
- e. All insurance policies shall name the City of Marinette and its elected or appointed officials, agents, and employees as additional insured on Liability Policies.

7. Contractor's Professional Liability: This insurance is not required under this Contract.

B. Amend Article 6 of the General Conditions as follows:

1. Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. All insurance policies shall contain a provision or endorsement that the coverage afforded will not be cancelled, materially changed or renewal refused until at least thirty-days (30-days) prior written notice has been given to Owner and Engineer by certified mail. *Said insurance certificate shall not include the words "endeavor to" or the words "but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives".*
2. Contractor shall furnish the City of Marinette with the following four **additional endorsements** to your insurance policy:
 - a. Additional insured;
 - b. Waiver of subrogation;
 - c. Primary insurance; and
 - d. Notice of cancellation.
3. All such insurance shall remain in effect until final payment and at all times thereafter when Contractor may be correcting, removing or replacing defective work.
4. The cost of insurance shall be included in the unit prices listed in the Bid Schedule.
5. Notwithstanding any insurance policy term or provision to the contrary, the liability insurance provisions of the General and Supplementary Conditions shall set forth the duties of each party and control the allocation of risk. Failure to provide and maintain this insurance coverage as provided herein shall be cause for immediate termination of the agreement. The City's acceptance of a certificate of insurance, which does not comply with these General and

Supplementary Conditions shall not be deemed a waiver of any requirement set forth herein, unless expressly stated in writing by the City. It is the responsibility of the Contractor and/or Contractor's agent or insurance carrier to identify and obtain any written waiver from the City.

6. Contractor and Contractor's insurance carrier and/or agent agree to defend and hold the City harmless for all claims, losses, judgments, costs, expenses, damages and reasonable attorney fees, which may hereinafter incur, sustain or be required to be paid, which arise or result from the Contractor and/or Contractor's insurance carrier's and/or agent's failure to comply with these insurance provisions of the General and Supplementary Conditions.

8. PROPERTY INSURANCE

- A. Delete paragraphs 6.05 through 6.07 of the General Conditions.
- B. Contractor is not required to purchase and maintain property insurance for the Work during construction.
- C. Contractor shall be responsible for any physical loss or damage to the Work until Substantial Completion. Contractor, at its option, may purchase insurance to cover its risk.

9. SUBCONTRACTORS AND SUPPLIERS

- A. Amend paragraph 7.06 of the General Conditions as follows:
 1. Contractor shall submit a list of subcontractors as indicated on the Bid Form.
 2. In accordance with Wis. Adm. Code, ch. DWD 294, work on this project shall not be subcontracted to a Contractor on the Wis. Dept. of Workforce Development list of debarred employers. No increase in the Contract Price or Contract Time shall be allowed due to rejection of a debarred employer.
 3. In accordance with Wis. Stats., s. 779.14, Contractor agrees, to the extent practicable, to maintain a list of all subcontractors and suppliers performing labor or furnishing materials to Contractor for the project.

10. COORDINATION

- A. Amend paragraph 8.02 of the General Conditions as follows: The Work shall be coordinated in accordance with Division 01 General Requirements.

11. UNIT PRICE WORK

- A. Add the following to paragraph 13.03.D.1 of the General Conditions: "Materially and significantly" shall be defined in accordance with the provisions of Section 01 25 00.

12. PAYMENTS TO CONTRACTOR

- A. Amend paragraph 15.01 of the General Conditions as follows:
 1. Applications for Payment shall be submitted on the form provided by Engineer in which Contractor certifies that all previous progress payments received have been applied to discharge obligations incurred in connection with the Work, that title to all Work will pass to Owner at time of payment, and that all Work covered by the Application for Payment is in accordance with the Contract Documents and not defective.
 2. Applications for Payment shall be submitted once per month by the date indicated by Engineer. Failure to submit an Application for Payment by the required date may result in delay of its review and approval by one month.
 3. Retainage shall be accumulated at 5% of the value of the Work completed, and 5% of the value of materials and equipment delivered and suitably stored, until 50% completion. At 50% completion, no additional amounts shall be retained unless Engineer certifies that the Work is not proceeding satisfactorily, but amounts previously retained shall not be paid to Contractor. At 50% completion or any time thereafter when the progress of the Work is not satisfactory,

additional amounts may be retained but in no event shall total retainage be more than 10% of the value of the Work completed and material and equipment delivered and suitably stored.

4. Upon Substantial Completion, payments shall be increased to 98% of the Contract Price (i.e. retainage will be reduced to 2% of the Contract Price), less an allowance for incomplete Work and other amounts that may be withheld in accordance with the General Conditions.

B. In the first sentence of paragraph 15.01.B.1 of the General Conditions, change "20 days" to "30 days."

C. Delete paragraph 15.01.D.1 of the General Conditions and insert the following language in its place.

1. Twenty days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

13. PAYMENTS TO SUBCONTRACTORS AND SUPPLIERS

A. Add the following to paragraph 15.01.E of the General Conditions:

4. In the event Owner receives notice from any person, subcontractor, supplier, or other third party, that Contractor has failed to pay such party for Work performed in accordance with the Contract Documents, Contractor shall, at request of Owner, and in no more than 10 calendar days, provide all documentation Owner believes necessary to determine whether such payment is due, or reasons for non-payment of disputed amounts. In the event Owner determines a claim to be valid, Owner may withhold from Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay such claim until satisfactory documentation is furnished that the liability has been fully discharged or reasons for non-payment of disputed amounts are provided by Contractor. In the event a claim is valid and payment is due, or in the absence of the requested documentation, Owner may authorize direct or two-party payment of any unpaid bills. In no event shall this provision be construed to impose any obligations upon Owner or Engineer to either Contractor or Contractor's surety (if any).

14. DISPUTE RESOLUTION

A. Dispute resolution methods and procedures shall be as set forth in Article 17 of the General Conditions.

15. NONRESIDENT CONTRACTORS

A. The State of Wisconsin requires nonresident persons, whether incorporated or not, engaging in construction contracting in the State as a contractor or subcontractor to file a surety bond with the Wis. Dept. of Revenue or (if approved) a cash deposit with the Wis. Dept. of Administration to guarantee the payment of certain taxes. The bond or deposit is required where the amount of the contract or subcontract (or the aggregate amount of two or more contracts or subcontracts in one year) is \$50,000 or more. The bond or deposit must be filed within 60 days after construction is begun. Refer to Wis. Stats., s. 71.80(16), for complete requirements.

B. Nonresident contractors and subcontractors are responsible for making their own arrangements to meet this requirement.

16. FUNDING SOURCE

A. This project is funded in part or wholly by a grant from the U.S. Environmental Protection Agency, Great Lakes Initiative Restoration Program, administered by the Wisconsin Department of Natural Resources. The Contract is subject to regulations contained in 40 CFR Parts 31 and 33 and OMB Circular 133.

17. APPLICABLE FEDERAL LAWS

A. Contractor and subcontractors agree to comply with the following requirements to the extent applicable to the work:

1. Executive Order 11246, Equal Employment Opportunity, and implementing regulations at 41 CFR 60-4.
2. The Davis-Bacon Act (40 U.S.C. 276a to 276a-7) as supplemented by Department of Labor regulations (29 CFR part 5).
3. The Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333) as supplemented by Department of Labor regulations (29 CFR part 5).
4. The Anti-Kickback Act (40 U.S.C. 276c) as supplemented in Department of Labor regulations (29 CFR part 3).
5. OSHA Worker Health & Safety Standard 29 CFR 1910.120.
6. The Uniform Relocation Act.
7. National Historic Preservation Act.
8. Endangered Species Act.
9. Section 404 of the Clear Water Act.
10. Section 504 of the Rehabilitation Act of 1973 as implemented by Executive Orders 11914 and 11250.

18. NONDISCRIMINATION

A. In connection with the performance of work under this grant agreement, the Contractor agrees not to discriminate against any employee or applicant for employment because of age, race, religion, color, handicap, sex, physical condition, developmental disability as defined in section 51.01(5), Wis. Stats., sexual orientation or national origin. This provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Except with respect to sexual orientation, the Contractor further agrees to take affirmative action to ensure equal employment opportunities. The Contractor agrees to post in conspicuous places, available for employees and applicants for employment, notices to be provided by the Department of Natural Resources setting forth the provisions of this nondiscrimination clause. Failure to comply with the conditions of this clause may result in the Contractor being declared an "ineligible" Contractor, termination of the Contract, or withholding of payment.

19. DBE REQUIREMENTS

A. Contractor and subcontractors, in awarding subcontracts for construction work, equipment, raw materials, or supplies, shall provide disadvantaged business enterprises (DBEs), including minority business enterprises (MBEs) and women business enterprises (WBEs), an opportunity to compete for work related to the project in accordance with the requirements of EPA's Program for Utilization of Minority and Women's Business Enterprises contained in 40 CFR, Part 33.

B. In order to demonstrate a good faith effort, the prime contractor must, at a minimum, fulfill the following affirmative steps:

1. Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. This includes placing DBEs on solicitation lists and soliciting them whenever they are potential sources.
2. Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid proposal closing date.
3. Divide total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
4. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.

5. Use the services and assistance of the Small Business Administration (SBA) and the Minority Business Development Agency of the U.S. Department of Commerce.
6. Require subcontractors who award contracts to take the steps in paragraphs 1 through 5, above.

C. EPA's "fair share" objectives for this project are:

1. MBE: 8 %
2. WBE: 8 %

20. DRUG-FREE WORKPLACE

A. Contractor shall make an on-going, good faith effort to maintain a drug-free workplace pursuant to the specific requirements set forth in Title 2 CFR 1536 Subpart B.

21. WAGE AND LABOR STANDARDS

A. Minimum wages paid on the project shall be in accordance with the greater of Federal and State Wage Determinations.

B. Federal:

1. Contractor does hereby certify that:
 - a. Neither (he, she, it) nor any firm, corporation, partnership, or association in which (he, she, it) has a substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6 (b) of the Regulations of the Secretary of Labor, Part 5 (29 CFR, Part 5) or pursuant to Section 3 (a) of the Davis Bacon Act, as amended (40 U.S.C. 276a-2(a)) or by the U.S. Environmental Protection Agency.
 - b. No part of this contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation, partnership, or association in which such subcontractor has a substantial interest is designated as an ineligible contractor pursuant to any of the aforementioned regulatory or statutory provisions.
 - c. Correction of any infractions of the aforesaid conditions, including infractions by any of (his, her, its) subcontractors is (his, her, its) responsibility.
2. The Federal Labor Standards Provisions and Wage Decision are included as parts of this contract and are included in this Project Manual.
3. Wage rates apply to those working "directly on the site of the work" which includes the physical place or places where the construction called for in the contract will remain after work has been completed, any other site where significant portion of the building or work is constructed, provided that such site is established specifically for the contract, and the job headquarters, tool yards, batch plant, borrow pits, etc provided that they are located adjacent or virtually adjacent to the "site of work", and are dedicated exclusively or nearly to the performance of the contract or project. The following are not included in the "site of work": a contractor's or subcontractors permanent home office, branch offices, fabrication plants tool yards, etc. whose location and continuance in operation are determined without regard to a particular covered project.
4. Truck drivers of the contractor or subcontractor are covered by wage rates for the time spent driving on the "site of work" and spent loading or unloading materials and suppliers on the "site of the work" if such time is more than de minimis.
5. Truck drivers are not covered in the following instances:
 - a. Material delivery truck drivers while off the "site of the work".
 - b. Truck drivers of a contractor or subcontractor traveling between a commercial facility and the job when they are off the "site of the work".
 - c. Truck drivers whose time spent on the "site of the work" is de minimis for pick-up or drop off.
 - d. Owner-operators who are independent contractors (an owner-operator is a person who owns and drives a truck) do not need to show the hours worked or the rates paid, only the notation "owner-operator".

C. State:

1. Work on this project is subject to Wis. Stats., s. 66.0903 and Wis. Adm. Code, ch. DWD 290. The prevailing wage rate determination and list of debarred contractors for this project is included in this Project Manual.
2. A clearly legible copy of the prevailing wage rate determination together with the provisions of Wis. Stats., s. 66.0903(10)(a) and (11)(a), shall be posted in at least one conspicuous and easily accessible place at the project site.
3. At completion of work, a prime contractor affidavit of compliance with the prevailing wage rate determination shall be filed in proper form and order by Contractor before Owner will authorize final payment.
4. Contractor shall retain the following records for at least 3 years after the last day on which Contractor and subcontractors complete work on project site:
 - a. An accurate record of the name, trade or occupation, hours worked, and actual wages paid for all of its employees who performed work on the project.
 - b. A properly completed agent or subcontractor affidavit of compliance with the prevailing wage rate determination from each of its agents or subcontractors that performed work on the project.
5. The State of Wisconsin or Owner may demand to examine copies of payrolls and other records and information relating to wages paid employees on the project. If the Wis. Dept. of Workforce Development (DWD) finds a contractor violating the prevailing wage rate law, DWD will assess liquidated damages of 100% of the wages owed to employees.

22. ACCESS TO RECORDS

A. Owner, the Wisconsin Department of Natural Resources (WDNR), the U.S. Environmental Protection Agency, the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers and records of the Contractor which are directly pertinent to this project for the purpose of making audits, examinations, excerpts, and transcriptions for a period of three years after completion of the Work and acceptance by WDNR.

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Federal Labor Standards Provisions

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section I(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part

of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been

communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who

is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be

awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds \$100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

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General Decision Number: WI140015 05/23/2014 WI15

Superseded General Decision Number: WI20130015

State: Wisconsin

Construction Type: Heavy

Counties: Wisconsin Statewide.

HEAVY CONSTRUCTION PROJECTS (Excluding Tunnel, Sewer, and Water Lines).

Modification Number	Publication Date
0	01/03/2014
1	02/07/2014
2	03/14/2014
3	05/02/2014
4	05/23/2014

BOIL0107-001 01/01/2013

	Rates	Fringes
BOILERMAKER		
Boilermaker.....	\$ 31.09	27.11
Small Boiler Repair (under 25,000 lbs/hr).....	\$ 26.91	16.00

BRWI0001-002 06/01/2012

CRAWFORD, JACKSON, JUNEAU, LA CROSSE, MONROE, TREMPPEALEAU, AND VERNON COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 30.20	17.19

BRWI0002-002 06/01/2011

ASHLAND, BAYFIELD, DOUGLAS, AND IRON COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 35.33	15.51

BRWI0002-005 06/01/2012

ADAMS, ASHLAND, BARRON, BROWN, BURNETT, CALUMET, CHIPPEWA, CLARK, COLUMBIA, DODGE, DOOR, DUNN, FLORENCE, FOND DU LAC, FOREST, GREEN LAKE, IRON, JEFFERSON, KEWAUNEE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, POLK, PORTAGE, RUSK, ST CROIX, SAUK, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WALWORTH, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 31.52	16.30

BRWI0003-002 06/01/2012

BROWN, DOOR, FLORENCE, KEWAUNEE, MARINETTE, AND OCONTO COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 30.77	16.62

BRWI0004-002 06/01/2011

KENOSHA, RACINE, AND WALWORTH COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 35.11	16.83

BRWI0006-002 06/01/2012

ADAMS, CLARK, FOREST, LANGLADE, LINCOLN, MARATHON, MENOMINEE, ONEIDA, PORTAGE, PRICE, TAYLOR, VILAS AND WOOD COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 31.34	16.05

BRWI0007-002 06/01/2012

GREEN, LAFAYETTE, AND ROCK COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 32.06	17.00

BRWI0008-002 06/01/2011

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 35.58	16.07

BRWI0009-001 06/01/2012

GREEN LAKE, MARQUETTE, OUTAGAMIE, SHAWANO, WAUPACA, WASHARA, AND WINNEBAGO COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 30.77	16.62

BRWI0011-002 06/01/2012

CALUMET, FOND DU LAC, MANITOWOC, AND SHEBOYGAN COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 30.77	16.62

BRWI0013-002 06/01/2012

DANE, GRANT, IOWA, AND RICHLAND COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 32.01	17.05

BRWI0019-002 06/01/2012

BARRON, BUFFALO, BURNETT, CHIPPEWA, DUNN, EAU CLAIRE, PEPIN,
PIERCE, POLK, RUSK, ST. CROIX, SAWYER AND WASHBURN COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 30.42	16.97

BRWI0021-002 06/01/2012

DODGE AND JEFFERSON COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 32.56	16.52

BRWI0034-002 06/01/2012

COLUMBIA AND SAUK COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 32.26	16.80

CARP0087-001 07/01/2012

BURNETT (W. of Hwy 48), PIERCE (W. of Hwy 29), POLK (W. of Hwys
35, 48 & 65), AND ST. CROIX (W. of Hwy 65) COUNTIES

	Rates	Fringes
Carpenter & Piledrivermen.....	\$ 33.34	16.73

CARP0252-002 07/02/2012

ADAMS, BARRON, BAYFIELD (Eastern 2/3), BROWN, BUFFALO,
BURNETT (E. of Hwy 48), CALUMET, CHIPPEWA, CLARK, COLUMBIA,
CRAWFORD, DANE, DODGE, DOOR, DUNN, EAU CLAIRE, FLORENCE (except
area bordering Michigan State Line), FOND DU LAC, FOREST,
GRANT, GREEN, GREEN LAKE, IOWA, IRON, JACKSON, JEFFERSON,
JUNEAU, KEWAUNEE, LA CROSSE, LAFAYETTE, LANGLADE, LINCOLN,
MANITOWOC, MARATHON, MARINETTE (except N.E. corner), MARQUETTE,
MENOMINEE, MONROE, OCONTO, ONEIDA, OUTAGAMIE, PEPIN, PIERCE (E.
of Hwys 29 & 65), POLK (E. of Hwys 35, 48 & 65), PORTAGE,
PRICE, RICHLAND, ROCK, RUSK, SAUK, SAWYER, SHAWANO, SHEBOYGAN,

ST CROIX (E. of Hwy 65), TAYLOR, TREMPLEAU, VERNON, VILAS,
 WALWORTH, WASHBURN, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD
 COUNTIES

	Rates	Fringes
CARPENTER		
CARPENTER.....	\$ 30.48	15.80
MILLWRIGHT.....	\$ 32.11	15.80
PILEDRIVER.....	\$ 30.98	15.80

 CARP0252-010 07/02/2012

ASHLAND COUNTY

	Rates	Fringes
Carpenters		
Carpenter.....	\$ 30.48	15.80
Millwright.....	\$ 32.11	15.80
File Driver.....	\$ 30.98	15.80

 CARP0264-003 06/01/2008

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WAUKESHA, AND WASHINGTON
 COUNTIES

	Rates	Fringes
CARPENTER.....	\$ 30.52	14.41

 CARP0361-004 07/11/2011

BAYFIELD (West of Hwy 63) AND DOUGLAS COUNTIES

	Rates	Fringes
CARPENTER.....	\$ 31.07	15.80

 CARP2337-001 06/01/2008

ZONE A: MILWAUKEE, OZAUKEE, WAUKESHA AND WASHINGTON

ZONE B: KENOSHA & RACINE

	Rates	Fringes
PILEDRIVERMAN		
Zone A.....	\$ 27.25	19.46
Zone B.....	\$ 24.47	19.46

 CARP2337-003 06/02/2008

	Rates	Fringes
MILLWRIGHT		
Zone A.....	\$ 27.92	19.08

Zone B.....\$ 26.82 19.08

ZONE DEFINITIONS

ZONE A: MILWAUKEE, OZAUKEE, WAUKESHA AND WASHINGTON COUNTIES

ZONE B: KENOSHA & RACINE COUNTIES

ELEC0014-002 06/01/2012

ASHLAND, BARRON, BAYFIELD, BUFFALO, BURNETT, CHIPPEWA, CLARK
(except Maryville, Colby, Unity, Sherman, Fremont, Lynn &
Sherwood), CRAWFORD, DUNN, EAU CLAIRE, GRANT, IRON, JACKSON, LA
CROSSE, MONROE, PEPIN, PIERCE, POLK, PRICE, RICHLAND, RUSK, ST
CROIX, SAWYER, TAYLOR, TREMPPEALEAU, VERNON, AND WASHBURN
COUNTIES

	Rates	Fringes
Electricians:.....	\$ 29.13	17.92

ELEC0014-007 06/01/2012

REMAINING COUNTIES

	Rates	Fringes
Teledata System Installer Installer/Technician.....	\$ 21.89	11.83

Low voltage construction, installation, maintenance and
removal of teledata facilities (voice, data, and video)
including outside plant, telephone and data inside wire,
interconnect, terminal equipment, central offices, PABX,
fiber optic cable and equipment, micro waves, V-SAT,
bypass, CATV, WAN (wide area networks), LAN (local area
networks), and ISDN (integrated systems digital network).

ELEC0127-002 06/01/2012

KENOSHA COUNTY

	Rates	Fringes
Electricians:.....	\$ 35.25	19.30

ELEC0158-002 06/03/2013

BROWN, DOOR, KEWAUNEE, MANITOWOC (except Schleswig),
MARINETTE (Wausaukee and area South thereof), OCONTO, MENOMINEE
(East of a line 6 miles West of the West boundary of Oconto
County), SHAWANO (Except Area North of Townships of Aniwa and
Hutchins) COUNTIES

	Rates	Fringes
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Electricians:.....\$ 28.50 28.75% + 9.27

ELEC0159-003 06/01/2012

COLUMBIA, DANE, DODGE (Area West of Hwy 26, except Chester and Emmet Townships), GREEN, LAKE (except Townships of Berlin, Seneca, and St. Marie), IOWA, MARQUETTE (except Townships of Neshkoka, Crystal Lake, Newton, and Springfield), and SAUK COUNTIES

Rates Fringes

Electricians:.....\$ 32.94 18.71

ELEC0219-004 05/30/2011

FLORENCE COUNTY (Townships of Aurora, Commonwealth, Fern, Florence and Homestead) AND MARINETTE COUNTY (Township of Niagara)

Rates Fringes

Electricians:

Electrical contracts over
\$130,000.....\$ 29.41 16.97
Electrical contracts under
\$130,000.....\$ 26.24 16.85

ELEC0242-005 06/02/2013

DOUGLAS COUNTY

Rates Fringes

Electricians:.....\$ 31.91 23.60

ELEC0388-002 06/01/2013

ADAMS, CLARK (Colby, Freemont, Lynn, Mayville, Sherman, Sherwood, Unity), FOREST, JUNEAU, LANGLADE, LINCOLN, MARATHON, MARINETTE (Beecher, Dunbar, Goodman & Pembine), MENOMINEE (Area West of a line 6 miles West of the West boundary of Oconto County), ONEIDA, PORTAGE, SHAWANO (Aniwa and Hutchins), VILAS AND WOOD COUNTIES

Rates Fringes

Electricians:.....\$ 28.96 24.85% + 9.70

ELEC0430-002 06/01/2012

RACINE COUNTY (Except Burlington Township)

Rates Fringes

Electricians:.....\$ 32.87 19.23

ELEC0494-005 06/01/2013

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Electricians:.....	\$ 32.82	22.51

ELEC0494-006 06/01/2013

CALUMET (Township of New Holstein), DODGE (East of Hwy 26 including Chester Township), FOND DU LAC, MANITOWOC (Schleswig), and SHEBOYGAN COUNTIES

	Rates	Fringes
Electricians:.....	\$ 28.97	20.45

ELEC0494-013 06/01/2012

DODGE (East of Hwy 26 including Chester Twp, excluding Emmet Twp), FOND DU LAC (Except Waupuin), MILWAUKEE, OZAUKEE, MANITOWOC (Schleswig), WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Sound & Communications		
Installer.....	\$ 16.47	14.84
Technician.....	\$ 24.75	16.04

Installation, testing, maintenance, operation and servicing of all sound, intercom, telephone interconnect, closed circuit TV systems, radio systems, background music systems, language laboratories, electronic carillon, antenna distribution systems, clock and program systems and low-voltage systems such as visual nurse call, audio/visual nurse call systems, doctors entrance register systems. Includes all wire and cable carrying audio, visual, data, light and radio frequency signals. Includes the installation of conduit, wiremold, or raceways in existing structures that have been occupied for six months or more where required for the protection of the wire or cable, but does not mean a complete conduit or raceway system. work covered does not include the installation of conduit, wiremold or any raceways in any new construction, or the installation of power supply outlets by means of which external electric power is supplied to any of the foregoing equipment or products

ELEC0577-003 06/03/2013

CALUMET (except Township of New Holstein), GREEN LAKE (N. part including Townships of Berlin, St Marie, and Seneca), MARQUETTE (N. part including Townships of Crystal Lake, Neshkoro, Newton, and Springfield), OUTAGAMIE, WAUPACA, WAUSHARA, AND WINNEBAGO COUNTIES

	Rates	Fringes
Electricians:.....	\$ 28.40	16.676

 ELEC0890-003 06/01/2013

DODGE (Emmet Township only), GREEN, JEFFERSON, LAFAYETTE,
 RACINE (Burlington Township), ROCK AND WALWORTH COUNTIES

	Rates	Fringes
Electricians:.....	\$ 30.60	24.95% + \$10.33

 ELEC0953-001 07/01/2013

	Rates	Fringes
Line Construction:		
(1) Lineman.....	\$ 39.50	32% + 5.00
(2) Heavy Equipment Operator.....	\$ 37.53	32% + 5.00
(3) Equipment Operator.....	\$ 31.60	32% + 5.00
(4) Heavy Groundman Driver..	\$ 26.78	14.11
(5) Light Groundman Driver..	\$ 24.86	13.45
(6) Groundsman.....	\$ 21.73	32% + 5.00

 ENGI0139-001 06/01/2012

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WASHINGTON, AND WAUKESHA
 COUNTIES

	Rates	Fringes
Power Equipment Operator		
Group 1.....	\$ 39.16	18.85
Group 2.....	\$ 38.66	18.85
Group 3.....	\$ 38.16	18.85
Group 4.....	\$ 37.47	18.85
Group 5.....	\$ 35.59	18.85
Group 6.....	\$ 30.44	18.85

HAZARDOUS WASTE PREMIUMS:
 EPA Level "A" Protection: \$3.00 per hour
 EPA Level "B" Protection: \$2.00 per hour
 EPA Level "C" Protection: \$1.00 per hour

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, Tower Cranes, Pedestal Tower Cranes and
 Derricks with or w/o attachments with a lifting capacity of
 over 100 tons; or Cranes, Tower Cranes, Pedestal Tower
 Cranes and Derricks with boom, leads, and/or jib lengths
 measuring 176 feet or longer; Self-Erecting Tower Cranes
 over 4000 lbs lifting capacity; All Cranes with Boom
 Dollies; Boring Machines (directional); Master Mechanic.
 \$0.50 additional per hour per 100 tons or 100 ft of boom
 over 200 ft or lifting capacity of crane over 200 tons to a

maximum of 300 tons or 300 ft. Thereafter an increase of \$0.01 per ft or ton, whichever is greater.

GROUP 2: Cranes, Tower Cranes, Pedestal Tower Cranes and Derricks with or without attachments with a lifting capacity of 100 tons or less; or Cranes, Tower Cranes Portable Tower Cranes, Pedestal Tower Cranes and Derricks with boom, leadsand/or jib lengths measuring 175 feet or less; Backhoes (excavators) 130,000 lbs and over; Caisson Rigs; Pile Drivers; Boring Machines (vertical or horizontal), Versi-Lift, Tri-Lift, Gantry 20,000 lbs & over.

GROUP 3: Backhoe (excavator) under 130,000 lbs; Self-erecting Tower Crane 4000 lbs & under lifting capacity; Traveling Crane (bridge type); Skid Rigs; Dredge Operator; Mechanic; Concrete Paver (over 27E); Concrete Spreader and Distributor; Forklift/ Telehandler (machinery- moving / steel erection); Hydro Blaster, 10,000 psi and over

GROUP 4: Material Hoists; Stack Hoists; Hydraulic Backhoe (tractor or truck mounted); Hydraulic Crane, 5 tons or under (tractor or truck mounted); Hoist (tuggers 5 tons & over); Hydro-Excavators/Daylighters; Concrete Pumps Rotec type Conveyors; Tractor/Bulldozer/End Loader (over 40 hp); Motor Patrol; Scraper Operator; Sideboom; Straddle Carrier; Welder; Bituminous Plant and Paver Operator; Roller over 5 tons; Rail Leveling Machine (Railroad); Tie Placer; Tie Extractor; Tie Tamper; Stone Leveler; Rotary Drill Operator and Blaster; Percussion Drill Operator; Air Track Drill and/or Hammers; Gantry (under 20,000 lbs); Tencher (wheel type or chain type having 8 inch or larger bucket); Milling Machine; Off-Road Material Haulers.

GROUP 5: Backfiller; Concrete Auto Breaker (large); Concrete Finishing Machines (road type); Rubber Tired Roller; Concrete Batch Hopper; Concrete Conveyor Systems; Grout Pumps; Concrete Mixers (14S or over); Screw Type Pumps and Gypsum Pumps; Tractor, Bulldozer, End Loader (under 40 hp); Trencher (chain type, bucket under 8 inch); Industrial Locomotives; Rollers under 5 tons; Stump Grinder/Chipper (Large); Timber Equipment; Firemen (pile drivers and derricks); Personnel Hoist, Telehandler over 8000 lbs; Robotic Tool Carrier with or without attachments

GROUP 6: Tampers - Compactors (riding type); Assistant Engineer; A-Frames and Winch Trucks; Concrete Auto Breaker; Hydrohammers (small); Brooms and Sweepers; Hoist (tuggers under 5 tons); Boats (Tug, Safety, Work Barges, Launch); Shouldering Machine Operator; Prestress Machines; Screed Operator; Stone Crushers and Screening Plants; Screed Operators (milling machine), Farm or Industrial Tractor Mounted Equipment; Post Hole Digger; Fireman (asphalt plants); Air Compressors over 400 CFM; Generators, over 150 KW; Augers (vertical and horizontal); Air, Electric, Hydraulic Jacks (slipform); Skid Steer Loaders (with or without attachments); Boiler Operators (temporary heat); Refrigeration Plant/Freeze Machines; Power Pack Vibratory/Ultra Sound Drivers and Extractors; Welding Machines; Heaters (mechanical); Pumps; Winches (small electric); Oiler and Greaser; Rotary Drill Tender;

Conveyor; Forklifts/Telehandler 8000 lbs & under;
 Elevators: Automatic Hoists; Pumps (well points);
 Combination Small Equipment Operators

 ENGI0139-003 06/02/2013

REMAINING COUNTIES

	Rates	Fringes
Power Equipment Operator		
Group 1.....	\$ 35.62	18.70
Group 2.....	\$ 34.62	18.70
Group 3.....	\$ 33.42	18.70
Group 4.....	\$ 33.42	18.70
Group 5.....	\$ 30.82	18.70
Group 6.....	\$ 30.19	18.70

HAZARDOUS WASTE PREMIUMS:

EPA Level "A" Protection: \$3.00 per hour
 EPA Level "B" Protection: \$2.00 per hour
 EPA Level "C" Protection: \$1.00 per hour

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, Tower Cranes and Derricks with or without attachments with a lifting capacity of over 100 tons; Cranes, Tower Cranes, and Derricks with boom, leads and/or jib lengths 176 ft or longer.

GROUP 2: Backhoes (Excavators) weighing 130,00 lbs and over; Cranes, Tower Cranes and Derricks with or without attachments with a lifting capacity of 100 tons or less; Cranes, Tower Cranes, and Derricks with boom, leads, and/or jib lengths 175 ft or less; Caisson Rigs; Pile Driver

GROUP 3: Backhoes (Excavators) weighing under 130,000 lbs; Travelling Crane (bridge type); Milling Machine; Concrete Paver over 27 E; Concrete Spreader and Distributor; Concrete Laser Screed; Concrete Grinder and Planing Machine; Slipform Curb and Gutter Machine; Boring Machine (Directional); Dredge Operator; Skid Rigs; over 46 meter Concrete Pump.

GROUP 4: Hydraulic Backhoe (tractor or truck mounted); Hydraulic Crane, 10 tons or less; Tractor, Bulldozer, or End Loader (over 40 hp); Motor Patrol; Scraper Operator; Bituminous Plant and Paver Operator; Screed-Milling Machine; Roller over 5 tons; Concrete pumps 46 meter and under; Grout Pumps; Rotec type machine; Hydro Blaster, 10,000 psi and over; Rotary Drill Operator; Percussion Drilling Machine; Air Track Drill with or without integral hammer; Blaster; Boring Machine (vertical or horizontal); Side Boom; Trencher, wheel type or chain type having 8 inch or larger bucket; Rail Leveling Machine (Railroad); Tie Placer; Tie Extractor; Tie Tamper; Stone Leveler; Straddle Carrier; Material Hoists; Stack Hoist; Man Hoists; Mechanic and Welder; Off Road Material Haulers.

GROUP 5: Tractor, Bulldozer, or Endloader (under 40 hp); Tampers -Compactors, riding type; Stump Chipper, large; Roller, Rubber Tire; Backfiller; Trencher, chain type (bucket under 8 inch); Concrete Auto Breaker, large; Concrete Finishing Machine (road type); Concrete Batch Hopper; Concrete Conveyor Systems; Concrete Mixers, 14S or over; Pumps, Screw Type and Gypsum); Hydrohammers, small; Brooms and Sweepers; Lift Slab Machine; Roller under 5 tons; Industrial Locomotives; Fireman (Pile Drivers and Derricks); Pumps (well points); Hoists, automatic; A-Frames and Winch Trucks; Hoists (tuggers); Boats (Tug, Safety, Work Barges and Launches); Assistant Engineer

GROUP 6: Shouldering Machine Operator; Farm or Industrial Tractor mounted equipment; Post Hole Digger; Auger (vertical and horizontal); Skid Steer Loader with or without attachments; Robotic Tool Carrier with or without attachments; Power Pack Vibratory/Ultra Sound Driver and Extractor; Fireman (Asphalt Plants); Screed Operator; Stone Crushers and Screening Plants; Air, Electric, Hydraulic Jacks (Slip Form); Prestress Machines; Air Compressor, 400 CFM or over; Refrigeration Plant/Freeze Machine; Boiler Operators (temporary heat); Forklifts; Welding Machines; Generators; Pumps over 3"; Heaters, Mechanical; Combination small equipment operator; Winches, small electric; Oiler; Greaser; Rotary Drill Tender; Conveyor; Elevator Operator

 IRON0008-002 06/01/2013

BROWN, CALUMET, DOOR, FOND DU LAC, KEWAUNEE, MANITOWOC, MARINETTE, OCONTO, OUTAGAMI, SHAWANO, SHEBOYGAN, AND WINNEBAGO COUNTIES:

	Rates	Fringes
IRONWORKER.....	\$ 28.72	23.47

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

 IRON0008-003 06/01/2013

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WALWORTH (N.E. 2/3), WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 30.52	23.47

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

 IRON0383-001 06/01/2013

ADAMS, COLUMBIA, CRAWFORD, DANE, DODGE, FLORENCE, FOREST,

GRANT, GREENE, (Excluding S.E. tip), GREEN LAKE, IOWA, JEFFERSON, JUNEAU, LA CROSSE, LAFAYETTE, LANGLADE, MARATHON, MARQUETTE, MENOMINEE, MONROE, PORTAGE, RICHLAND, ROCK (Northern area, vicinity of Edgerton and Milton), SAUK, VERNON, WAUPACA, WAUSHARA, AND WOOD COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 31.50	20.03

IRON0512-008 06/09/2013

BARRON, BUFFALO, CHIPPEWA, CLARK, DUNN, EAU CLAIRE, JACKSON, PEPIN, PIERCE, POLK, RUSK, ST CROIX, TAYLOR, AND TREMPPEALEAU COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 34.15	22.05

IRON0512-021 06/09/2013

ASHLAND, BAYFIELD, BURNETT, DOUGLAS, IRON, LINCOLN, ONEIDA, PRICE, SAWYER, VILAS AND WASHBURN COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 29.34	22.05

LABO0113-002 06/01/2013

MILWAUKEE AND WAUKESHA COUNTIES

	Rates	Fringes
LABORER		
Group 1.....	\$ 26.06	18.15
Group 2.....	\$ 26.21	18.15
Group 3.....	\$ 26.41	18.15
Group 4.....	\$ 26.56	18.15
Group 5.....	\$ 26.71	18.15
Group 6.....	\$ 22.55	18.15

LABORERS CLASSIFICATIONS

GROUP 1: General Laborer; Tree Trimmer; Conduit Layer; Demolition and Wrecking Laborer; Guard Rail, Fence, and Bridge Builder; Landscaper; Multiplate Culvert Assembler; Stone Handler; Bituminous Worker (Shoveler, Loader, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminous Worker (Dumper, Ironer, Smoother, and Tamper); Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawyer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter
(Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster and Powderman

GROUP 6: Flagperson; traffic control person

LABO0113-003 06/01/2013

OZAUKEE AND WASHINGTON COUNTIES

	Rates	Fringes
LABORER		
Group 1.....	\$ 25.31	18.15
Group 2.....	\$ 25.41	18.15
Group 3.....	\$ 25.46	18.15
Group 4.....	\$ 25.66	18.15
Group 5.....	\$ 25.51	18.15
Group 6.....	\$ 22.40	18.15

LABORERS CLASSIFICATIONS

GROUP 1: General Laborer; Tree Trimmer; Conduit Layer;
Demolition and Wrecking Laborer; Guard Rail, Fence, and
Bridge Builder; Landscaper; Multiplate Culvert Assembler;
Stone Handler; Bituminous Worker (Shoveler, Loader, and
Utility Man); Batch Truck Dumper or Cement Handler;
Bituminous Worker (Dumper, Ironer, Smoother, and Tamper);
Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawyer and Filler
(Pavement); Vibrator or Tamper Operator (Mechanical Hand
Operated);

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter
(Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster; powderman

GROUP 6: Flagperson and Traffic Control Person

LABO0113-011 06/01/2013

KENOSHA AND RACINE COUNTIES

	Rates	Fringes
LABORER		
Group 1.....	\$ 25.12	18.15
Group 2.....	\$ 25.27	18.15
Group 3.....	\$ 25.47	18.15
Group 4.....	\$ 25.44	18.15

Group 5.....	\$ 25.77	18.15
Group 6.....	\$ 22.26	18.15

LABORERS CLASSIFICATIONS:

GROUP 1: General laborer; Tree Trimmer; Conduit Layer; Demolition and Wrecking Laborer; Guard Rail, Fence, and Bridge Builder; Landscaper; Multiplate Culvert Assembler; Stone Handler; Bituminous Worker (Shoveler, Loader, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminous worker (Dumper, Ironer, Smoother, and Tamper); Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawyer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster and Powderman

GROUP 6: Flagman; traffic control person

LABO0140-002 06/01/2013

ADAMS, ASHLAND, BARRON, BAYFIELD, BROWN, BUFFALO, BURNETT, CALUMET, CHIPPEWA, CLARK, COLUMBIA, CRAWFORD, DODGE, DOOR, DOUGLAS, DUNN, EAU CLAIRE, FLORENCE, FOND DU LAC, FOREST, GRANT, GREEN, GREEN LAKE, IRON, JACKSON, JUNEAU, IOWA, JEFFERSON, KEWAUNEE, LA CROSSE, LAFAYETTE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, MONROE, OCONTO, ONEIDA, OUTAGAMIE, PEPIN, PIERCE, POLK, PORTAGE, PRICE, RICHLAND, ROCK, RUSK, SAUK, SAWYER, SHAWANO, SHEBOYGAN, ST. CROIX, TAYLOR, TREMPPEALEAU, VERNON, VILLAS, WALWORTH, WASHBURN, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
LABORER		
Group 1.....	\$ 29.04	14.53
Group 2.....	\$ 29.14	14.53
Group 3.....	\$ 29.19	14.53
Group 4.....	\$ 29.39	14.53
Group 5.....	\$ 29.24	14.53
Group 6.....	\$ 25.67	14.53

LABORER CLASSIFICATIONS

GROUP 1: General Laborer; Tree Trimmer; Conduit Layer; Demolition and Wrecking Laborer; Guard Rail, Fence, and Bridge Builder; Landscaper; Multiplate Culvert Assembler; Stone Handler; Bituminous Worker (Shoveler, Loader, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminous Worker (Dumper, Ironer, Smoother and Tamper);

Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawyer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator, Demolition Burning Torch Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster; powderman

GROUP 6: Flagperson; Traffic Control

LABO0464-003 06/01/2013

DANE COUNTY

	Rates	Fringes
LABORER		
Group 1.....	\$ 29.32	14.53
Group 2.....	\$ 29.42	14.53
Group 3.....	\$ 29.47	14.53
Group 4.....	\$ 29.67	14.53
Group 5.....	\$ 29.52	14.53
Group 6.....	\$ 25.67	14.53

LABORERS CLASSIFICATIONS:

GROUP 1: General Laborer; Tree Trimmer; Conduit Layer; Demolition and Wrecking Laborer; Guard Rail, Fence, and Bridge Builder; Landscaper; Multiplate Culvert Assembler; Stone Handler; Bituminous Worker (Shoveler, Loader, and Utility Man); Batch Truck Dumper or Cement Handler; Bituminous Worker (Dumper, Ironer, Smoother, and Tamper); Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawyer and Filler (Pavement); Vibrator or Tamper Operator (Mechanical Hand Operated); Chain Saw Operator; Demolition Burning Torch Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter (Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster; Powderman

GROUP 6: Flagperson and Traffic Control Person

PAIN0106-008 05/01/2013

ASHLAND, BAYFIELD, BURNETT, AND DOUGLAS COUNTIES

	Rates	Fringes
Painters:		
New:		
Brush, Roller.....	\$ 28.11	15.02
Spray, Sandblast, Steel....	\$ 28.71	15.02
Repaint:		
Brush, Roller.....	\$ 26.61	15.02
Spray, Sandblast, Steel....	\$ 27.21	15.02

PAIN0108-002 06/01/2013

RACINE COUNTY

	Rates	Fringes
Painters:		
Brush, Roller.....	\$ 30.30	18.14
Spray & Sandblast.....	\$ 31.30	18.14

PAIN0259-002 05/01/2008

BARRON, CHIPPEWA, DUNN, EAU CLAIRE, PEPIN, PIERCE, POLK, RUSK, SAWYER, ST. CROIX, AND WASHBURN COUNTIES

	Rates	Fringes
PAINTER.....	\$ 24.11	12.15

PAIN0259-004 05/01/2013

BUFFALO, CRAWFORD, JACKSON, LA CROSSE, MONROE, TREMPPEALEAU, AND VERNON COUNTIES

	Rates	Fringes
PAINTER.....	\$ 21.15	11.53

PAIN0781-002 06/01/2013

JEFFERSON, MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Painters:		
Bridge.....	\$ 29.87	20.04
Brush.....	\$ 29.52	20.04
Spray & Sandblast.....	\$ 30.27	20.04

PAIN0802-002 06/01/2012

COLUMBIA, DANE, DODGE, GRANT, GREEN, IOWA, LAFAYETTE, RICHLAND, ROCK, AND SAUK COUNTIES

	Rates	Fringes
PAINTER		

MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, POLK, PORTAGE, RUSK, ST CROIX, SAUK, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WALWORTH, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

AREA 3: BUFFALO, CRAWFORD, EAU CLAIRE, JACKSON, JUNEAU, LA CROSSE MONROE, PEPIN, PIERCE, RICHLAND, TREMPPEALEAU, AND VERNON COUNTIES

AREA 4: MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

AREA 5: DANE, GRANT, GREEN, IOWA, LAFAYETTE, AND ROCK COUNTIES

AREA 6: KENOSHA AND RACINE COUNTIES

PLUM0011-003 05/07/2012

ASHLAND, BAYFIELD, BURNETT, DOUGLAS, IRON, SAWYER, AND WASHBURN COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 35.77	16.73

PLUM0075-002 01/01/2013

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 37.97	17.97

PLUM0075-004 01/01/2013

DODGE (Watertown), GREEN, JEFFERSON, LAFAYETTE, AND ROCK COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 38.22	17.97

PLUM0075-009 01/01/2012

COLUMBIA, DANE, IOWA, MARQUETTE, RICHLAND AND SAUK COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 36.72	17.97

* PLUM0111-007 05/05/2014

MARINETTE COUNTY (Niagara only)

	Rates	Fringes
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PLUMBER/PIPEFITTER.....\$ 30.72 20.80

PLUM0118-002 06/01/2013

KENOSHA, RACINE, AND WALWORTH COUNTIES

	Rates	Fringes
Plumber and Steamfitter.....	\$ 35.71	19.94

PLUM0400-003 06/03/2013

ADAMS, BROWN, CALUMET, DODGE (except Watertown), DOOR, FOND DU LAC, GREEN LAKE, KEWAUNEE, MANITOWOC, MARINETTE (except Niagara), MENOMINEE, OCONTO, OUTAGAMIE, SHAWANO, SHEBOYGAN, WAUPACA, WAUSHARA, AND WINNEBAGO COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 33.26	16.28

PLUM0434-002 06/03/2013

BARON, BUFFALO, CHIPPEWA, CLARK, CRAWFORD, DUNN, EAU CLAIRE, FLORENCE, FOREST, GRANT, JACKSON, JUNEAU, LA CROSSE, LANGLADE, LINCOLN, MARATHON, MONROE, ONEIDA, PEPIN, PIERCE, POLK, PORTAGE, PRICE, RUSK, ST. CROIX, TAYLOR, TREMPPEALEAU, VERNON, VILAS, AND WOOD COUNTIES

	Rates	Fringes
PIPEFITTER.....	\$ 34.45	15.92

PLUM0601-003 01/01/2013

DODGE (Watertown), GREEN, JEFFERSON, LAFAYETTE, MILWAUKEE, OZAUKEE, ROCK, WASHINGTON AND WAUKESHA COUNTIES

	Rates	Fringes
PIPEFITTER.....	\$ 39.26	19.91

PLUM0601-009 12/01/2012

COLUMBIA, DANE, IOWA, MARQUETTE, RICHLAND AND SAUK COUNTIES

	Rates	Fringes
PIPEFITTER.....	\$ 42.45	16.71

TEAM0039-002 06/01/2013

	Rates	Fringes
TRUCK DRIVER		
1 & 2 Axle Trucks.....	\$ 23.82	18.32
3 or more axles; Euclids		

or Dumptor, Articulated
Truck, Mechanic.....\$ 23.97 18.32

SUWI2011-001 11/16/2011

Rates Fringes

WELL DRILLER.....\$ 16.52

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after
award only as provided in the labor standards contract clauses
(29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification
and wage rates that have been found to be prevailing for the
cited type(s) of construction in the area covered by the wage
determination. The classifications are listed in alphabetical
order of "identifiers" that indicate whether the particular
rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with
characters other than "SU" denotes that the union
classification and rate have found to be prevailing for that
classification. Example: PLUM0198-005 07/01/2011. The first
four letters , PLUM, indicate the international union and the
four-digit number, 0198, that follows indicates the local union
number or district council number where applicable , i.e.,
Plumbers Local 0198. The next number, 005 in the example, is
an internal number used in processing the wage determination.
The date, 07/01/2011, following these characters is the
effective date of the most current negotiated rate/collective
bargaining agreement which would be July 1, 2011 in the above
example.

Union prevailing wage rates will be updated to reflect any
changes in the collective bargaining agreements governing the
rates.

0000/9999: weighted union wage rates will be published annually
each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union majority rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

PREVAILING WAGE RATE DETERMINATION

Issued by the State of Wisconsin
Department of Workforce Development
Pursuant to s. 66.0903, Wis. Stats.
Issued On: 6/3/2014

DETERMINATION NUMBER: 201401644

EXPIRATION DATE: Prime Contracts MUST Be Awarded or Negotiated On Or Before 12/31/2014. If NOT, You MUST Reapply.

PROJECT NAME: MENEKAUNEE HARBOR IMPROVEMENTS, MARINETTE, WISCONSIN
PROJECT NO: 19-0277.35

PROJECT LOCATION: MARINETTE CITY, MARINETTE COUNTY, WI

CONTRACTING AGENCY: CITY OF MARINETTE

CLASSIFICATION:	Contractors are responsible for correctly classifying their workers. Either call the Department of Workforce Development (DWD) with trade or classification questions or consult DWD's Dictionary of Occupational Classifications & Work Descriptions on the DWD website at: dwd.wisconsin.gov/er/prevailing_wage_rate/Dictionary/dictionary_main.htm .
OVERTIME:	Time and one-half must be paid for all hours worked: <ul style="list-style-type: none">- over 10 hours per day on prevailing wage projects- over 40 hours per calendar week- Saturday and Sunday- on all of the following holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25;- The day before if January 1, July 4 or December 25 falls on a Saturday;- The day following if January 1, July 4 or December 25 falls on a Sunday. Apply the time and one-half overtime calculation to whichever is higher between the Hourly Basic Rate listed on this project determination or the employee's regular hourly rate of pay. Add any applicable Premium or DOT Premium to the Hourly Basic Rate before calculating overtime. A DOT Premium (discussed below) may supersede this time and one-half requirement.
FUTURE INCREASE:	When a specific trade or occupation requires a future increase, you MUST add the full hourly increase to the "TOTAL" on the effective date(s) indicated for the specific trade or occupation.
PREMIUM PAY:	If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whenever such pay is applicable.
DOT PREMIUM:	This premium only applies to highway and bridge projects owned by the Wisconsin Department of Transportation and to the project type heading "Airport Pavement or State Highway Construction." DO NOT apply the premium calculation under any other project type on this determination.
APPRENTICES:	Pay apprentices a percentage of the applicable journey person's hourly basic rate of pay and hourly fringe benefit contributions specified in this determination. Obtain the appropriate percentage from each apprentice's contract or indenture.
SUBJOURNEY:	Subjourney wage rates may be available for some of the trades or occupations indicated below with the exception of laborers, truck drivers and heavy equipment operators. Any employer interested in using a subjourney classification on this project MUST complete Form ERD-10880 and request the applicable wage rate from the Department of Workforce Development PRIOR to using the subjourney worker on this project.

This document **MUST BE POSTED** by the **CONTRACTING AGENCY** in at least one conspicuous and easily accessible place **on the site of the project**. A local governmental unit may post this document at the place normally used to post public notices if there is no common site on the project. This document **MUST** remain posted during the entire time any worker is employed on the project and **MUST** be physically incorporated into the specifications and all contracts and subcontracts. If you have any questions, please write to the Equal Rights Division, Labor Standards Bureau, P.O. Box 8928, Madison, Wisconsin 53708 or call (608) 266-6861.

The following statutory provisions apply to local governmental unit projects of public works and are set forth below pursuant to the requirements of s. 66.0903(8), Stats.

s. 66.0903 (1) (f) & s. 103.49 (1) (c) "PREVAILING HOURS OF LABOR" for any trade or occupation in any area means 10 hours per day and 40 hours per week and may not include any hours worked on a Saturday or Sunday or on any of the following holidays:

1. January 1.
2. The last Monday in May.
3. July 4.
4. The first Monday in September.
5. The 4th Thursday in November.
6. December 25.
7. The day before if January 1, July 4 or December 25 falls on a Saturday.
8. The day following if January 1, July 4 or December 25 falls on a Sunday.

s. 66.0903 (10) RECORDS; INSPECTION; ENFORCEMENT.

(a) Each contractor, subcontractor, or contractor's or subcontractor's agent performing work on a project of public works that is subject to this section shall keep full and accurate records clearly indicating the name and trade or occupation of every person performing the work described in sub. (4) and an accurate record of the number of hours worked by each of those persons and the actual wages paid for the hours worked.

s. 66.0903 (11) LIABILITY AND PENALTIES.

(a) 1. Any contractor, subcontractor, or contractor's or subcontractor's agent who fails to pay the prevailing wage rate determined by the department under sub. (3) or who pays less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor is liable to any affected employee in the amount of his or her unpaid wages or his or her unpaid overtime compensation and in an additional amount as liquidated damages as provided under subd. 2., 3., whichever is applicable.

2. If the department determines upon inspection under sub. (10) (b) or (c) that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the department shall order the contractor to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages within a period specified by the department in the order.

3. In addition to or in lieu of recovering the liability specified in subd. 1. as provided in subd. 2., any employee for and in behalf of that employee and other employees similarly situated may commence an action to recover that liability in any court of competent jurisdiction. If the court finds that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the court shall order the contractor, subcontractor, or agent to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages.

5. No employee may be a party plaintiff to an action under subd. 3. unless the employee consents in writing to become a party and the consent is filed in the court in which the action is brought. Notwithstanding s. 814.04 (1), the court shall, in addition to any judgment awarded to the plaintiff, allow reasonable attorney fees and costs to be paid by the defendant.

BUILDING OR HEAVY CONSTRUCTION

Includes sheltered enclosures with walk-in access for the purpose of housing persons, employees, machinery, equipment or supplies and non-sheltered work such as canals, dams, dikes, reservoirs, storage tanks, etc. A sheltered enclosure need not be "habitable" in order to be considered a building. The installation of machinery and/or equipment, both above and below grade level, does not change a project's character as a building. On-site grading, utility work and landscaping are included within this definition. Residential buildings of four (4) stories or less, agricultural buildings, parking lots and driveways are NOT included within this definition.

SKILLED TRADES

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
101	Acoustic Ceiling Tile Installer	30.48	15.90	46.38
102	Boilermaker	39.09	25.60	64.69
103	Bricklayer, Blocklayer or Stonemason Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	30.85	17.62	48.47
104	Cabinet Installer	30.48	15.90	46.38
105	Carpenter	30.48	15.90	46.38
106	Carpet Layer or Soft Floor Coverer	30.48	15.90	46.38
107	Cement Finisher	30.85	17.62	48.47
108	Drywall Taper or Finisher	30.00	11.52	41.52
109	Electrician Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	28.50	17.53	46.03
110	Elevator Constructor	42.86	26.33	69.19
111	Fence Erector	16.00	3.33	19.33
112	Fire Sprinkler Fitter	36.07	18.73	54.80
113	Glazier	26.90	14.91	41.81
114	Heat or Frost Insulator	33.68	23.55	57.23
115	Insulator (Batt or Blown)	15.00	9.50	24.50
116	Ironworker Future Increase(s): Add \$1.10/hr on 6/1/2014: Add \$1.15/hr on 6/1/2015. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	28.72	23.47	52.19

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
117	Lather	30.48	15.90	46.38
118	Line Constructor (Electrical)	38.25	15.87	54.12
119	Marble Finisher	26.89	19.18	46.07
120	Marble Mason	30.77	16.92	47.69
121	Metal Building Erector	24.00	0.02	24.02
122	Millwright	32.11	15.95	48.06
123	Overhead Door Installer	20.95	4.94	25.89
124	Painter	29.52	10.80	40.32
125	Pavement Marking Operator	30.00	0.00	30.00
126	Piledriver	30.98	15.90	46.88
127	Pipeline Fuser or Welder (Gas or Utility)	31.82	19.74	51.56
129	Plasterer	30.85	17.62	48.47
130	Plumber	32.53	16.36	48.89
132	Refrigeration Mechanic	33.26	16.28	49.54
133	Roofer or Waterproofer	20.25	5.73	25.98
134	Sheet Metal Worker	29.35	20.77	50.12
135	Steamfitter	33.26	16.28	49.54
137	Teledata Technician or Installer Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	22.25	12.24	34.49
138	Temperature Control Installer	33.26	16.28	49.54
139	Terrazzo Finisher	26.89	19.18	46.07
140	Terrazzo Mechanic	30.20	18.42	48.62
141	Tile Finisher	23.85	17.18	41.03
142	Tile Setter	30.85	17.62	48.47
143	Tuckpointer, Caulker or Cleaner	30.77	16.92	47.69
144	Underwater Diver (Except on Great Lakes)	34.48	15.90	50.38
146	Well Driller or Pump Installer	25.32	15.65	40.97
147	Siding Installer	25.92	18.04	43.96

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	29.16	14.34	43.50
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	30.60	14.86	45.46
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.78	13.63	40.41
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	24.86	12.97	37.83
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.70	34.45

TRUCK DRIVERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
201	Single Axle or Two Axle	23.16	21.85	45.01
203	Three or More Axle	23.50	12.44	35.94
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	32.89	18.96	51.85
205	Pavement Marking Vehicle	23.50	12.44	35.94
207	Truck Mechanic	23.50	12.44	35.94

LABORERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
301	General Laborer Premium Increase(s): Add \$1.00/hr for certified welder and pipelayer; Add \$.25/hr for mason tender	23.48	14.61	38.09
302	Asbestos Abatement Worker	17.00	0.00	17.00
303	Landscaper	21.01	9.96	30.97
310	Gas or Utility Pipeline Laborer (Other Than Sewer and Water)	19.86	13.63	33.49
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	16.00	0.00	16.00
314	Railroad Track Laborer	23.46	13.88	37.34
315	Final Construction Clean-Up Worker	28.31	16.62	44.93

**HEAVY EQUIPMENT OPERATORS
SITE PREPARATION, UTILITY OR LANDSCAPING WORK ONLY**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
501	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Milling Machine; Boring Machine (Directional, Horizontal or Vertical); Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Backhoe (Track Type) Having a Mfgr's Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Crane, Shovel, Dragline, Clamshells; Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Grader or Motor Patrol; Master Mechanic; Mechanic or Welder; Robotic Tool Carrier (With or Without Attachments); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Tractor (Scraper, Dozer, Pusher, Loader); Trencher (Wheel Type or Chain Type Having Over 8 Inch Bucket).	33.42	18.96	52.38
502	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Environmental Burner; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Jeep Digger; Screed (Milling Machine); Skid Rig; Straddle Carrier or Travel Lift; Stump Chipper; Trencher (Wheel Type or Chain Type Having 8 Inch Bucket & Under).	32.89	18.96	51.85
503	Air Compressor (&/or 400 CFM or Over); Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Forklift; Generator (&/or 150 KW or Over); Greaser; High Pressure Utility Locating Machine (Daylighting Machine); Mulcher; Oiler; Post Hole Digger or Driver; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack.	32.89	18.96	51.85
504	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	38.80	20.17	58.97
505	Work Performed on the Great Lakes Including Crane or Backhoe Operator; Assistant Hydraulic Dredge Engineer; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder; 70 Ton & Over Tug Operator. Premium Increase(s): Add \$.50/hr for Friction Crane, Lattice Boom or Crane Certification (CCO).	41.65	21.71	63.36
506	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	37.10	21.57	58.67

507	Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	34.50	20.04	54.54
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**HEAVY EQUIPMENT OPERATORS
EXCLUDING SITE PREPARATION, UTILITY, PAVING LANDSCAPING WORK**

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY \$	HOURLY FRINGE BENEFITS \$	TOTAL \$
508	Boring Machine (Directional); Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Premium Increase(s): Add \$.50/hr for >200 Ton / Add \$1/hr at 300 Ton / Add \$1.50/hr at 400 Ton / Add \$2/hr at 500 Ton & Over.	35.62	18.96	54.58
509	Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Boring Machine (Horizontal or Vertical); Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Pile Driver; Versi Lifts, Tri-Lifts & Gantrys (20,000 Lbs. & Over). Premium Increase(s): Add \$.25/hr for all >45 Ton lifting capacity cranes	34.62	18.96	53.58
510	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Dredge (NOT Performing Work on the Great Lakes); Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Hydro-Blaster (10,000 PSI or Over); Milling Machine; Skid Rig; Traveling Crane (Bridge Type).	33.42	18.96	52.38

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
511	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Environmental Burner; Gantrys (Under 20,000 Lbs.); Grader or Motor Patrol; High Pressure Utility Locating Machine (Daylighting Machine); Manhoist; Material or Stack Hoist; Mechanic or Welder; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tining or Curing Machine; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket).	32.89	18.96	51.85
512	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Grout Pump; Hoist (Tugger, Automatic); Industrial Locomotives; Jeep Digger; Lift Slab Machine; Mulcher; Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames.	30.82	18.96	49.78
513	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Boatmen (NOT Performing Work on the Great Lakes); Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Elevator; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Forklift; Generator (&/or 150 KW or Over); Greaser; Heaters (Mechanical); Loading Machine (Conveyor); Oiler; Post Hole Digger or Driver; Prestress Machine; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Robotic Tool Carrier (With or Without Attachments); Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack.	30.19	18.96	49.15
514	Gas or Utility Pipeline, Except Sewer & Water (Primary Equipment).	36.34	21.14	57.48
515	Gas or Utility Pipeline, Except Sewer & Water (Secondary Equipment). Future Increase(s): Add \$1.60/hr on 06/01/2014; Add \$1.65/hr on 06/01/2015.	32.32	18.55	50.87
516	Fiber Optic Cable Equipment Future Increase(s): Add \$1.75/hr on 02/01/2014.	27.89	17.20	45.09

SEWER, WATER OR TUNNEL CONSTRUCTION
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Includes those projects that primarily involve public sewer or water distribution, transmission or collection systems and related tunnel work (excluding buildings).

SKILLED TRADES

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
		\$	\$	\$
103	Bricklayer, Blocklayer or Stonemason Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	35.10	18.40	53.50
105	Carpenter Future Increase(s): Add \$1.25/hr on 6/2/2014. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.68	19.81	53.49
107	Cement Finisher Future Increase(s): Add \$1.87 on 6/1/14; Add \$1.87 on 6/1/15; Add \$1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	33.51	16.13	49.64
109	Electrician Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	32.82	22.61	55.43
111	Fence Erector	16.00	3.33	19.33
116	Ironworker	31.25	19.46	50.71
118	Line Constructor (Electrical)	38.25	15.87	54.12
125	Pavement Marking Operator	16.00	1.79	17.79
126	Piledriver	30.98	15.90	46.88
130	Plumber	33.75	14.07	47.82
135	Steamfitter	32.59	16.10	48.69
137	Teledata Technician or Installer	21.89	11.85	33.74

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked				
<u>CODE</u>	<u>TRADE OR OCCUPATION</u>	<u>HOURLY BASIC RATE OF PAY</u>	<u>HOURLY FRINGE BENEFITS</u>	<u>TOTAL</u>
		\$	\$	\$
143	Tuckpointer, Caulker or Cleaner	30.77	16.92	47.69
144	Underwater Diver (Except on Great Lakes)	38.80	20.17	58.97
146	Well Driller or Pump Installer	25.32	15.65	40.97
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	29.16	14.34	43.50
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	30.60	14.86	45.46
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.78	13.63	40.41
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	24.86	12.97	37.83
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.70	34.45

TRUCK DRIVERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked				
<u>CODE</u>	<u>TRADE OR OCCUPATION</u>	<u>HOURLY BASIC RATE OF PAY</u>	<u>HOURLY FRINGE BENEFITS</u>	<u>TOTAL</u>
		\$	\$	\$
201	Single Axle or Two Axle	30.00	15.00	45.00
203	Three or More Axle	16.00	1.79	17.79
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	32.89	18.96	51.85
205	Pavement Marking Vehicle	16.00	1.79	17.79
207	Truck Mechanic	16.00	1.79	17.79

LABORERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked				
<u>CODE</u>	<u>TRADE OR OCCUPATION</u>	<u>HOURLY BASIC RATE OF PAY</u>	<u>HOURLY FRINGE BENEFITS</u>	<u>TOTAL</u>
		\$	\$	\$
301	General Laborer Premium Increase(s): Add \$.20 for blaster, bracer, manhole builder, caulker, bottomman and power tool; Add \$.55 for pipelayer; Add \$1.00 for 0-15 lbs. compressed air; Add \$2.00 for 15-30 lbs. compressed air; Add \$3.00 for over 30 lbs. compressed air.	25.35	14.62	39.97
303	Landscaper	25.28	11.46	36.74
304	Flagperson or Traffic Control Person	17.41	10.10	27.51
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	16.00	0.00	16.00
314	Railroad Track Laborer	23.46	13.88	37.34

**HEAVY EQUIPMENT OPERATORS
SEWER, WATER OR TUNNEL WORK**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
521	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Master Mechanic; Pile Driver. Future Increase(s): Add \$1.05/hr on 6/2/2014; Add \$1.55/hr on 6/1/2015. Premium Increase(s): Add \$.25/hr for operating tower crane.	36.84	19.45	56.29
522	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Spreader & Distributor; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Dredge (NOT Performing Work on the Great Lakes); Milling Machine; Skid Rig; Telehandler; Traveling Crane (Bridge Type). Future Increase(s): Add \$1.05/hr on 6/2/2014; Add \$1.55/hr on 6/1/2015. Premium Increase(s): Add \$.25/hr for operating tower crane.	36.06	19.45	55.51
523	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Boring Machine (Horizontal or Vertical); Bulldozer or Endloader (Over 40 hp); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Manhoist; Material or Stack Hoist; Mechanic or Welder; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket).	32.89	18.96	51.85

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
524	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Environmental Burner; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Hoist (Tugger, Automatic); Grout Pump; Jeep Digger; Lift Slab Machine; Mulcher; Power Subgrader; Pump (3 Inch or Over) or Well Points; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Tining or Curing Machine; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames. Future Increase(s): Add \$1.05/hr on 6/2/2014; Add \$1.55/hr on 6/1/2015. Premium Increase(s): Add \$.25/hr for operating tower crane.	35.11	19.45	54.56
525	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Loading Machine (Conveyor); Post Hole Digger or Driver; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack.	30.19	20.94	51.13
526	Boiler (Temporary Heat); Forklift; Greaser; Oiler.	29.69	18.46	48.15
527	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	38.80	20.17	58.97
528	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	38.80	20.17	58.97
529	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	34.50	20.04	54.54
530	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under), Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	34.50	20.04	54.54

LOCAL STREET OR MISCELLANEOUS PAVING CONSTRUCTION

Includes roads, streets, alleys, trails, bridges, paths, racetracks, parking lots and driveways (except residential or agricultural), public sidewalks or other similar projects (excluding projects awarded by the Wisconsin Department of Transportation).

SKILLED TRADES

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
103	Bricklayer, Blocklayer or Stonemason	30.77	16.92	47.69
105	Carpenter	30.48	16.00	46.48
107	Cement Finisher Future Increase(s): Add \$1.87 on 6/1/14; Add \$1.87 on 6/1/15; Add \$1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	32.65	17.32	49.97
109	Electrician	31.27	22.81	54.08
111	Fence Erector	16.00	3.33	19.33
116	Ironworker	28.23	22.97	51.20
118	Line Constructor (Electrical)	38.25	15.87	54.12
124	Painter	29.52	10.80	40.32
125	Pavement Marking Operator	30.00	0.00	30.00
126	Piledriver	30.98	15.90	46.88
133	Roofer or Waterproofer	20.25	5.73	25.98
137	Teledata Technician or Installer	21.89	11.85	33.74
143	Tuckpointer, Caulker or Cleaner	30.77	16.92	47.69
144	Underwater Diver (Except on Great Lakes)	38.80	20.17	58.97
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	34.43	15.24	49.67
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	30.60	14.86	45.46
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.78	13.63	40.41
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	24.86	12.97	37.83

154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.70	34.45
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TRUCK DRIVERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
201	Single Axle or Two Axle	30.00	15.00	45.00
203	Three or More Axle	19.50	9.53	29.03
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	32.89	18.96	51.85
205	Pavement Marking Vehicle	19.50	9.53	29.03
206	Shadow or Pilot Vehicle	30.00	15.00	45.00
207	Truck Mechanic	19.50	9.53	29.03

LABORERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
301	General Laborer	28.07	8.69	36.76
303	Landscaper Future Increase(s): Add \$1.60/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	29.04	14.63	43.67
304	Flagperson or Traffic Control Person	17.41	10.10	27.51
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	16.00	0.00	16.00
314	Railroad Track Laborer	23.46	13.88	37.34

**HEAVY EQUIPMENT OPERATORS
CONCRETE PAVEMENT OR BRIDGE WORK**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
541	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Future Increase(s): Add \$1.75/hr on 6/1/2014); Add \$1.25/hr on 6/1/2015); Add \$1.30/hr on 6/1/2016); Add \$1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm .	36.72	20.40	57.12
542	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Crane, Tower Crane Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add \$1.75/hr on 6/1/2014); Add \$1.25/hr on 6/1/2015); Add \$1.30/hr on 6/1/2016); Add \$1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm .	36.22	20.40	56.62

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
543	<p>Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Automatic Subgrader (Concrete); Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional, Horizontal or Vertical); Bridge (Bidwell) Paver; Bulldozer or Endloader; Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames.</p> <p>Future Increase(s): Add \$1.75/hr on 6/1/2014); Add \$1.25/hr on 6/1/2015); Add \$1.30/hr on 6/1/2016); Add \$1.25/hr on 6/1/2017.</p> <p>Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm.</p>	35.72	20.40	56.12
544	<p>Backfiller; Belting, Burlap, Texturing Machine; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Jeep Digger; Joint Sawyer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler; Tining or Curing Machine.</p>	33.96	19.79	53.75
545	<p>Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Concrete Proportioning Plant; Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack.</p>	32.39	18.46	50.85
546	Fiber Optic Cable Equipment.	26.69	16.65	43.34

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked				
CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
		\$	\$	\$
547	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	38.80	20.17	58.97
548	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	38.80	20.17	58.97
549	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or more); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	34.50	20.04	54.54
550	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	34.50	20.04	54.54

**HEAVY EQUIPMENT OPERATORS
ASPHALT PAVEMENT OR OTHER WORK**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked				
CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
		\$	\$	\$
551	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads and/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic.	35.12	18.46	53.58
552	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add \$1.75/hr on 6/1/2014); Add \$1.25/hr on 6/1/2015); Add \$1.30/hr on 6/1/2016); Add \$1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm .	36.22	20.40	56.62

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
553	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boring Machine (Directional, Horizontal or Vertical); Bulldozer or Endloader; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Laser/Screed; Concrete Slipform Placer Curb & Gutter Machine; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames.	27.15	10.31	37.46
554	Backfiller; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawyer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Self-Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler.	20.00	11.17	31.17
555	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add \$1.75/hr on 6/1/2014); Add \$1.25/hr on 6/1/2015); Add \$1.30/hr on 6/1/2016); Add \$1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm .	35.17	20.40	55.57
556	Fiber Optic Cable Equipment.	26.69	16.65	43.34

***** END OF RATES *****

Consolidated List of Debarred Contractors
Prepared and Issued By
State of Wisconsin
Department of Workforce Development

February 19, 2014

This list has been prepared in accordance with the provisions of §§66.0903(12) and 103.49(7), Wis. Stats., and Chapter DWD 294 of the Wisconsin Administrative Code. All contractors on this list were found to have committed a "debarable offense" related to certain labor standard provisions determined or established for a state or local public works project. No state agency, local governmental unit or owner or developer may knowingly solicit bids from, negotiate with or award any contracts to or approve or allow any subcontracts with a debarred contractor, including all divisions, affiliates or other organizational elements of such contractor that are engaged in construction business activities, until the debarment is terminated. The name of each debarred contractor must remain on this list for a period of three (3) years from the termination date indicated below. The contractor is, however, only "debarred" from the "effective date" through the "termination date" indicated for that contractor. Questions regarding this list should be addressed to Julie Eckenwalder, Equal Rights Division, P. O. Box 8928, Madison, WI 53708 or call (608) 266-3148. Deaf, hearing or speech-impaired callers may contact the department by calling its TDD number (608) 264-8752.

<u>Name of Contractor</u>	<u>Address</u>	<u>Effective Date</u>	<u>Termination Date</u>	<u>Cause Code</u>	<u>Date of Violation(s)</u>	<u>Limitations/Deviations</u>
Abel, Mike	See, Abel Electric, Inc					
Abel Electric, Inc	3385 Belmar Rd Green Bay, WI 54313	9/1/12	8/31/15	1	2011	None
Atkins, Scott	See, Freedom Insulation, Inc					
Boecker, Roger	See, R-Way Pumping, Inc					
Cargill Heating and Air Conditioning Company, Inc	3049 Edgewater La La Crosse, WI 54603	3/1/14	2/28/17	1 and 2	2011	None
Castlerock Commercial Construction, Inc	PO Box 11699 Milwaukee, WI 53211-0699	2/1/12	1/31/15	1, 2 and 4	2009 & 2010	None
Dem/Ex Group, Inc	805 S Adams St Manito, IL 61546	12/1/11	11/30/14	1 and 2	2010	None
Fisher, Ed &/or Fisher, Rhonda	See, Dem/Ex Group, Inc					

<u>Name of Contractor</u>	<u>Address</u>	<u>Effective Date</u>	<u>Termination Date</u>	<u>Cause Code</u>	<u>Date of Violation(s)</u>	<u>Limitations/Deviations</u>
Freedom Insulation, Inc	117925 219th Ave Chippewa Falls, WI 54729	9/1/11	8/31/14	1	2008-2010	None
Galstad, Michael E (aka Michael Earl Galstad)	See, Cargill Heating and Air Conditioning Company, Inc					
JT Roofing, Inc	350 Tower Dr Saukville, WI 53080	6/1/12	5/31/15	1, 2 and 4	2007 & 2008	None
Jinkins, Richard	See, Castlerock Commercial Construction, Inc					
Ofstie, Darin	See, Precision Excavating and Grading, LLC					
Precision Excavating and Grading, LLC or Precision Excavating Enterprises, LLC	2104 Pierce Saint Croix Rd Baldwin, WI 54002	5/1/11	4/30/14	1, 2 and 4	2006-2008	None
R-Way Pumping, Inc	3023 Lake Maria Rd Freeport, MN 56331	3/1/12	2/28/15	1, 2 and 4	2008	None
Thull, Gerald T	See, JT Roofing, Inc					

Cause Code: 1 = Failure to Pay Straight Time 2 = Failure to Pay Overtime 3 = Kickback 4 = Payroll Records.

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Specifications

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SECTION 01 01 00

GENERAL REQUIREMENTS

1.01 PROJECT DESCRIPTION

- A. In general, the project consists of:
 - 1. Dredging approximately 72,500 cubic yards of material from the bed of the Menominee River within the Menekaunee Harbor for navigational and contaminant removal purposes.
 - 2. Removal of existing timber pile shoreline wall and replacement with a combination of riprap, ledge stone, and sheet pile wall.
- B. The project is located as shown on the Drawings.

1.02 WORK SEQUENCE

- A. No dredging or filling can take place in the water between March 15 and July 1 of any calendar year, to avoid fish spawning period in accordance with WDNR requirements. The first work activity within the water shall be placement of the turbidity barrier. Work outside the harbor water limits may begin as soon as a Notice to Proceed is issued.
- B. Contractor shall provide an implementation plan to be submitted for Chapter 30 review by WDNR. Permit requirements may be amended based on final implementation plan.
- C. Actual construction sequencing shall be the responsibility of Contractor. Contractor shall prepare a detailed Work Sequence document with Gantt chart schedule after the contract has been awarded. The following suggested sequencing is provided for bidding purposes (see Section 35 20 13 for dredging details and requirements):
 - 1. Mobilize to harbor and set up staging and dewatering areas as required.
 - 2. Install erosion control around dewatering areas and install sediment barriers in harbor.
 - 3. Remove contaminated sediments by hydraulic or mechanical dredging methods (estimated 27,500 CY of environmental dredge spoils to be generated) as indicated on the Drawings.
 - 4. Dewater and haul sediment with greater contamination levels (environmental dredge spoils) to Waste Management - Menominee Landfill in Menominee, Michigan (treat interstitial/carriage water as required by WDNR).
 - 5. Shape shoreline to desired final slopes removing existing timber pile walls to 2-ft below final grades.
 - 6. Place riprap or ledge stone as shoreline treatments (and filter fabric/bedding where required) in conjunction with dredging and shaping of shoreline slopes to minimize harbor shoreline erosion.
 - 7. Construct sheet pile wall.
 - 8. Prepare Lot 24 for excess navigational dredge spoils containment.
 - 9. Remove remaining navigational dredge spoils to achieve final navigational depths in outlet channel and west side of harbor by hydraulic or mechanical dredging methods (estimated 45,000 CY of navigational dredge spoils generated) as indicated on the Drawings.
 - 10. Haul shredded wood from Owner's facility to Lot 24 for use at Lot 24 as indicated on the drawings and specifications.
 - 11. Dewater and haul navigational dredge spoils to lot 24 Navigational Dredge Spoils Containment Site (estimated 22,500 CY). Manage interstitial/carriage water by disposal to wastewater treatment plant or on site treatment facility.
 - 12. Backfill east side of harbor to final contour grades with remaining navigational dredge spoils (used as beneficial-use fill) (estimated 22,500 CY of navigational dredge spoils to be beneficially re-used).

13. Complete remaining shoreline treatments, beneficial use fill area, and final grading to meet design plan.
14. Complete site restoration, remove erosion controls, and demobilize.

1.03 PROJECT MEETINGS

- A. A preconstruction conference will be scheduled after award of contract and prior to beginning work. This meeting shall be attended by A/E, Owner, EPA, WDNR, and an authorized representative of Contractor.
- B. Weekly progress meetings will be held at project site at times designated by Owner or A/E. A responsible representative of Contractor who can bind Contractor to decisions shall attend. Contractor shall provide updates at progress meetings to be posted to a public access website including important project information and project progress.

1.04 WORK HOURS

- A. Work shall be conducted between the following hours:
 1. All major dredging and work site activities including trucking (with the exception of sheet pile installation) shall be conducted between the hours of sunrise to sunset, Monday through Saturday.
 2. Sheet pile installation shall be conducted between the hours of 8:00 a.m. and 5:00 p.m. on normal work days.
 3. Dewatering activities may occur 24 hours per day provided noise generation from dewatering activities is within City of Marinette requirements.
- B. Give written notice to A/E whenever it is desired to perform work at night, or on a Sunday or holiday, or to vary period of hours during which work is carried on each day. If approved, such work shall be subject to requirements furnished in writing by A/E, and no extra compensation will be allowed.
- C. Waste Management - Menominee Landfill hours of operation are 7:00 am to 3:45 pm, Monday to Friday.

1.05 SUBMITTALS

- A. Submit items for review as listed below and as indicated in individual specification sections. Unless otherwise indicated, submit the following quantities for each type of submittal:
 1. Construction Schedule: PDF electronic file or 2 paper copies.
 2. Shop Drawings: PDF electronic file or minimum 3 paper copies (2 retained, 1 returned).
 3. Product Data: PDF electronic file or minimum 3 paper copies (2 retained, 1 returned).
 4. Certificates of Compliance: PDF electronic file or 2 paper copies.
 5. Permits and Approvals: PDF electronic file or 1 paper copy.
 6. Test Reports: PDF electronic file or 2 paper copies.
- B. Shop drawing and product data submittals shall bear the stamp of approval of Contractor as evidence of accuracy, compatibility, and conformance with contract requirements. Drawings and product data not so stamped will be returned without being examined. Where manufacturer's standard literature includes multiple products or options, identify the specific products and options as required for this project. Specific written notice shall be given of each variation that shop drawings and product data may have from requirements of the Contract Documents.
- C. Products subject to shop drawing, product data, or sample review shall not be used in the work until submittals have been reviewed and bear the stamp and signature of A/E. Submittals will only be reviewed for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Contractor shall be responsible for confirming and correlating all quantities and dimensions,

selecting fabrication processes and techniques of construction, coordinating his or her work with that of all other trades, and performing all work in a safe and satisfactory manner. Corrections or comments made on submittals shall not relieve Contractor from compliance with requirements of Drawings and Specifications and shall not be considered an order for extra work.

1.06 PERMITS AND CODES

- A. Owner will obtain the following permits, licenses, and approvals:
 - 1. WDNR Chapter 30 Waterway Individual Permit for Dredging Operations (see Section 35 20 13 for further information) (see Appendix K).
 - 2. WDNR WPDES WI-00456558-5 Carriage/Interstitial Water Permit (Contractor shall identify its means of dewatering for the permit submittal (see Appendix F for more information).
 - 3. WDNR Water Resources Application for Projects Permit (WRAPP - formerly known as NOI permit) and NR 216 Construction Site Storm Water Discharge Permit WPDES S067831-4 & Erosion Control and Storm Water Management Plan (see Appendices I and J).
 - 4. US Army Corp of Engineers Section 404/401 Permit for work in a Waterway.
 - 5. Lot 24 Dredge Spoils Disposal Site Exemption (see Appendix H).
- B. Owner will obtain a Waterway Marker Permit from the WDNR. The local contact for this permit will be Recreational Safety Warden Jeremy Cords (ph. 920.366.1917, email Jeremy.Cords@Wisconsin.gov). Contractor may amend to permit as necessary to meet needs of individual dredging plan.
- C. Contractor shall comply with the requirements of the above permits, licenses, and approvals. If a copy of a permit, license, or approval is not available for review prior to the Bid Deadline, and if it contains a requirement not covered by the Contract Documents, such a requirement will be considered extra work if Contractor makes a claim under the terms of the General Conditions. Work shall not begin on items applicable to the above until the required permit, license, or approval is received.
- D. Contractor shall provide all other necessary permits and licenses and pay all fees, taxes, and royalties, unless otherwise indicated.
- E. Comply with local and municipal ordinances and applicable state and national codes.
- F. Comply with all applicable US Coast Guard regulations and codes.
- G. Comply with City Code of Ordinance Ch. 14 Floodplain and Shoreland/Wetland Zoning Ordinance and Wis. Adm. Code, s. NR 116 Wisconsin's Floodplain Management Program.

1.07 TEMPORARY UTILITIES

- A. Contractor shall be responsible for providing temporary electric power as required for construction purposes. Provide portable power supply or make arrangements with local utility company.
- B. Contractor shall be responsible for obtaining water for its needs. Pay cost of water used and meter rental, if applicable.
- C. Contractor shall provide temporary outside toilets sufficient for construction workers. Toilets shall be self-contained chemical type and shall comply with applicable Codes. Maintain sanitary facilities in a clean and sanitary condition; supply toilet paper until completion of project.

1.08 PROTECTION

- A. Furnish and maintain proper barricades, fences, signal lights, warning signs, and personnel as required to properly protect and safeguard the work, persons, animals, and property against injury.

1.09 ENVIRONMENTAL CONTROLS

- A. See Section 01 57 19.

1.10 TRAFFIC CONTROL

- A. Conduct operations to ensure minimum interference with streets, walks, and adjacent facilities not part of construction project.
- B. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- C. Use hauling routes shown on the Drawings.

1.11 SITE SECURITY

- A. Contractor is responsible for its site security.
- B. Site access control is not required or permitted for Lot 24 because site access road off of Murray Street cul-de-sac is utilized by adjacent property owner and their contractors. Contractor shall share primary site entrance and be aware of potential non-project traffic entering property and use of access road. Signage is recommended warning traffic of potential traffic conflicts and congestion.

1.12 EMERGENCY CONTACT

- A. Contractor to designate emergency 24-hour contact personnel. The 24-hour emergency contact information shall be provided to Owner, A/E and regulatory agencies.

1.13 PROJECT IDENTIFICATION SIGNS

- A. Within 15 days after Notice to Proceed, furnish, erect where directed, and maintain for duration of project two temporary project identification signs: one at the Lot 24 Containment Site and one at the Harbor Dredging Site.
- B. Construct signs of 3/4 in. waterproof plywood and support as required on a minimum of two 4 in. x 4 in. wood posts. Paints shall be exterior grade enamel in colors indicated. See Drawing Detail.
- C. Remove signs at completion of work.

1.14 FIELD OFFICES

- A. Contractor's Office:
 - 1. Contractor shall provide and maintain a temporary office where directed for itself and its subcontractors.
 - 2. Office shall have a large meeting room for holding construction project meetings. Meeting will be attended by representatives of Contractor, A/E, Owner, EPA, WDNR, and each subcontractor actively working on site.

B. A/E / EPA / WDNR Office:

1. Contractor shall provide and maintain a temporary office for use by A/E, EPA, and WDNR. Office may be in same mobile trailer as Contractor's office provided it is of adequate size and has a separate entrance.
2. Provide the following equipment in this office: Table suitable for examination of drawings, desk, and three chairs.
3. Contractor shall arrange and pay for the following services: Power, heating, air conditioning, national telephone hook-up (telephone by others), national facsimile hook-up, high speed wireless Internet access, trash cans, and weekly trash pick up service.

1.15 PRODUCT REQUIREMENTS

- A. Provide new products manufactured and conditioned for the particular application as recommended by manufacturer, unless otherwise noted. Transport, handle, store, and protect products as specified and in accordance with manufacturer's recommendations.
- B. Products, materials, and equipment identified by reference to a manufacturer's name, catalog number, or model are identified for the purpose of establishing a standard of type, function, appearance, and quality. Unless otherwise noted, any other product, material, or equipment which will perform adequately the duties imposed by the general design will be considered for substitution in accordance with the provisions below.
- C. Requests for substitution of alternate products or use of "or equal" items shall be submitted with complete references to manufacturer's product identification and product data indicating composition, guarantee, availability, applicable standards or agency approvals met or exceeded, restrictions imposed on product, and manufacturer's recommended method of application or installation. A substitution or an "or equal" item will be considered acceptable if the product will perform adequately the duties imposed by the general design and, in opinion of A/E, is of equal substance, quality, appearance, and function, unless the named item is necessary for interchangeability or if the named product has been demonstrated to be most cost-effective.

1.16 SURVEYS, STAKING, LINE AND GRADE

- A. Owner will provide benchmarks as indicated on Drawings. Contractor shall provide all other survey staking and layout as required to complete the Work.

1.17 FIELD MEASUREMENTS AND INSPECTION OF SURFACES

- A. Contractor shall layout its Work based on reference points furnished by Owner and shall be solely responsible for the accuracy of its measurements. Verify grades, lines, levels, locations, and dimensions as shown on Drawings, and inspect surfaces that are to receive work before proceeding with fabricating, assembling, fitting, or erecting. Notify A/E in writing in case of unsuitable conditions, defective substrates, or discrepancies in Contract Documents. Starting of work shall imply acceptance of conditions.
- B. Correct any errors or defects due to faulty measurements, improper layout, or failure to report discrepancies.

1.18 CONSTRUCTION CLEANING

- A. Keep work area free of accumulations of surplus materials, rubbish, and debris.

1.19 PUNCH LIST

- A. A "punch list" will be prepared and distributed to Contractor at Substantial Completion. Items on punch list shall be completed within 30 days. Required submittals (see below) shall be completed prior to or when requesting final payment.

1.20 CLOSEOUT SUBMITTALS

- A. Submit the following items to A/E prior to or with final Application for Payment:
 - 1. Project record drawings marked to show all changes made during construction. Dimension underground and concealed work and utilities from permanent reference points; record vertical distances. Make and record measurements to the nearest 0.5 ft on a clean drawing set.
 - 2. State labor certification on required form indicating that prescribed wage rates have been paid on all project labor.
 - 3. Evidence of continuing insurance coverage complying with insurance requirements (see Conditions of the Contract).
 - 4. Contractor's affidavit, along with final releases and waivers of liens as required by Owner, indicating that all debts and claims against project (less amounts withheld by Owner) have been paid in full or otherwise satisfied.
 - 5. Consent of surety company to final payment.

1.21 DEFINITIONS

- A. Dimensions on drawings and details are subject to field measurements.
- B. The term "working days" shall exclude weekends (Saturday and Sunday) and holidays.
- C. References to "Division 00" shall mean the Bidding Requirements and Contracting Requirements.
- D. References to "WDNR" shall mean Wisconsin Department of Natural Resources.
- E. References to EPA shall mean the U.S. Environmental Protection Agency.
- F. References to "WIDOT Std. Spec." shall mean Wisconsin Department of Transportation, Standard Specifications for Highway and Structure Construction, latest edition, including current Supplemental Specifications.
- G. References to "A/E", "Architect", or "Engineer" shall mean Ayres Associates.
- H. References to "Owner" shall mean City of Marinette, Wisconsin.

END OF SECTION

SECTION 01 22 50

MEASUREMENT AND PAYMENT

1.01 GENERAL REQUIREMENTS

- A. Payment for all work done in compliance with the Contract Documents, including all labor, equipment, materials, construction, and performance of operations relative to construction of this project, will be made under the Bid Items listed below. The Bid Items have been separated into two parts, Lot 24 Containment Site and Menekaunee Harbor Site, for convenience. Work required by the Contract Documents for which there is not a Bid Item will be considered incidental to the Contract and no additional compensation will be allowed.
- B. Owner reserves the right to alter Drawings, modify incidental work as may be necessary, and increase or decrease quantities of work to be performed, including deduction or cancellation of any one or more Bid Items. Changes in the Work shall not be considered as a waiver of any conditions of the Contract nor invalidate any provisions thereof. When changes result in revised quantities of work to be performed, Contractor shall accept payment according to contract unit prices appearing in the original Contract. A supplemental agreement between Contractor and Owner may be requested by either party when cumulative changes involve a net increase or decrease of more than 20 percent in total contract amount.
- C. Final measured quantities determined in field by A/E at time of construction shall govern over approximate quantities shown on the Bid Form, unless otherwise noted. Contractor shall take no advantage of any apparent error or omission in Drawings or Specifications, and A/E shall be permitted to make corrections and interpretations as may be deemed necessary for fulfillment of the intent of the Contract Documents.

[PART 1 - LOT 24 CONTAINMENT SITE]

1.02 ITEM NO. 1 - MOBILIZATION

- A. This item consists of work and operations necessary for movement of personnel, equipment, supplies, and incidentals to the project site and for establishment of Contractor's offices and other temporary facilities necessary for work on project; and of all other work which must be performed, or for which costs must be incurred before beginning work on various items on project site; and demobilization at completion of work. Work shall be completed in accordance with the Drawings and Specifications.
- B. Measurement for payment will be as a complete unit of work acceptably performed.
- C. Payment will be made at the contract lump sum price for MOBILIZATION, payable to Contractor in accordance with the following schedule:
 - 1. When 5 percent or more of original contract amount for the Part 1 Bid Items is earned, 40 percent of amount bid for mobilization will be paid.
 - 2. When 25 percent or more of original contract amount for the Part 1 Bid Items is earned, 80 percent of amount bid for mobilization will be paid.
 - 3. When 90 percent or more of original contract amount for the Part 1 Bid Items is earned, 100 percent of amount bid for mobilization will be paid.
- D. Mobilization will be paid for only once for the Part 1 portion of the project, in accordance with the schedule above. Remobilizations for the Contractor's convenience will not be paid.

1.03 ITEM NO. 2 - EROSION CONTROL

- A. This work consists of all erosion control items related to management of storm water in accordance with the Drawings and Specifications, and as required by applicable project permits. See Section 01 57 19.

- B. Measurement for payment will be as a complete unit of work acceptably performed.
- C. Payment will be made at the contract lump sum price for EROSION CONTROL, payable to Contractor in accordance with the following schedule:
 - 1. When erosion and sediment control measures are installed, 50 percent of amount bid for erosion control will be paid.
 - 2. When placement of navigational dredge spoils within the Containment Site area is complete (i.e., harbor dredging efforts and hauling of spoils to Lot 24 is complete), 75 percent of the amount bid for erosion control will be paid.
 - 3. When project site restoration efforts are complete, 100 percent of amount bid for erosion control will be paid.

1.04 ITEM NO. 3 - CLEARING AND GRUBBING

- A. This work consists of protection of applicable existing site features, locating existing site utilities, and clearing and grubbing in accordance with the Drawings and Specifications. Clearing and grubbing includes removal of existing woody vegetation from the necessary project areas and within the limits of construction as shown on the Drawings. See Section 31 05 10.
- B. Measurement for payment will be as a complete unit of work acceptably performed.
- C. Payment will be made at the contract lump sum price for CLEARING AND GRUBBING.

1.05 ITEM NO. 4 - TOPSOIL STRIPPING AND STOCKPILING

- A. This work consists of stripping and stockpiling topsoil from the project site to develop the Containment Site area by establishing design grades, the service access road, the drainageway, and perimeter drainage swale to prepare the Containment Site in accordance with the Drawings and Specifications. See Section 31 05 10.
- B. Measurement for payment will be the number of cubic yards of topsoil acceptably stockpiled. Measurement will be calculated by comparing the pre-work site grades with the post-preparation site grades using topographic surveying by A/E.
- C. Payment will be made at the contract unit price per cubic yard for TOPSOIL STRIPPING AND STOCKPILING.

1.06 ITEM NO. 5 - PERIMETER DRAINAGE SWALE

- A. This work consists of construction of perimeter drainage swale around Containment Site area to prevent transport of storm water and sediments to beyond the limits of construction in accordance with the Drawings and Specifications. See Section 31 22 00.
- B. Measurement for payment will be as a complete unit of work acceptably performed.
- C. Payment will be made at the contract lump sum price for PERIMETER DRAINAGE SWALE.

1.07 ITEM NO. 6 - SITE PREPARATION

- A. This work consists of constructing drainageway at low-point of perimeter drainage swale to carry storm water into existing detention basin; constructing service access road entrance into Containment Site area; and installing culvert beneath service access road to carry water under service access road. Work shall be completed in accordance with the project Drawings and Specifications. Work includes furnishing and placing riprap in accordance with Section 31 37 00 for drainageway; furnishing and installing culvert in accordance with Section 33 42 00; and furnishing and constructing service access road in accordance with Sections 31 22 00 and 32 15 20.

- B. Measurement for payment will be as a complete unit of work acceptably performed.
- C. Payment will be made at the contract lump sum price for SITE PREPARATION.

1.08 ITEM NO. 7 - SITE OPERATIONS

- A. This work consists of operation of the Navigational Dredge Spoils Containment Site including, receiving and managing the incoming navigational dredge spoils such that the Containment Site and associated activities are performed in accordance with the Drawings and Specifications. This work shall also include necessary operations and activities not elsewhere covered within these specifications, including hauling and utilization of shredded wood for Containment Site preparation and operations.
- B. Measurement for payment will be the number of cubic yards of dredge spoils acceptably placed. A/E will perform pre-work topographic survey of Containment Site area to determine existing grades within prepared Containment Site area and perform final survey once spoils placement and final grading of the placed spoils is complete. The resulting difference between the two surveyed surfaces will be used to calculate the in-place cubic yards of dredge spoils.
- C. Payment will be made at the contract unit price per cubic yard for SITE OPERATIONS.

1.09 ITEM NO. 8 - TOPSOIL COVERING/SITE CLOSURE

- A. This work consists of excavating and hauling the topsoil from the project stockpile to the Containment Site area and placing and grading the topsoil uniformly over the final-graded Containment Site pile to a uniform thickness of at least 6 in. Work shall be completed in accordance with the Drawings and Specifications. See Section 32 92 00.
- B. Measurement for payment will be the number of cubic yards of topsoil acceptably placed. A/E will measure and determine average representative thickness of placed topsoil over Containment Site pile based on surveying or by hand measurements of actual topsoil thickness across Containment Site area.
- C. Payment will be made at the contract unit price for cubic yard for TOPSOIL COVERING/SITE CLOSURE.

1.10 ITEM NO. 9 - SITE RESTORATION

- A. This work consists of performing final restoration of the disturbed areas of the Containment Site, including the topsoil stockpile area, the Containment Site area, and other project disturbed areas by completing finish grading in accordance with Section 31 22 00, and placing fertilizer, seed, and mulch in accordance with Section 32 92 00. Final completion of site work shall include final checks and improvements to the Containment Site's erosion control systems in accordance with Section 01 57 19.
- B. Measurement for payment will be as a complete unit of work acceptably performed.
- C. Payment will be made at the contract lump sum price for SITE RESTORATION, payable to Contractor in accordance with the following schedule:
 - 1. When the Containment Site work is substantially completed, 50 percent of amount bid for site restoration will be paid.
 - 2. If germination of vegetation appears to be suitable to the restoration of the disturbed areas of the Containment Site by November 15, the remaining 50 percent of amount bid for site restoration will be paid.
 - 3. If seeding cannot be completed in 2014, seeding shall be completed in the spring 2015, and remaining 50% of amount bid will be paid after 30 days of seeding date if germination of vegetation appears to be suitable to the restoration of the disturbed areas.

[PART 2 - MENEKAUNEE HARBOR SITE]

1.11 ITEM NO. 10 - MOBILIZATION/SITE PREPARATION

- A. This item consists of work and operations necessary for movement of personnel, equipment, supplies, and incidentals to the project site and for establishment of Contractor's offices and other temporary facilities (including any dewatering pads, off-loading structures, collection pits, etc.) necessary for work on project; and of all other work which must be performed, or for which costs must be incurred before beginning work on various items on project site; and demobilization at completion of work. This work also consists of site preparation, including clearing, grubbing, and topsoil stripping in accordance with Section 31 05 10.
- B. Measurement for payment will be as a complete unit of work acceptably performed.
- C. Payment will be made at the contract lump sum price for MOBILIZATION/SITE PREPARATION, payable to Contractor in accordance with the following schedule:
 - 1. When 5 percent or more of original contract amount for the Part 2 Bid Items is earned, 40 percent of amount bid for mobilization will be paid.
 - 2. When 25 percent or more of original contract amount for the Part 2 Bid Items is earned, 80 percent of amount bid for mobilization will be paid.
 - 3. When 90 percent or more of original contract amount for the Part 2 Bid Items is earned, 100 percent of amount bid for mobilization will be paid.
- D. Mobilization/site preparation will be paid for only once for the Part 2 portion of the project, in accordance with the schedule above. Remobilizations for the Contractor's convenience will not be paid.

1.12 ITEM NO. 11 - EROSION CONTROL

- A. This work consists of all erosion control items related to management of storm water in accordance with the Drawings and Specifications, and as required by applicable project permits. See Section 01 57 19.
- B. Measurement for payment will be as a complete unit of work acceptably performed.
- C. Payment will be made at the contract lump sum price for EROSION CONTROL, payable to Contractor in accordance with the following schedule:
 - 1. When erosion and sediment control measures are installed, 75 percent of amount bid for erosion control will be paid.
 - 2. When erosion and sediment control measures have been removed, 100 percent of amount bid for erosion control will be paid.

1.13 ITEM NO. 12 - SEAWALL REMOVAL/DISPOSAL

- A. This work consists of removal and proper disposal of existing timber pile seawall within the construction limits in accordance with Section 31 05 10.
- B. Measurement for payment will be the number of linear feet of seawall removed as measured and marked prior to removal.
- C. Payment will be made at the contract unit price per linear foot for SEAWALL REMOVAL/DISPOSAL.

1.14 ITEM NO. 13 - ENVIRONMENTAL DREDGING/DISPOSAL

- A. This work consists of dredging in accordance with Section 35 20 13. Work shall include removal and disposal of all materials as specified or indicated on the maps and drawings, except ledge rock, large boulders, rock fragments, wrecks, snags, stumps, and piles which

cannot be removed or buried below project depth without blasting. Work shall include hauling and disposal of dredge spoils at the designated, licensed landfill. Contractor is responsible for paying the landfill's disposal fee.

- B. Measurement for payment will be the number of tons of material removed within the specified lines and grades as weighed at the approved, licensed landfill.
 - 1. Over-excavation will only be measured for payment if:
 - a. Excavation outside the specified lines and grades is authorized by A/E to remove unsuitable material, and
 - b. Unsuitable condition is not a result of Contractor's operations.
- C. Payment will be made at the contract unit price per ton for ENVIRONMENTAL DREDGING/DISPOSAL.

1.15 ITEM NO. 14 - NAVIGATIONAL DREDGING/DISPOSAL

- A. This work consists of dredging in accordance with Section 35 20 13. Work shall include removal and disposal of all materials as specified or indicated on the maps and drawings, except ledge rock, large boulders, rock fragments, wrecks, snags, stumps, and piles which cannot be removed or buried below project depth without blasting. Work shall include hauling and disposal of dredge spoils at Lot 24 Containment Site.
- B. Measurement for payment will be the number of cubic yards of material acceptably removed and disposed. The measurement will be determined by bathymetric surveys as outlined in Section 35 20 13.
 - 1. Over-excavation will only be measured for payment if:
 - a. Excavation outside specified lines and grades is authorized by A/E to remove unsuitable material, and
 - b. Unsuitable condition is not a result of Contractor's operations.
- C. Payment will be made at the contract unit price per cubic yard for NAVIGATIONAL DREDGING/DISPOSAL.

1.16 ITEM NO. 15 - BENEFICIAL REUSE DREDGING

- A. This work consists of dredging in accordance with Section 35 20 13. Work shall include removal and disposal of all materials as specified or indicated on the maps and drawings, except ledge rock, large boulders, rock fragments, wrecks, snags, stumps, and piles which cannot be removed or buried below project depth without blasting. Work shall include disposing the material in designated portions of the harbor to achieve desired final grades as shown on the Drawings.
- B. Measurement for payment will be the number of cubic yards of material acceptably relocated in the Harbor. The measurement will be determined by bathymetric surveys as outlined in Section 35 20 13.
 - 1. Over-excavation will only be measured for payment if:
 - a. Excavation outside specified lines and grades is authorized by A/E to remove unsuitable material, and
 - b. Unsuitable condition is not a result of Contractor's operations.
- C. Payment will be made at the contract unit price per cubic yard for BENEFICIAL REUSE DREDGING.

1.17 ITEM NO. 16 - WASTEWATER COLLECTION AND TREATMENT

- A. This work consists of dewatering, containment, sampling, testing, and treatment of all wastewater generated from dredging operations in accordance with the "Sediment

Dewatering” and “Disposal” articles of Section 35 20 13. The work also includes any additives or other incidentals required to adequately dewater the dredge spoils.

- B. Measurement for payment will be as a complete unit of work acceptably performed.
- C. Payment will be made at the contract lump sum price for WASTEWATER COLLECTION AND TREATMENT.

1.18 ITEM NO. 17 - EARTHWORK/SITE GRADING

- A. This work consists of final grading above the waterline of Menekaunee Harbor in accordance with Section 31 22 00.
- B. Measurement for payment will be as a complete unit of work acceptably performed.
- C. Payment will be made at the contract lump sum price for EARTHWORK/SITE GRADING.

1.19 ITEM NO. 18 - RIPRAP

- A. This work consists of furnishing and placing riprap in accordance with Section 31 37 00.
- B. Measurement for payment will be the number of square yards of riprap acceptably placed.
- C. Payment will be made at the contract unit price per square yard for RIPRAP.

1.20 ITEM NO. 19 - RIPRAP BEDDING

- A. This work consists of furnishing and placing riprap bedding in accordance with Section 31 37 00.
- B. Measurement for payment will be the number of square yards of bedding acceptably placed.
- C. Payment will be made at the contract unit price per square yard for RIPRAP BEDDING.

1.21 ITEM NO. 20 - STEPPED LEDGE STONE

- A. This work consists of furnishing and placing stepped ledge stone in accordance with Section 31 37 12.
- B. Measurement for payment will be the number of linear feet of shoreline along which stone is acceptably placed.
- C. Payment will be made at the contract unit price per linear foot for STEPPED LEDGE STONE.

1.22 ITEM NO. 21 - SHEET PILE WALL

- A. This work consists of furnishing and installing sheet pile shoreline wall and tieback system in accordance with Sections 03 30 00, 05 50 00, and 31 41 22.
- B. Measurement for payment will be the number of linear feet of shoreline along which sheet pile is acceptably installed.
- C. Payment will be made at the contract unit price per linear foot for SHEET PILE WALL.

1.23 ITEM NO. 22 - SITE RESTORATION

- A. This work consists of topsoiling, liming, fertilizing, seeding, and mulching in accordance with Section 32 92 00 areas disturbed by construction that are not restored under other bid items.
- B. Measurement for payment will be as a complete unit of work acceptably performed.

C. Payment will be made at the contract lump sum price for SITE RESTORATION.

END OF SECTION

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SECTION 01 57 19

TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.01 SUMMARY

- A. Provide temporary environmental controls as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.
- B. Follow applicable provisions of WDNR technical specifications for stormwater management and sediment/erosion control that are referenced by these specifications, unless directed otherwise in writing by A/E. A/E's project-specific technical specifications supersede the WDNR specifications if there are conflicting requirements.
- C. Turbidity barriers or other in-water best management practices (BMPs) to control turbidity must be properly marked with white lights visible from all directions during dusk to dawn hours to alert boats to the presence of the barrier.

1.02 SUBMITTALS

- A. Inspection Reports: Submit one copy of weekly inspection and precipitation event inspection reports for erosion and sediment controls.

1.03 PERMITS

- A. Owner will:
 - 1. File "Water Resources Application for Projects Permit (WRAPP - formerly known as NOI permit)" at least 14 working days prior to the start of construction.
 - 2. Provide Contractor with a copy of the permit and the site erosion control and storm water management plan.
 - 3. File Notice of Termination after construction site has undergone final stabilization.
- B. Contractor shall:
 - 1. Comply with requirements of State of Wisconsin General Permit (see "Erosion Control" article, below).
 - 2. Keep a copy of the Notice of Intent and the site erosion control and storm water management plan at site during construction.

PART 2 PRODUCTS

2.01 SILT FENCE

- A. Geotextile fabric and support system complying with the requirements of WIDOT Std. Spec., Subsection 628.2.6, except geotextile fabric shall have a maximum flow rate of 10 gal/minute/sq ft at 50 mm constant head as determined by multiplying permittivity in 1/second as determined by ASTM D4491 by a conversion factor of 74. This standard is available on the WDNR website at:

http://dnr.wi.gov/topic/stormwater/documents/Silt_Fence_1056_v2.pdf
http://dnr.wi.gov/topic/stormwater/documents/SiltFence_illustration.pdf

2.02 TURBIDITY BARRIER

- A. Turbidity barrier shall conform to the WDNR Conservation Practice Standard 1069-Turbidity Barrier. This standard is available on the WDNR website at:

http://dnr.wi.gov/topic/stormwater/documents/TurbidityBarrier_1069_.pdf

- B. An air bubble curtain capable of meeting the same requirements outlined for turbidity barrier may be used in place of a turbidity barrier at the entrance point to Menekaunee Harbor.

2.03 SILT CURTAIN

- A. Silt curtain shall conform to the WDNR Conservation Practice Standard 1070-Silt Curtain. This standard is available on the WDNR website at:

http://dnr.wi.gov/topic/stormwater/documents/Silt_Curtain_1070.pdf

2.04 SEDIMENT BALES (DITCH CHECKS)

- A. Straw or weed-free hay, in good condition, with rectangular surfaces, tightly bound with twine (not wire) and nominal dimensions of 30 in. x 18 in. x 14 in. This standard is available on the WDNR website at:

http://dnr.wi.gov/topic/stormwater/documents/Ditch_Check_1062_v2.pdf
<http://dnr.wi.gov/topic/stormwater/documents/Figure1-DitchCheck.pdf>
<http://dnr.wi.gov/topic/stormwater/documents/Figure2-StoneDitchCheck.pdf>

2.05 SEDIMENT LOGS

- A. Sediment logs shall consist of an exterior containment fabric filled with an interior filtering material and shall be as approved in the WIDOT Erosion Control Product Acceptability List (PAL). This standard is available at:

<http://www.dot.state.wi.us/business/engrserv/pal.htm>

2.06 INLET PROTECTION FABRIC

- A. Woven polypropylene material complying with the requirements of WIDOT Std. Spec., Subsection 628.2.12. This standard is available on the WDNR website at:

http://dnr.wi.gov/topic/stormwater/documents/StormDrainInletProtectionConstructionSites_1060.pdf
http://dnr.wi.gov/topic/stormwater/documents/inletprotection_illustration.pdf

2.07 STONE TRACKING PAD MATERIALS

- A. Aggregate: 3 to 6 in. clear or washed stone. All material shall be retained on a 3-in. sieve.
B. Geotextile Fabric: WIDOT Std. Spec., Section 645, Type R fabric.
C. This standard is available on the WDNR website at:

http://dnr.wi.gov/topic/stormwater/documents/StoneTrackingPadTireWashing_1057.pdf

2.08 TEMPORARY SEED

- A. Temporary seed mixture complying with requirements of WIDOT Std. Spec., Subsection 630.2.1.5.1.2. This standard is available on the WDNR website at:

http://dnr.wi.gov/topic/stormwater/documents/SeedingForConstructionSiteErosionControl_1059.pdf

- B. Tackifier shall comply with the requirements of WDNR standard for Erosion Control Land Application of Anionic Polyacrylamide. This standard is available on the WDNR website at:

<http://dnr.wi.gov/topic/stormwater/documents/dnr1050-polyacrylamide.pdf>

2.09 PERMANENT SEED

- A. See Section 32 92 00. This standard is available on the WDNR website at:

http://dnr.wi.gov/topic/stormwater/documents/SeedingForConstructionSiteErosionControl_1059.pdf

2.10 EROSION MAT

- A. See Section 32 92 00. This standard is available on the WDNR website at:

<http://dnr.wi.gov/topic/stormwater/documents/dnr1053-ChannelErosionMat.pdf>
http://dnr.wi.gov/topic/stormwater/documents/Non-ChannelErosionMat_1052.pdf

PART 3 EXECUTION

3.01 EROSION CONTROL

- A. Applicable Standards: Unless otherwise shown or specified, erosion control measures shall comply with:
1. "Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit" for storm water discharges associated with construction activities (available on the WDNR web site at dnr.wi.gov/topic/stormwater/construction/forms.html).
 2. WDNR "Stormwater Management Technical Standards" (available on the WDNR web site at dnr.wi.gov/topic/stormwater/standards/const_standards.html).
- B. General: Maintain erosion control measures to protect the project site and prevent sediment pollution of adjacent water courses and properties.
- C. Time Period: Install erosion control measures prior to start of construction and maintain them until final completion of work. Unless otherwise instructed, remove temporary erosion control measures prior to final application for payment.
1. Owner will assume responsibility for erosion control measures during post-closure care period of Lot 24 Dredge Spoils Containment Site following Contractor execution of Containment Site Closure and Exit in accordance with Section 31 81 92.
- D. Diversions: Construct and maintain dams, channels, flumes, sumps, and other temporary diversion and protective works to divert streamflow and other surface water through or around construction site and away from work while construction is in progress. Unless otherwise specified, a diversion must discharge into the same natural drainageway in which its head waters are located.
- E. Sediment Barriers: Construct and maintain one or more sediment barriers to receive runoff leaving site. For drainage areas up to 2 acres, provide silt fence barriers, erosion bale barriers, or temporary diversions. For drainage areas between 2 and 5 acres, provide sediment traps. For drainage areas between 5 and 150 acres, provide sediment basins.

- F. Storm Drain Protection: Protect storm drain inlets by using inlet protection of the type shown on Drawings. If not shown, use inlet protection fabric, silt fence barriers, erosion bale barriers, or equivalent.
- G. Tracking Pads: Prevent tracking of soils and sediments onto public and private streets by constructing temporary graveled access roads and parking areas as needed at the construction site. Remove at the end of each work day soils and sediment reaching public and private streets not part of the construction site.
- H. Re-establishment of Vegetation: Re-establish temporary or permanent vegetation on disturbed areas within the time limits allowed by applicable standards. Perimeter drainage swale at the Lot 24 Dredge Spoils Containment Site shall be constructed, and vegetated to the extent possible, prior to constructing and operating Containment Site area; refer to Specification 31 05 10.
- I. Sediment Deposits: Remove and dispose of sediment deposits (at Containment Site area) when deposits reach one-half the volume capacity of sediment barrier, unless otherwise indicated.

3.02 TURBIDITY BARRIER INSTALLATION AND MAINTENANCE

- A. Turbidity barriers shall be installed, operated, and maintained conforming to WDNR Conservation Practice Standard 1069-Turbidity Barrier.
- B. Turbidity barrier shall be placed at the entrance to the harbor as shown on the Drawings. Also provide temporary turbidity barriers around dredging operations to control sediment movement within the harbor. These temporary barriers shall be relocated as dredging equipment is moved around the harbor.
- C. Contractor is required to attempt to encourage fish to leave the work area before placing turbidity barrier. This can be accomplished by dragging a section of the turbidity barrier from the one side of the project area to the other before placing the turbidity barrier. No dredging work shall occur before placing turbidity barrier.
- D. Do not remove turbidity barrier until the water behind the barrier has equal or greater clarity than the water outside the turbidity barrier.

3.03 EROSION CONTROL MONITORING AND REPORTING

- A. Contractor shall conduct the following inspections:
 - 1. Weekly inspections of implemented erosion and sediment controls.
 - 2. Inspections of erosion and sediment controls within 24 hours after a precipitation event that produces 0.5 in. of rain or more during a 24-hour period.
- B. Contractor shall prepare weekly written reports of all inspections that include:
 - 1. Date, time, and exact place of inspection.
 - 2. Name of individual who performed inspection.
 - 3. An assessment of condition of erosion and sediment controls.
 - 4. A description of any erosion and sediment control implementation and maintenance performed.
 - 5. A description of the present phase of construction at site.

3.04 EROSION CONTROL REMOVAL

- A. Contractor shall be responsible for removal of all erosion control BMPs after areas have undergone final stabilization.

3.05 DUST CONTROL

- A. Minimize dispersion of dust from construction operations by application of water or other dust control materials. Controls shall confine dust and dirt within the immediate area of project; Refer to WDNR technical specification for guidance. This standard is available on the WDNR website at:

http://dnr.wi.gov/topic/stormwater/documents/DustControl_1068.pdf

3.06 NOISE CONTROL

- A. Provide noise control measures to limit the amount of noise and prevent nuisance. Properly equip all equipment with mufflers. Limit construction activities generating significant noise to normal working hours.

3.07 HAZARDOUS ENVIRONMENTAL CONDITIONS

- A. If underground petroleum storage tanks, petroleum contaminated soils, or other hazardous environmental conditions are encountered, and are not identified to be part of the work, Contractor shall immediately stop all work in connection with the hazardous condition and shall notify Owner and A/E. (See the General Conditions of the Contract for specific procedures that may apply.)

3.08 EQUIPMENT WASHING

- A. Decontaminate equipment after use and trucks hauling sediment offsite for disposal or leaving the disposal area in the following manner:
 - 1. Scrape and remove all earthen materials, aquatic plants, and animals from the equipment.
 - 2. Drain all water from the equipment that comes into contact with infested waters, including but not limited to tracked vehicles, barges, boats, hoses, sheet pile, and pumps.
 - 2. Hose down equipment with a portable high-pressure, hot-water (>104° F) washer (steam cleaner).
 - 3. Collect rinsate and scrapings. Place rinsate in approved tanks or drums, if needed, and transport to the Sediment Dewatering Area for treatment prior to discharge.
 - 4. Scrapings shall be stored on-site and covered until they can be disposed of at an approved offsite disposal facility.
- B. As an alternative to the procedures under paragraph A, above, Contractor may allow equipment to dry thoroughly for 5 days.
- C. Contractor is responsible for management and treatment of all decontamination water and discharge to the Menekaunee Harbor in accordance with the WPDES permit.
- D. Contractor is responsible for management of all scrapings and disposal at an approved offsite disposal facility.

END OF SECTION

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SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SUMMARY

- A. Provide cast-in-place concrete work as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

1.02 SUBMITTALS

- A. Shop Drawings: Submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315.
- B. Product Data: Submit product data for concrete accessories.
- C. Mix Designs: Submit proposed mix designs to A/E ten days prior to beginning concrete work. Do not begin concrete production until mixes have been reviewed.
- D. Delivery Tickets: Submit delivery ticket to A/E for each load of concrete delivered to project.
- E. Test Reports: Testing agency shall submit copy of field and laboratory reports to A/E.
- F. Make submittals in accordance with Section 01 01 00.

1.03 QUALITY ASSURANCE

- A. Prior to placing concrete, request review of reinforcement steel by A/E.
- B. Give A/E two working days notification of all planned concrete pours so that appropriate construction observation can be present at the project site.

1.04 CODES AND STANDARDS

- A. Comply with the following codes and standards, except as otherwise designated:
 - 1. ACI 301 Specifications for Structural Concrete.
 - 2. ACI 304 Guide for Measuring, Mixing, Transporting and Placing Concrete.
 - 3. ACI 318 Building Code Requirements for Structural Concrete.
 - 4. ACI SP-2 Manual of Concrete Inspection.

1.05 TESTING

- A. Contractor shall arrange and pay for services of a qualified testing agency acceptable to Owner and independent of Contractor.
- B. Testing agency shall test concrete to measure slump, entrained-air content, temperature, and compressive strength to determine compliance with specifications. Furnish test apparatus and cylinders, perform on-site sampling and testing, submit samples, and perform laboratory tests.
- C. On-site tests shall be performed under observation of A/E unless waived.
- D. Perform slump, air content, and temperature tests prior to concrete placement each day, whenever there is a change in consistency of concrete, and when concrete cylinders are prepared. If measured slump, air content, or temperature falls outside specified limits,

immediately check another portion of same batch. In event of a second failure, concrete shall be rejected.

- E. During progress of work, prepare three test cylinders per 50 cu yd or fraction thereof for each class of concrete placed each day. Identify samples, moist cure in accordance with ASTM C31, and ship samples to testing laboratory for one 7-day compressive strength test and two 28-day tests.
- F. Test procedures shall be in accordance with ASTM C31, C39, C143, C172, C231, and C1064.
- G. Cost of tests, including materials and transportation, shall be paid by Contractor and shall be considered incidental to the various items of concrete work.

PART 2 PRODUCTS

2.01 CEMENTITIOUS MATERIAL

- A. Cement: Portland cement, ASTM C150, Type I.
- B. Fly Ash: ASTM C618, Class C.

2.02 AGGREGATES

- A. Fine and coarse aggregates, ASTM C33, consisting of clean, hard, durable sand and crushed rock, crushed gravel, or gravel. Coarse aggregate shall meet grading requirements for size number 67, 57, or 467. Maximum coarse aggregate size for each class of concrete shall be as indicated in Part 4 Schedules. Ratio of coarse aggregate to fine aggregate shall not be less than 1:1 nor more than 2:1.

2.03 WATER

- A. Mixing water shall be potable, free of oil, acid, excessive alkalinity, organic matter, and salts.

2.04 ADMIXTURES

- A. Air-entrained admixture shall conform to ASTM C260. Other admixtures which do not adversely affect strength and durability of concrete may be used with permission of A/E, if used in strict accordance with manufacturer's instructions. Care shall be exercised to assure that the admixture does not increase or decrease air content outside of allowable limits. Do not use salt or chemical anti-freeze admixtures.

2.05 REINFORCING STEEL

- A. ASTM A615, Grade 60, new billet steel bars.
- B. Provide metal chairs, stirrups, spacers, and hangers to support reinforcement and insure against displacement during placement of concrete. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class 1) or stainless steel protected (CRSI, Class 2).

2.06 FORMWORK

- A. Forms for Exposed Finish Concrete: Construct forms for exposed concrete surfaces with water-resistant plywood, metal, metal-framed plywood-faced, or other acceptable panel type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system if shown. Provide form material with sufficient thickness to withstand pressure of newly placed concrete without bow or deflection. Rust-stained steel forms are not acceptable.

- B. Forms for Unexposed Finish Concrete: Construct forms for concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal, or other acceptable material. Provide lumber that is dressed on at least one side and two edges for tight fit.

2.07 CURING COMPOUND

- A. White, waterborne, membrane-forming curing compound, ASTM C309, Type 2, Class B, dissipating.

2.08 CONCRETE MIXTURES

- A. Conform to minimum standards for class and usage in Part 4 Schedules.
- B. Prepare design mixes for each type of concrete on the basis of compressive strength by methods recommended in ACI 318. Use an independent materials laboratory for preparing and reporting proposed mix designs.

PART 3 EXECUTION

3.01 PREPARATION

- A. Wet forms with form release agent.
- B. Sprinkle subgrade with water.
- C. Separate old concrete and adjacent structures from new pour with expansion joint filler.
- D. Provide concrete cover over reinforcing steel as designated on the Drawings.

3.02 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Locate and install construction joints so that strength and appearance of concrete is not impaired, at locations shown or as approved by A/E.
- C. Contraction Joints in Walls: Provide contraction (control) joints in walls as shown. If not shown, provide a contraction joint within 10 to 15 ft of wall corner and at a maximum spacing of 25 ft thereafter.
 - 1. Total depth of inside and outside contraction joints shall be 1/4 of wall thickness.

3.03 MIXING CONCRETE

- A. "Ready-mix" concrete shall be produced, delivered and handled in accordance with ASTM C94. Concrete shall be deposited at job site within one hour after introduction of water in mix. Care shall be taken in transferring concrete from truck or mixer to avoid segregation of aggregates in mixture.

3.04 CONCRETE PLACEMENT, GENERAL

- A. Place concrete as specified and in accordance with ACI 304. Maintain reinforcing steel in proper position.
- B. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints. Deposit concrete as near as practicable to final location to avoid segregation from rehandling or flowing. Do not subject concrete to any procedure which will cause segregation.

- C. Screed concrete to proper level to avoid excessive skimming or grouting.
- D. Do not use concrete which becomes non-plastic and unworkable, or does not meet required quality control limits, or which has been contaminated by foreign materials. Do not use retempered concrete. Remove rejected concrete from project site.
- E. Rock pockets or voids found after forms are removed shall be filled immediately with a well-mixed grout composed of one part of Portland cement and three parts of fine aggregate finished to true surface of concrete.
- F. Concrete shall not be placed around castings, frames, joints, and other embedded items until they have been accurately adjusted and set to required alignment and grade. Prior to placing of concrete, castings, frames, and embedded metal fixtures shall be painted on their contact surface with a heavy coat of asphaltic mastic or separated with expansion joint filler.

3.05 PLACING CONCRETE INTO FORMS

- A. Deposit concrete in forms in horizontal layers not deeper than 18 in. and in a manner to avoid inclined construction joints.
- B. Remove temporary spreaders in forms when concrete placing reaches elevation of spreaders.
- C. Consolidate concrete in forms by mechanical vibrating equipment and supplement by hand-spading, rodding or tamping. Use vibrators designed to operate at a speed of not less than 6000 impulses per minute when submerged in concrete. Vibration of forms and reinforcing will not be permitted.
- D. Do not use vibrators to move concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visibly effective. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other items without segregation of mix.

3.06 COLD WEATHER PLACING

- A. Protect concrete work from physical damage or reduced strength caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as specified below.
 - 1. When air temperature falls to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 60 deg F (50 deg F for heavy sections) and not more than 90 deg F at point of delivery.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials. Ascertain that forms, reinforcing steel, and adjacent concrete surfaces are entirely free of frost, snow and ice before placing concrete.
 - 3. During seasons when atmospheric temperature may be expected to drop below 40 deg F, concrete shall be protected by covering with impermeable paper and not less than 12 in. of loose dry hay or straw. Retain covering for ten days.

3.07 HOT WEATHER PLACING

- A. When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as specified below.
 - 1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 80 deg F. Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated in total amount of mixing water.

2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
3. Spray forms, reinforcing steel, and subgrade just before concrete is placed.
4. Do not use set-control admixtures, unless approved by A/E.

3.08 FINISHING FORMED SURFACES

- A. Provide standard rough finish to formed surfaces to be concealed in finish work or by other construction, unless otherwise designated. Standard rough form finish shall be the concrete surface having texture imparted by form facing material, with defective areas repaired and patched and fins and other projections exceeding 1/4 in. in height rubbed down with wood blocks.
- B. Provide standard smooth finish for formed surfaces exposed-to-view or to receive a covering applied directly or bonded to concrete, such as waterproofing, dampproofing, or paint. Standard smooth finish shall be the as-cast concrete surface obtained with form facing material, with defective areas repaired and patched and fins and other projections on surface completely removed and smoothed.

3.09 FINISHING UNFORMED SURFACES

- A. Thoroughly float surface after concrete has been struck off. Check and level surface plane to a tolerance not exceeding 1/4 in. in 10 ft when tested with a 10 ft straightedge placed on surface at not less than two different angles.
- B. Exterior surfaces shall have a lightly broomed surface with grain perpendicular to direction of travel.
- C. Edges shall be neatly trimmed with 1/4 in. radius edging tool.

3.10 CURING AND SEALING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Cure formed and unformed concrete for seven days or until 75 percent of the required 28-day compressive strength is obtained, whichever is less.
- B. Curing Compound: Apply white-pigmented membrane curing compound to exposed surfaces, unless otherwise indicated.

3.11 CONCRETE SURFACE REPAIRS

- A. Formed Surfaces: Request inspection of concrete surfaces immediately after removal of formwork. After inspection, repair and patch defective areas as soon as practicable.
 1. Remove bulges and projections by chipping or tooling. Rub or grind surface after removal.
 2. For patching, use dry-pack mortar consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve and only enough water as required for handling and placing. Cut out honeycomb, rock pockets, voids over 1/4 in. diameter, and holes left by tie rods and bolts. Remove defects down to solid concrete but, in no case, to a depth of less than 1 in. Make edges of cuts perpendicular to concrete surface or slightly undercut to provide a key at edge of cut. Thoroughly clean, dampen with water, and brush-coat area to be patched with bonding agent. Place patching mortar before bonding agent has dried. Compact mortar in place and strike off slightly higher than surrounding surface. For exposed-to-view surfaces, patch shall match color of surrounding concrete.
 3. For patching less than 1 in. in depth, Contractor may propose a proprietary patching product in lieu of removing concrete to minimum depth of 1 in. Submit proposed product to A/E for approval.

- B. Unformed Surfaces: Repair surfaces that do not meet specified requirements.
1. Correct low and high areas. Submit proposed repair products to A/E for approval.
 2. Fill cracks with an approved epoxy mortar which will match slab finish in density and performance. Grind filler smooth and even with adjacent surface, free of bumps or depressions at joint.

PART 4 SCHEDULES

4.01 CLASSES OF CONCRETE

<u>Class</u>	<u>Min. Comp. Strength @ 28 days, p.s.i.</u>	<u>Max. Slump</u>	<u>Max. Agg. Size</u>	<u>Min. Cement, Bags/ C.Y.*</u>	<u>Max. Water-Cement Ratio</u>	<u>Air Content, % By Volume</u>
AA	4000	4"	3/4"	6	0.45	5-8%

* Fly ash shall be used to constitute between 15 to 30% by weight of total cementitious material.

4.02 USAGE SCHEDULE

- A. Use class AA concrete for all work.

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

PART 1 GENERAL

1.01 SUMMARY

- A. Provide metal fabrications as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

1.02 RELATED SECTIONS

- 03 30 00 Cast-In-Place Concrete.
- 31 41 22 Steel Sheet Piling.

1.03 COORDINATION

- A. Furnish inserts and anchoring devices to be embedded in concrete for installation of miscellaneous metal work. Provide setting drawings, templates, and instructions for installation of anchorage devices. Coordinate delivery with related work to avoid delays.

1.04 SUBMITTALS

- A. Shop Drawings: Submit shop drawings for fabrication and erection of miscellaneous metal assemblies. Include product data, load tables, layouts, elevations, details of sections, connections, anchorage and accessory items. Provide templates for anchors and bolts installed under other sections.
- B. Make submittals in accordance with Section 01 01 00.

1.05 FIELD MEASUREMENTS

- A. Take measurements prior to shop fabrication. Allow for trimming and fitting to make field adjustments. Correct defects resulting from failure to take proper measurements.

PART 2 PRODUCTS

2.01 STEEL

- A. Shapes, Plates, and Bars: ASTM A572, Grade 50.
- B. Anchor Rod: ASTM A615, Grade 75, continuously threaded; Dywidag Threadbar by Dywidag-Systems International or Williams Form Engineering Corporation All-Thread Rebar.
- C. Pipe: ASTM A53, standard weight (Sch. 40) unless otherwise indicated.

2.02 FASTENERS

- A. High-strength bolts, nuts and washers shall conform to ASTM A325, Type 1. All components shall be galvanized to comply with ASTM A153; except fasteners 1/2 in. or less in diameter may be coated with electrodeposited zinc or cadmium, ASTM B633.
- B. Nuts and washers shall be furnished by anchor rod manufacturer.

2.03 GALVANIZING REPAIR PAINT

- A. High zinc-dust content paint for regalvanizing welds in galvanized steel, complying with SSPC-Paint 20.

2.04 FABRICATION

- A. Use materials of designated type, size, and thickness or, if not shown, of required strength, stiffness, and durability. Work to field measurements and shop drawings, using proven details of fabrication and support. Miscellaneous framing and support members shall comply with AISC Specification.
- B. Where exposed to view, use materials that are smooth and free of surface blemishes such as pitting, seam marks, roller marks, rolled trade names, and roughness.
- C. Form work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32 in. unless otherwise shown. Form bent-metal corners to smallest radius possible without causing grain separation or other impairment. Shearings and punchings shall be clean and true.
- D. Welding of anchor rods is not permitted.
- E. Provide anchorage devices and fasteners for securing miscellaneous metal items to in-place construction. Cut, reinforce, drill, and tap miscellaneous metal work as required to receive hardware and connections required by other trades.
- F. Preassemble and fit items to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly identify units for reassembly and installation.

2.05 GALVANIZING

- A. Galvanize all metal fabrications (except sheet piling and sheet pile cap) in accordance with ASTM A123 for iron and steel products.
- B. Galvanize after fabrication where practicable.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install anchorage devices and fasteners for adequate support. Perform cutting, drilling, and fitting, as required. Set work accurately in location, alignment, and elevation, plumb, level, true, and free of rack, measured from established lines. Provide temporary bracing or anchors in formwork for items to be built into concrete, masonry, or similar construction.
- B. Fit exposed connections to form tight hairline joints. Field weld connections which cannot be shop welded because of shipping size limitations. Comply with AWS Code for manual shielded metal-arc welding, appearance and quality of welds, and methods for correcting welding work. Grind exposed joints smooth and touch-up with shop primer. Do not weld, cut, or abrade surfaces of exterior units which have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.
- C. Remove slack in anchor rods.

3.02 ANCHOR ROD TENSIONING

- A. Anchor Rod Testing Equipment:

1. Testing equipment shall consist of a hydraulic jack with calibrated pressure gage for applying the load and a dial gage or vernier scale to measure anchor movement.
2. Stressing equipment shall have a capacity sufficient to stress anchors to the specified required loads within the rated capacity in one stroke.
3. Pressure gage shall be graduated in 50 psi increments.
4. Pumps shall be capable of applying each load increment in less than 60 seconds and shall be capable of maintaining hydraulic pressure within 50 psi.
5. Equipment shall permit stressing of anchor in increments and raising or lowering the load in anchor.
6. Equipment shall be calibrated with an accuracy of +/- 2% and the calibration certificate and graphs shall be available at site.
7. Stressing equipment and pressure gage shall have been calibrated as a unit no more than 30 calendar days prior to commencing work.

B. Anchor Rod Stressing:

1. Prior to stressing, surfaces upon which stressing equipment is resting shall be smooth and clean and stressing equipment shall be aligned as nearly with center of hole as possible.
2. Post-tension and lock-off load shall be 7.00 kips.
3. Contractor shall determine lock-off procedure so that lift-off results meet the acceptance criteria specified. Note several passes of stressing may be required before required load can be maintained.
4. Maximum stress shall never exceed 8.00 kips.
5. Safety precautions shall be taken to prevent workers from being behind or above stressing equipment during stressing.

C. Anchor Rod Final Lock-Off:

1. A lift off test shall be made only after all anchors have been stressed permanently to verify the load in each anchor before anchor is permanently locked-off.
2. Lift-off reading shall be within 5% of the specified lock-off load. If lift-off reading is not within 5% of the specified lock-off load, anchorage shall be reset and another lift-off reading shall be obtained.

3.03 TOUCH-UP

- A. Immediately after erection, clean fasteners and abraded areas. Repair damage to galvanized surfaces in accordance with ASTM A780.

END OF SECTION

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SECTION 31 05 10

SITE PREPARATION

PART 1 GENERAL

1.01 SUMMARY

- A. Provide site preparation as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.
- B. Work includes, but is not limited to:
 - 1. Protection of improvements, plants, and utilities.
 - 2. Removal and replacement of improvements.
 - 3. Location of utilities and coordination with utility companies.
 - 4. Clearing and grubbing trees and vegetation.
 - 5. Topsoil salvage.
 - 6. Site demolition and abandonments.

PART 2 (NOT USED)

PART 3 EXECUTION

3.01 PROTECTION

- A. Protect improvements on site and on adjoining properties. Provide barricades, coverings, or other types of protection as necessary to prevent damage and to safeguard against injury. Restore to original condition improvements damaged by the work or improvements which required temporary removal during construction.
- B. Protect existing vegetation indicated to remain against unnecessary cutting, breaking, bruising, or smothering by stockpiling excavated materials or parking of vehicles within drip line. Provide temporary fences, tree wells, barricades, or guards; repair or replace trees and vegetation damaged by construction operations.
- C. Maintain survey monuments, reference points, and benchmarks; notify Owner and A/E of disturbance to markers.
- D. No extra payment or time will be allowed for protection work that could have been suspected or anticipated by site inspection and interpretation of bidding documents prior to execution of contract.

3.02 LOCATING EXISTING UTILITIES

- A. Location and description of underground utilities and structures shown on drawings are approximate and are based on records available to Owner and A/E, or surface features indicating their existence. There may be other utilities within project area that are not shown.
- B. Notify all affected utility companies of construction operations at least three working days before beginning work near their facilities. Do not begin excavation work until underground utility locations have been marked.
- C. Use caution when excavating so that exact location of underground utilities, both known and unknown, may be determined. Provide adequate protection and support for utilities during construction operations.

- D. If uncharted or incorrectly charted utilities are encountered during excavation work, or if proposed construction conflicts with existing utilities, give prompt notice and submit proposed solution to A/E for approval. Cooperate with Owner, and public and private utility companies, to keep their services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

3.03 SITE CLEARING AND GRUBBING

- A. Remove trees, stumps, snags, shrubs, brush, heavy growths of grass, weeds and other vegetation, improvements, rubbish and debris, and obstructions that interfere with proposed construction; remove items only as necessary for completion of work.
 - 1. At the Lot 24 Containment Site, clearing and grubbing shall be completed as necessary to establish the Containment Site area and its surrounding storm water drainage swale; the storm water drainageway traveling between the Containment Site area and the existing detention basin; and, the project's topsoil stockpile,
- B. Cut brush and vegetation flush with ground. Grub out stumps, roots having a diameter of 2 in. or larger, and root clusters to a depth of at least 2 ft below subgrade elevation for pavements, structures, and embankments and 6 in. below ground surface in other areas.
- C. Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction. Cut back roots a minimum of 1 ft from concrete work, paving, and structures and to a depth of not less than 2 ft below structures, foundations, and embankments.
- D. Branches and removed roots shall be ground up on site and thinly spread on top of Containment Site area base grade. Logs from trees greater than 3 in. in diameter shall be set aside and piled for later loading into Owner-provided vehicle for Owner's use.

3.04 TOPSOIL STRIPPING AND STOCKPILING

- A. Topsoil shall include all friable, fertile, loam soil suitable for grass and plants, found at surface, reasonably free of subsoil, clay lumps, stones, objects over 2-in. diameter, weeds, large roots, root clusters, and other objectionable material. Objectionable material (not suitable for stockpiling and reuse during restoration) shall be piled within Lot 24 Containment Site for disposal.
- B. Strip topsoil from project area to whatever depths encountered; prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping topsoil. Objectionable turf (not suitable for stockpiling and reuse during restoration) shall be piled within Containment Site area for disposal.
- C. Where trees are indicated to remain (at edge of limits of construction), terminate stripping a sufficient distance from such trees to prevent damage to root system.
- D. Stockpile topsoil in storage piles in areas where designated on Drawings. Construct storage piles to freely drain surface water. Control windblown dust as appropriate in accordance with WDNR requirements and project plans.

3.05 DEMOLITION (HARBOR AREA)

- A. Remove timber pile walls and other improvements within construction limits as shown and as required for construction.
- B. Cut off existing timber pile wall to be removed a minimum of 2 ft below the structural fill or riprap bedding. In locations where new sheet pile wall is constructed, remove existing timber to completely behind new sheeting and 2 ft below final grade on harbor side.

- C. Owner shall have first right to retain all useful salvage. All items not retained by Owner and construction debris shall become property of Contractor.

3.06 DEBRIS DISPOSAL (HARBOR AREA)

- A. Remove debris and excess materials from site and legally dispose of it; do not burn debris.

END OF SECTION

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SECTION 31 22 00

GRADING

PART 1 GENERAL

1.01 SUMMARY

- A. Provide grading as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.
- B. This section does not apply to earthwork associated with dredging operations. Refer to Section 35 20 13 for dredging.

1.02 RELATED SECTIONS

- 31 05 10 Site Preparation.
- 32 15 20 Crushed Aggregate Surfacing.

1.03 CLASSIFICATION

- A. Excavation of materials encountered under this work will be unclassified without regard to type, difficulty to remove, or suitability for use in construction.

1.04 SUBMITTALS

- A. Test Reports:
 - 1. Two weeks prior to start of construction, indicate source and submit gradation analysis of proposed fill and backfill materials.
 - 2. Submit reports for laboratory and field tests required under "Testing" article. Test reports for slab and pavement subgrades shall be submitted prior to placing concrete or paving materials.
- B. Make submittals in accordance with Section 01 01 00.

1.05 TESTING

- A. Contractor shall arrange and pay for soil sampling and testing by a qualified testing agency, acceptable to Owner and independent of Contractor. Test soil materials for suitability for intended purpose.
- B. Test subgrade and fill materials for gradation in accordance with ASTM C136 for conformance with ASTM D2487 gradation limits. Test materials for liquid limit and plasticity index in accordance with ASTM D4318.
- C. Provide one optimum moisture-maximum density curve for each type of soil encountered in subgrade and fills under structure slabs and foundations; determine maximum densities in accordance with ASTM D1557.
- D. During course of work, testing agency shall inspect and approve subgrades and fill layers before further construction work is performed on each layer. Perform field density tests in accordance with standard, recognized procedures. Take tests as follows:
 - 1. Sheet Pile Wall Areas: Perform at least one field density test on fill subgrade for every 10,000 sq ft of new fill area, but in no case less than three tests. In each compacted fill layer, perform one field density test for every 10,000 sq ft of new fill area, but in no case less than three tests.
 - 2. Lot 24 Access Road: No compaction testing required.

- E. If in opinion of A/E, based on reports of testing agency and inspection, subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no additional cost to Owner.

1.06 PROTECTION

- A. Protect existing improvements, utilities, trees and shrubs, and reference marks in accordance with Section 31 05 10.

PART 2 PRODUCTS

2.01 SOIL MATERIALS, GENERAL

- A. Soil materials shall be free of organic matter, debris, frozen soils, ice, and other objectionable materials. Rock particles larger than maximum size specified shall be removed prior to placement of soil.
- B. Select existing material from required excavations may be used for fill or backfill if it meets the specified product requirements. If necessary, furnish additional approved material from suitable off-site sources.

2.02 STRUCTURAL FILL

- A. Select soils consisting of a predominantly sand material, or a gravel base course, with 100% passing the 1-in. sieve, 70-100% passing the #4 sieve, and less than 15% passing the #200 sieve.

2.03 GENERAL SITE FILL

- A. Select, natural, free draining soils complying with ASTM D2487 soil classification groups GW, GP, SW, SP, GM, GC, SM, SC, or combinations thereof, and suitable for compaction. Maximum aggregate size shall be 1/2 specified lift thickness.

2.04 AGGREGATE FILL

- A. Aggregate fill for access road construction shall be in accordance with Section 32 15 20.

PART 3 EXECUTION

3.01 GRADING

- A. Grade areas within project limits to achieve cross sections, lines, and elevations indicated. Finish surface to be reasonably smooth and free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.
- B. For turf areas, allow 6 in. for topsoil placement. For surfaced areas such as slabs, pavements, and walks, grade to underside of respective surfacing or base course.
- C. Finish subgrades to required elevations within the following tolerances:
 - 1. Lawn or Unpaved Areas: Plus or minus 1 in.
 - 2. Lot 24 Access Road: Plus or minus 1 in.

3.02 SUBGRADE EXAMINATION AND PREPARATION

- A. Examine subgrade prior to placement of fill. Remove organic materials and debris subject to rot or corrosion. Plow, strip, or break-up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with subgrade.

- B. In sheet pile wall areas, proof-roll exposed subgrade with a large vibratory roller rated for a minimum compactive force of 20,000 lb to compact subgrade and detect areas which must be undercut or improved. Inform A/E of unsuitable, unconsolidated subgrade soils.
- C. After subgrade soil is stable, scarify top 6 to 8 in., moisture condition, and compact surface to density specified in Part 4 Schedules.
- D. Reconstruct subgrades damages by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by A/E, without additional compensation.

3.03 ADDITIONAL EXCAVATION (OVER EXCAVATION)

- A. If unsuitable bearing materials, such as poorly compacted fill, existing foundations, rubble, debris, or organic deposits, are encountered at required subgrade elevations, carry excavations deeper and replace excavated material with properly compacted Structural Fill as directed by A/E.
- B. Where over excavation below footing subgrade is required, widen over excavation beyond footing edges at least 1 ft for each 1 ft of over excavation depth.
- C. Removal of unsuitable material and its replacement as directed will be paid for as extra work, unless a pay item is included in the Bid Schedule. Do not proceed with extra or unit price work until authorized.

3.04 FILLING

- A. Do not place fill until subgrade preparation has been examined and approved by testing agency.
- B. Place and compact fill materials in layers to required elevations as follows:
 1. Under grass and planted areas: Use General Site Fill.
 2. Around sheet pile wall and deadman: Use Structural Fill.
 3. For Lot 24 access road: Use aggregate fill.
- C. Place fill in approximately horizontal layers; do not exceed maximum lift thickness specified in Part 4 Schedules before compaction.
- D. During placement and compaction, maintain moisture content of materials within optimum range. Compact each layer of fill to not less than the percentage of maximum density specified in Part 4 Schedules.
- E. Do not place fill on frozen subgrade.

3.05 CONTAINMENT SITE PERIMETER DRAINAGE SWALE

- A. The perimeter drainage swale shall be minimally sloped to direct water around the site perimeter to the drainageway to direct storm water to the existing detention basin. Contractor shall attempt to construct and grade drainage swale to the extent possible without impacting sandy soils located beneath existing site topsoil layer.
- B. Following completion of drainage swale, the swale and disturbed areas (outside the limits of the Containment Site area) shall be immediately seeded in accordance with Section 32 92 00. Erosion control devices shall be immediately installed in accordance with Section 01 57 19.
- C. Surveying of drainage swale and affected areas will be performed by A/E to confirm positive drainage and acceptable contour.

3.06 MAINTENANCE

- A. Protect newly graded areas from traffic and erosion, and keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- B. Maintain erosion control measures to prevent run-off and sediment pollution of adjacent water courses.

3.07 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Remove excess excavated material, trash, debris, and other waste materials and legally dispose of them off-site.

PART 4 SCHEDULES

4.01 COMPACTION SCHEDULE

<u>Location</u>	<u>Lift Thickness</u>	<u>Compaction ⁽¹⁾</u>
Sheet Pile Wall Areas	8"	95%
Lot 24 Access Road	8"	90%
Unpaved Areas	12"	90%

⁽¹⁾ Percent of maximum density determined in accordance with ASTM D1557 (Modified Proctor test).

END OF SECTION

SECTION 31 37 00

RIPRAP

PART 1 GENERAL

1.01 SUMMARY

- A. Provide loose rock riprap, including (as indicated on the Drawings) geotextile filter fabric or bedding material, as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

1.02 SUBMITTALS

- A. Product Data:
 - 1. Submit information on sources of riprap and bedding. Provide access to sources to enable A/E to inspect and obtain samples. Do not deliver riprap until reviewed by A/E.
 - 2. Submit fabric product data. Include material samples, certification of physical properties, and installation procedures.
- B. Make submittals in accordance with Section 01 01 00.

1.03 TESTING

- A. A/E may perform tests to verify that riprap and completed work meet specified requirements. However, these tests are not intended to provide Contractor with information it may need to assure that materials and workmanship meet requirements of specifications, and their performance will not relieve Contractor of responsibility of performing its own tests for that purpose.

PART 2 PRODUCTS

2.01 RIPRAP

- A. Durable field or quarry stone that is sound, hard, dense, resistant to the action of air and water, and free of seams, cracks, or other structural defects. Use stone pieces with a length and width no more than twice the thickness.
- B. Riprap gradation shall comply with requirements of WIDOT Std. Spec., Section 606, for light riprap (Lot 24) or heavy riprap (Menakaunee Harbor) as indicated on the Drawings.

2.02 GEOTEXTILE FILTER FABRIC

- A. Fabric shall be a woven or nonwoven polyester, polypropylene, stabilized nylon, polyethylene, or polyvinylidene chloride material whose function is to pass ground water from beneath fabric while restricting migration of subgrade soil particles into overlying stone ballast. Fabric shall be treated to ensure stability under ultraviolet radiation (sunlight).
- B. Fabric shall comply with requirements of WIDOT Std. Spec., Section 645, for Type R fabric.

2.03 BEDDING MATERIAL

- A. Riprap bedding materials shall be pervious mixtures of sand and gravel reasonably well-graded from 3/16 to 3 in. in maximum dimensions, but may contain materials less than 3/16 in. in quantities not to exceed the amount required to fill the voids between the materials larger than 3/16 in: *Provided*, that the material shall not contain more than 5 percent, by weight, of material passing the No. 200 sieve.

- B. Should gravel, cobbles, or boulders having dimensions of more than 3 in. be found in otherwise approved materials, they shall be removed by Contractor either at the site of excavation or after being placed.

PART 3 EXECUTION

3.01 SUBGRADE PREPARATION

- A. Grade subgrade surfaces to lines and grades as shown with an allowance for riprap. Remove organic materials. Compact soft subgrade soils. When fill to achieve subgrade lines is required, provide granular materials.

3.02 FABRIC INSTALLATION

- A. Provide fabric under all riprap, unless otherwise shown. Install fabric as shown and in accordance with manufacturer's recommendations.
- B. Surface to receive fabric shall be smooth and free of obstructions, depressions, and debris. Lay fabric parallel to direction of water flow.
- C. If lapping of fabric is required, minimum overlap shall be 2 ft. Overlaps may be eliminated if fabric sections are either factory or field sewn. Seam strength shall be at least 80% of fabric tensile strength.
- D. Secure fabric in place to prevent shifting before or during placement of stone or riprap.
- E. Repair or replace torn or punctured fabric in accordance with manufacturer's instructions; no extra compensation will be allowed.

3.03 BEDDING MATERIAL

- A. Provide bedding material under all riprap, unless otherwise shown.
- B. Surface to receive bedding material shall be smooth and free of obstructions, depressions, and debris.
- C. The bedding material need not be compacted in place, but shall be placed in such a manner as will result in uniform layers of bedding for riprap of the specified thickness.

3.04 EQUIPMENT-PLACED ROCK RIPRAP

- A. Riprap shall be placed to full course thickness in one operation from base of slope upward; height of riprap freefall shall not exceed 1 ft. Riprap shall be reasonably homogeneous with larger rocks uniformly distributed and firmly in contact and smaller rocks and spalls rammed into voids between larger rocks to interlock and form an even surface.
- B. Hand placement will be required where necessary to correct obvious irregularities and to prevent damage to adjacent improvements and wherever equipment placement methods are unsatisfactory.

3.05 HAND-PLACED RIPRAP

- A. Riprap shall be securely bedded with larger rocks firmly in contact one to another. Spaces between larger rocks shall be filled with smaller rocks and spalls. Smaller rocks shall not be grouped as a substitute for larger rock. Flat slab rock shall be laid on edge.

END OF SECTION

SECTION 31 37 12

LEDGE STONE

PART 1 GENERAL

1.01 SUMMARY

- A. Provide ledge stone as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

1.02 SUBMITTALS

- A. Product Data: Submit information on sources of ledge stone.
- B. Samples: Submit samples of stone material indicating colors and finishes available. A/E will choose stone and finish from samples provided.
- C. Make submittals in accordance with Section 01 01 00.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

1.04 DELIVERY AND STORAGE

- A. Deliver, store and handle material in a manner to avoid soiling or breaking of stone material.

1.05 PROJECT CONDITIONS

- A. Protect adjacent work from damage, soiling and staining during operations.
- B. Coordinate the work of this section with adjacent work and coordinate installation of stone materials with the contractor.

PART 2 PRODUCTS

2.01 LEDGE STONE

- A. Use indigenous granite and limestone boulders and materials ranging in sizes indicated on the schedule. Natural variations in color and markings, which are characteristics of the stone materials and do not impair strength or appearance, are acceptable. Provide only sound stone, free from defects detrimental to appearance and durability. Provide granite and limestone materials from:
 - 1. Eden Stone Company, Eden, Wisconsin, 920.477.2521.
 - 2. Halquist Stone, Sussex, WI, 800.255.8811, info@halquist.com.
 - 3. Approved Equal.

2.02 GRANULAR GRAVEL BACKFILL

- A. Granular gravel backfill- Clean and free of fines, 3/4 to 2 in. range.

2.03 SOIL SEPARATOR FABRIC

- A. Soil separator fabric shall be a nonwoven polypropylene, polyethylene, or polyamide material; Propex "Geotex 401", Tencate/Mirafi "140N", Thrace-LINQ "140EX", or approved equal.

PART 3 EXECUTION

3.01 PREPARATION

- A. Examination: Examine finished surfaces and grades before commencing work. Do not begin work until unsatisfactory conditions are corrected.
- B. Excavation: Excavate to required subgrade depth, allowing space for base preparation and backfill material. Rough grading shall be in place before placing stone materials.

3.02 PLACING STONE

- A. Locate stone as detailed on the Drawings.
- B. Place stone as detailed on the Drawings and as directed by A/E or landscape architect.
- C. Place soil separator fabric between stone materials and backfill as detailed on the Drawings. Allow overlap so that the fabric extends above and below granular gravel backfill.
- D. Remove unacceptable and excess stones and construction debris from the site.
- E. Stone step tolerances shall be heights shown on the Drawings, plus or minus 1 in. Horizontal tolerances for the step faces shall be less than 3 in. per 10 ft. laterally.

3.03 CLEANING

- A. Remove and replace stone that are loose, broken, stained, or otherwise damaged. Provide new matching units and install as specified.
- B. Clean stonework not less than 6 days after completion of the installation. Use clean water.
- C. Upon completion of the work, remove all excess materials, debris tools, and equipment from the site. Contractor shall repair any damage resulting from stone placement operations at its expense.

END OF SECTION

SECTION 31 41 22

STEEL SHEET PILING

PART 1 GENERAL

1.01 SUMMARY

- A. Provide steel sheet piling as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

1.02 SUBMITTALS

- A. Shop Drawings: Submit shop drawings showing layout and materials; include pile designation, material and section properties, embedment, pile formula, hammer model, energy rating, frequency, and amplitude.
- B. Make submittals in accordance with Section 01 01 00.

1.03 PROTECTION OF ADJOINING PROPERTY

- A. Protect structures, underground utilities, and other construction from damage caused by pile driving operations.
- B. Contractor shall notify all property owners immediately adjacent to or abutting project. An inspection of each property shall be made jointly by property owner, Contractor, and A/E to document existing conditions prior to construction as well as after construction is complete.
- C. Claims of damage arising from driving or withdrawal of piling shall be the responsibility of and settled by Contractor.

PART 2 PRODUCTS

2.01 SHEET PILES

- A. Steel sheet piles shall be new piling, conforming to ASTM A572, Grade 50. Sheet piles shall be standard interlocking type having positive interlocks effective in both longitudinal and transverse directions, and continuous throughout length of pile. Fabrication of piles from shorter lengths will not be permitted.

PART 3 EXECUTION

3.01 DRIVING EQUIPMENT

- A. Hammer: Provide low frequency, vibratory driving hammer.

3.02 SITE PREPARATION

- A. Complete excavation within area to be occupied by bearing piles before piles are driven.

3.03 PROTECTION OF PILE HEADS

- A. Protect heads of piles by suitable caps, heads, blocks, mandrels, and other devices. Cut heads of steel piles square and fit with a steel driving cap. Provide driving heads, mandrels, and other devices as needed for special types of piles conforming to recommendations of pile manufacturer.

3.04 DRIVING SHEET PILING

- A. Drive piling in a manner to insure perfect interlocking throughout entire length of each pile. Hold piles in proper alignment during driving by means of assembling frames or other suitable temporary guide structures. Remove temporary guide structures when they have served their purpose.
- B. Any time that forward edge of sheet pile wall is found to be out of correct alignment, piling already assembled and partly driven shall be driven to required depth, and taper piles shall then be driven to bring forward edge into correct alignment before additional regular piling is assembled and driven. Maximum permissible taper in a single pile shall be 1/4 in. per ft of length.

3.05 CUTOFF

- A. Cut piles at specified elevations. Length of pile cut off shall be sufficient to permit removal of damaged material.

END OF SECTION

SECTION 31 81 90

CONTAINMENT SITE OPERATIONS

PART 1 GENERAL

1.01 SUMMARY

- A. Provide for an organized, nuisance-free operation of the "Navigational Dredge Spoils Containment Site" (Containment Site) that will satisfactorily protect the environment and provide for efficient operation. Comply with applicable provisions of Divisions 00 and 01.
- B. Operations shall include managing spoils hauling with harbor dredging operations so that both operations occur efficiently. Operations shall include hauling of shredded wood for use during operations to improve access to spoils dumping locations within Containment Site area.
- C. Site operations shall manage the spoils and shredded wood delivery into the Containment Site area so that spoils are placed to limit additional handling. Provide for a tracking pad, prevent the transport of site soils and spoils to areas outside the Containment Site and beyond the limits of construction; clean up daily the sediments and soils that have migrated beyond the construction limits and return them to within the Containment Site area.
- D. Follow the storm water permit requirements. Site operations shall manage storm water, consolidation water from spoils, and erosion controls to prevent sediment transport beyond the limits of construction. Erosion occurring in areas outside the containment site area shall be repaired following significant damaging storm events and weekly, as necessary, including the installation of additional erosion control measures in accordance with Section 01 57 19.

1.02 OPERATIONS

- A. Contractor shall operate the Containment Site in conformance with the contract requirements, the WDNR-Approved Exemption Request, and state and federal regulations. Operational plans, drawings, and approval letters are available from the A/E for use by Contractor.
- B. At a minimum, the operations work shall include:
 - 1. Preparation and maintenance of the project site and Containment Site area.
 - 2. Shredded wood hauling and utilization within the Containment Site area.
 - 3. Spoils inspection and acceptance.
 - 4. Spoils placement, grading, and management.
 - 5. Stormwater management and sediment/erosion control.
 - 6. Maintenance of access roads and Containment Site disposal access.
 - 7. Hauler vehicle assistance.
 - 8. Litter, debris, and sediment control and cleanup.

1.03 HOURS AND DAYS OF SPOILS RECEIPT

- A. The site shall be open to receive spoils whenever hauling is taking place from the Menekaunee Harbor dredging work. Hauling of spoils to the containment site is the controlling activity and work shall be coordinated with foreman controlling sediment operations at harbor.
- B. Contractor shall be on-site a minimum of 30 minutes prior to receipt of spoils and shall have proper equipment operating by the time spoils are received.
- C. During periods of inclement weather or other warranting conditions, Contractor shall be on-site sufficiently ahead of spoils acceptance to prepare access roads and Containment Site accessibility, and as directed by A/E.

- D. Weather conditions will not be cause for extra compensation.

1.04 SUBMITTALS

- A. Submit items to A/E shall be in written format, with submittal title and Contractor name prominently identified. Submittals shall be received by A/E prior to the date listed below. Submittal information shall be resubmitted to A/E within two business days of submittal information changes.
- B. Personnel List: Prior to beginning operations and prior to personnel changes being made, Contractor shall submit a list of personnel scheduled to work at the Containment Site to A/E.
- C. Spoils Placement Plan: Ten days prior to beginning operations at Containment Site, submit review plan for waste placement, sequencing, and stormwater and consolidation water management to A/E and Owner for review.
- D. Contractor Health and Safety Plan: Five business days prior to beginning operations, submit a health and safety plan for Contractor's personnel. Owner and A/E are not responsible for Contractor personnel safety.
- E. Communications Plan: Five business days prior to beginning operations, submit a communications plan. Communications plan shall include, at a minimum, contact information for the site foreman, including phone numbers, and address for all written communications. Foreman for harbor activities associated with spoils loading and hauling shall be included.
- F. Emergency Plan: Five business days prior to the beginning of operations, submit a plan for communications, organization, and responsibilities for Contractor's employees to be implemented during emergencies. Emergencies include, but are not limited to: fires, medical emergencies, weather emergencies, and extended hours of operations. Include contact information in this submittal.
- G. Make submittals in accordance with Section 01 01 00.

1.05 NOTIFICATIONS

- A. Notifications to A/E for changes in personnel or equipment must be submitted in writing.
- B. Notify A/E three business days before any planned change in designated foreman.
- C. Notify A/E a minimum of 48 hours prior to any planned equipment issues, including those for scheduled repairs, maintenance, etc. Contractor shall be responsible for arranging for approved replacement equipment required to comply with contract requirements.
- D. Notify A/E within eight hours of equipment being designated as out of service.
- E. Notify Owner and A/E within 24 hours of proposed hauling of shredded wood from Owner's facility to Lot 24 so that Owner can provide loading operations for Contractor dump trucks.

PART 2 PRODUCTS

2.01 GENERAL

- A. Provide all equipment, fuel, lubricants, and labor as required for operation of the Containment Site, including support equipment such as vehicles, fuel storage tanks, fuel pumps, hoses, electrical wiring, utility charges, and other items incidental to the operation of required equipment and the containment site.

2.02 EQUIPMENT

- A. Provide equipment for use in spoils handling, soil and road grading, earth moving, stormwater management, and other duties required for operation and maintenance of the Containment Site, including, but not limited to:
 - 1. Bulldozer for placing and shaping received dredge spoils.
 - 2. Self-contained water (trash) pump capable of 200 gal per minute at 20 ft head, operable for 24 hours without refueling, and having sufficient suction and discharge hose to accommodate various pumping needs. A minimum of 40 ft of suction hose and 150 ft of discharge hose shall be readily available within 24 hours after measurable rain, or on request by A/E or Owner.

2.03 COMMUNICATION EQUIPMENT

- A. Provide cellular telephones to allow containment site personnel to contact A/E or other designated Owner representative at all times, while on or off the site.

PART 3 EXECUTION

3.01 GENERAL

- A. Execute the work in a timely and diligent manner so as to enable an uninterrupted and organized operation in coordination with the Menekaunee Harbor dredging operations.

3.02 SHREDDED WOOD HAULING AND PLACEMENT

- A. Haul and utilize loads of shredded wood from Owner into Containment Site area after preparation of Containment Site area base. Spread shredded wood to uniform thickness of 3 to 4 in. across Containment Site area base prior to receipt and placement of navigational dredge spoils.
- B. Haul and manage shredded wood as roadbed material to improve truck mobility within Containment Site area to access dumping locations.
- C. All shredded wood located at Owner's facility (2411 Cleveland Avenue, Marinette, WI) shall be utilized during operations of Containment Site to the extent possible. Remaining shredded wood at end of spoils placement in Containment Site may be placed on top of finish spoils pile prior to placement of topsoil during restoration. Confirm with A/E prior to final topsoil placement over Containment Site.

3.03 GENERAL SPOILS PLACEMENT

- A. Place spoils with the goal of achieving lowest possible final grades within the Containment Site area and to allow for final topsoil cap placement in a timely manner following completion of spoils placement. The goal is to utilize the majority of the Containment Site area footprint to limit the overall final height of the containment pile. The pile may need to be consolidated initially to facilitate access and dumping of spoils; however, following termination of spoils delivery, the resulting pile shall be graded to cover majority of Containment Site footprint in a uniform manner as indicated by the Drawings and Specifications.
- B. Spoils shall be placed starting in the northern parts of the Containment Site area (filling from areas of higher elevation toward areas of lower elevation) leaving sufficient room for consolidation water and stormwater to drain from the spoils pile primarily toward the perimeter drainage swales along the south side of the Containment Site, and ultimately to the drainageway and into the existing detention basin.
- C. Place spoils in a single containment pile that will grow in size and expand across the containment area as more spoils are brought to the site. Sufficient surface area shall be

maintained to direct consolidation water and stormwater toward the drainageway, while maintaining suitable access for vehicles bringing spoils to the site.

- D. The spoils shall be placed as not to exceed a 4 horizontal to 1 vertical (4H:1V) slopes.
- E. Daily covering of spoils is not required or necessary.
- F. Construct and maintain vehicle access within the containment area to manage vehicles delivering spoils. Containment Site users shall not have to traverse exposed spoils to discharge spoils loads.
 - 1. Shredded wood may be placed in vehicle access areas to facilitate access by spoils hauling vehicles (i.e., to prevent vehicles from becoming stuck).
 - 2. Contractor may use aggregate to facilitate spoils hauling vehicles access to the dumping location within the Containment Site area; however minimize aggregate use and attempt to reuse aggregate as dumping locations change. Coordinate aggregate use with A/E by providing information regarding selected materials and its proposed use. A/E and Owner understand that soft access conditions may occur following precipitation events and aggregate use may be necessary.

3.04 SITE MAINTENANCE

- A. Maintain site in a neat and orderly manner at all times. Provide maintenance including, but not limited to, general road grading, site drainage, stabilization and restoration of site erosion problems, and any other such needs within the capabilities of the specified equipment and labor.
- B. Divert stormwater away from areas containing spoils and whenever practicable within the containment area. Refer to applicable WDNR technical specifications. Water shall be directed toward constructed drainage courses. Maintain site and erosion control BMPs to control sediment transport and erosion. Water coming in contact with spoils shall be considered "leachate" and this water shall not be discharged outside of the designated limits of construction, to the delineated wetland, or to offsite areas.
- C. Do not let water pond for long periods of time. Contractor shall have pump(s) available and shall pump ponded water from depressions and correct depressed areas. A minimum slope shall be maintained across the Containment Site to direct water to the perimeter drainage swales and to the detention basin.
- D. Maintain site in an erosion-free condition in all site drainage features, including, but not limited to, slopes, drainage swales, drainageway, and detention pond. Install Contractor-furnished erosion control materials (see Sections 01 57 19 and 31 05 10). Construct and maintain existing site access road and new access road into containment site, and vehicle access to spoils dumping locations with shredded wood furnished by Owner or aggregate materials provided by Contractor.

3.05 ROAD MAINTENANCE

- A. Construct and maintain road access into Containment Site to facilitate spoils dumping. Road shall be constructed of materials that will not excessively rut or settle, or that are excessively slippery, and in accordance with Drawings and Specifications.
- B. Maintain existing site entrance and access road (starting at end of Murray Street cul-de-sac and up to connection with, and including, access road constructed to access containment site area. NOTE: Site access road is used by other adjacent property owners and their contractors (shared access road along south side of project property).

3.06 EQUIPMENT MAINTENANCE AND FUELING

- A. Contractor may perform equipment maintenance and fueling on-site, but in such a fashion as not to delay incoming spoils shipments or placement. Follow best management practices for spill containment. Contractor shall be responsible for any remedial investigation or remedial action required due to contamination caused by spillage or leakage of Contractor's equipment during operations, maintenance, repair, or fueling.

3.07 LITTER PREVENTION AND CONTROL

- A. Take prompt measures to help prevent, control, contain, and collect Contractor-generated waste and debris to satisfaction of A/E and Owner.

3.08 FIRE CONTROL

- A. Take suitable precautions to prevent fires and control them if they start. Fire extinguishers shall be furnished and maintained on all equipment and in any temporary personnel or storage buildings. If a fire breaks out in an area under Contractor's control, Contractor shall immediately contact local fire protection agency and then notify A/E and Owner. No additional compensation will be allowed for fire control operations. Contractor shall compensate fire department(s) for services required to extinguish fires, as applicable.

3.09 DUST CONTROL

- A. Provide dust control measures as appropriate following WDNR guidelines presented in WDNR technical specifications. Dust control shall include at a minimum, application of water on the access roads and within the containment site. Chemicals or oils shall not be used as a dust control agent. Shredded wood / wood chips may provide relief from dust. No additional compensation will be allowed for dust control operations.

3.10 FOUL WEATHER OPERATIONS

- A. Provide for site and Containment Site access in all weather conditions to the extent practicable. Provide for proper drainage on all roads, excavations, soil stockpiles, and containment site area spoils dumping locations to minimize traffic problems and insure accessible operations. No additional compensation will be allowed for foul weather operations.

3.11 COLD WEATHER OPERATIONS

- A. Provide for proper protection of equipment to enable continued operations during cold conditions. No additional compensation will be allowed for cold weather operations.

3.12 GRASS AND WEED CONTROL

- A. Contractor is not responsible for mowing or cutting vegetation during site operations following completion of proper clearing and grubbing, and site preparation activities in accordance with Sections 01 57 19 and 31 05 10.

END OF SECTION

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SECTION 31 81 92

CONTAINMENT SITE CLOSURE AND EXIT

PART 1 GENERAL

1.01 SUMMARY

- A. Provide containment site closure and exit. Comply with applicable provisions of Divisions 00 and 01.

1.02 NOTIFICATION

- A. Notify A/E a minimum of 7 days prior to the anticipated completion of spoils containment and site operations, and to schedule project close-out meeting at the site on last day of site operations.

1.03 SUBMITTALS

- A. Punch-List Completion Schedule: Submit a schedule for correction of agreed upon "punch-list" items in writing within two working days of project site close-out meeting between Contractor, A/E, and Owner.
- B. Make submittals in accordance with Section 01 01 00.

PART 2 (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. Complete the agreed upon punch-list in a timely and diligent manner.

3.02 SITE CONDITIONS

- A. A joint inspection of the containment site in its entirety shall be made by Contractor, A/E, and Owner at a date prior to end (but within 2 days of anticipated end) of Contractor's project site operations.
- B. A "punch-list" of items to be completed by Contractor will be identified and submitted to Contractor in writing by A/E. The list will identify tasks and expected completion dates prior to the overall exit date. Owner reserves the right to add items to "punch-list" throughout the exit process.
- C. Prior to the final exit date, a final inspection between A/E and Contractor shall take place to ensure all "punch-list" items have been completed to the Owner's satisfaction.
- D. Contractor equipment shall be removed on final exit date or shortly thereafter, as agreed to with Owner.

3.03 RESTORATION OF DISTURBED AREAS

- A. All areas disturbed by Contractor shall be re-graded and restored to Owner's satisfaction in accordance with Sections 31 22 00 and 32 92 00 prior to Contractor's departure. This includes, but is not limited to, topsoil stockpile location, truck cleaning areas (tracking pad), and access roads. Refer to WDNR technical specifications.

3.04 ROUTINE OPERATIONS

- A. Once an exit date is established, Contractor shall continue required operations contract on a regular basis until the exit date. These activities shall not be delayed unreasonably.

END OF SECTION

SECTION 32 15 20

CRUSHED AGGREGATE SURFACING

PART 1 GENERAL

1.01 SUMMARY

- A. Provide crushed aggregate surfacing as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

1.02 RELATED SECTIONS

31 05 10 Site Preparation.

1.03 SUBMITTALS

- A. Aggregate samples: Two weeks prior to start of construction, indicate source of proposed aggregate materials and provide source's material specifications for review and approval by A/E. Do not deliver aggregate until reviewed and approved by A/E.
- B. Submit fabric product data and sample. Include material samples, certification of physical properties, and installation procedures for approval by A/E.
- C. Make submittals in accordance with Section 01 01 00.

1.04 TESTING

- A. A/E may perform tests to verify that aggregate materials, fabric, and completed work meet specified requirements. However, these tests are not intended to provide Contractor with information he may need to assure that materials and workmanship meet requirements of specifications, and their performance will not relieve Contractor of responsibility of performing his own tests for that purpose. Where materials do not conform to that specified, material shall be replaced or reworked to conform. Cost of extra tests for replaced material or reworked areas shall be paid for by Contractor.

PART 2 PRODUCTS

2.01 AGGREGATE

- A. Hard durable particles of crushed stone or crushed gravel and a filler of natural sand, stone sand, or other finely divided mineral matter complying with the requirements of WIDOT Std. Spec., Section 305. Use 3/4-in. base for top 3 in. of aggregate surfacing and either 3/4-inch or 1-1/4-inch base below.

2.02 GEOTEXTILE FILTER FABRIC

- A. Fabric shall be a woven or nonwoven polyester, polypropylene, stabilized nylon, polyethylene, or polyvinylidene chloride material whose function is to pass ground water from beneath fabric while restricting migration of subgrade soil particles into overlying stone ballast. Fabric shall be treated to ensure stability under ultraviolet radiation (sunlight).
- B. Fabric shall comply with requirements of WIDOT Std. Spec., Section 645, for Type R fabric.

PART 3 EXECUTION

3.01 PREPARATION

- A. Remove existing topsoil to install culvert under new access road in accordance with Section 31 05 10, and to construct access road connection to existing access road.

3.02 FABRIC INSTALLATION

- A. Provide fabric under all aggregate. Install fabric as shown and in accordance with manufacturer's recommendations.
- B. Surface to receive fabric shall be smooth and free of obstructions, depressions, and debris. Lay fabric parallel to direction of access road.
- C. If lapping of fabric is required, minimum overlap shall be 2 ft.
- D. Secure fabric in place to prevent shifting before or during placement of aggregate.
- E. Repair or replace torn or punctured fabric in accordance with manufacturer's instructions (overlap additional fabric to cover rips or tears); no extra compensation will be allowed.

3.03 AGGREGATE PLACEMENT

- A. Place aggregate surfacing to line, grade, depth, and section shown. Comply with WIDOT Std. Spec., Section 305, except as otherwise specified.
- B. Aggregate shall be compacted to 90% of maximum density as determined by ASTM D1557 (Modified Proctor test). If required compacted depth of aggregate exceeds 6 in., aggregate shall be constructed in two or more layers of approximately equal thickness.

END OF SECTION

SECTION 32 92 00

TURF AND GRASSES

PART 1 GENERAL

1.01 SUMMARY

- A. Provide turf and grasses as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.
- B. Work includes, but is not limited to: preparation and seeding for restoration of disturbed areas and closure of containment site.

1.02 SUBMITTALS

- A. Two weeks prior to start of construction, indicate source and submit analysis of proposed topsoil materials.
- B. Make submittals in accordance with Section 01 01 00.

1.03 WORK SEASONS

- A. Conduct restoration and revegetation efforts during favorable weather conditions between April 15 and September 15. Do not proceed when air temperatures may exceed 90 deg F or when ground surface is frozen. If approved by A/E, seeding may be performed in November prior to snow cover if seed is applied over mulch that was placed during period from September 15 to November 1, utilizing dormant seeding protocols for the specified seed mix.

PART 2 PRODUCTS

2.01 TOPSOIL

- A. Loam, sandy loam, silt loam, silty clay loam, or clay loam humus-bearing surface soil; 100% passing the 2 in. sieve; neither excessively acid, nor excessively alkaline; reasonably free of subsoil, clay lumps, brush, and weeds; and free of extraneous matter harmful to plant growth.
- B. Reuse topsoil salvaged from within work area. If necessary, obtain topsoil to supplement insufficient quantities at site from naturally well-drained local sources; do not obtain from bogs or marshes.

2.02 LIME

- A. Agricultural grade limestone ground sufficiently fine so 80% passes a No. 8 sieve. Lime shall contain 80% calcium carbonate equivalent. Moisture shall not exceed 8%.

2.03 FERTILIZER

- A. Solid or liquid form, commercial fertilizer formulated based on recommendations of topsoil analysis report. If using a solid form of fertilizer, use products with a SGN (Size Guide Number) of 200 or less. Fertilizer formulations with phosphorus will not be approved unless called for in a topsoil analysis report and only for the initial fertilizer application.

2.04 GRASS SEED

- A. Deliver seed in bags tagged and labeled to show percentage of purity and germination. Seed shall have been tested within one year prior to date of seeding and shall conform to latest State and Federal seed laws.

- B. Seed mixtures around Menekaunee Harbor shall conform to the following percentages by weight:

	<u>Mixture Proportions, Percent</u>		
	<u>No. 1</u>	<u>No. 2</u>	<u>No. 3</u>
Kentucky Bluegrass (min. 3 varieties)	40	20	30
Creeping Red Fescue (min. 2 varieties)	15	25	10
Hardy Fescue (min. 2 varieties)	---	---	30
Perennial Ryegrass (min. 2 varieties)	25	30	10
Annual Ryegrass	20	25	20

- C. Seed mixture at the Lot 24 Dredge Spoils Containment Site shall conform to WIDOT Std. Spec., Section 630, Mixture No. 70 Native Mix.

2.05 STRAW MULCH

- A. Straw or hay, reasonably free of grain, weed seed or mold. Mulch materials shall not contain excessive moisture which prevents uniform feeding through mulching machine and application. Mulch shall meet WDNR technical specifications...

2.06 TACKIFIER

- A. Tackifier shall comply with the requirements of WNDR standard for Erosion Control Land Application of Anionic Polyacrylamide. This standard is available on the WDNR website at:

<http://dnr.wi.gov/topic/stormwater/documents/dnr1050-polyacrylimide.pdf>

2.07 MULCH NET

- A. Biodegradable twisted jute or spun-coir mesh, 0.92 lb per sq yd minimum, with 50 to 65 percent open area. Include manufacturer's recommended biodegradable staples, 6 in. long.

2.08 EROSION MAT

- A. Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed on two sides in a photodegradable plastic mesh. Include manufacturer's recommended biodegradable staples, 6 in. long.

2.09 HYDROSEED

- A. Mixture of specified seed, fertilizer, mulch fibers, and non-asphalt-based tackifying agent.

PART 3 EXECUTION

3.01 PROTECTION

- A. Protect improvements from damage and new pavements from tire markings caused by turf preparation and planting operations.
- B. If hydroseeding or hydromulching operations are part of this work, protect adjacent and adjoining improvements from overspray.

3.02 SUBGRADE PREPARATION AND TOPSOIL PLACEMENT

- A. Prior to topsoil placement, loosen existing subgrade to a depth of 4 in. Remove stones larger than the maximum size allowed for topsoil, along with sticks, roots, rubbish, and other extraneous matter and legally dispose of them off the Owner's property.

- B. Remove all woody type growths of vegetation from subgrade prior to topsoil placement and seeding.
- C. Place a minimum of 6 in. of topsoil over areas to receive turf and grass work.
 - 1. At the Lot 24 Containment Site, all topsoil from the stockpile shall be utilized so that stockpile area is restored to original grades with positive drainage. Topsoil final cover over Containment Site area shall be completed to preserve and to minimally disturb the perimeter drainage swale.
- D. Smooth grade topsoil to eliminate irregularities. Finished topsoil grade shall be 1 in. below adjoining grade of any surfaced area.

3.03 SOIL PREPARATION

- A. Loosen topsoil by tilling to a depth of 3 in. Apply lime in sufficient quantity to produce a soil pH range of 6.0 to 7.0; mix thoroughly into topsoil. Rake out surface irregularities; remove rocks and hard soil clods. In maintained commercial and residential lawn areas, topsoil shall be hand raked to a smooth, even finish by a qualified landscaper.
- B. Apply fertilizer in sufficient quantity to achieve 2.0 lb of nitrogen per 1000 sq ft.

3.04 SEEDING

- A. General: Apply seed by broadcast or drilled methods to insure uniform distribution. Cross area in two directions, applying 1/2 of seed in each crossing. Rake seed lightly into top 1/8 in. of soil, roll lightly, and water with fine spray.
- B. Menekaunee Harbor Site:
 - 1. Residential, Commercial, and Other Maintained Lawns: Apply Mixture No. 1 at rate of 3 lb per 1000 sq ft.
 - 2. Shoulders, Ditches, and Semi-Developed Open Areas (Average Loam, Heavy Clay, and Moist Soils): Apply Mixture No. 2 at rate of 3 lb per 1000 sq ft.
 - 3. Shoulders, Ditches, and Semi-Developed Open Areas (Light, Dry, Well Drained, Sandy or Gravelly Soils): Apply Mixture No. 3 at rate of 3 lb per 1000 sq ft.
- C. Lot 24 Dredge Spoils Containment Site: Apply Mixture No. 70 at rate of 0.4 lb per 1000 sq ft.

3.05 PROTECTION OF SEEDED AREAS

- A. Level Areas and Slopes of 3H:1V or Less: Apply straw mulch uniformly in all seeded areas at rate of 1-1/2 tons per acre to a loose depth of 1 to 2 in. Anchor mulch using mulch nets installed and stapled according to manufacturer's recommendations, using non-asphalt-based tackifier, or by crimping mulch to a minimum depth of 1-1/2 in. at 8 in. on center.
- B. Slopes Greater Than 4H:1V at Lot 24 Containment Site: Provide erosion control blankets installed and stapled according to manufacturer's recommendations in all seeded areas.
- C. From April 15 to September 15, mulch shall be applied as soon as possible, but within 3 days after seeding. From September 15 to November 1, mulch may be applied prior to seeding. Suspend mulching operations during periods of excessively high winds.

3.06 HYDROSEEDING

- A. At Contractor's option; seed, fertilizer, and mulch may be applied by hydroseed method. Mix components in water using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application. Include nonasphaltic tackifying agent in mixture.

- B. Apply hydroseed mixture uniformly at rate required to obtain specified seed sowing rate.

3.07 WATERING, FERTILIZING, AND MOWING

- A. Water turf areas as necessary to assure that seeded areas are maintained in a moist condition until approved and Owner accepts responsibility for maintenance. Set watering cycles and rates to maintain a uniform moisture depth of 2 in. during establishment. Balance water cycles and rates to avoid standing water and erosion.
- B. Mow turf and grass areas repeatedly to a height of 2-1/2 in. when growth exceeds 3-1/2 in. prior to acceptance by Owner.

3.08 ESTABLISHMENT AND REPLACEMENT

- A. Areas seeded in fall which fail to show satisfactory growth shall be reseeded, fertilized, and protected the following spring before June 1. Satisfactory growth shall be considered healthy grass growth with no bare spots larger than 12 in. square and total bare spots not exceeding 3 percent of total seeded area.
- B. Contractor, Owner, and A/E shall jointly inspect the restored project areas by approximately November 1 following project completion to determine areas that may not be satisfactorily vegetated. Areas will be staked and documented for Contractor attention during the following spring.
- C. Prior to repair work in spring, or if seeding is delayed until spring, touch-up topsoil surface as necessary to address erosion from spring thaw and precipitation, then fertilize, seed, mulch, and (if applicable) install erosion matting.

END OF SECTION

SECTION 33 42 00

CULVERTS

PART 1 GENERAL

1.01 SUMMARY

- A. Provide culverts as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

1.02 RELATED SECTIONS

- 31 22 00 Grading.
- 31 37 00 Riprap.

1.03 SUBMITTALS

- A. Product Data: Submit product data for pipe.
- B. Make submittals in accordance with Section 01 01 00.

PART 2 PRODUCTS

2.01 CULVERT PIPE, GENERAL

- A. Culvert pipe shall be of material and type indicated below. Each pipe shall be stamped or indelibly marked with its type and class and the manufacturer's name or mark.

2.02 CORRUGATED STEEL PIPE AND PIPE ARCH CULVERTS

- A. Corrugated steel pipe (CSP) and corrugated steel pipe arch (CSPA) shall conform to AASHTO M36/ASTM A760, except reinforcement of ends is not required. Provide accessories as shown.
- B. Corrugations shall be annular or helical, minimum size 2-2/3 in. x 1/2 in. Minimum sheet thickness for steel material shall be as follows:

<u>Circular Pipe</u>		<u>Pipe Arch</u>	
<u>Dia. (in.)</u>	<u>Min. Gage</u>	<u>Dia. (in.)</u>	<u>Min. Gage</u>
12 to 24	16	17 x 13 to 28 x 20	16
30 to 36	14	35 x 24 to 42 x 29	14
42 to 54	12	49 x 33 to 64 x 43	12
60	10	71 x 47	10

2.03 APRON ENDWALLS

- A. Pre-fabricated flared end sections of same material as culvert pipe. Endwalls shall be manufactured by or recommended by pipe manufacturer.

PART 3 EXECUTION

3.01 TEMPORARY DRAINAGE

- A. Contractor shall be responsible for temporary drainage during installation.

3.02 TRENCHING

- A. Install culverts in open trenches to line and grades as shown.
- B. Where culverts are located in new embankments, grade shall be brought up to at least as high as the top of culvert and shall not exceed 2 ft above top of culvert when culvert is installed.
- C. Excavate trench sides as nearly vertical as possible. From bottom of trench to an elevation 1 ft above top of culvert, trench width shall not exceed diameter of pipe plus 24 in. Bottom of trench shall be shaped by hand methods or by a suitable template so that lower one-tenth of diameter of culvert will be in contact with bottom of trench. Culverts shall be bedded with existing materials, unless otherwise indicated.
- D. Where rock, hardpan, or boulders are encountered at bottom of trench excavation, excavate an additional 8 in. below bottom of culvert and backfill with granular materials approved by A/E.

3.03 INSTALLING CULVERT SECTIONS

- A. Lay riveted corrugated steel culverts so that flow is over lap of sheets.
- B. Culverts shall be placed in a straight line, and at a grade which will accurately maintain the bed of water course or channel. Allow a slight camber in middle of length so that after completion of additional embankment above pipe there will be no sags or depressions in entire length of culvert.
- C. Corrugated steel pipe sections shall be joined with a band bolted into place in accordance with manufacturer's directions.

3.04 BACKFILLING

- A. Backfill with select excavated material, free from large lumps, rocks, rubbish, wood, organic material and frozen material. Carefully place backfill on both sides of culverts and structures in layers not exceeding 6-in. depth. Thoroughly tamp and compact each layer to density of surrounding soil. Place successive 6-in. layers to an elevation 12-in. above top of pipe.
- B. Remaining backfill may be deposited from top of trench by mechanical means. Backfill material in no case shall be dropped from such height or in such a volume that its impact upon pipe will cause damage.
- C. Compact backfill to 90% of Modified Proctor density (ASTM D1557).
- D. A minimum depth of 2 ft of earth cushion shall be maintained over top of covered pipes during succeeding operations until placement of base or surface courses.

END OF SECTION

SECTION 35 20 13

DREDGING

PART 1 GENERAL

1.01 SUMMARY

- A. Provide mechanical or hydraulic dredging as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

1.02 CLASSIFICATION

- A. Materials encountered under this work will be classified as the following for the purposes of this project:
 - 1. "Environmental Dredge Spoils" are dredge spoils that are contaminated at levels greater than the Midpoint Effect Concentration (MEC) as outlines in the *Consensus-based Sediment Quality Guidelines*, prepared by the WDNR Contaminated Sediment Standing Team, December 2003 (WT-732 2003). A copy of this document can be found at http://dnr.wi.gov/topic/brownfields/documents/cbsqg_interim_final.pdf. These materials are to be removed and disposed at the designated landfill.
 - 2. "Navigational Dredge Spoils" are the remaining dredge spoils to be removed from the harbor to achieve the final desired harbor depths. Navigational dredge spoils with arsenic levels below 6 ppm can be sent to the Lot 24 Navigational Dredge Spoils Containment Site. Navigational Dredge Spoils with arsenic levels greater than 6 ppm but less than the MEC are to be disposed at an approved landfill if not reused within the harbor.
 - 3. "Beneficial Reuse Dredge Spoils" are the portion of the Navigational dredge spoils which will not leave the harbor site. These materials will be maternal categorized as "Navigational Dredge Spoils" with regards to contamination levels (less than MEC) and relocated to the east end of the harbor to achieve desired final grading.
- B. Dredge spoil sediment contaminate sample summary table is included in Appendix A.
- C. Dredge spoil physical characteristic summary table is included in Appendix B.
- D. See "Quality Assurance Project Plan (QAPP) and Dredge Handling Plan" in Appendix C for detailed testing and handling requirements. "QAPP and Dredge Handling Plan" included in Appendix C is a draft. Contractor shall provide any additional information required to finalize this document for approval by all parties outlined in the document. No work shall commence prior to finalization and approval this document.

1.03 SUBMITTALS

- A. Dewatering Plan: Within 10 days after Notice to Proceed, submit the proposed dewatering plan for submittal of Chapter 30 dredging permit application to WDNR. Contractor is responsible for developing a plan to meet the discharge requirements outlined in WWTP Agreement Letter (Appendix E) or WDNR Carriage and Interstitial Water Requirements (Appendix F) depending on selected method for wastewater disposal. Include, at a minimum, the following:
 - 1. Dewatering system design/plans and specifications.
 - 2. Wastewater discharge location (include both groundwater and surface water locations if utilized).
 - 3. Pump information.
 - 4. Piping layout.
 - 5. Instrumentation to be used.
 - 6. Equipment to be used.

7. Any chemical that might be used.
 8. Anticipated flow rates.
 9. System monitoring plan.
 10. Water treatment plan (if WWTP is not used).
 11. Sampling and testing plans.
- B. Work Plan: Prior to beginning work, submit for information only a Work Plan for approval that includes, at a minimum:
1. Complete schedule of dredging operations including start and end dates for each dredging area.
 2. Dredging methods to be used and descriptions of equipment to be utilized for work to be completed. Include process for collecting and treating carriage and/or interstitial water. Include methods for achieving desired dredge depths and tolerance quality control. Include methods for backfilling east area of harbor with excess dredge spoils.
 3. Sequencing plan including order or areas to be dredged, coordination with shoreline treatment, and methods for dredging around shallow waters, sea walls (or other shoreline stability structures), and critical structures in the harbor.
 4. Erosion control and security details around staging and dewatering areas.
 5. Waterway markers, boat traffic maintenance plan, and protection of commercial/recreational watercraft during dredging.
- C. Weekly Reports: Submit weekly reports detailing hours of excavation and quantities of sediment removed.
- D. Carriage & Interstitial Water from Dredging Operations General Permit Discharge Monitoring Reports (DMRs). These are only required if wastewater from dredge operations is not sent to the WWTP for treatment.
- E. Make submittals in accordance with Section 01 01 00.

1.04 MEASUREMENT AND PAYMENT SURVEYS

- A. Contractor shall conduct pre and post dredge bathymetric surveys to document net quantities removed or placed by Contractor and confirm target elevations for both navigational and environmental dredging section of the harbor. Surveys shall be conducted:
1. Any time dredge spoil classification transitions from environmental to navigational.
 2. After final dredge depth has been achieved (prior to backfilling with beneficial reuse material).
 3. After placement of beneficial reuse material.
 4. After Additional Environmental Dredge/Disposal (if additional dredging is required).
- B. Contractor shall arrange and pay for services of a Wisconsin-licensed Registered Land Surveyor (RLS) or a Professional Engineer who is independent of Contractor and Owner to complete measurement and payment surveys.
- C. Bathymetric surveys shall be completed using standard hydrographic survey methods.
- D. Bathymetric survey data will be used to compute final pay volumes for NAVIGATIONAL DREDGING/DISPOSAL and BENEFICIAL REUSE DREDGING.
- E. Contractor shall provide weigh tickets from the designated landfill for tracking and payment.

1.05 PERMITS

- A. Owner will apply for dredging, interstitial water, construction site stormwater discharge, waterway marker, and shoreland erosion control permits and provide copies to Contractor. Contractor shall post permits on site where directed by Owner. Permits shall be posted at

least 5 days prior to beginning work and shall remain in place at least 5 days after completion of work.

- B. Contractor shall comply with all conditions of permits including, but not limited to, monitoring, limitations, and reporting requirements related to total suspended solids and all other parameters and equipment decontamination requirements.
- C. Obtain and pay for all other necessary licenses and permits, and comply with applicable Federal, State and local laws and regulations. Display permits where directed by Owner.

1.06 ACCESS

- A. Owner will furnish access easements to dredge site and any other easements required for construction.

1.07 PROTECTION

- A. Provide sufficient barricades and protective devices around excavations to safeguard against injury. Provide and maintain sufficient safety lanterns at night. Comply with Section 31 05 10.
- B. Comply with applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement.

1.08 EXPLOSIVES

- A. Use of explosives is not permitted.

PART 2 (NOT USED)

PART 3 EXECUTION

3.01 DREDGING EQUIPMENT

- A. Types and capacities of equipment suitable for use at the site and production rates to be obtained are the responsibility of Contractor.

3.02 LAYOUT OF WORK

- A. Lay out work from Owner-furnished baseline(s) and benchmark(s) as indicated on the Drawings and be responsible for all measurements. Furnish stakes, templates, platforms, equipment, range markers, and labor as required to lay out work. Contractor shall be responsible for execution of work to such lines and grades and shall monitor grades daily.
- B. Maintain and preserve stakes and other marks until authorized to remove them. Marks destroyed by Contractor or through its negligence prior to their authorized removal may be replaced by Owner at its discretion; expense of replacement will be deducted from amounts due or to become due Contractor.

3.03 DREDGING

- A. Provide dredging to depths and widths as shown. Blend slopes of dredged area into existing bank slopes.
- B. Provide and maintain necessary temporary access roads, haul roads, signal lights, bouys, and environment protection; costs shall be incidental to contract.

- C. Dredge depth tolerance shall be elevation shown on Drawings, plus or minus 3 in. Horizontal dredging tolerance shall be plus or minus 2 ft.
- D. In general, spoils with more than 30% fines (particles smaller than the #200 sieve) shall be anticipated to be Environmental Spoils and disposed of accordingly. Remaining spoils with less than 30% fines shall be anticipated to be Navigational Spoils and disposed of/reused accordingly. Samples may be collected by A/E and tested for grain size and contaminants at any time during construction for compliance.
- E. Owner will be responsible for collection of confirmation sediment samples during dredging operations. Confirmation sampling will be completed as outlined in the "Quality Assurance Project Plan (QAPP) and Dredge Handling Plan" in Appendix C. Contractor shall allow access to harbor for this sampling. When Contractor, working with Owner's site representative, believes that the contaminated sediment has been removed from an area, Owner's representative will begin confirmation sampling. It is intended that as 100 foot by 100 foot areas are remediated, samples will be collected. Sample results will be available within 10 calendar days of collection. Contractor may be required to return to a previously dredged area to over-excavate and remove additional contaminated material pending sample results. In areas where Beneficial Reuse Dredge Spoils are being placed, perform confirmation sampling 1-ft prior to final fill grades to ensure places material is within acceptable limits for contamination outlined under the "Classification" article in Part 1 General, above.

3.04 SEDIMENT DEWATERING

- A. Contractor is responsible for completing any required treatability testing on spoils required to determine dewatering methodology and plan.
- B. Background and elutriate testing was performed on water and sediments from the harbor to determine the base contamination and anticipated wastewater contamination levels during operations, respectively. The results of these tests are included in Appendix D.
- C. All carriage and/or interstitial water must be collected and treated from dredge spoils to be disposed off-site prior to discharge of wastewater into Harbor. Use of sealed or watertight barges and buckets may be required to prevent discharge of untreated wastewater from the contaminated sediment if mechanical dredging is chosen as the preferred alternative. Contractor is responsible for construction of dewatering pad(s) and barge offloading structure with containment to protect surface and groundwater discharge for any mechanical dredging and dewatering operations as necessary.
- D. Beneficial Reuse Dredge Spoils can be transported directly to final placement location in Harbor without dewatering. Beneficial Reuse Dredge Spoils must be handled with care as to not create additional adverse water quality conditions. Provide additional turbidity barriers around both the dredging and placement locations as necessary. If visual turbidity problems occur, placement shall cease until other methods are evaluated to continue with placement. Use of sealed or watertight barges may be required to prevent discharge of suspended solids from the sediment during transport if mechanical dredging is chosen as the preferred alternative.
- E. Sediment from dredge operations shall meet the following criteria before considered "dewatered" and is allowed to be transferred off-site for disposal.
 1. Sediment must contain no free liquids (passes *Paint Filter Liquids Test*, U.S. EPA SW846 Method 9095B).
 2. Sediment must be able to support its own weight.
 3. Sediment must be able to support the weight of the material placed over it.
 4. Sediment must be capable of being worked by the Disposal Site's low ground pressure bulldozers.

- F. The City of Marinette Wastewater Treatment Plant (WWTP) has agreed to accept any wastewater from dredging. The agreement outlining conditions and limits for the WWTP is included in Appendix E. Wastewater shall be sampled by Contractor as outlined in the agreement letter.
- G. Contractor shall determine dewatering method that meets the WDNR WPDES (WI-0046558-5) Carriage and Interstitial Water from Dredging Operations General Permit (if WWTP option is not used). Permit will be applied for after Notice to Proceed. Limits and requirements required by the WDNR are included in Appendix F.
- H. Comply with the erosion control provisions of Section 01 57 19.

3.05 DISPOSAL

- A. Dispose of dredged material in designated disposal areas based on material classification outlined. Distribute dredged material at disposal area as shown on Drawings.
- B. Contractor may propose a different licensed landfill disposal site for Environmental Dredge Spoils. Contractor shall be responsible for providing all necessary sampling and testing required for landfill profile approval process. Owner must approve any proposed disposal site other than approved landfill in Menominee, Michigan.
- C. Remove and dispose of snags and fallen trees that will extend above top of spoil.
- D. In the event disposal areas have insufficient capacity due to excessive overdredging, Owner will be responsible for obtaining additional disposal areas.
- E. Leakage or spillage of hauled materials on to public roads and streets will not be permitted, and if unavoidably done, shall be removed daily in a manner acceptable to Owner. Material boxes of hauling equipment shall be of watertight construction and shall not be loaded over their rated capacity; nor shall loads exceed limits of local thoroughfares over which they operate. Comply with laws and regulations pertaining to operation of vehicles.

3.06 POST-CONSTRUCTION CLEANUP

- A. Obliterate all signs of temporary construction facilities such as haul roads, work areas, buildings, stockpiles of excess or waste materials, or other vestiges of construction. Disturbed areas shall be graded and filled as required.

3.07 FINAL EXAMINATION AND ACCEPTANCE

- A. Post dredge sampling plan is included in the "Quality Assurance Project Plan (QAPP) and Dredge Handling Plan" in Appendix C. Post-dredge samples will be collected at locations where a contaminant was present at levels greater than the MEC during pre-dredge sampling. If contaminants are found to be present in levels exceeding the TEC the results will be evaluated to determine an acceptable solution, which must be approved by the WDNR prior to implementation.
- B. As soon as practicable after completion or completion of any section that will not be subject to further operations, the work shall be examined by survey, sounding, or by sweeping. If shoals, lumps, or other lack of depth are disclosed by this examination, Contractor will be required to remove same by dragging bottom or by dredging; however if bottom is soft and shoal areas are small and form no material obstruction, removal of such shoal may be waived.
- C. A/E shall be notified when surveys, soundings, and/or sweepings will be made, and shall be permitted to accompany survey party. When an area is found to be in a satisfactory condition, it will receive final acceptance. Should more than one survey, sounding, or sweeping operation over an area be necessary by reason of work for removal of shoals

disclosed in prior examination, the cost of second and subsequent survey, sounding, or sweeping operation shall be borne by Contractor.

END OF SECTION

Appendices

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APPENDIX A

SUMMARY OF METALS IN HARBOR SEDIMENT AND MANAGEMENT PLAN										
Menekaunee Harbor Restoration Project										
January 30, 2014										
Sample Location and Name	Sample Interval / Depth (in.)	Total Metals Analyses (mg/kg)								Proposed Spoils Management: See Legend and Color Key in Notes below.
		Arsenic	Cadmium	Copper	Iron	Lead	Nickel	Zinc	Mercury	
Sediment Guidelines (see Note 4)	TEC	9.8	0.99	32	20,000	36	23	120	0.18	
	MEC	21.4	3.0	91	30,000	83	36	290	0.64	
	PEC	33	5.0	150	40,000	130	49	460	1.1	
MENEKAUNEE HARBOR (4/23/2012) - NOTE 1										
MHS5A	0-30	2.2	-	2.5	-	1.0	-	15.8	0.0038	Beneficial Reuse; excess to Lot 24
MHS5B	0-30	1.5	-	3.3	-	1.1	-	14	0.00056	Beneficial Reuse; excess to Lot 24
MHS5C	0-30	1.3	-	2.2	-	0.98	-	14.8	<0.00051	Beneficial Reuse; excess to Lot 24
MHS6A	0-30	4.3	-	4.8	-	5.7	-	23.5	0.016	Beneficial Reuse; excess to Lot 24
MHS6B	0-30	2.2	-	4.6	-	1.3	-	17.5	0.0015	Beneficial Reuse; excess to Lot 24
MHS6C	0-30	1.0	-	1.7	-	0.83	-	13	0.0005	Beneficial Reuse; excess to Lot 24
MENEKAUNEE HARBOR (July 2007) - NOTE 2										
MH07-SS-01-01	0-18	13	0.320	16.4	10,900	30	8.0	70.3	0.20	Landfill
MH07-SS-01-02	18-42	4.0	0.220	14.8	11,700	17.2	8.6	41.7	0.15	Beneficial Reuse; excess to Lot 24
MH07-SS-01-03	42-61	1.8	0.045	2.2	7,810	0.61	4.3	15.6	0.018	Beneficial Reuse; excess to Lot 24
MH07-SS-02-01	0-14	2.3	0.049	2.4	5,930	1.1	3.8	14.5	0.02	Beneficial Reuse; excess to Lot 24
MH07-SS-02-02	14-38	1.9	0.067	2.1	6,410	1.1	3.9	14.1	0.018	Beneficial Reuse; excess to Lot 24
MH07-SS-02-03	38-50	1.4	0.042	1.9	5,750	0.8	3.8	11.8	0.017	Beneficial Reuse; excess to Lot 24
MH07-SS-03-01	0-15	9.3	0.210	17.9	13,600	19.3	9.5	58.8	0.033	Landfill
MH07-SS-04-01	0-23	5.8	0.200	12	10,500	11.9	6.9	33.7	0.06	Beneficial Reuse; excess to Lot 24
MH07-SS-04-02	23-47	3.2	0.086	5.2	8,810	6.8	5.0	40.2	0.033	Not Dredged
MH07-SS-04-03	47-59	3.6	0.120	5.8	9,590	8.2	6.7	25.5	0.11	Not Dredged
MH07-SS-05-01	0-24	5.6	0.240	9.3	12,200	14.5	7.7	37.5	0.044	Beneficial Reuse; excess to Lot 24
MH07-SS-05-02	24-36	3.6	0.150	7.4	8,000	8.0	5.2	23.1	0.054	Beneficial Reuse; excess to Lot 24
MH07-SS-06-01	0-16	4.7	0.220	12.0	13,200	14.4	8.8	54.6	0.042	Beneficial Reuse; excess to Lot 24
MH07-SS-06-02	16-40	3.2	0.069	3.8	7,950	3.6	4.7	19.9	0.024	Beneficial Reuse; excess to Lot 24
MH07-SS-06-03	40-68	2.3	0.035	2.0	6,320	0.99	3.6	12.6	0.017	Beneficial Reuse; excess to Lot 24
MH07-SS-07-01	0-23	4.7	0.130	10.1	9,970	14.1	7.4	47.6	0.14	Beneficial Reuse; excess to Lot 24
MH07-SS-08-01	0-12	26.2	0.950	36.9	19,800	104	14.2	146	0.39	Landfill
MH07-SS-08-02	12-30	11.3	0.700	29.5	12,600	45.9	10.9	113	0.64	Landfill
MH07-SS-08-03	30-39	5.4	0.680	27.7	12,000	69.7	9.2	128	0.61	Lot 24
MH07-SS-09-01	0-24	28.8	0.940	29.1	21,200	47	17.2	118	0.23	Landfill
MH07-SS-09-02	24-48	20.9	1.000	44.30	20,000	54.9	18.1	146	1.1	Landfill
MH07-SS-09-03	48-72	7.8	0.580	26.1	12,800	43.2	11.0	95.6	0.45	Not Dredged
MH07-SS-09-04	72-89	4.9	0.350	26.3	12,200	32.7	8.9	71.7	0.28	Not Dredged
MH07-SS-10-01	0-19	6.0	0.047	4.3	7,590	6.4	4.6	19.6	0.02	Beneficial Reuse; or to Landfill?
MH07-SS-10-02	19-43	5.7	0.046	3.5	7,580	5.7	4.2	19.0	0.019	Beneficial Reuse; excess to Lot 24
MH07-SS-10-03	43-67	24.9	1.000	28.2	18,300	46.4	14.5	112	0.24	Landfill
MH07-SS-10-04	67-86	38.1	1.700	67.4	24,600	87	21.3	220	1.9	Landfill
MH07-SS-11-01	0-18	5.5	0.096	3.4	7,800	5.4	4.4	19.1	0.026	Beneficial Reuse; excess to Lot 24
MH07-SS-13-01	0-24	4.6	0.310	9.8	8,100	49.6	6.3	254	0.13	Lot 24
MH07-SS-13-02	24-37	3.1	0.160	10.6	9,230	29.7	6.4	62.3	0.2	Lot 24
MH07-SS-14-01	0-19	8.0	0.150	7.9	8,020	12.5	6.0	36	0.18	Beneficial Reuse; or to Landfill?
MENEKAUNEE HARBOR (1997) - NOTE 3										
HTM-1	0-24	5.82	0.128	5.23	5,800	11.36	ND	44	ND	Beneficial Reuse; excess to Lot 24
HTM-1A	24-48	-	0.542	7.08	14,700	39.31	17.4	81.8	3.14	Landfill
HTM-1A	24-31.9	5.61	-	-	-	-	-	-	-	Beneficial Reuse; excess to Lot 24
HTM-1B	31.9-39.8	5.46	-	-	-	-	-	-	-	Beneficial Reuse; excess to Lot 24
HTM-1C	39.8-48	5.58	-	-	-	-	-	-	-	Beneficial Reuse; excess to Lot 24
HTM-2	0-24	3.79	0.201	8.16	6,800	13.12	ND	52.5	1.78	Landfill
HTM-2A	24-48	-	0.658	37.16	17,900	79.96	23.2	1.46	3.0	Landfill
HTM-2A	24-31.9	13.58	-	-	-	-	-	-	-	Landfill
HTM-2B	31.9-39.8	5.26	-	-	-	-	-	-	-	Beneficial Reuse; excess to Lot 24
HTM-2C	39.8	7.12	-	-	-	-	-	-	-	Beneficial Reuse; or to Landfill?
HTM-3	0-24	5.34	0.202	5.74	4,450	83.27	ND	-	12.8	Lot 24
HTM-3	24-48	2.54	0.193	4.73	4,740	46.49	ND	65.6	ND	Lot 24
HTM-4	0-24	5.55	0.272	9.18	7,640	16.41	11.4	56.2	1.26	Landfill
HTM-4	24-48	20.43	0.523	12.24	13,700	21.27	14.0	53.2	ND	Landfill

NOTES

1. Sampling of Menekaunee Harbor by Ayres Associates, April 23, 2012.
2. Menekaunee Harbor Sediment Report, Final, June 6, 2008, Weston Solutions, Inc.
3. Sampling and Analysis Plan for Characterizing Sediments, January 13, 1997, White Water Associates, Inc.
4. Recommended sediment quality guideline values for metals and associated levels of concern; from Consensus-Based Sediment Quality Guidelines, WDNR, WT-732 2003; December 2003.

LEGEND and COLOR KEY

	-Indicates results <TEC, but arsenic concentration ≥ 6.0. For some of these samples only arsenic analysis performed.
	-Indicates results <TEC, but arsenic concentration > 5.0. For some of these samples only arsenic analysis performed.
	-Indicates results ≥TEC, but <MEC and total arsenic concentration <6.0. Therefore, these dredge spoils go to Lot 24 Containment.
	-Indicates results ≥MEC or <MEC with total arsenic ≥ 6.0. Therefore these dredge spoils go to landfill.
	-Indicates results are suitable for beneficial reuse in the harbor or Lot 24.
	-Indicates results are suitable for beneficial reuse in the harbor, or if removed must go to landfill.
	-Indicates results >TEC criteria.
	-Indicates results >MEC criteria.
	-Indicates results >PEC criteria

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APPENDIX B

SUMMARY OF PARTICLE SIZE DISTRIBUTION IN MENEKAUNEE HARBOR						
Sample ID	Percent Gravel	Percent Sand	Percent Silt	Percent Clay	Percent Fines (< #200)	USCS Classification
MHS5A	0.9	97.4	1	0.7	1.7	SW or SP
MHS5B	1.2	96.3	2	0.5	2.5	SW or SP
MHS5C	1.5	98.1	0	0.4	0.4	SW or SP
MHS6A	1	97.1	1.6	0.3	1.9	SW or SP
MHS6B	0.7	96.1	2.1	0.3	2.4	SW or SP
MHS6C	0.3	99.2	0.2	0.3	0.5	SW or SP
MH07-SS-01-01	12	72.3	11.5	4.2	15.7	SM or SM-SC
MH07-SS-01-02	2.5	67.5	24.3	5.7	30	SM or SM-SC
MH07-SS-01-02-DP	3.4	73.9	17	5.7	22.7	SM or SM-SC
MH07-SS-01-03	0	98.6	1.3	0.1	1.4	SW or SP
MH07-SS-02-01	1.5	96.2	1.1	1.2	2.3	SW or SP
MS07-SS-02-02	0	98.5	0.2	1.3	1.5	SW or SP
MS07-SS-02-03	0	98.6	0.8	0.6	1.4	SW or SP
MS07-SS-03-01	6.8	60.3	30.6	2.3	32.9	SM or SM-SC
MS07-SS-04-01	0.4	78.4	17.9	3.3	21.2	SM or SM-SC
MS07-SS-04-02	0.4	84.5	13.2	1.9	15.1	SM or SM-SC
MS07-SS-04-03	0.5	78.7	17.6	3.2	20.8	SM or SM-SC
MS07-SS-05-01	0.8	67.4	28.1	3.7	31.8	SM or SM-SC
MS07-SS-05-01-DP	0.8	70.4	26.3	2.5	28.8	SM or SM-SC
MS07-SS-05-02	1.2	78	18.7	2.1	20.8	SM or SM-SC
MS07-SS-06-01	2.1	90.8	5.1	2	7.1	SW-SM or SP-SM
MS07-SS-06-02	1.9	85.6	9.9	2.6	12.5	SM or SM-SC
MS07-SS-06-02-DP	2	87.7	8.3	2	10.3	SW-SM or SP-SM
MS07-SS-06-03	1.2	96.8	0.8	1.2	2	SM or SM-SC
MS07-SS-07-01	2	83.4	10.6	4	14.6	SM or SM-SC
MS07-SS-08-01	0.5	45.9	43.6	10	53.6	ML or MH
MS07-SS-08-02	3.5	64.6	24.1	7.8	31.9	SM or SM-SC
MS07-SS-08-03	0.7	64.6	27.6	7.1	34.7	SM or SM-SC
MS07-SS-09-01	0.1	41.1	50.3	8.5	58.8	ML or MH
MS07-SS-09-02	0.1	30.9	63.5	5.5	69	ML or MH
MS07-SS-09-03	0.9	40.3	53.9	4.9	58.8	ML or MH
MS07-SS-09-04	0.3	43.6	50.1	6	56.1	ML or MH
MS07-SS-10-01	0.2	97.7	0.9	1.2	2.1	SW or SP
MS07-SS-10-02	0.4	96.7	2.2	0.7	2.9	SW or SP
MS07-SS-10-03	0.7	43	50.9	5.4	56.3	ML or MH
MS07-SS-10-04	0	28.7	53.1	18.2	71.3	ML or MH
MS07-SS-11-01	0.8	94.1	2.7	2.4	5.1	SW-SM or SP-SM
MS07-SS-13-01	7	75.4	17.2	0.4	17.6	SW-SM or SP-SM
MS07-SS-13-01-DP	7.2	79.7	10.7	2.4	13.1	SW-SM or SP-SM
MS07-SS-13-02	1.8	73.7	22.1	2.4	24.5	SW-SM or SP-SM
MS07-SS-14-01	7.1	82.1	9.9	0.9	10.8	SW-SM or SP-SM

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QUALITY ASSURANCE PROJECT PLAN AND DREDGE HANDLING PLAN

**Lower Menominee River Area of Concern
Menekaunee Harbor Restoration Project
Grant/Project No. GL-00E01312-0**



Prepared for:

**City of Marinette
Wisconsin Department of Natural Resources**

June 5, 2014

**QUALITY ASSURANCE PROJECT PLAN
AND DREDGE HANDLING PLAN**

**Lower Menominee River Area of Concern
Menekaunee Harbor Restoration Project**

Grant/Project No. GL-00E01312-0

Prepared by:



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Ayres Associates Project No. 19-0277.34

SECTION A – PROJECT MANAGEMENT

A1. Title of Plan and Approval

Quality Assurance Project Plan and Dredge Handling Plan

Lower Menominee River Area of Concern Menekaunee Harbor Restoration Project

Approvals:

Brian Miller, PE City of Marinette Project Manager	Date
---	------

<i>Position Vacant (to be filled June 2014)</i> WDNR Menominee River AOC Coordinator	Date
---	------

Donalea Dinsmore WDNR Office of Great Lakes Funding and Quality Assurance Coordinator	Date
--	------

Cheryl Bougie WDNR Sediment and Monitoring Coordinator – Lake Michigan	Date
---	------

Jennifer Conner EPA-GLNPO Grant Coordinator	Date
--	------

XXX Consultant Project Manager	Date
-----------------------------------	------

XXX Consultant Quality Assurance/Control Manager/Coordinator	Date
---	------

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Acronyms

AOC	Area of Concern
BOD	Biochemical Oxygen Demand
BMP	Best Management Practice
BUI	Beneficial Use Impairment
GRLI	Great Lakes Restoration Initiative
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
MEC	Midpoint Effect Concentration
PAH	Polynuclear Aromatic Hydrocarbon
PEC	Probable Effect Concentration
PHOS	Phosphorus
QAPP	Quality Assurance Project Plan
TEC	Threshold Effect Concentration
TSS	Total Suspended Solids
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
WDNR	Wisconsin Department of Natural Resources
WPDES	Wisconsin Pollutant Discharge Elimination System
WWTP	Wastewater Treatment Plant

A3. Distribution List

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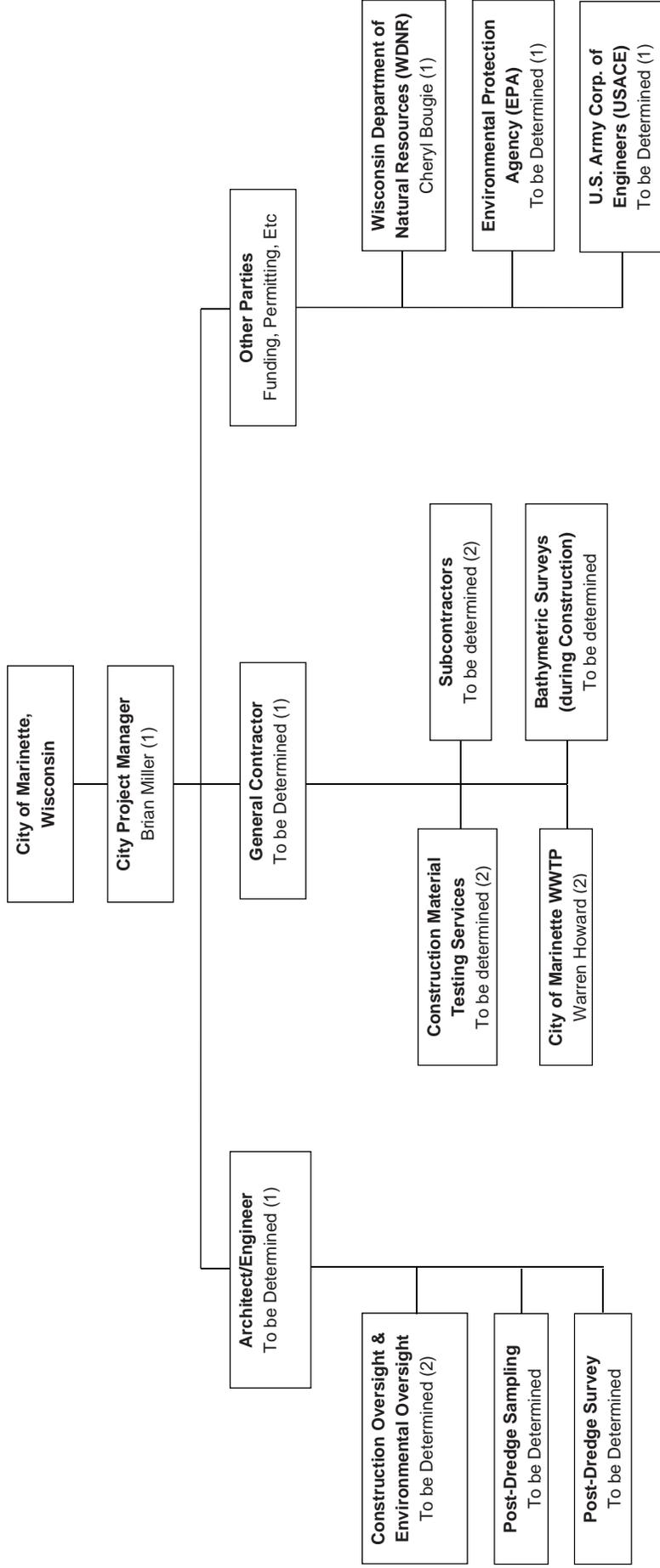
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A4. Project/Task Organization

Table 1. Roles & Responsibilities

Individual(s) Assigned	Responsible for:	Authorized to:
Brian Miller City of Marinette	Project management on behalf of City of Marinette	Stop work Approve contracts Approve change orders
Cheryl Bougie Wisconsin DNR	Project oversight Reporting internally to DNR	Stop work
Donalea Dinsmore Wisconsin DNR	Quality Assurance	
Project Engineer - TBD	Project oversight Reporting to City	Stop work
Construction contractor - TBD	Construction activities: dredging, sea wall, containment site Installation and maintenance of stormwater BMPs Installation and maintenance of in-water TSS controls Installation and maintenance of waterway markers Testing dredge spoils and interstitial water	Select subcontractors Stop work due to weather Address spills
Construction oversight personnel - TBD	Performing daily oversight Preparing weekly construction oversight reports Serving as the main point of contact at the site for WDNR/City/engineer	Recommend stop work
Environmental Oversight Consultant - TBD	Performing weekly inspections of stormwater BMPs Performing weekly inspections of in-water TSS controls Preparing weekly reports, uploading to FTP site Prescribe corrective actions for BMP's and process Preparing Discharge Monitoring Report (DMR) Forms Documenting corrective actions Address Spills	Recommend stop work Prescribe corrective actions for stormwater BMPs

Figure 1. Organization Chart



(1) Authority to stop work.

(2) Authority to recommend stop work.

A5. Problem Definition/Background

The Menekaunee Harbor is located within the City of Marinette, Wisconsin, at the mouth of the Menominee River and Lake Michigan's Green Bay (Figure 2. Project Location). The harbor lies adjacent to the Michigan-Wisconsin border, and is connected to the Menominee River by a 1,000-foot long navigable channel, though the harbor is currently blocked off at the inlet (located at the Odgen Street Bridge) in order to prevent further contamination from entering the harbor from this "south channel." The harbor is part of the Lower Menominee River Area of Concern (AOC) which includes the lower three miles of the river from the Park Mill Dam to the river's mouth. Beneficial use impairments (BUIs) within the Menominee River AOC include:

1. Degradation of fish and wildlife populations;
2. Loss of fish and wildlife habitat;
3. Restrictions on fish and wildlife consumption;
4. Degradation of benthos;
5. Beach closings; and
6. Restrictions on dredging activities.

Historically the Menekaunee Harbor extended directly eastward to the shoreline of the Green Bay and was an extension of the Lower Menominee River. However, sand dunes formed on the east side of the harbor following construction of the government pier, establishing a natural barrier that protects the area from lake and storm activity. These geologic and hydrologic conditions support a formerly-diverse wetland complex that extends from the east pocket of the Menekaunee Harbor eastward toward the Green Bay. The shallow waters, submerged vegetation, and wetlands provided diverse and critical habitat for a variety of fish, birds, and other wildlife.

However, hydrologic alteration has caused extensive sediment deposition which not only negatively impacted the diversity and function of the wetland complex, but has also severely restricted navigation within the harbor. Additionally, pollutants associated with historical industrial manufacturing practices along the river have resulted in degradation and contamination the harbor, and contribute daily to the cause of the BUIs within the Menominee River AOC. In addition to contaminants within the sediment of the harbor and shallow depths caused by sediment, the existing timber pile shoreline (wooden seawall) treatment is in poor condition and is in need of replacement.

The purpose of the project is to address BUIs within the harbor by removing contaminants, improving navigation, replacing shoreline treatments, and restoring the fish and wildlife habitat. This QAPP addresses dredging (both contaminant- and navigation-related) and sea wall replacement.

Figure 2. Project Location



A6. Project/Task Description

The Menekaunee Harbor Improvement project will dredge the harbor to a navigable depth of 8 feet during historic low lake levels—568.0 mean sea level (MSL)—in all locations to remove contaminants at or above the Threshold Effect Concentration (TEC) for arsenic, copper, lead, mercury, and/or zinc (see plan set). Deeper dredging depths will be achieved in areas where contaminants have been located below 568.0 msl. The non-navigational areas on the eastern side of the harbor will be backfilled to 576.0 msl to provide final water depths of approximately two feet for habitat restoration purposes. Clean dredge spoils (termed “beneficial-use fill”) removed from the west side of the harbor will be used to bring the east side to the desired restoration depths. An estimated 27,500 cubic yards of Environmental and 45,000 cubic yards of Navigational Dredging (22,500 cubic yards which will be beneficial re-use within the harbor) are anticipated. Elevations and referenced in this document are based on survey data of the Menekaunee Harbor with control from the Corps of Engineers benchmark located near Ogden Street as indicated on the drawings. The Wisconsin County Coordinate System (WCCS), Marinette Zone, North American Datum of 1983 – 1991 Adjustment (NAD83(91)) was used for horizontal control, and the North American Vertical Datum of 1988 (NAVD88) for vertical control.

The project will be performance-specified in order to allow contractors to bid the project by use of mechanical or hydraulic methods to complete dredging and treatment requirements. It is anticipated that some level of mechanical dredging will be required regardless, due to woody debris observable on the bed and encountered during subsurface explorations.

The existing shoreline timber pile wall removal and replacement will need to take place in conjunction with the dredging operations as dredging along the existing timber pile walls may cause the walls to become undermined and the shoreline to collapse. The existing timber pile walls are to be cut off at a minimum of two feet below final grade and covered with beneficial-use fill and/or riprap as indicated on the plans. The project includes shoreline improvements consisting of approximately 1100 feet of riprap installations, 200 feet of anchored sheet pile wall, and 150 feet of stepped ledge stone. The remaining shoreline (to the east side of the harbor) will remain in its natural state, as there is currently no timber pile or riprap. The concrete fishing steps located in the Southeast corner of the harbor will remain in place.

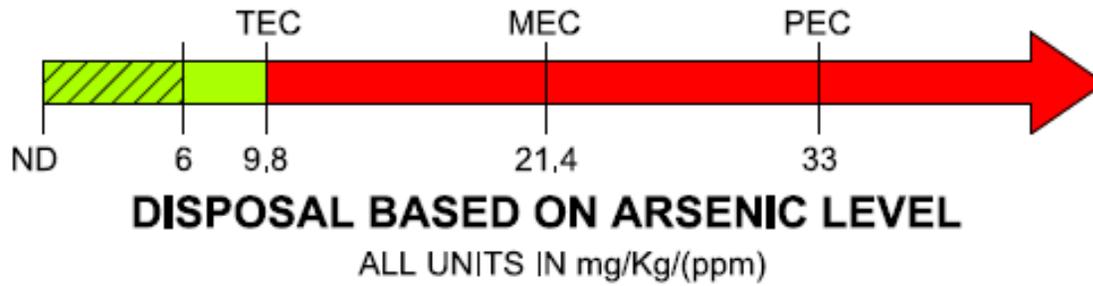
The project also involves development of a dredge spoils containment site at Lot 24, located at the west end of Murray Street on the west side of Marinette. This containment site footprint is approximately three acres, and has the capacity to hold up 54,500 cubic yards of dredge spoils. Only navigational dredge spoils with an arsenic concentration less than 6.0 ppm will be accepted at this site. There is an expected volume of 22,500 cubic yards of material meeting this restriction. Figure 3 (Dredge Spoils Management Criteria) shows how different classes of spoils will be handled. Material sent to Lot 24 is required to contain less than 6 ppm (less than the 9.8 ppm TEC limit) per the DNR Exemption for Low Hazard Waste. Material between 6 ppm and 9.8 ppm may still be used for ecological restoration as “beneficial-use fill”.

A tentative sequence of events is provided in the table on the following page. The final construction schedule will ultimately be determined by the selected contractor, but any sequence disruptions should be approved by the project manager.

Table 2. Tentative Project Schedule

Task	Start Date	End Date	Notes
Bid Period			
Pre-bid Meeting			
Bid Addenda Issued			
Bid Opening Date			
Project Management Team Review			
Contract Awarded			
Contracting, Notice to Proceed			
Obtain Waterway Marker Permit			
In-Stream Work Restriction Ends	06/15/2014	06/15/2014	Cannot work in water until after June 15 – Post Fish Spawning Window
Mobilization			Arrange staging and dewatering areas, fencing
Erosion Control Installation			Must occur prior to land disturbance – see SWPPP
Clearing and Grubbing			Preparation of Lot 24 containment site
Dredging			Includes dewatering and hauling, potential for drying agent mixing, containment of temporary storage piles for curing and segregation of sediment
Shoreline Treatment			
Backfill East Portion of Harbor			
Permanent Stabilization			
Equipment Decontamination			
Demobilization			

Figure 3. Dredge Spoils Management Criteria



USING TOTAL METALS CONCENTRATIONS

	TEC	MEC	PEC
ARSENIC	9,8	21,4	33
COPPER	32	91	150
LEAD	36	83	130
MERCURY	0.18	0.64	1.1
ZINC	120	290	460

*<6,0 Arsenic Proposed for Lot 24 acceptance

LEGEND

- = REMAIN IN HARBOR FOR ECOLOGICAL RESTORATION
- = TO LOT 24 CONTAINMENT SITE
- = TO LANDFILL
- ND = NOT DETECTED

A7. Quality Objectives & Criteria

Interstitial Water

Based on elutriate data provided in the Request for Coverage for Carriage and Interstitial Water from Dredging Operations (WPDES General Permit No. WI-004655-8), the WDNR has set limits for groundwater and surface water discharge (Table 3, Table 4). Grab samples will be collected and tested for the limits listed in Tables 3 and 4 to confirm any wastewater discharge to groundwater or surface water remains acceptable.

However, the preference is that interstitial water be eliminated into the sanitary sewer system of the City of Marinette Wastewater Treatment Plant. The WWTP requires that this water shall have contaminant levels at or below the plant's local limits (Table 5). Contaminant levels shall be verified by grab samples collected and tested as described in Section B.

Table 3. Groundwater Discharge Limits

Parameter	Limit Type	Limit	Units	Sample Frequency	Sample Type
Flow Rate	--	1	MGD	Daily	Estimated
Arsenic	Daily Max.	10	µg/L	Weekly	Grab
Barium	Daily Max.	2	mg/L	Weekly	Grab
Cadmium	Daily Max.	5	µg/L	Weekly	Grab
Chromium	Daily Max.	100	µg/L	Weekly	Grab
Copper	Daily Max.	1300	µg/L	Weekly	Grab
Iron	Daily Max.	0.3	mg/L	Weekly	Grab
Lead	Daily Max.	15	µg/L	Weekly	Grab
Mercury	Daily Max.	2	µg/L	Weekly	Grab
Nickel	Daily Max.	100	µg/L	Weekly	Grab

Table 4. Surface Water Discharge Limits

Parameter	Limit Type	Limit	Units	Sample Frequency	Sample Type
Flow Rate	--	1	MGD	Daily	Estimated
Suspended Solids, Total	Daily Max.	40	mg/L	Weekly	Grab
Oil and Grease (Hexane)	Daily Max.	15	mg/L	Weekly	Grab
Copper	Daily Max.	38	µg/L	Weekly	Grab
Lead	Daily Max.	260	µg/L	Weekly	Grab
Mercury	Daily Max.	1.3	ng/L	Weekly	Grab
Zinc	Daily Max.	290	µg/L	Weekly	Grab

Table 5. Wastewater Treatment Plant Limits

METALS		
Arsenic	mg/l	0.10
Cadmium	mg/l	0.14
Chromium	mg/l	2.41
Copper	mg/l	1.40
Lead	mg/l	2.02
Mercury	mg/l	0.01
Nickel	mg/l	1.35
Selenium	mg/l	0.12
Silver	mg/l	0.50
Zinc	mg/l	2.25
GRAB SAMPLES		
Cyanide	mg/l	0.19
Oil & Grease	mg/l	100
Phenols	mg/l	25
pH		6.0-9.0
SURCHARGEABLES		
BOD	mg/l	300
TSS	mg/l	350
PHOS	mg/l	14.5

Contaminant Removal

Contaminated sediments shall successfully be removed from the harbor to the extent that post-dredge samples do not contain specific pollutants at levels equal to or greater than the associated TEC value. In general, spoils with more than 30% fines (particles smaller than the #200 sieve) shall be anticipated to be Environmental Spoils and disposed of accordingly. Remaining spoils with less than 30% fines shall be anticipated to be Navigational Spoils and Disposed of/reused (as beneficial reuse in the ecological restoration area) accordingly.

Samples may be collected by Architect/Engineer and tested for grain size and contaminants at any time during construction for compliance. These samples will be collected at locations where the highest levels of contaminants were measured during the previous harbor sampling. The post-dredge sampling methodology is discussed further in Section B. Post-dredge TEC results shall be below: 9.8 ppm for arsenic; 32 ppm for copper; 36 ppm for lead; 0.18 ppm for mercury; and 120 ppm for zinc.

Navigation

The final post-dredge contours shall result in a navigable depth of at least 8 feet (568.0 msl) during current historic low lake levels. This excludes the ecological restoration area on the east side of the harbor, where the final depth should be around 2 feet (574.0 msl). A post-dredge hydrographic survey shall be completed to verify tolerance and confirm pay quantities. At a minimum one bathymetric survey shall be performed at the completion of each dredge area, and one following the completion of the project to verify final design grades for habitat

restoration in the beneficial use fill area of the harbor. The contractor may complete additional bathymetric surveys throughout construction for informational purposes. Bathymetric surveys will be completed as soon as possible after final dredge depths and/or final grades are achieved. This data shall be accurate to within ± 24 inches horizontally, and ± 3 inches vertically.

Shoreline Treatment

Shoreline treatments shall be repaired or replaced incidental to dredging activities.

A. Riprap Shoreline Treatment

Riprap and riprap bedding to meet gradation/size requirements outline in specifications.

B. Sheet Pile Wall Shoreline Treatment

- Concrete for deadman wall will be tested for strength. Loose soil (N<5 BPF) within 3 feet of the bearing elevation and 10 feet of the wall side of the concrete deadman will be removed and recompact.
- Soils having more than 5% organics will be removed from within 5 feet of the bearing elevation.
- Concrete testing will be performed in accordance with specifications section 03 30 00.
- Anchor rod tensioning will be testing in accordance with specifications section 05 50 00.

C. Ledge Stone Shoreline Treatment

- Ledge stone shoreline treatment shall meet tolerances outlined in specifications section 31 37 12.

D. Unfinished Shoreline Treatment

- Shoreline with no treatment shall meet grading tolerance outlined in specifications section 31 22 00.

A8. Special Training/Certification

Construction personnel shall be required to partake in a training session on best management practices (BMPs) associated with the project SWPPP. This training will be conducted by the project engineer immediately following mobilization. Topics will include: installation and maintenance of stormwater controls; procedures for spill prevention and response; procedures for storage, handling, and disposal of construction products, materials, and wastes. Additionally tailgate training sessions will be held regularly by the construction contractor to ensure that construction personnel remain mindful of environmental, safety, and quality considerations.

Contractor shall have HAZWOPER/OSHA 40 hour training certification.

Construction oversight personnel must be licensed in Wisconsin as a Professional Engineer (PE) or have designation as an Engineer in Training (EIT), and have experience or training in construction observation, dredging, concrete reinforcement inspection, sheet pile wall installation.

Environmental compliance personnel shall have had training in the principles and practices of erosion and sediment control measures, and possess the skill to assess conditions that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures that are in use. Licensure as a Professional Engineer or registration as a Certified

Professional in Erosion and Sediment Control (CPESC) or similar is preferred.

Any laboratories analyzing samples of dredged sediments and/or interstitial water must have current WDNR laboratory certification for all of the contaminants associated with the harbor and will be certified as required by applicable state and/or federal agencies for the fields of testing relevant to the requirements of each individual project.

Personnel performing post-construction surveys shall have Wisconsin land surveyor licensure.

It is preferable that personnel performing the post-dredge bathymetric survey shall be licensed in Wisconsin as either a land surveyor or a PE, and have familiarity with collection of spatial data

A9. Documents and Records

A private FTP site maintained by [[To be Determined]] shall be made accessible to all parties involved in the project and shall be updated as necessary with the most current approved versions of the project plan drawings, QAPP, and SWPPP. This site will also be utilized for dissemination of progress reports, audit reports, construction observation logs, and stormwater inspection records. An email notification shall be sent to personnel identified in A3. Distribution List upon upload of any updated plans. This FTP site will also provide templates for forms used by field personnel. In addition to the documents outlined below, additional submittals and documentations as required by the technical specifications shall also be prepared and distributed.

Documentation will be prepared throughout the project for the following:

1. Health and safety program implementation
2. Schedule, budget, and personnel details
3. Conformance to project specifications
4. Stormwater management practices implementation
5. Dust control management practices implementation
6. In-water TSS Controls/BMPs
7. Surveying of containment site topography
8. Construction quantities management
9. Materials and equipment taken off site and brought on site
10. Photographs and written records management
11. Construction materials utilized, including those for erosion and sediment control, and seed mixes placed
12. Site challenges and actions taken to address.

The documentation gathered during site construction, operations, and closure, including as-constructed drawings, will be assembled into a project documentation report that will be provided to the WDNR following cessation of harbor site and containment site activities and closure. Three hard copies and one electronic CD copy will be provided to both the WDNR and the City of Marinette.

Construction observation logs shall include details and photographs for daily construction activities. These logs shall be retained for the duration of the project plus at least three years post-construction. Construction observation shall be used to produce reports which include documentation of all of the following:

1. Sediment sample results

2. Wastewater sample results
3. Stormwater inspection reports
4. In-water TSS controls reports
5. Construction as-built drawings
6. Confirmation hydro survey maps
7. Material quantities for each location

Stormwater inspection records shall include details on installation, maintenance, and deficiencies of stormwater BMPs, as well as photographs. These inspection records must be retained for the duration of the WPDES general permit coverage plus at least three years from the date of notice of termination, per NR 216.48. Stormwater inspection records shall include all of the following:

1. The date, time and location of the construction site inspection.
2. The name of the individual who performed the inspection.
3. An assessment of the condition of erosion and sediment controls.
4. A description of any erosion and sediment control best management practice implementation and maintenance performed.
5. A description of the present phase of land disturbing construction activity at the construction site.

SECTION B – DATA GENERATION & ACQUISITION

B1. Sampling Process Design (Experimental Design)

Interstitial Water

Interstitial water shall be collected for analysis via grab samples in order to ensure that the contaminant levels are within the groundwater, surface water, and wastewater treatment plant limits. Samples will only be required for the disposal methods utilized by the contractor.

Sediment

Confirmation sediment samples shall not be required during dredging operations. The harbor cross sections included in the project drawings outline the navigational and environmental spoils locations based on pre-dredge sampling and testing results.

Post-dredge samples shall be collected at locations where a contaminant was present at levels greater than the MEC during pre-dredge sampling. If contaminants are found to be present in levels exceeding the TEC the results shall be evaluated to determine an acceptable solution, which must be approved by the DNR prior to implementation.

Bathymetry

One post-dredge, digital bathymetric survey shall be necessary for purposes of confirming final depths and contours. The design of this survey shall follow the methodology established during the pre-dredge bathymetric survey performed by Ayres Associates. See specification section 35 20 13.

Topography

Surveys shall be necessary at both the harbor site and the Lot 24 containment site for purposes of preparing as-constructed site plans and as-constructed final grades site plans. These surveys shall follow established land survey techniques, and shall occur following completion of site preparation and following the conclusion of site operations and closure.

B2. Sampling Methods

Interstitial Water

Methodology is to be determined by independent subcontractor.

Grab samples shall be collected at the following frequency:

1. Once prior to any wastewater discharge into the sanitary manhole.
2. Two times on two different days during the first calendar week of discharge.
3. One time per week during the second through fifth calendar weeks of discharge.
4. One time per month after the fifth week for the remaining duration of the project. A monthly frequency only applies if data indicate substantial compliance in all prior testing.

Sediment

When Contractor, working with Owner's site representative, believes that the contaminated sediment has been removed from an area, Owner's representative will begin confirmation sampling. At least 24 hours of settling time is recommended. It is intended that as 100 foot by 100 foot areas are remediated, samples will be collected and tested for the contaminants of concern. Sample results will be available within 10 calendar days of collection. Contractor may be required to return to a previously dredged area to over-excavate and remove additional contaminated material pending sample results.

Bathymetry

Post-dredge hydrographic surveying shall be conducted via conventional surveying methods that meet the requirements of the Corps of Engineers Engineering Manual EM-1110-2-1003 (2002) Soft Bottom Dredging Support Survey (± 0.5 feet vertical and ± 6 feet horizontal accuracy).

Topography

Post-construction topographic surveys shall be conducted via conventional surveying methods that meet the requirements of Wisconsin Administrative Code Chapter A-E 7. Methodology is to be determined by independent subcontractor.

B3. Sampling Handling & Custody

Interstitial Water

To be determined by independent subcontractor.

Sediment

To be determined by independent subcontractor.

Bathymetry

Data will be both digital and written, and shall remain in the custody of the collector until it can be uploaded to a project server for analysis. Any written data shall be scanned and uploaded as well. Folder names should be clearly labeled as to the data contained within. The data will then be shared digitally with the personnel performing analysis and/or QA/QC.

B4. Analytical Methods

Interstitial Water

To be determined by independent subcontractor.

Sediment

To be determined by independent subcontractor.

Bathymetry

Data collected and processed through Hypack Survey Version 11.0.1.49 (or similar?) software shall then go through the quality control methodology prescribed in B5 using Hypack Single Beam Editor software. This data can be plotted and analyzed in AutoCAD Civil 3D. Final dredge volumes shall be calculated by comparison of the post-dredge surveyed 3D surface and the pre-dredge surveyed 3D surface.

Topography

To be determined by independent subcontractor.

B5. Quality Control

Interstitial Water

To be determined by independent subcontractor.

Sediment

To be determined by independent subcontractor.

Bathymetry

To be determined by independent subcontractor.

Topography

To be determined by independent subcontractor.

B6. Instrument/Equipment Testing, Inspection, and Maintenance

Interstitial Water

To be determined by independent subcontractor.

Sediment

To be determined by independent subcontractor.

Bathymetry

In order to test function of GPS receiver, follow methodology in B7. No testing/inspection/maintenance is necessary for the survey pole.

Topography

To be determined by independent subcontractor.

B7. Instrument/Equipment Calibration and Frequency

Interstitial Water

To be determined by independent subcontractor.

Sediment

To be determined by independent subcontractor.

Bathymetry

A control point of known coordinates shall be surveyed as a ground control check of the accuracy of the GPS receiver. A USACE control point is located on the Ogden Bridge at the west side of the project area and is a good option. This control point is located at 812178.28 feet East, 145998.65 feet North, 589.06 feet Z (Wisconsin County Coordinate System, Marinette Zone, North American Datum of 1983, adjustment 1991). The GPS receiver shall also use a cellular modem capable of receiving real-time corrections from the Wisconsin Continuously Operating Reference Stations (WISCORS).

Topography

To be determined by independent subcontractor.

B8. Inspection/Acceptance of Supplies & Consumables

Interstitial Water

The contaminant levels determined through analysis of the samples shall be acceptable for use when it has been verified that the preceding methodology was followed.

Sediment

The contaminant levels determined through analysis of the samples shall be acceptable for use when it has been verified that the preceding methodology was followed.

Bathymetry

The contour map produced as the final product of this survey shall be acceptable for use when it has been verified that the preceding methodology was followed.

Topography

The survey maps produced as the final products of this survey shall be acceptable for use when it has been verified that the preceding methodology was followed.

B9. Data Acquisition Requirements for Non-Direct Measurements

Not applicable.

B10. Data Management

Interstitial Water

To be determined by independent subcontractor.

Sediment

To be determined by independent subcontractor.

Bathymetry

Data collected during the survey will be in both digital (spatial data) and physical form (field notes) and should be copied and backed up as soon as possible.

Topography

To be determined by independent subcontractor.

SECTION C – ASSESSMENT AND OVERSIGHT

C1. Assessments and Response Actions

On a daily basis during project activities construction oversight personnel shall evaluate performance of work and adherence to permit conditions and QAPP procedures as well as relay any issues to project management as they arise. Project management shall be responsible for providing recommendations for any deficiencies. The contractor shall be responsible for correcting deficiencies, which the oversight personnel shall verify and document.

On a weekly basis—and within 24 hours of a 24-hour rainfall event of ½ inch or greater—environmental compliance personnel shall inspect the Menekaunee Harbor and Lot 24 project sites for compliance to the WPDES storm water general permit. This inspector shall keep a record of the installation, maintenance, and state of erosion and sediment controls, identify deficiencies, and provide recommended corrective actions. The contractor/s shall be responsible for correcting deficiencies within **one day** of their identification. The inspector shall verify executions of corrective actions and document them in the Erosion Control & Storm Water Management Plan.

On a weekly basis environmental compliance personnel shall inspect the Menekaunee Harbor and Lot 24 project sites for compliance to the following permits:

1. WDNR Chapter 30 Waterway Individual Permit for Dredging Operations
2. WDNR WPDES Carriage/Interstitial Water permit
3. US Army Corp of Engineers Section 404/401 Permit for work in a waterway
4. Lot 24 Dredge Spoils Disposal Site Low Hazard Waste Exemption Request Approval.

This inspector shall keep a record of the installation, maintenance, and state of erosion and sediment controls, in-water TSS controls/BMPs (turbidity barriers), wastewater treatment processes, and general compliance. The inspector shall identify deficiencies and provide recommended corrective actions. The contractor/s shall be responsible for correcting deficiencies within **one day** of their identification.

Periodically during construction the project engineer shall perform inspections to verify proper installation and quantities associated with rip rap, concrete, rebar, and other construction materials. These audits will occur at critical times in construction while any deficiencies can still be easily addressed, as well as prior to fulfillment of contractor pay requests. If any deficiencies are identified during an audit the auditor shall be responsible for recommending corrective actions, and the contractor shall be responsible for addressing these corrective actions. If quantities are found to be different than those reported by the contractor than the corrective action taken out by the contractor shall be revising the pay request as appropriate.

C2. Reports to Management

Construction oversight personnel shall provide weekly reports to project management. Project management shall be responsible for the construction contractor to relay recommendations and discuss any concerns. These reports shall be uploaded to the project FTP site and an email sent to involved parties to notify them of new reports and to highlight any critical information.

Environmental compliance personnel shall provide weekly stormwater compliance inspection reports to project management and the construction contractor. The construction contractor shall be responsible for corrective actions for any deficiencies identified within this report. These reports shall be uploaded to the project FTP site and an email sent to involved parties to notify them of new reports and to highlight any required corrective action.

Construction contractor management shall provide progress updates to project management at regularly scheduled meetings or teleconferences weekly. The construction contractor shall also keep logs of all activity performed under their direction, including records of corrective actions which were addressed.

SECTION D – DATA VALIDATION AND USABILITY

D1. Data Review, Verification, and Validation

Upon receipt of observation reports, inspection reports, and laboratory reports the QA manager shall conduct a 100% completeness check to ensure all necessary information has been provided. Instances where information is missing shall be raised to the report-preparer for resolution. All resolutions are to be documented.

D2. Verification and Validation Methods

Not applicable.

D3. Reconciliation with User Requirements

Not applicable.

APPENDICES

Appendix A – Standard Operation Procedures

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APPENDIX D

CT LAB Sample#: 388440 Sample Description: MH 07

Sampled: 10/25/2013 1115

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Chrysene	<0.086	ug/L	0.086	0.30	1		11/06/2013 9:30	11/14/2013 11:55	RED	EPA 8310
Dibenzo(a,h)anthracene	<0.097	ug/L	0.097	0.33	1		11/06/2013 9:30	11/14/2013 11:55	RED	EPA 8310
Fluoranthene	<0.026	ug/L	0.026	0.085	1		11/06/2013 9:30	11/14/2013 11:55	RED	EPA 8310
Fluorene	<0.28	ug/L	0.28	0.94	1		11/06/2013 9:30	11/14/2013 11:55	RED	EPA 8310
Indeno(1,2,3-cd)pyrene	<0.054	ug/L	0.054	0.16	1		11/06/2013 9:30	11/14/2013 11:55	RED	EPA 8310
Naphthalene	<0.54	ug/L	0.54	1.7	1		11/06/2013 9:30	11/14/2013 11:55	RED	EPA 8310
Phenanthrene	<0.12	ug/L	0.12	0.41	1		11/06/2013 9:30	11/14/2013 11:55	RED	EPA 8310
Pyrene	<0.13	ug/L	0.13	0.43	1		11/06/2013 9:30	11/14/2013 11:55	RED	EPA 8310
Aroclor-1016	<0.19	ug/L	0.19	0.61	1		11/05/2013 10:30	11/07/2013 17:17	JJY	EPA 8082A
Aroclor-1221	<0.24	ug/L	0.24	0.79	1		11/05/2013 10:30	11/07/2013 17:17	JJY	EPA 8082A
Aroclor-1232	<0.23	ug/L	0.23	0.75	1		11/05/2013 10:30	11/07/2013 17:17	JJY	EPA 8082A
Aroclor-1242	<0.13	ug/L	0.13	0.45	1		11/05/2013 10:30	11/07/2013 17:17	JJY	EPA 8082A
Aroclor-1248	<0.14	ug/L	0.14	0.46	1		11/05/2013 10:30	11/07/2013 17:17	JJY	EPA 8082A
Aroclor-1254	<0.13	ug/L	0.13	0.45	1		11/05/2013 10:30	11/07/2013 17:17	JJY	EPA 8082A
Aroclor-1260	<0.19	ug/L	0.19	0.64	1		11/05/2013 10:30	11/07/2013 17:17	JJY	EPA 8082A
Sediment Elutriate Prep	DONE		N/A	N/A	1			10/26/2013 12:30	DAB	LAB SOP

CT LAB Sample#: 388441 Sample Description: COMPOSITE

Sampled: 10/25/2013 1130

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results										
Oil and Grease	21	mg/L	12 *	38	1		11/07/2013 8:45	11/08/2013 10:30	JLH	EPA 1664A
Metals Results										

Solid sample results reported on a Dry Weight Basis

CT LAB Sample#: 388441 Sample Description: COMPOSITE

Sampled: 10/25/2013 1130

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Total Barium	520	ug/L	0.29	0.95	1		11/04/2013 14:30	11/05/2013 17:46	NAH	EPA 6010C
Total Cadmium	7.3	ug/L	0.30	1.0	1		11/04/2013 14:30	11/05/2013 17:46	NAH	EPA 6010C
Total Chromium	172	ug/L	0.60	1.9	1		11/04/2013 14:30	11/05/2013 17:46	NAH	EPA 6010C
Total Copper	448	ug/L	1.2	3.8	1		11/04/2013 14:30	11/05/2013 17:46	NAH	EPA 6010C
Total Iron	145000	ug/L	16	52	1		11/04/2013 14:30	11/05/2013 17:46	NAH	EPA 6010C
Total Lead	764	ug/L	1.4	4.6	1		11/04/2013 14:30	11/05/2013 17:46	NAH	EPA 6010C
Total Nickel	89.1	ug/L	1.0	3.1	1		11/04/2013 14:30	11/05/2013 17:46	NAH	EPA 6010C
Total Zinc	1300	ug/L	1.6	5.2	1		11/04/2013 14:30	11/05/2013 17:46	NAH	EPA 6010C
Total Arsenic	13.0	ug/L	0.80	2.8	1		11/01/2013 11:30	11/01/2013 18:27	MDS	EPA 7010
Total Mercury	1.5	ug/L	0.016	0.053	1		11/05/2013 11:00	11/06/2013 09:25	LJF	EPA 7470A
Organic Results										
1-Methylnaphthalene	<0.52	ug/L	0.52	1.8	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
2-Methylnaphthalene	<0.52	ug/L	0.52	1.5	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Acenaphthene	<0.52	ug/L	0.52	1.6	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Acenaphthylene	<0.52	ug/L	0.52	1.6	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Anthracene	<0.15	ug/L	0.15	0.52	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Benzo(a)anthracene	<0.016	ug/L	0.016	0.056	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Benzo(a)pyrene	<0.041	ug/L	0.041	0.14	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Benzo(b)fluoranthene	<0.031	ug/L	0.031	0.10	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Benzo(g,h,i)perylene	<0.062	ug/L	0.062	0.22	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Benzo(k)fluoranthene	<0.019	ug/L	0.019	0.063	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Chrysene	<0.082	ug/L	0.082	0.29	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Dibenzo(a,h)anthracene	<0.093	ug/L	0.093	0.32	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Fluoranthene	<0.025	ug/L	0.025	0.081	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Fluorene	<0.27	ug/L	0.27	0.90	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310

Solid sample results reported on a Dry Weight Basis

CT LAB Sample#: 388441 Sample Description: COMPOSITE

Sampled: 10/25/2013 1130

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Indeno(1,2,3-cd)pyrene	<0.052	ug/L	0.052	0.15	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Naphthalene	<0.52	ug/L	0.52	1.6	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Phenanthrene	<0.11	ug/L	0.11	0.39	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Pyrene	<0.12	ug/L	0.12	0.41	1		11/06/2013 9:30	11/14/2013 12:25	RED	EPA 8310
Aroclor-1016	<0.19	ug/L	0.19	0.62	1		11/05/2013 10:30	11/07/2013 17:36	JJY	EPA 8082A
Aroclor-1221	<0.24	ug/L	0.24	0.81	1		11/05/2013 10:30	11/07/2013 17:36	JJY	EPA 8082A
Aroclor-1232	<0.23	ug/L	0.23	0.77	1		11/05/2013 10:30	11/07/2013 17:36	JJY	EPA 8082A
Aroclor-1242	<0.14	ug/L	0.14	0.46	1		11/05/2013 10:30	11/07/2013 17:36	JJY	EPA 8082A
Aroclor-1248	<0.15	ug/L	0.15	0.47	1		11/05/2013 10:30	11/07/2013 17:36	JJY	EPA 8082A
Aroclor-1254	<0.14	ug/L	0.14	0.46	1		11/05/2013 10:30	11/07/2013 17:36	JJY	EPA 8082A
Aroclor-1260	<0.19	ug/L	0.19	0.65	1		11/05/2013 10:30	11/07/2013 17:36	JJY	EPA 8082A
Sediment Elutriate Prep	DONE		N/A	N/A	1			10/26/2013 12:30	DAB	LAB SOP

CT LAB Sample#: 388482 Sample Description: COMPOSITE BACKGROUND

Sampled: 10/25/2013 0940

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Metals Results										
Total Barium	16.3	ug/L	0.29	0.95	1		11/04/2013 14:30	11/05/2013 17:49	NAH	EPA 6010C
Total Cadmium	<0.30	ug/L	0.30	1.0	1		11/04/2013 14:30	11/05/2013 17:49	NAH	EPA 6010C
Total Chromium	<0.60	ug/L	0.60	1.9	1		11/04/2013 14:30	11/05/2013 17:49	NAH	EPA 6010C
Total Copper	<1.2	ug/L	1.2	3.8	1		11/04/2013 14:30	11/05/2013 17:49	NAH	EPA 6010C
Total Iron	572	ug/L	16	52	1		11/04/2013 14:30	11/05/2013 17:49	NAH	EPA 6010C
Total Lead	<1.4	ug/L	1.4	4.6	1		11/04/2013 14:30	11/05/2013 17:49	NAH	EPA 6010C
Total Nickel	<1.0	ug/L	1.0	3.1	1		11/04/2013 14:30	11/05/2013 17:49	NAH	EPA 6010C

Solid sample results reported on a Dry Weight Basis

CT LAB Sample#: 388482 Sample Description: COMPOSITE BACKGROUND

Sampled: 10/25/2013 0940

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Total Zinc	<1.6	ug/L	1.6	5.2	1		11/04/2013 14:30	11/05/2013 17:49	NAH	EPA 6010C
Total Arsenic	10.7	ug/L	0.80	2.8	1		11/01/2013 11:30	11/01/2013 18:33	MDS	EPA 7010
Total Mercury	<0.016	ug/L	0.016	0.053	1		11/05/2013 11:00	11/06/2013 09:27	LJF	EPA 7470A

Notes: * Indicates Value in between the LOD (limit of detection) and the LOQ (limit of quantitation).

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

Submitted by: Eric T. Korthals
 Project Manager
 608-356-2760

QC Qualifiers

Code	Description
B	Analyte detected in the associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was below detection limit.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Specified calibration criteria was not met.

Current CT Laboratories Certifications

- Illinois NELAP ID# 002413
- Kansas NELAP ID# E-10368
- Kentucky ID# 0023
- Pennsylvania NELAP ID# 68-04201
- New Jersey NELAP ID# WI001
- North Carolina ID# 674
- Wisconsin (WDNR) Chemistry ID# 157066030
- Wisconsin (DATCP) Bacteriology ID# 105-289
- DoD-ELAP A2LA Cert # 3317.013
- Alaska ID # UST-099
- Louisiana ID # 115843
- Virginia ID# 460203
- ISO/IEC 17025-2005 A2LA Cert # 3317.01
- GA EPD Stipulation ID 115843, Expires Annually

Folder #: 100954
 Company: AYRES ASSOCIATES
 Project: MENKAUNEE HARBOR
 Logged By: JLS PM ET

CHAIN OF CUSTODY RECORD

PROJECT NO. 19-0277.33		PROJECT NAME/CLIENT		MENEKAUNEE HARBOR IMPROVEMENTS		NO. OF CONTAINERS		REMARKS	
SAMPLE NO.	DATE	TIME	GPS	SAMPLE LOCATION/DESCRIPTION	FIELD FILTERED	PAHS	METALS*	DATE/TIME	RECEIVED BY: (Signature)
1	10/25	9:30		HTM-3			388381		
2	10/25	9:30		HTM-3					
3	10/25	11:00		HTM-1			388439		
4	10/25	11:00		HTM-1					
5	10/25	11:15		M407			388440		
6	10/25	11:15		M407					
7	10/25	11:30		composite			388441		
8	11/25	11:30		composite					
		10/25	0540	Composite of all 7 sites - Metals					

Field Filtered: YES NO
 PAHS: YES NO
 METALS*: YES NO
 COMMENTS: *METALS: As, Ba, Cd, Cr, Cu, Fe, Pb, Hg, Ni, Zn

Shipped on loc: YES NO
 Received on loc: YES NO
 Temp. if not received on loc: 3.8

AYRES ASSOCIATES, INC.
 3433 Oakwood Hills Parkway, P.O. Box 1180, Eau Claire, WI 54601-1180
 (715) 834-8181

Project Contact: GARETH SHAMBRAY
 Invoice To: AYRES ASSOCIATES, 3433 OAKWOOD HILLS PARKWAY, EAU CLAIRE, WI 54701

RECEIVED BY: (Signature) *[Signature]* DATE/TIME: 10-25-13
 RECEIVED BY: (Signature) _____ DATE/TIME: _____

5391, 5003, 5329, 5354

YLS ETC



Marinette Water Utility

501 Water Street • Marinette, Wisconsin 54143
 Phone (715) 732-5180 • Fax (715) 732-5194

RECEIVED
MAR 28 2014
AYRES ASSOCIATES

March 25, 2014

Re: Menekaunee Harbor Improvements – WWTP Agreement Letter

Dear Bidder for Menekaunee Harbor Improvement Project:

The City of Marinette will allow for wastewater generated from dredging operations associated with the Menekaunee Harbor Improvement project to be discharged into the sanitary sewer system for treatment at the City's wastewater treatment plant (WWTP). This agreement letter is only valid for the 2014 calendar year. This letter and enclosed exhibit outline the discharge requirements for treatment by the WWTP. The cost to the contractor for treatment of wastewater from the dredging will be \$6.69/1000 gallons of water discharged. Contractor shall provide City approved flowmeter for measuring wastewater volume discharges.

The local limits for the Marinette Wastewater Treatment Plant are outlined in Table 1.

Table 1: City of Marinette Wastewater Treatment Plant Local Limits

METALS		
Arsenic	mg/L	0.10
Cadmium	mg/L	0.14
Chromium	mg/L	2.41
Copper	mg/L	1.40
Lead	mg/L	2.02
Mercury	mg/L	0.01
Nickel	mg/L	1.35
Selenium	mg/L	0.12
Silver	mg/L	0.50
Zinc	mg/L	2.25
GRAB SAMPLES		
Cyanide	mg/L	0.19
Oil & Grease	mg/L	100
Phenols	mg/L	25
pH		6.0-9.0
SURCHARGEABLES		
BOD	mg/l	300
TSS	mg/l	350
PHOS	mg/l	14.5



Wastewater shall be sampled to confirm compliance with the limits outlined in Table 1 prior to any discharge into the system. Following initial testing results, wastewater will be sampled at the below schedule for compliance throughout the duration of the project:

1. Two times on two different days during the first calendar week of discharge.
2. Once per week during the second through fifth calendar weeks of discharge.
3. Once per month after the fifth week for the remaining duration of the project. Monthly frequency only applies if data indicates substantial compliance in all prior testing.

Provide all test results to Utility Operations Manager and Project Engineer. If at any time during construction a test fails to meet the required local limits, discharge into system will be immediately stopped for re-testing and re-evaluation of treatment and disposal procedures. Contact Utility Operations Manager and Project Engineer in the event of a failed water quality test.

A pump station is located at the south side of the Ogden Street Bridge. No wastewater will be permitted to be discharged north of the pump station. Wastewater may be discharge into the manholes indicated on the drawing included in Exhibit 1. Discharge will not be permitted in any locations other than the four manholes identified in Exhibit 1 without written permission from WWTP and Project Engineer. Two of the manholes shown are located on property owned by EFX, Inc. A written agreement with property owner will be required in order to discharge into any manhole located on private property.

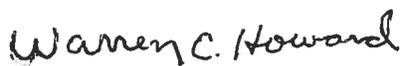
Contractor shall provide manhole cover to allow wastewater discharge and restrict unauthorized access or disposal into sewer. Manhole cover shall also serve to minimize odor release from sewer.

Traffic on Ogden Street shall remain open throughout construction. Contractor shall provide signage and protection for any pipes or hoses across live traffic lanes.

Provide wastewater monitoring, treatment, and disposal plan to Utility Operations Manager and Project Engineer for review prior to start of construction.

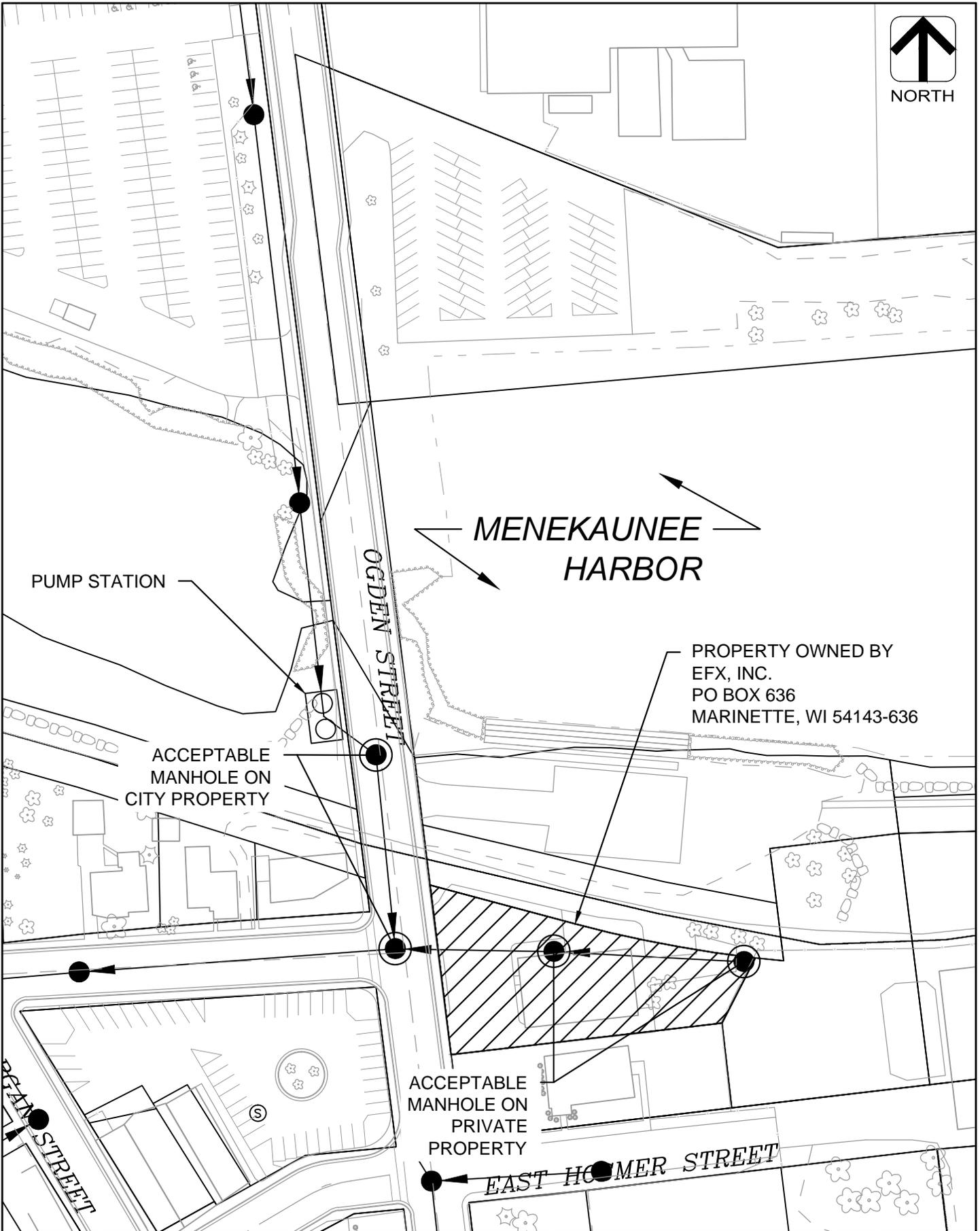
Sincerely,

City of Marinette Water & Wastewater Utility



Warren Howard
Utility Operations Manager
715.732.5192
whoward@marinettewater.com

Enclosure: Exhibit 1



DES BY G. SHAMBEAU
DR BY G. SHAMBEAU
CHK BY G. SHAMBEAU
DATE MAR 2014

MENEKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN



WWTP AGREEMENT LETTER
EXHIBIT 1

SHEET NO.
1

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January 30, 2014

Brian Miller
Director of Public Works
City of Marinette
1905 Hall Avenue
Marinette, WI 54143

Subject: Request for Coverage Received for Carriage and Interstitial Water from Dredging Operations WPDES General Permit No. WI-0046558-5

Project: Menekaunee Harbor Improvements Dredging Project

Dear Mr. Miller:

The Department received a General Permit Request for Coverage on December 19, 2013, for your proposed dredging project located at NW ¼, NW ¼, Section 9, T30N, R24E, Marinette County. This project is eligible for the Wisconsin Pollutant Discharge Elimination System (WPDES) general permit for the discharge of carriage and/or interstitial water resulting from dredging operations. However, permit coverage will not be conveyed for this project until the Department receives a revised narrative with details of the dewatering and wastewater discharge process. The revised narrative should include the following:

1. Type of dredging that will be performed.
 - a. Mechanical
 - b. Hydraulic
2. Method of dewatering and treatment of discharge.
 - a. Plans/drawings for the treatment system.
 - b. Materials to be used to construct and maintain the treatment system.
3. Location and type of dewatering discharge.
 - a. Exact location of where dewatering discharge will enter the receiving water.
 - b. Identification of surface water discharge.
 - c. Identification of groundwater discharge.
4. Information on additives if they will be used.
 - a. MSDS documentation.
 - b. Proposed use concentrations.
5. Method of transport for the sediment.
 - a. Description of how the sediment and associated water will be handled after removal from waterbody.
 - i. Prior to treatment, during treatment, and post treatment.
 - b. Method to contain untreated water to prevent discharge prior to treatment.

Based on the information provided in the request for coverage, the Department anticipates that the following conditions will apply to the permit coverage once it is conveyed:

1. Monitoring & limits.

- a. Based on the sediment characterization data provided in the request for permit coverage, the Department has determined the sediment is *contaminated* due to the presence of several contaminants above the threshold effect concentration (TEC).
- b. The following limits were calculated based on elutriate data provided in the request for coverage:
 - i. Groundwater discharge:

Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type
Flow Rate	--	MGD	Daily	Estimated
Arsenic	Daily Max	10 µg/L	Weekly	Grab
Barium	Daily Max	2 mg/L	Weekly	Grab
Cadmium	Daily Max	5 µg/L	Weekly	Grab
Chromium	Daily Max	100 µg/L	Weekly	Grab
Copper	Daily Max	1300 µg/L	Weekly	Grab
Iron	Daily Max	0.3 mg/L	Weekly	Grab
Lead	Daily Max	15 µg/L	Weekly	Grab
Mercury	Daily Max	2 µg/L	Weekly	Grab
Nickel	Daily Max	100 µg/L	Weekly	Grab

ii. Surface water discharge:

Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type
Flow Rate	--	MGD	Daily	Estimated
Suspended Solids, Total	Daily Max	40 mg/L	Weekly	Grab
Oil and Grease (Hexane)	Daily Max	15 mg/L	Weekly	Grab
Copper	Daily Max	38 µg/L	Weekly	Grab
Lead	Daily Max	260 µg/L	Weekly	Grab
Mercury	Daily Max	1.3 ng/L	Weekly	Grab
Zinc	Daily Max	290 µg/L	Weekly	Grab

2. Record Keeping, Sampling/Monitoring, and Reporting.

- a. Permittee shall collect samples and report monitoring results as soon as possible upon start-up of dredging operations and a wastewater discharge occurs.
- b. Permittee shall provide data results within 24 hours of receipt from the lab during the first five weeks of discharge.
- c. Permittee shall submit by the fifteenth day of the following month all monitoring data for the previous calendar month.
- d. Samples shall be collected as follows:

- i. Two times on two different days during the first calendar week of discharge.
 - ii. One time per week during the second through fifth calendar week of discharge.
 - iii. One time per month after the fifth week for the remaining duration of the project.
 1. **NOTE:** A monthly sampling frequency only applies if data indicate substantial compliance with effluent limits. The Department may require daily sampling for some or all parameters upon start-up of a treatment system, or when an exceedance occurs.
3. Additional requirements.
- a. Sealed or watertight barge to prevent discharge of untreated wastewater from contaminated sediment.
 - b. Sealed or watertight trucks if contaminated sediment will be transported prior to dewatering to prevent discharge of untreated wastewater from contaminated sediment.
 - c. Silt curtain/turbidity barrier to prevent transport of contaminated sediment and/or wastewater discharge throughout waterbody during sediment removal.
 - i. Guidance and technical standards for this requirement will be provided through the Chapter 30 permit process.

The information and conditions contained in this letter are subject to change if any of the information related to this project changes or is updated. Permit coverage conditions and requirements will be updated as necessary as the Department is notified of changes in the proposed project. Please contact me at (920) 662-5145 or heidi.schmittmarquez@wisconsin.gov if you have any questions about the information provided in this letter or the WPDES General Permit issuance process.

Sincerely,



Heidi Schmitt Marquez
Wastewater Specialist

ec: Chris Goodwin – Ayres Associates
Lynn Scherbert – Ayres Associates
Gareth Shambeau – Ayres Associates
Cheryl Bougie, DNR – Green Bay
Robert Rosenberger, DNR – Peshtigo
Greg Tilkens, DNR – Green Bay
Kelley O'Connor, DNR – Green Bay

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APPENDIX G

GEOTECHNICAL DATA

Subsurface investigations have been performed pertaining to this project. A copy of the geotechnical report follows. Please read the following information before using this report.

Geotechnical investigations have been performed in accordance with generally accepted soil and foundation engineering practices. However, boring logs and related information depict subsurface conditions only at the specific locations and particular times designated. Soil conditions at other locations may differ from conditions occurring at these boring locations. Also the passage of time may result in changed conditions at these boring locations.

Bidder may rely upon the accuracy of the technical data contained in the report, but not upon nontechnical data, interpretations, or opinions contained therein or for the completeness thereof for Bidder's purposes. The geotechnical report is not a Contract Document.

Bidder shall make additional investigations as it deems necessary to determine the subsurface character of the work and shall examine the site and the drawings as well as the record of soil investigations to determine conditions under which the work will be completed. Obtain Owner's permission before conducting further site explorations.

REPORT OF GEOTECHNICAL EXPLORATION

**PROPOSED MENEKAUNEE HARBOR
SEAWALL REPLACEMENT
MARINETTE, WISCONSIN**

**PROJECT NUMBER 19-0277.10
RVT #G11-358**

Prepared for:

**MR. PETE HAUG
AYRES ASSOCIATES**

FEBRUARY 20, 2012



EXECUTIVE SUMMARY

We have prepared this executive summary solely to provide a general overview. ***Do not rely on this executive summary*** for any purpose except that for which it was prepared. ***Rely on the full report*** for information about findings, recommendations, and other concerns.

Based on the results of this exploration, in RVT's opinion, the subsurface soil will provide suitable support for a cantilevered sheet pile bulkhead system. However, in our opinion either pre-drilling or jetting-assisted sheet pile driving methods will likely be required to advance sheet pile into the extremely dense/hard soil strata. In addition, the existing fill, very loose soils, and organic soils encountered in the borings would present concerns for support of deadmen anchors of an anchored bulkhead system. Please see the "Discussion" and "Bulkhead Design" sections of this report for additional details.

The "Construction Considerations" section of this report contains other recommendations concerning subgrade preparation and the intended construction.

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G11-358

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APPENDIX

Boring Location Sketch

Soil Boring Logs

Unified Soil Classification System

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Direct Shear Test

Important Information About Your
Geotechnical Engineering Report

**REPORT OF GEOTECHNICAL EXPLORATION
PROPOSED MENEKAUNEE HARBOR SEAWALL REPLACEMENT
MARINETTE, WISCONSIN
PROJECT NUMBER 19-0277.10**

RVT #G11-358

1.0 INTRODUCTION

This report presents the results of the soil exploration program for the proposed seawall replacement in Marinette, Wisconsin. In fulfillment of the requested scope of services, RVT:

1. Performed five (5) standard penetration test soil borings in the vicinity of the proposed construction. In addition, we extended four (4) of the borings to 30' and one (1) to 35' below the existing grade.
2. Classified the soils encountered in the soil borings and prepared soil boring logs illustrating the soil strata.
3. Performed a limited number of laboratory tests, as we deemed necessary, to aid in classifying the soils and in estimating their engineering properties.
4. Prepared a written report documenting the results of the field and laboratory test programs. We included the following in the report;
 - a. Soil boring logs which document the encountered subsurface conditions.
 - b. Our recommendations concerning suitable soil parameters and lateral earth pressures for a sheet pile seawall design.
 - c. Construction considerations relative to the subsurface conditions.

The purpose of this report was to determine the various soil profile components, the engineering characteristics of the materials encountered, and to provide criteria for use by the design professionals in preparing construction plans.

2.0 DESCRIPTION OF SITE

Site Location

The proposed construction, upon which this soils exploration has been made, is located at Menekaunee Harbor in the City of Marinette, Wisconsin. Specifically, the area of the proposed seawall replacement is located along the east side of Ogden Street and along the south side of the city parking lot located north of the harbor.

Site Topography

The site of the proposed construction consists of generally level groomed lawn, asphalt and graveled parking lot, and native vegetation with an existing timber pile seawall adjacent to a harbor. Further, the surface elevation at the boring locations ranged from 583.6' at Boring 3-12 to 584.4' at Boring 1-12, as referenced to the temporary benchmark described in the "Drilling and Sampling Procedures" section of this report. Further, the drill crew determined the water level elevation of Menekaunee Harbor at the time of drilling to be 578.4'.

3.0 FIELD EXPLORATION

Drilling and Sampling Procedures

RVT advanced the soil borings on January 12 and 16, 2012, with a truck mounted rotary drilling rig utilizing continuous flight hollow stem augers (HSA). Mr. Pete Haug of Ayres Associates determined the general boring locations and depths. RVT personnel located the soil borings at the site. The "Boring Location Sketch" in the Appendix illustrates the boring locations.

RVT personnel determined the surface elevation at the boring locations using standard leveling techniques, and referenced them to the tag bolt on Hydrant 527 located on the east side of Ogden Street, near the northwest corner of the harbor. Based on information provided by the City of Marinette, we understand this temporary benchmark to have an elevation of 589.40', which is referenced to US Geological Survey datum. The "Boring Location Sketch" also shows this temporary benchmark location.

Field Penetration Tests

The drilling crew obtained field soil samples in accordance with American Society for Testing Materials (ASTM): D1586. Using this procedure, a 140 pound weight falling 30" drives a two inch outside diameter (OD) split barrel sampler into the soil using either a safety type manual hammer (MH) or an automatic hammer (AH). The "Method Section" of the boring logs indicates the hammer type in parentheses. After an initial set of six (6) inches, the standard penetration resistance or N-value describes the number of blows required to drive the sampler an additional 12 inches. The N-value provides an index of the relative density of cohesionless soils or the consistency of cohesive soils. This provides additional information as to the relative strength and compressibility characteristics of the subsoil.

Field Classification Tests

The drill crew chief visually and manually classified the samples in the field in accordance with ASTM: D2488. RVT personnel then transferred representative samples to the laboratory for further examination and verification of the field classification. The soil boring logs located in the Appendix

describe the depth and identification of the various strata, the N-value, the groundwater level and other pertinent information.

4.0 SUBSURFACE CONDITIONS

General

The stratification of the soils shown on the boring logs represents the soil conditions in the actual boring locations; however, other variations may occur between the borings. Lines of demarcation represent the approximate boundary between the soil types, but the transition may be gradual.

It should be pointed out, the subsurface conditions at other times and locations on the site may differ from those found at the test locations. If the contractor encounters different site conditions during construction, the design engineer or the contractor should request RVT review our recommendations in relation to the new information.

Subsurface Conditions

The soil boring logs in the Appendix illustrate the encountered soil and groundwater conditions at the test boring locations. The logs also indicate other pertinent information, including the drilling method, sampling techniques, and laboratory testing.

The generalized soil profile indicated by the borings consisted of existing fill that extended to a depth of between 4' and 14½' below the surface, and then a combination of alluvial and lacustrine

soils extended to the boring termination depths. The existing fill consisted of sand, silty sand, organic silt, lean clay, wood timbers, wood chips, cinders, and brick rubble. Further, the drill crew noted wood timbers and concrete rubble exposed near the surface along the existing bulkhead. The alluvial soils consisted of sand and sand with silt, while the lacustrine soils consisted of silty sand, sandy silt, and silt.

Standard penetration N-values indicated a very loose to extremely dense relative density for the sandy existing fill and native soils. The standard penetration N-values also indicated a medium to stiff consistency for the silty and clayey existing fill, and a rather stiff to hard consistency for the silty native soils. The boring logs in the Appendix indicate the standard penetration N-values in the column titled "Total (N)".

Water Level Information

The drillers observed the boreholes for a measureable groundwater level during drilling operations. All of the borings contained a measureable groundwater level and the crew noted it at a depth of between 5½' and 11½' below the existing grade. The drill crew used drilling mud to advance the borings below the groundwater level. Therefore, the drill crew did not obtain a groundwater level measurement at the completion of drilling because drilling mud obscures it.

Because the borings encountered a combination of freely and poorly draining soils, and because the water surface elevation of Menekaunee Harbor is higher than the water level observed in most of the borings, in our opinion, the observed groundwater level in the borings may not provide a reasonable

indication of a static groundwater level at the time of drilling. In addition, groundwater levels can fluctuate with time due to seasonal variations in precipitation, lateral drainage conditions, the water surface elevation of Menekaunee Harbor, and from location to location. The time of year and the weather history during the advancement of the boring should be considered when estimating groundwater levels at other points in time. However, in our opinion, a reasonable first estimate of the seasonally high groundwater level would be the water surface elevation of Menekaunee Harbor.

5.0 LABORATORY TESTING PROGRAM

After completion of the field exploration, a Geotechnical Engineer visually and manually classified the samples in the laboratory in accordance with the Unified Soil Classification System (USCS). The classification included the major and minor soil type, grain-size, color, moisture content and consistency/relative density. The square-bracketed text below the classification indicates the probable geographic origin. A description of the USCS soil classification system can be found in the Appendix of this report.

Further, RVT performed laboratory tests to determine in-situ moisture content (W), in-situ dry density (DD), gradation (MA), and organic content (Org). We also submitted two samples for direct shear testing. Most of the laboratory test results can be found on the boring logs adjacent to the number of the tested sample. However, the results of the gradations can be found on the "Report of Mechanical Analysis of Soil" and the direct shear test results can be found on the "Direct Shear Test" reports included in the Appendix.

6.0 ENGINEERING REVIEW

Project Information

The following information represents RVT's understanding and assumptions of the proposed construction. It comprises an important part of our engineering review. If any changes occur in the nature, design, grades or locations of the proposed construction, after the completion of this report, the conclusions and recommendations in this report should not be considered valid unless RVT reviews these changes.

RVT understands the project includes the replacement of several hundred feet of timber pile seawall with a driven sheet pile seawall within the Menekaunee Harbor. The sheet pile will extend to a depth of approximately 30' and will span a length of 450' along the harbor. We also understand the dredge line elevation of the harbor is 568'. For the purpose of our analysis, we have assumed a traffic loading of 240 psf, and that primary consideration would be given to a cantilever bulkhead system.

In addition, where the borings encounter subsurface conditions that might be detrimental to the support of the proposed structure, RVT has assumed the owner will have an acceptable risk level if the detrimental material remains in place. With this in mind, this report assumes the owner would only be willing to accept a low risk for settlement in excess of 1". *If this assumption concerning the owner's acceptable risk level is incorrect, we should be immediately contacted so we can review our recommendations in light of the changed acceptable risk level.*

Discussion

Based primarily on information obtained from the soil borings, in RVT's opinion, the subsurface soil will provide suitable support for a cantilevered or concrete deadmen anchor bulkhead system. Although we understand primary consideration will be for a cantilevered system, the owner should be aware that the presence of existing fill, very loose soils, and organic soils presents concerns for a concrete deadmen anchor wall support.

Existing Fill

The presence of existing fill soils encountered in the borings provides a concern for the support of anchor blocks. This material extended to a depth of between 4' and 14½' below the existing grade. In addition, concrete rubble exposed near the surface along the existing bulkhead and wood timbers encountered in one of the borings increases the probability that obstructions will be present in other undiscovered areas of the project. The owner should be aware of the risk for total and/or differential settlement in excess of 1" associated with constructing concrete deadmen anchors on undocumented fill. Undocumented fill has a risk for higher settlement because of potential variations in the density of this material. This risk increases where the existing fill contains more than 5% organics because organic material can be highly compressible and it continues to decay throughout time. The results of organic content tests conducted on collected samples of the existing fill indicated a low to very high organic content (1.7% to 40%). Furthermore, the risk includes the possibility of hitting underground obstructions.

Based primarily on the standard penetration N-values and organic test results, in our opinion the risk of total and/or differential settlement in excess of 1" for foundations constructed on the existing fill at this site would be moderate to high. If the owner cannot accept the risk, then RVT recommends removing all encountered existing fill from below the concrete deadmen and within 10' of the bulkhead side of the deadmen, and replacing it with a compacted structural fill in accordance with the "Structural Fill and Backfill" section of this report. Where sheetpile encounter refusal on buried obstructions within the existing fill zone, we recommend excavating down to the level of the obstruction to remove it, prior to continuing the pile installation process.

Very Loose Soils

The very loose ($N < 5$ bpf) soils encountered in Boring 1-12 at a depth of between 8' and 10' also provides a concern for the support of a concrete deadmen anchor wall. The owner should be aware that very loose soil is highly compressible, would be subject to general shear failure at very light loadings, and has a very high susceptibility to disturbance by construction activity. Because of these factors, this site has a high risk that total settlement could exceed 1". In addition, very loose soils would have a low passive resistance against lateral movement.

If the owner cannot accept this risk for total settlement in excess of 1", then we recommend over-excavating the very loose soils within 3' of the bearing elevation of the concrete deadmen and within 10' of the bulkhead side of the deadmen, and replacing them with structural fill in accordance with the "Structural Fill and Backfill" section of this report.

Organic Soils

Another concern for the support of a concrete deadman anchor wall includes the presence of organic soils. Boring 2-12 encountered a 1" thick layer of organic silt with pieces of wood at a depth of 18½' below the existing grade. The owner should also be aware, concrete deadmen anchors constructed over organic material have a higher risk for settlement in excess of 1", because organic soil can be highly compressible and it continues to decay throughout time. In addition, encountering deeper organic soil in a boring increases the probability that it will be present in other undiscovered areas of the project. In RVT's opinion, the risk for excessive settlement would be high to very high where the organic content exceeds 7%, and moderate where the soil has between 5% and 7% organic content. Furthermore, in our opinion, the risk would be low where the soil has less than 5% organic content, the organic layer is relatively thin (less than 3" thick), or the organic soil layer is located more 5' below the concrete deadmen. The result of an organic content test conducted on a collected sample of the organic soil layer indicated a very high organic content (18%). In addition, the layer of wood encountered in Boring 5-12 between a depth of 6' and 14½' would have significantly more than 7% organics.

In our opinion, the risk of settlement in excess of 1" caused by the organic soil layer would be low in the area of Boring 2-12 and high in the area of Boring 5-12 where a concrete deadmen anchor wall would bear within 5' of the highly organic soils. Since we assume the owner would only be willing to accept a low risk of excessive settlement, we recommend all soils having more than 5% organics be over-excavated from within 5' below a concrete deadmen and be replaced with a compacted structural fill in accordance with the "Structural Fill and Backfill" section of this report.

Summary

Based on our assumption of the owner's acceptable risk level, as outlined in the "Project Information" section of this report, we recommend the following:

1. Other than possible removal of buried obstructions, we do not anticipate special subgrade preparation will be necessary for a cantilever bulkhead system.
2. For a tie-back bulkhead system, over-excavate all encountered existing fill from below the anchor block wall and within 10' of the bulkhead side of the concrete deadmen anchor.
3. For a tie-back bulkhead system, over-excavate all encountered very loose soils ($N < 5$ bpf) from within 3' of the bearing elevation, and within 10' of the bulkhead side of the concrete deadmen anchor.
4. For a tie-back bulkhead system, remove all soils having more than 5% organics from within 5' of the bearing elevation of the deadmen anchor.

RVT wishes to note, footing excavations subcut below the footing elevation should be oversized one foot horizontally in each direction for every foot of structural fill placed below the foundation. In addition, we ***strongly*** recommend RVT document the material exposed in the excavations does not exhibit obvious characteristics which would adversely affect the performance of the concrete anchor tie-back system. *The remainder of this report assumes a cantilever bulkhead system will be installed for this project. However, if future considerations will include installation of an anchored (tie-back) system, then please contact us for specific anchor design recommendations.*

Bulkhead Design

Based on the results of this exploration, in RVT's opinion, the subsurface soil will provide suitable support for a cantilevered sheet pile bulkhead system. Although our scope of services did not include performing a preliminary sheetpile analysis, in our opinion a moderate to high probability

exists that the minimum "toe-in" depth to provide a reasonable factor of safety against sliding or overturning forces for a cantilever bulkhead system will extend into extremely dense/hard soil strata (such as in Boring 1-12, 4-12, and 5-12). Based on historical data and conversations with sheet pile contractors, in our opinion either pre-drilling or jetting-assisted sheet pile driving methods will likely be required to advance sheet pile into the extremely dense/hard soil strata. Please note, the skin friction resistance of sheet pile can be reduced by up to 40% where pre-drilling or jetting-assisted sheet pile driving methods are used to advance sheet pile. As an alternative, we recommend consideration be given to either using a tie-back, double-wall, or cofferdam type bulkhead system.

Using the Rankine method to calculate lateral earth pressures, Table 1 provides recommended values which could be utilized for preliminary design considerations. Please contact us for additional consultation if a different method will be used for determining the lateral earth pressures.

Table 1 – Recommended Design Lateral Earth Pressure Parameters

Soil Type	Friction Angle, ϕ	Cohesion, psf	Moist Unit Weight	Active Earth Pressure, K_a	Passive Earth Pressure, K_p
Compacted Structural Fill ¹	40°	---	125 pcf	0.22	4.6
Sand	37°	---	125 pcf	0.25	4.0
Sand with Silt, Silty Sand	32°	---	125 pcf	0.31	3.3
Sandy Silt	30°	---	125 pcf	0.33	3.0
Silt	30°	2,500	130 pcf	0.33	3.0

¹ See "Structural Fill and Backfill" Section for details concerning recommendations.

To resist shear forces, RVT recommends using the values indicated in Table 2. However, the total lateral resistance for foundations on silt soils should not exceed 30% of the structure's total dead weight.

Table 2 – Recommended Shear Resistance Parameters

Soil Type	Coefficient of Friction, Soil/Steel Interface	Coefficient of Friction, Soil/Concrete Interface	Adhesion, Soil/Steel Interface	Adhesion, Soil/Concrete Interface
Compacted Structural Fill ¹	0.30	0.40	---	---
Sand, Sand with Silt, Silty Sand	0.30	0.40	---	---
Sandy Silt	0.25	0.25	---	---
Silt	---	---	600	700

¹ See "Structural Fill and Backfill" Section for details concerning recommendations.

Because the borings encountered existing fill and extremely dense/hard strata, we recommend having hardened steel sheetpile points available for use where the construction encounters obstructions or extremely dense/hard driving conditions.

7.0 CONSTRUCTION CONSIDERATIONS

Site Preparation

Based on the soil borings conducted for this exploration, RVT anticipates minimal special site preparation will be required for a cantilevered sheet pile bulkhead system. However, in our opinion either pre-drilling or jetting-assisted sheet pile driving methods will likely be required to advance

sheet pile into the extremely dense/hard soil strata. In addition, the existing fill, very loose soils, and organic soils encountered in the borings would present concerns for support of deadmen anchors of an anchored bulkhead system. For an anchored system, special preparation would include the removal of all existing fill, very loose soils, and organic soils as noted in the "Discussion" section of this report. Furthermore, excavations may be necessary to remove buried obstructions, especially in the area of Boring 5-12. Over-excavated soils should be refilled with compacted structural fill in accordance with the "Structural Fill and Backfill" section of this report.

Where excavations extend deeper than 5', we recommend maintaining excavation side slopes at a ratio no steeper than 1½' horizontal to 1' vertical. In addition, we wish to note that other OSHA requirements concerning excavation bracing may apply.

Structural Fill and Backfill

If excavations extend below the bottom of foundation elevations, the excavation must be oversized one foot laterally in each direction for every foot of fill placed below the foundation bottom. Structural fill used in obtaining the desired grades, or to refill excavations for obstructions, should consist of a predominantly sand material, or a gravel base course, with 100% passing the 1" sieve, 70-100% passing the #4 sieve and less than 15% passing the #200 sieve. In our opinion, the non-organic sand and sand with silt soils (Unified Soil Classification "SP" and "SP-SM") encountered in the borings would likely meet RVT's recommended gradation for structural fill.

All structural fill materials should be placed in lifts not to exceed 8" and should be compacted to at least 95% Modified Proctor (ASTM: D1557) density. Nonstructural backfill placed around the exterior of footings in unpaved areas should be compacted to at least 90% Modified Proctor density.

Groundwater Control

Because most of the borings encountered groundwater at relatively shallow depths, some water seepage may be encountered in the excavations. Further, seasonal variations in precipitation and site drainage conditions can cause the accumulation of water in the upper soils. In our opinion, initial attempts to control groundwater seepage into excavations could include a series of sump pits and pumps. However, if the groundwater level cannot be controlled with a series of sump pumps, or where excavations extend below the static groundwater level, then a more substantial dewatering system (such as temporary well point system) will be necessary.

Should a well point system become necessary, we recommend utilizing the values of estimated hydraulic conductivities in Table 3 when designing the dewatering system.

Table 3 - Estimated Hydraulic Conductivity Values

Soil Type	Hydraulic Conductivity	
	cm/sec	ft/min
Sand (SP)	0.05 – 0.1	0.1 – 0.2
Sand with Silt (SP-SM)	0.01 – 0.05	0.02 – 0.1
Silty Sand (SM)	$1 \times 10^{-4} - 1 \times 10^{-2}$	$2 \times 10^{-4} - 2 \times 10^{-2}$
Sandy Silt, Silt (ML)	$5 \times 10^{-5} - 2 \times 10^{-3}$	$1 \times 10^{-4} - 4 \times 10^{-3}$

We wish to emphasize that the hydraulic conductivity values noted above are based on historical testing of similar soils. If the dewatering design requires a more accurate estimate, then we recommend conducting hydraulic conductivity tests. In addition, lowering the static groundwater level can have detrimental effects on nearby structures and existing utilities. With this in mind, RVT recommends any dewatering scheme be reviewed by a contractor who specializes in this type of work prior to its implementation.

Testing and Observations

Because the borings encountered existing fill, very loose soils, and organic soils, we ***strongly*** recommend the owner retain RVT to observe the completed excavations before placement of structural fill or foundations. This will provide the necessary documentation of the complete removal of all unsuitable soil. RVT should also document the soils encountered in the excavations have similar characteristics as those noted in the soil borings. Density tests should be taken during fill placement to document the achievement of our recommended compaction.

8.0 STANDARD OF CARE

The recommendations contained in this report represent our opinions arrived at in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. No other representation, expressed or implied, and no warranty or guarantee is included or intended in this report.

This report was prepared by,

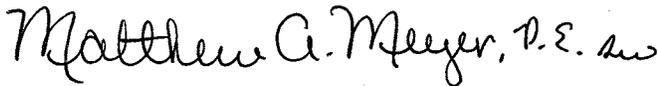
RIVER VALLEY TESTING CORP.



Mark E. King, P.E.
Branch Manager



This report was reviewed by,



Matthew A. Meyer, P.E., C.S.T.,
Staff Geotechnical Engineer

MEK/MAM/mek

APPENDIX

Boring Location Sketch

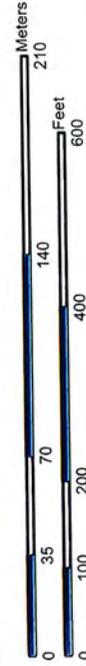
Soil Boring Logs

Unified Soil Classification System

Report of Mechanical Analysis of Soil

Direct Shear Test

Important Information About Your
Geotechnical Engineering Report



LEGEND

- SOIL BORING LOCATION
- △ TEMPORARY BENCHMARK:
TAG BOLT ON HYDRANT 527
ELEVATION = 589.40' (USGS DATUM)

BORING LOCATION SKETCH

PROJECT: PROPOSED MENEKAUNEE HARBOR SEAWALL REPLACEMENT
PROJECT NO. 19-0277.10
MARINETTE, WISCONSIN

FILE NO: G11-358 **DATE: 2/9/2012** **BY: M. KING**



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TEST BORING LOG

Project: MENEKAUNEE HARBOR SEAWALL REPLACEMENT

Location: MARINETTE, WISCONSIN

RVT File No: G11-358

Page: 1 of 1

Surface Elev: 584.4'

Scale: 1" = 6'

Boring No: 1-12

GENERAL NOTES

Drilling Method:
HSA = Hollow Stem Auger
FA = Flight Auger
DM = Drilling Mud
_X = AX, BX, or NX Coring

Sampling Method:
SS = Split Spoon
3T = 3" Shelby Tube
F = Flight Auger Sample
B = Bag Sample
P = Test Pit Sample
CR = Core Recovery
NSR = No Sample Recovery
MH = Manual SPT Hammer
AH = Auto SPT Hammer

Water Level Symbol:
WLD = Water Level During Drilling
WLA = Water Level After Drilling
WL = Water Level At 24 Hours
WL__ = Water Level At __ Hours

Laboratory Test Symbols:
LL/PL = Liquid Limit/Plastic Limit
P200 = Percent Passing #200 Sieve
MA* = Mechanical Analysis
Qu = Unconfined Compressive Str
Pq = Hand Penetrometer Reading
DD = Dry Density
W = Moisture Content (by Weight)
RQD = Rock Quality Designation
* = See attached graph

DRILLING NOTES

Started: 1/16/12

Completed: 1/16/12

Driller: GAB/HDS

3 1/4" HSA 0' to 10',
Method: DM 10' to 28 1/2' (AH)

Depth (ft)	Blow Counts			Field Classification and Remarks Note: [] Indicates Possible Geologic Origin	Water Level Information	Sample		Laboratory Tests				
	0/6	6/12	Total (N)			No.	Type	W (%)	DD (pcf)	LL PL	Qu (psf)	Other
2	8	9	19	FILL, mostly Sand, fine grain, brown, moist, medium dense (SP) [FILL]	WLD	1	SS					
	10	6				2	SS					
4	1	2	7	FILL, mostly Silty Sand with Gravel and Organics, dark brown, moist, loose (SM) [FILL]		3	3"SS					
	5	4				4	SS					
18	8	10	25	SAND, with Silt, medium to fine grain, brown to dark brown, moist to water bearing, dense to very loose to medium dense (SP-SM) [ALLUVIUM]		5	SS					
	15	4				6	SS					
18	4	2	4	[ALLUVIUM]		7	3"SS	18				MA*
	6	3				8	SS					
18	2	3	6	SILTY SAND, greyish brown, water bearing, dense to extremely dense (SM) [LACUSTRINE]		9	SS					
	3	6				10	SS	19	118			MA*
28	7	8	15	[LACUSTRINE]		11	SS	15	123			MA*
	4	5			16							
30	11	5	16	SILT, with Sand, light brownish grey, wet, hard (ML) [LACUSTRINE]								
	10	12			22							
	50	27	50									
	8"		8"									
	26	50	50									
	8"		8"									
	End of Boring at 30'											



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TEST BORING LOG

Project: MENEKAUNEE HARBOR SEAWALL REPLACEMENT

Location: MARINETTE, WISCONSIN

RVT File No: G11-358

Page: 1 of 1

Surface Elev: 583.9'

Scale: 1" = 6'

Boring No: 2-12

GENERAL NOTES

Drilling Method:
HSA = Hollow Stem Auger
FA = Flight Auger
DM = Drilling Mud
_X = AX, BX, or NX Coring

Sampling Method:
SS = Split Spoon
3T = 3" Shelby Tube
F = Flight Auger Sample
B = Bag Sample
P = Test Pit Sample
CR = Core Recovery
NSR = No Sample Recovery
MH = Manual SPT Hammer
AH = Auto SPT Hammer

Water Level Symbol:
WLD = Water Level During Drilling
WLA = Water Level After Drilling
WL = Water Level At 24 Hours
WL__ = Water Level At __ Hours

Laboratory Test Symbols:
LL/PL = Liquid Limit/Plastic Limit
P200 = Percent Passing #200 Sieve
MA* = Mechanical Analysis
Qu = Unconfined Compressive Str
Pq = Hand Penetrometer Reading
DD = Dry Density
W = Moisture Content (by Weight)
RQD = Rock Quality Designation
* = See attached graph

DRILLING NOTES 3 1/4" HSA 0' to 10',
Started: 1/16/12 Completed: 1/16/12 Driller: GAB/HDS Method: DM 10' to 33 1/2' (AH)

Depth (ft)	Blow Counts			Field Classification and Remarks Note: [] Indicates Possible Geologic Origin	Water Level Information	Sample		Laboratory Tests					
	0/6	6/12	Total (N)			No.	Type	W (%)	DD (pcf)	LL PL	Qu (psf)	Other	
6	8	3		FILL, mostly Silty Sand with Gravel, Organics, and cinders, brown, dark brown, and black, moist to water bearing, loose (SM)	WLD	1	SS						
	2	1	5			2	SS						
	3	3	6			[FILL]	3	SS					
	3	3	7	FILL, mostly Organic Silt with Sand, pieces of wood, and brick rubble, very dark greyish brown and black with reddish yellow, wet, medium to stiff to medium (OL)		4	SS						
	4	6	5			5	3"SS						
	5	3	23			[FILL]	6	SS	160			Org = 40%	
14	2	6		SILT, greyish brown, wet, rather stiff to very stiff (ML)	7	SS							
	8	15	9		8	SS							
	7	6	15		[LACUSTRINE]	9A	3"SS	81			Org = 18% MA*		
8	7	33	SILTY SAND, greyish brown, water bearing extremely dense (SM) NOTE: 1" layer of Organic Silt with pieces of wood encountered at 18 1/2'. [LACUSTRINE]	9B	3"SS	20	101						
18 1/2	12	15			SILT, with Sand, greyish brown, wet, very stiff to hard (ML)	10	SS						
	18	35	41	[LACUSTRINE]		11	SS	14	127	MA*			
	50 4"	35	50 4"			12	SS						
23	19	14		End of Boring at 35'									
	19	22	41										
35	17	17											
	50 6"	26	50 6"										



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TEST BORING LOG

Project: MENEKAUNEE HARBOR SEAWALL REPLACEMENT

Location: MARINETTE, WISCONSIN

RVT File No: G11-358

Page: 1 of 1

Surface Elev: 583.6'

Scale: 1" = 6'

Boring No: 3-12

GENERAL NOTES

Drilling Method:
HSA = Hollow Stem Auger
FA = Flight Auger
DM = Drilling Mud
_X = AX, BX, or NX Coring

Sampling Method:
SS = Split Spoon
3T = 3" Shelby Tube
F = Flight Auger Sample
B = Bag Sample
P = Test Pit Sample
CR = Core Recovery
NSR = No Sample Recovery
MH = Manual SPT Hammer
AH = Auto SPT Hammer

Water Level Symbol:
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WLA = Water Level After Drilling
WL = Water Level At 24 Hours
WL_ = Water Level At _ Hours

Laboratory Test Symbols:
LL/PL = Liquid Limit/Plastic Limit
P200 = Percent Passing #200 Sieve
MA* = Mechanical Analysis
Qu = Unconfined Compressive Str
Pq = Hand Penetrometer Reading
DD = Dry Density
W = Moisture Content (by Weight)
RQD = Rock Quality Designation
* = See attached graph

Started: 1/12/12 Completed: 1/12/12 Driller: GAB/HDS Method: 3 1/4" HSA 0' to 14', DM 14' to 28 1/2' (AH)

Depth (ft)	Blow Counts			Field Classification and Remarks Note: [] Indicates Possible Geologic Origin	Water Level Information	Sample		Laboratory Tests					
	0/6	6/12	Total (N)			No.	Type	W (%)	DD (pcf)	LL PL	Qu (psf)	Other	
5	12	9	13 50 4"	FILL, mostly Silty Sand with Gravel and pieces of asphalt, dark brown to brown, moist, medium dense to extremely dense (SM) [FILL]	WLD	1	SS						
	4	3				2	SS						
	5	10				3	3"SS						
10	15	25	3	FILL, mostly Silty Sand with Gravel, some Organics, and brick rubble, dark brown with black and red, moist to water bearing, dense to very loose (SM) [FILL]	WLD	4	SS	24				Org = 1.7%	
	2	1				5	SS						
	2	3				6	SS						
15	0	1	5	SAND, with Silt, fine grain, very dark greyish brown, water bearing, loose (SP-SM) [ALLUVIUM]	WLD	7	3"SS	28	91			Direct = Shear	
	0	3				8	SS	28			MA*		
	2	4				9	SS						
21 1/2	4	8	8	SAND, medium to fine grain, dark greyish brown, water bearing, loose (SP) [ALLUVIUM]	WLD	10	SS	17	116			MA*	
	3	5				11	SS	22			MA*		
	3	5				17	SILT, with Sand, light greyish brown, wet, very stiff (ML) [LACUSTRINE]						
25	18	17	35	SILTY SAND, light greyish brown, water bearing, very dense (SM) [LACUSTRINE]	WLD	10	SS	17	116			MA*	
	10	19				11	SS	22			MA*		
30	16	19	35	End of Boring at 30'									



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TEST BORING LOG

Project: MENEKAUNEE HARBOR SEAWALL REPLACEMENT

Location: MARINETTE, WISCONSIN

RVT File No: G11-358

Page: 1 of 1

Surface Elev: 583.8'

Scale: 1" = 6'

Boring No: 4-12

GENERAL NOTES

Drilling Method:
HSA = Hollow Stem Auger
FA = Flight Auger
DM = Drilling Mud
_X = AX, BX, or NX Coring

Sampling Method:
SS = Split Spoon
3T = 3" Shelby Tube
F = Flight Auger Sample
B = Bag Sample
P = Test Pit Sample
CR = Core Recovery
NSR = No Sample Recovery
MH = Manual SPT Hammer
AH = Auto SPT Hammer

Water Level Symbol:
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WLA = Water Level After Drilling
WL = Water Level At 24 Hours
WL__ = Water Level At __ Hours

Laboratory Test Symbols:
LL/PL = Liquid Limit/Plastic Limit
P200 = Percent Passing #200 Sieve
MA* = Mechanical Analysis
Qu = Unconfined Compressive Str
Pq = Hand Penetrometer Reading
DD = Dry Density
W = Moisture Content (by Weight)
RQD = Rock Quality Designation
* = See attached graph

DRILLING NOTES
Started: 1/12/12 Completed: 1/12/12 Driller: GAB/HDS Method: 3 1/4" HSA 0' to 7 1/2', DM 7 1/2' to 28 1/2' (AH)

Depth (ft)	Blow Counts			Field Classification and Remarks Note: [] Indicates Possible Geologic Origin	Water Level Information	Sample		Laboratory Tests								
	0/6	6/12	Total (N)			No.	Type	W (%)	DD (pcf)	LL PL	Qu (psf)	Other				
4	15	8		FILL, mostly Silty Sand with Gravel, Organics, and pieces of brick, very dark brown and red, moist, medium dense to extremely dense (SM) [FILL]	WLD	1	SS									
	8	4	16			2	SS									
	4	6				3	SS									
	50		50			4	SS	35				MA*				
10	11"		11"	FILL, mostly Sand with Silt and a few pieces of wood, fine grain, brown to very dark greyish brown, moist to water bearing, very loose to medium dense (SP-SM) [FILL]	WLD	5	3"SS									
	1	2	3			6	SS									
	1	2				SAND, fine to medium grain, dark brown, water bearing, medium dense to loose to extremely dense (SP) [ALLUVIUM]	WLD	7	SS							
	1	0	0					8	SS	24				MA*		
	0							9	SS							
	4							SILT, light brownish grey, wet, hard (ML) [LACUSTRINE]	WLD	10	3"SS	17	116		Direct =Shear	
	6	8	14							11	SS	17	110		MA*	
	4	5	11													
	6															
	4	4	10													
5	5	10														
3	3	6														
3	3	6														
3	3	6														
25	14															
	19	32	51													
30	23															
	50		50													
	9"		9"	End of Boring at 30'												



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TEST BORING LOG

Project: MENEKAUNEE HARBOR SEAWALL REPLACEMENT

Location: MARINETTE, WISCONSIN

RVT File No: G11-358

Page: 1 of 1

Surface Elev: 584.3'

Scale: 1" = 6'

Boring No: 5-12

GENERAL NOTES

Drilling Method:
HSA = Hollow Stem Auger
FA = Flight Auger
DM = Drilling Mud
_X = AX, BX, or NX Coring

Sampling Method:
SS = Split Spoon
3T = 3" Shelby Tube
F = Flight Auger Sample
B = Bag Sample
P = Test Pit Sample
CR = Core Recovery
NSR = No Sample Recovery
MH = Manual SPT Hammer
AH = Auto SPT Hammer

Water Level Symbol:
WLD = Water Level During Drilling
WLA = Water Level After Drilling
WL = Water Level At 24 Hours
WL__ = Water Level At __ Hours

Laboratory Test Symbols:
LL/PL = Liquid Limit/Plastic Limit
P200 = Percent Passing #200 Sieve
MA* = Mechanical Analysis
Qu = Unconfined Compressive Str
Pq = Hand Penetrometer Reading
DD = Dry Density
W = Moisture Content (by Weight)
RQD = Rock Quality Designation
* = See attached graph

DRILLING NOTES 3 1/4" HSA 0' to 12 1/2',
Started: 1/16/12 Completed: 1/16/12 Driller: GAB/HDS Method: DM 12 1/2' to 28 1/2' (AH)

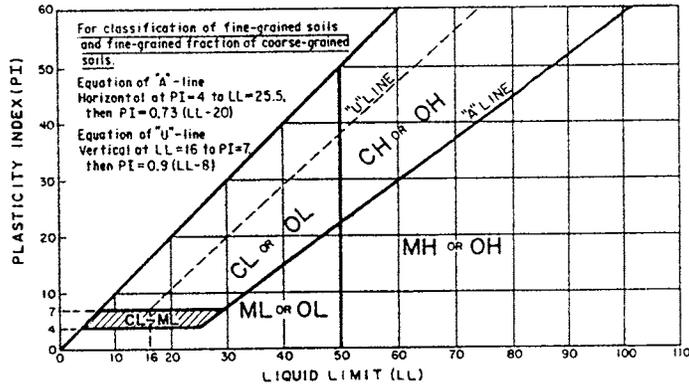
Depth (ft)	Blow Counts			Field Classification and Remarks Note: [] Indicates Possible Geologic Origin	Water Level Information	Sample		Laboratory Tests				
	0/6	6/12	Total (N)			No.	Type	W (%)	DD (pcf)	LL PL	Qu (psf)	Other
2	14	9	19	FILL, mostly Sand with Gravel, fine grain, brown to dark brown, moist, medium dense (SP) [FILL]		1	SS					
	10	12				2	SS					
4 1/2	10	8	14	FILL, a mixture of Lean Clay with Sand, and Silty Sand with Gravel and Cobbles, brown and very dark greyish brown, moist, rather stiff/medium dense (CL, SM) [FILL]		3	SS					
	6	7				4	SS					
6	6	7	9	FILL, mostly Silty Sand with Gravel, cinders, and brick rubble, black and reddish yellow, moist, loose (SM) [FILL]		5	SS					
	2	4				6	SS					
14 1/2	14	8"	50	FILL, mostly Wood timbers and Wood chips with Sand, greyish brown, moist, extremely dense to loose to dense [FILL]	WLD	6	SS					
	8	15				7	3"SS					
18	15	10	20	SANDY SILT, greyish brown, wet, stiff (ML) [LACUSTRINE]		8	SS	20	107			MA*
	10	17				9	SS					
30	50	11"	50	SILT, light brownish grey, wet, hard (ML) [LACUSTRINE]		10	SS	18	112			MA*
	21	29				11	SS					
	17	18	55									
	20	35		End of Boring at 30'								

UNIFIED SOIL CLASSIFICATION SYSTEM

ASTM: D2487-90

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification		
				Group Symbol	Group Name ^B	
Coarse-Grained Soils: More than 50% retained on #200 sieve	Gravels:	Clean Gravels with less than 5% fines ^C	$Cu \geq 4$ and $1 < Cc \leq 3^E$	GW	Well-graded gravel	
		Gravels with more than 12% fines ^C	$Cu < 4$ and/or $1 > Cc > 3^E$	GP	Poorly graded gravel	
		Gravels with more than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F,G,H}	
		Gravels with more than 12% fines ^C	Fines classify as CL or CH	GC	Clayey gravel ^{F,G,H}	
	Sands:	Clean Sands with less than 5% fines ^D	$Cu \geq 6$ and $1 < Cc \leq 3^E$	SW	Well-graded sand	
		Sands with more than 12% fines ^D	$Cu < 6$ and/or $1 > Cc > 3^E$	SP	Poorly graded sand	
		Sands with more than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{I,H,J}	
		Sands with more than 12% fines ^D	Fines classify as CL or CH	SC	Clayey sand ^{I,H,J}	
	Fine-Grained Soils: 50% or more passes the #200 sieve	Silts and Clays:	Inorganic	$PI > 7$ and plots on or above "A" line ^I	CL	Lean clay ^{K,L,M}
			Organic ^A	$PI < 4$ or plots below "A" line ^I	ML	Silt ^{K,L,M}
		Inorganic	Liquid limit (oven dried) < 0.75	OL	Organic clay ^{K,L,M,N}	
		Organic ^A	Liquid limit (not dried) < 0.75		Organic silt ^{K,L,M,O}	
		Inorganic	$PI > 7$ and plots on or above "A" line	CH	Fat clay ^{K,L,M}	
		Organic ^A	$PI < 4$ or plots below "A" line	MH	Elastic Silt ^{K,L,M}	
		Inorganic	Liquid limit (oven dried) < 0.75	OH	Organic clay ^{K,L,M,P}	
		Organic ^A	Liquid limit (not dried) < 0.75		Organic silt ^{K,L,M,O}	
Highly organic soils ^S	Primarily organic matter, dark in color, and organic odor			PT	Peat	

- ^A Based on the material passing the 3" (75mm) sieve.
- ^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
- ^C Gravels with 5 to 12% fines require dual symbols:
GW-GM, well-graded gravel with silt
GW-GC, well-graded gravel with clay
GP-GM, poorly graded gravel with silt
GP-GC, poorly graded gravel with clay
- ^D Sands with 5 to 12% fines require dual symbols:
SW-SM, well-graded sand with silt
SW-SC, well-graded sand with clay
SP-SM, poorly graded sand with silt
SP-SC, poorly graded sand with clay
- ^E $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
- ^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.
- ^G If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
- ^H If fines are organic, add "with organic fines" to group name.
- ^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.
- ^J If Atterberg limits plot in hatched area, soil is a CL-ML, silty sand.
- ^K If soil contains 15 to 29% plus #200, add "with sand" or "with gravel," whichever is predominant.
- ^L If soil contains $\geq 30\%$ plus #200, predominantly sand, add "sandy" to group name.
- ^M If soil contains $\geq 30\%$ plus #200, predominantly gravel, add "gravelly" to group name.
- ^N $PI \geq 4$ and plots on or above "A" line.
- ^O $PI < 4$ or plots below "A" line.
- ^P PI plots on or above "A" line.
- ^Q PI plots below "A" line.
- ^R Organic Content $> 5\%$ and $\leq 30\%$.
- ^S Organic Content $> 30\%$.



ADDITIONAL DESCRIPTIVE TERMINOLOGY

Soil Type	Size Range	Relative Gravel Contents	
		Descriptive Term	Gravel Content
Boulder	$> 12"$		
Cobble	$12" - 3"$		
Gravel	$3" - \#4^*$		
Sand:			
Coarse	$\#4 - \#10$	A Little Gravel	5 - 14%
Medium	$\#10 - \#40$	With Gravel	15 - 49%
Fine	$\#40 - \#200$		
Silt & Clay	$< \#200$, based on plasticity	Silt & Clay:	
		A Little Gravel	5 - 14%
		With Gravel	15 - 29%
		Gravelly	30 - 49%

*U.S. Standard Sieve Sizes

Consistency (Clay)	"N" Blows/Ft	Relative Density (Sand)	Other Descriptive Terms	
Soft	0 - 4	Very Loose	Lamination	Stratum up to 1/16" thick
Medium	5 - 9	Loose	Seam	Stratum 1/16" to 1/2" thick
Rather Stiff	10 - 19	Medium Dense	Layer	Stratum from 1/2" to 6" thick
Stiff	20 - 29	Dense	Lens	Discontinuous stratum or pocket from 1/2" to 6" thick
Very Stiff	30 - 49	Very Dense	Varved	Alternating laminations or seams of clay, silt and/or fine grained sand; or alternating colors
Hard	50+	Extremely Dense	Mottled	Mixture of clay, silt and/or fine sand exhibiting no layering; or mixture of colors exhibiting no layering
			Moist	Below saturation
			Wet	Saturated relatively impervious soils
			Waterbearing	Saturated pervious soils



REPORT OF MECHANICAL ANALYSIS OF SOIL

1280 Parkview Road
 Green Bay, WI 54304
 ph 920/347-9040
 fax 920/347-9044
 www.rvtcorp.com

Project: **MENKAUNEE HARBOR SEAWALL REPLACEMENT
 MARINETTE, WISCONSIN**

Copies:

Client: Mr. Peter Haug
 Ayres Associates
 3433 Oakwood Hills Parkway
 Eau Claire, WI 54701-7698

Date: February 7, 2012

RVT File No: G11-358

GENERAL:

Scope of Work: Perform a Mechanical Analysis on the obtained samples.

Date of Test: 1/23/12

Lab Technician: N Flory

Sampled By: GAB/HDS of RVT

Date Submitted: 1/17/12

RESULTS:

Test Method: ASTM C117 & C136

Boring Number:	1-12	1-12	1-12	2-12	2-12	3-12	3-12
Sample Number:	7	10	11	9B	11	8	10
Sample Depth:	13½' – 15'	23½' – 25'	28½' – 30'	19' – 20'	28½' – 30'	11' – 12½'	23½' – 25'
Sample Description:	SP-SM	SM	ML	SM	ML	SP	ML
Sieve Size	% Passing						
1"							
¾"							
⅝"	100						
#4	97						
#10	77	100				100	
#40	32	99	100	100	100	40	100
#100	11	95	97	97	98	4.2	99
#200	6.4	42	73	43	74	1.7	84

REMARKS:

A portion of the samples will be held for 30 days after the date of the Geotechnical Exploration Report and then will be discarded unless we are notified to ship them to a given address.

Respectfully Submitted,
 River Valley Testing Corp.



Engineering Resources, Testing Solutions

REPORT OF MECHANICAL ANALYSIS OF SOIL

1280 Parkview Road
Green Bay, WI 54304
ph 920/347-9040
fax 920/347-9044
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Project: **MENKAUNEE HARBOR SEAWALL REPLACEMENT
MARINETTE, WISCONSIN**

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Client: Mr. Peter Haug
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GENERAL:

Scope of Work: Perform a Mechanical Analysis on the obtained samples.

Date of Test: 1/23/12

Lab Technician: N Flory

Sampled By: GAB/HDS of RVT

Date Submitted: 1/17/12

RESULTS:

Test Method: ASTM C117 & C136

Boring Number:	3-12	4-12	4-12	4-12	5-12	5-12	
Sample Number:	11	4	8	11	8	10	
Sample Depth:	28½' - 30'	6' - 7½'	16' - 17½'	28½' - 30'	16' - 17½'	23½' - 25'	
Sample Description:	SM	SP-SM	SP	ML	ML	ML	
Sieve Size	% Passing						
1"							
¾"							
⅜"							
#4		100					
#10		99	100				
#40	100	68	83	100	100	100	
#100	99	8.7	2.7	99	93	98	
#200	48	5.4	1.0	86	62	87	

REMARKS:

A portion of the samples will be held for 30 days after the date of the Geotechnical Exploration Report and then will be discarded unless we are notified to ship them to a given address.

Respectfully Submitted,
River Valley Testing Corp.

Direct Shear Test

Job No.: **8301**

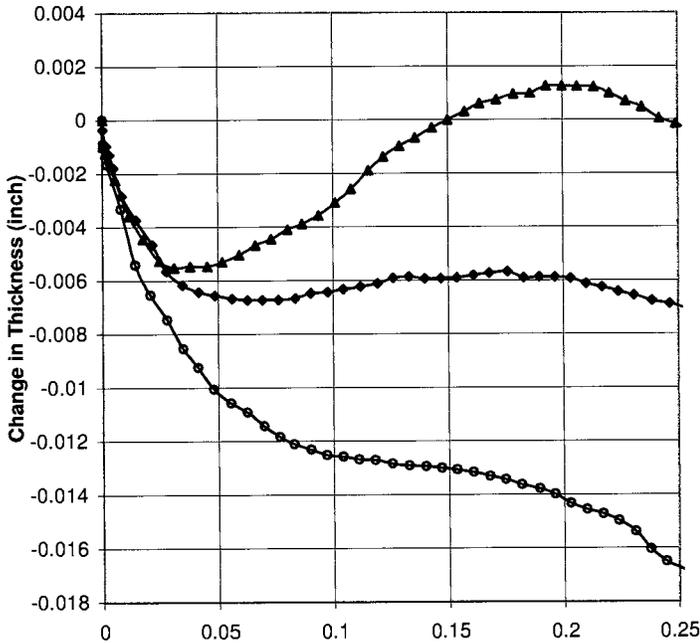
ASTM: D3080

Project: **Menekaunee Harbor Sea Wall Replacement, Marinette, WI - #G11-358**
 Boring No.: **B-3** Sample No. **7** Depth: **13.5-15**
 Location: **Native - Sampled 1-12-12** Sample Type: **Liner**
 Soil Type: **Sand with Silt (SP-SM)**

Test Date:	1/30/2012
Date Reported:	2/2/2012
Shear Rate	
0.003 (in/min)	
Liquid Limit:	
Plastic Limit:	
Plasticity Index:	
Specific Gravity (*):	2.68

Remarks: Specimens compacted to in-situ density, using #4 material; Inundated after applying normal load. Consolidated and sheared to given displacements at constant rate of 0.003 inches/minute.
 In-Situ Dry Density = 91.4pcf @28%

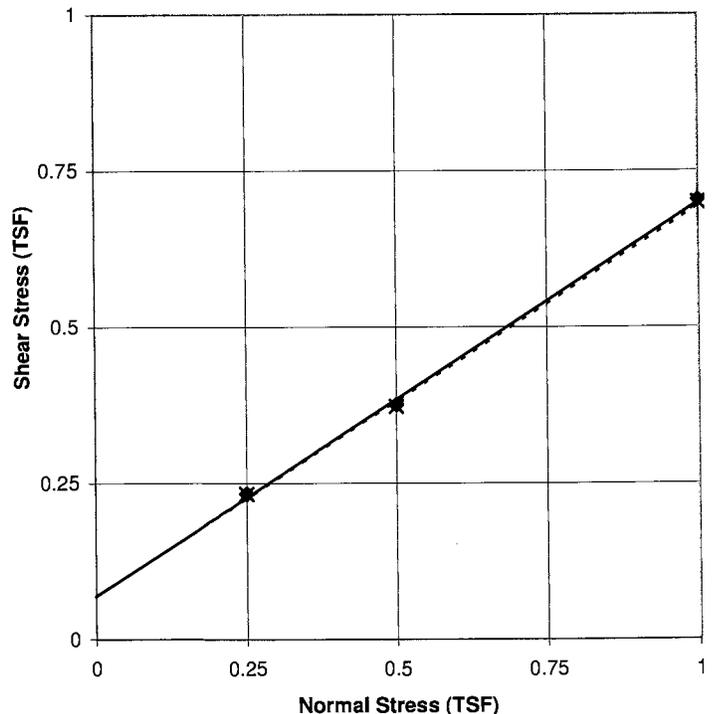
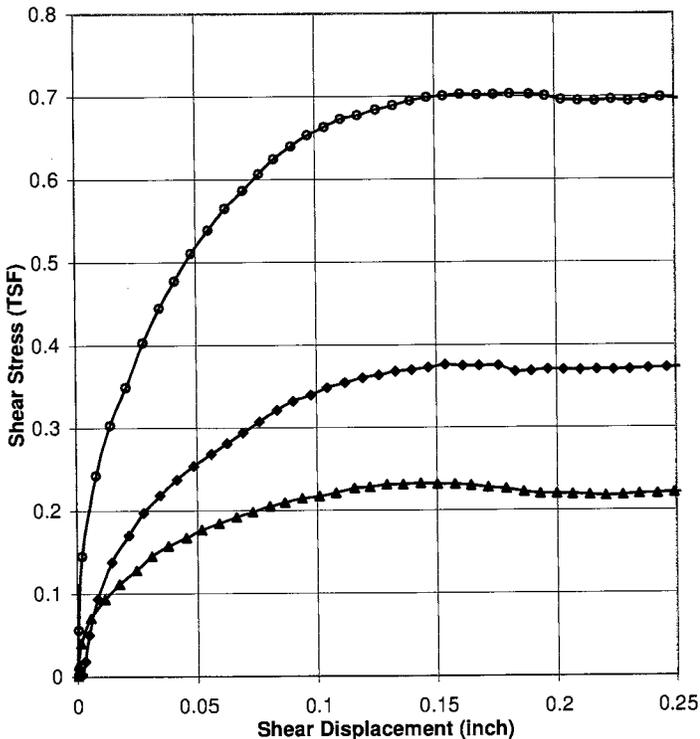
(*) = Assumed Specific Gravity



Failure Criterion:	A	B	C	D
Max Stress	▲	◇	○	X
Initial				
Diameter (In.)	2.50	2.50	2.50	
Thickness (In.)	0.92	0.92	0.92	
Water Content (%)	28.5	28.5	28.5	
Dry Density (pcf)	91.4	91.4	91.4	
Before Shear				
Thickness (In.)	0.90	0.89	0.87	
Water Content (%)	29.2	28.4	27.1	
Dry Density (pcf)	93.8	95.0	96.9	
Normal Stress	0.25	0.50	1.00	
Shear Stress	0.23	0.38	0.70	

"These tests are for informational purposes only and must be reviewed by a qualified professional engineer to verify that the test parameters shown are appropriate for any particular design."

Peak Conditions		At Given Shear Disp. Of: 0.15	
Friction Angle: $\phi =$	32.2 deg.	Friction Angle: $\phi =$	32.0 deg.
Apparent Cohesion	0.069 TSF	Apparent Cohesion	0.068 TSF



Direct Shear Test

ASTM: D3080

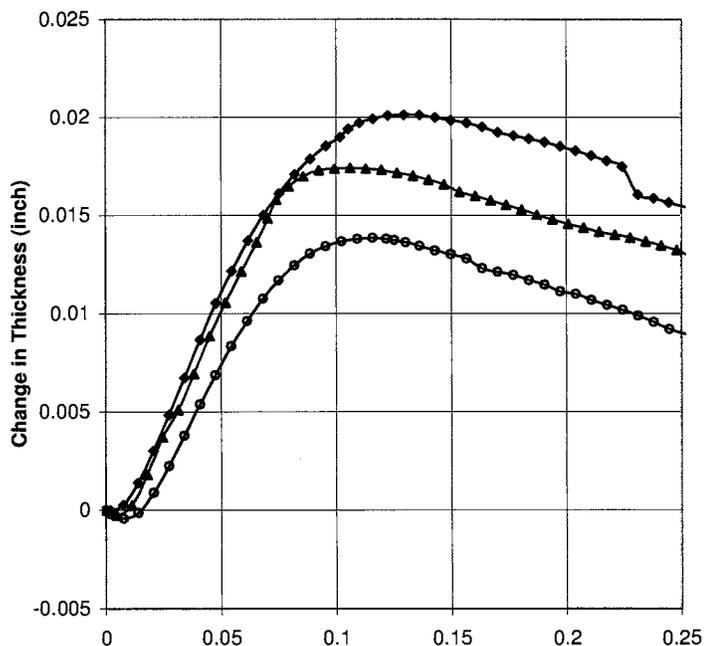
Job No.: **8301**

Project: **Menekaunee Harbor Sea Wall Replacement, Marinette, WI - #G11-358**
 Boring No.: **B-4** Sample No. **10** Depth: **23.5-25**
 Location: **In-Situ Dry Density = 115.6pcf @16.6%** Sample Type: **Liner**
 Soil Type: **Sand, medium to fine grained (SP)**

Test Date:	1/30/2012
Date Reported:	2/2/2012
<u>Shear Rate</u>	
0.003 (in/min)	
Liquid Limit:	
Plastic Limit:	
Plasticity Index:	
Specific Gravity (*):	2.68

Remarks: Specimens compacted to given density - near in-situ density, using -#4 material; Inundated after applying normal load. Consolidated and sheared to given displacements at constant rate of 0.003inches/minute. In-Situ Dry Density = 111.6pcf @16.6%

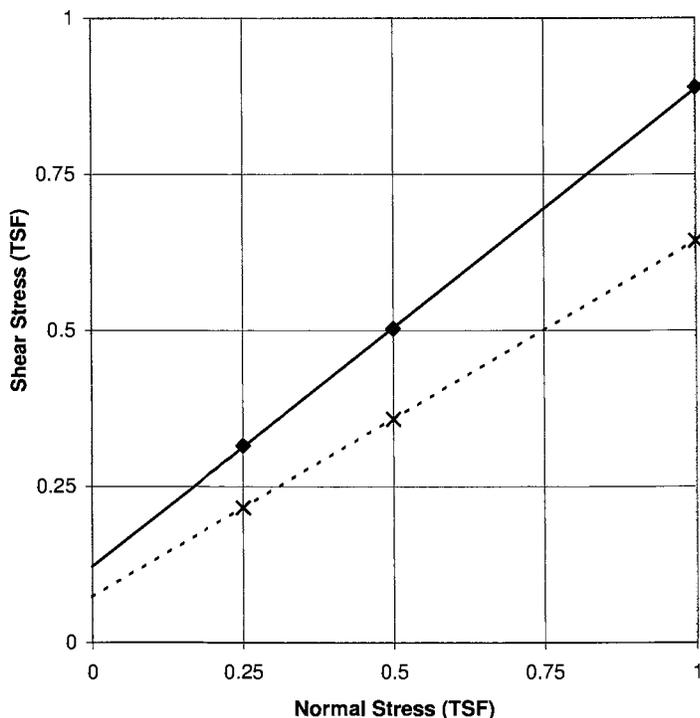
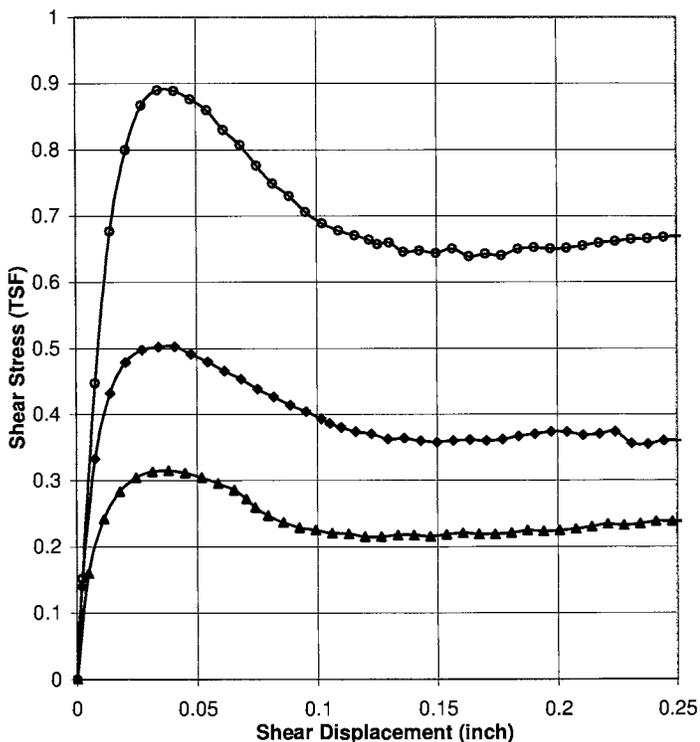
(*) = Assumed Specific Gravity



Failure Criterion:	A	B	C	D
Max Stress	▲	◇	○	X
<i>Initial</i>	▲	◇	○	X
<u>Diameter (In.)</u>	2.50	2.50	2.50	
<u>Thickness (In.)</u>	0.92	0.92	0.92	
<u>Water Content (%)</u>	16.6	16.6	16.6	
<u>Dry Density (pcf)</u>	109.8	109.8	109.8	
<i>Before Shear</i>				
<u>Thickness (In.)</u>	0.91	0.90	0.89	
<u>Water Content (%)</u>	19.1	18.9	18.1	
<u>Dry Density (pcf)</u>	110.7	111.1	112.6	
<u>Normal Stress</u>	0.25	0.50	1.00	
<u>Shear Stress</u>	0.32	0.50	0.89	

"These tests are for informational purposes only and must be reviewed by a qualified professional engineer to verify that the test parameters shown are appropriate for any particular design."

Peak Conditions	At Given Shear Disp. Of: 0.15
Friction Angle: $\phi = 37.4$ deg.	Friction Angle: $\phi = 29.7$ deg.
Apparent Cohesion: 0.122 TSF	Apparent Cohesion: 0.073 TSF



Important Information about Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



8811 Colesville Road/Suite G106, Silver Spring, MD 20910
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e-mail: info@asfe.org www.asfe.org

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April 28, 2014

Mr. Brian Miller, Director of Public Works
City of Marinette
1905 Hall Avenue
Marinette, Wisconsin, 54143-1716

Subject: Grant of Exemption - Low Hazard Waste, Dredge Material Disposal Site in the City of Marinette, Marinette County Wisconsin

Dear Mr. Miller:

The Department has reviewed and is approving your request for an exemption from the solid waste regulations to dispose of dredge material on property owned by the City of Marinette (City) and described as Parcel No. 24 (Lot 24) located at the West end of Murray Street in the City. This exemption is granted under s. 289.43(8), Stats., and is subject to conditions of the attached grant of exemption.

The Menekaunee Harbor project is a significant renovation of the harbor involving dredging of approximately 72,500 cubic yards (cy) of material from the harbor. The proposed dredging will increase the harbor depth to allow for safer navigation of watercraft and the potential return of recreational boating activities to the harbor. The dredge material is split into 2 categories, significantly contaminated material that will be disposed of in a licensed solid waste landfill, and minimally contaminated material that will be either reused to restore wildlife habitat within the harbor or disposed of at Lot 24.

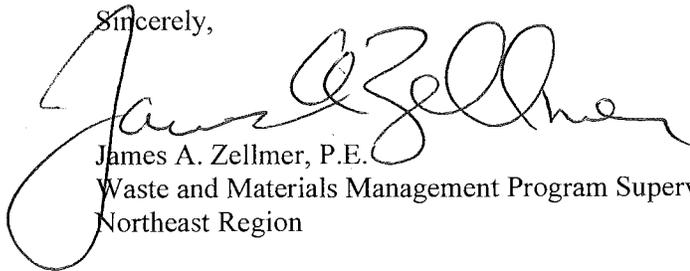
At this time approximately 22,500 cy of dredge material is expected to be disposed of at Lot 24, however the proposed design capacity is approximately 54,500 cy. This exemption allows filling Lot 24 with any amount of dredge material from the harbor only limited by the design capacity. The City's exemption request includes a statement that the goal is to minimize the height of material disposed of at the site, which would equate to minimizing the volume of material disposed of. Closure of the site will include placement of topsoil and establishment of vegetation. A deed restriction will be placed on the property to notify any potential purchaser of the property that the land has been used for dredge material disposal and its use is restricted to prevent disturbance and/or removal of the dredge material. Note however that it is possible to remove some or all of the material for a reuse project with Department approval. The deed restriction could also be extinguished if all of the dredge material is removed from the site.

It is the Department's opinion that the proposed acceptance of dredge material at this site will not cause undue environmental harm provided it is conducted in accordance with the attached exemption.

You are reminded that this approval does not relieve you of obligations to meet all other applicable federal, state and local permits, zoning and regulatory requirements.

Please contact Greg Tilkens at (920) 662-5433 or at Gregory.Tilkens@Wisconsin.gov if you have any questions concerning this exemption.

Sincerely,

A handwritten signature in black ink, appearing to read "James A. Zellmer". The signature is fluid and cursive, with the first name "James" being particularly prominent and stylized.

James A. Zellmer, P.E.
Waste and Materials Management Program Supervisor
Northeast Region

- C: Cheryl Bougie - NER (email)
- Dean Free - Ayres Associates (email)
- Lynn Scherbert - Ayres Associates (email)

**BEFORE THE
STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES**

**CONDITIONAL GRANT OF SOLID WASTE EXEMPTION FOR
DISPOSAL OF DREDGE MATERIAL
FROM THE
MENEKAUNEE HARBOR ON
PROPERTY OWNED BY THE CITY OF MARINETTE**

FINDINGS OF FACT

The Department finds that:

- 1) The City of Marinette (City) is planning a significant dredging project in Menekaunee Harbor. A portion of the dredge material to be removed from the harbor is proposed to be disposed of on property owned by the City.
- 2) On March 24, 2014 the Department received report titled "Revised – Low-Hazard Waste Exemption Request with 100% level Design" submitted by Ayres Associates on the behalf of the City. The report includes a proposal to dispose of the dredge material on property owned by the City and referred to as Parcel No. 24 (Lot 24) located on the West end of Murray Street in the City (NW ¼ and SW ¼ of the NE ¼ of Section 14, T30N,R23E, Marinette County, Wisconsin).
- 3) The design capacity of the proposed facility is approximately 54,500 cubic yards (cy), however at this time approximately 22,500 cy is planned for disposal at Lot 24.
- 4) On April 24, 2014 the Department held a public meeting at the Marinette City Hall in the City of Marinette to discuss and solicit public comments on the planned Menekaunee Harbor dredging and disposal plan.
- 5) Other documents relevant to the exemption request include the following:
 - a) An email from Robert Rosenberger dated February 5, 2014 regarding detrimental effects on the pond located at the site.
 - b) A report titled "Wetland Delineation Report" dated January 2014 submitted on the City's behalf by Ayres Associates.
- 6) Additional facts relevant to the exemption request include the following:
 - a) For purposes of this document, the term "dredge material" means any material that is excavated or dredged at or below the ordinary high water mark of water basins, watercourses, or public waters.
 - b) Dredge material is considered a solid waste under Wisconsin Statutes and case law. In accordance with s. 289, Wis. Stats, no person may operate a solid waste disposal facility unless the person obtains a written approval from the Department.
 - c) Dredge material may contain contaminants that are harmful to human health and the environment. The contamination potential of the dredge material result from the presence of metallic elements and organic compounds bound to the fine-grained portion of the material. These contaminants generally have a low solubility in water and are not anticipated to leach from the dredge material

due to their greater affinity for dredge material and soil.

- 7) The required fee for review of this project was received by the Department on September 12, 2012.
- 8) The Department has considered the environmental impacts of the proposal and has complied with the requirements of ch. NR 150, Wis. Adm. Code, and s. 1.22, Wis. Stats., and, consistent with social, economic, and other essential considerations, the Department has adopted all practical means to avoid or minimize environmental harm.
- 9) The proposal would not be within an area where there is a reasonable probability that the facility would cause:
 - a) A significant adverse impact on wetlands as provided in ch. NR 103, Wis. Adm. Code;
 - b) A significant adverse impact on critical habitat areas;
 - c) A detrimental effect on any surface water;
 - d) A detrimental effect on groundwater quality, if the facility is designed, constructed and operated in accordance with the proposal and any condition(s) set forth below
- 10) If the condition(s) set forth below are complied with, the disposal of nonhazardous dredge material will not result in environmental pollution as defined in s. 289.01 (8), Wis. Stats.
- 11) The Department has conducted a continuing review of the potential hazard to public health and the environment of solid waste disposal facilities in general as well as this specific proposal. Based upon this review, the Department finds that regulation under s. 289, Wis. Stats., is not warranted in light of the low potential hazard to public health or the environment.

CONCLUSIONS OF LAW

- 1) Based upon the foregoing, the Department has authority under s. 289.43 (8), Wis. Stats., to grant the conditional exemption set forth below.
- 2) The Department has authority to issue a grant of exemption with conditions if the conditions are needed to ensure compliance with the applicable provisions of chs. 280 to 299, Wis. Stats.
- 3) The conditions set forth below are needed to ensure that the disposal of nonhazardous dredge material as proposed, and in accordance with the conditions of this exemption, will not result in environmental pollution as defined in s. 289.01 (8), Wis. Stats.
- 4) In accordance with the foregoing, the Department has the authority under s. 289.43(8), Wis. Stats., and s. NR 500.08(4), Wis. Adm. Code, to issue the following conditional grant of exemption.

CONDITIONAL GRANT OF EXEMPTION

The Department hereby exempts the City from the feasibility report, plan of operation, and solid waste facility licensing requirements of ch. 289, Wis. Stats., and from the annual licensing fees imposed under ss. 289.41 and 289.61, Wis. Stats., and authorizes the disposal of dredge material from the Menekaunee Harbor project on Lot 24, subject to the following conditions:

- 1) Within 90 days of completing the closure of the disposal area, the City shall record, in accordance with State law, a permanent institutional control, such as a land-use restriction, deed restriction, deed

notice, or declaration of environmental restriction, which would normally be examined during a title search, that will in perpetuity notify any potential purchaser of the property that the land has been used for dredge material disposal and its use is restricted to prevent disturbance and/or removal of the contaminated dredge material. The City shall submit a copy of the signed certification to the Department within 30 days of issuance of institutional control verifying that it has been recorded.

- 2) Within 60 days of completing the closure of the disposal area, a report shall be submitted to the Department containing, at a minimum, the following information:
 - a) Volume of material disposed.
 - b) Surveyed topographic plan drawing indicating the specific location of this material, recorded by horizontal and vertical coordinates.
- 3) Dredge material shall not be removed from Lot 24 without prior written approval from the Department.
- 4) The City shall dispose of only dredge material related to dredging of Menekaunee Harbor on Lot 24.
- 5) Dredge material shall not be removed from the disposal property without prior written approval from the Department.
- 6) The disposal site shall meet all other applicable federal, state, and local permits, zoning or regulatory requirements as it relates to this project.
- 7) No action related to the disposal of dredge material may be taken which will cause a significant adverse impact on wetlands as provided in ch. NR 103, Wis. Adm. Code.
- 8) No action related to the disposal of dredge material may be taken which will cause a significant adverse impact on critical habitat areas, as defined in s. NR 500.03(55), Wis. Adm. Code.
- 9) No action related to the disposal of dredge material may be taken which will cause a detrimental effect on any surface water, as defined in s. NR 500.03(62), Wis. Adm. Code.
- 10) No action related to the disposal of dredge material may be taken which will cause a detrimental effect on groundwater, as defined in s. NR 500.03(62), Wis. Adm. Code, or will cause or exacerbate an attainment or exceedance of any preventive action limit or enforcement standard at a point of standards application as defined in ch. NR 140, Wis. Adm. Code.
- 11) This grant of exemption shall expire on January 1, 2016 unless the Department extends or rescinds the grant of exemption in writing prior to that date.

This exemption is based on the information available to the Department as of the date of this document. If additional information, project changes or other circumstances indicate a possible need to modify this exemption, the Department may ask you to provide further information relating to this activity. Likewise, the Department accepts proposals to modify exemptions, as provided for in state statutes and administrative codes.

NOTICE OF APPEAL RIGHTS

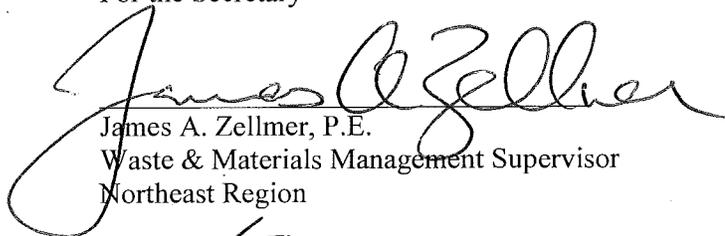
If you believe you have a right to challenge this decision made by the Department, you should know that Wisconsin statutes and administrative codes establish time periods and requirements for reviewing Department decisions. To seek judicial review of the Department's decision, sections 227.52 and 227.53,

Stats., establish criteria for filing a petition for judicial review. You have 30 days after the decision is mailed or otherwise served by the Department to file your petition with the appropriate circuit court and serve the petition on the Department. The petition shall name the Department of Natural Resources as the respondent.

Dated: April 28, 2014

DEPARTMENT OF NATURAL RESOURCES

For the Secretary



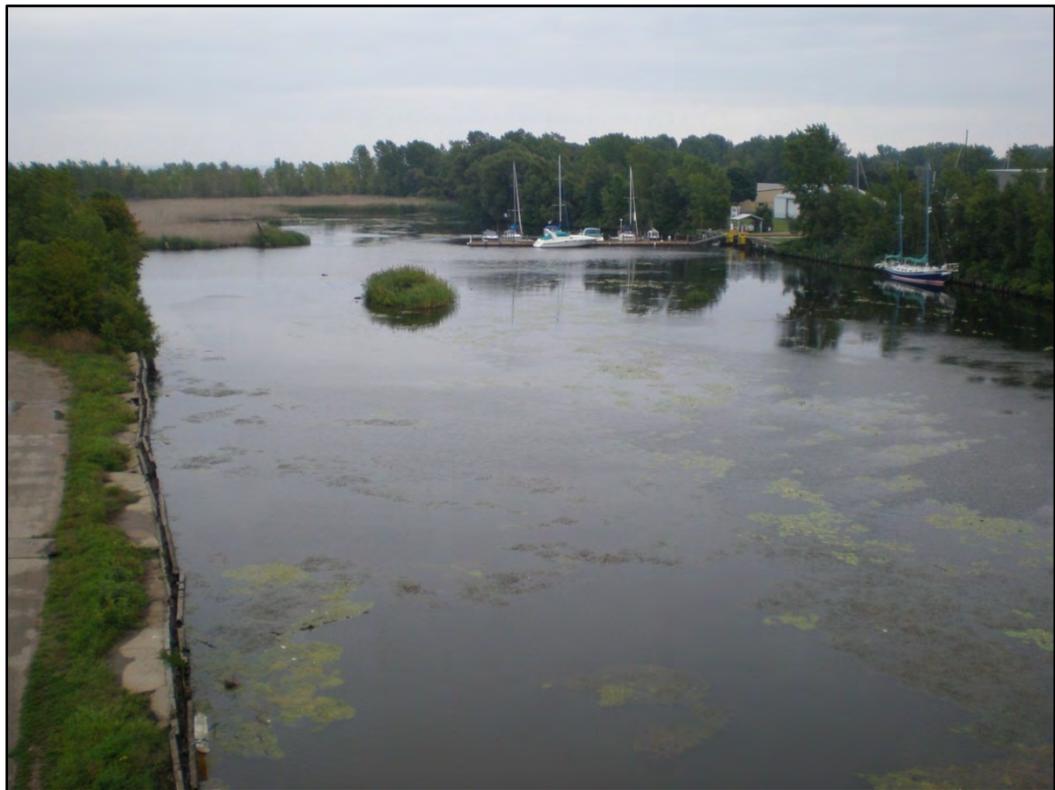
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EROSION CONTROL AND STORMWATER MANAGEMENT PLAN

**Menekaunee Harbor Restoration Project
Marinette, Wisconsin**



Prepared for:

**City of Marinette
May 21, 2014**

EROSION CONTROL AND STORMWATER MANAGEMENT PLAN

Menekaunee Harbor Restoration Project

For Construction Activities At:

Menekaunee Harbor
Northeast of Ogden Street and Water Street
Marinette, WI 54143

Lot 24 Containment Site
West end of Murray Street
Marinette, WI 54143

Prepared For:

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Appendix A WPDES Permit No. WI-S067831-4

Appendix B Plan Set

Appendix C Erosion and Sediment Control Specifications

Appendix D Construction Site Inspection Report & Corrective Action Records

Appendix E Long-term Maintenance Agreement

Section 1.0 – Contact Information

1.1 Stormwater and Erosion Control Team

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Section 2.0 – Overview

2.1 Introduction

This erosion control and stormwater management plan (ECSWMP) provides erosion and sediment control and storm water best management practices (BMPs) for use by contractors and subcontractors during activities at the Menekaunee Harbor Restoration and Improvement Project. The purpose of the project is to address beneficial use impairments within the harbor by removing contaminants, improving navigation, replacing shoreline treatments, and restoring the fish and wildlife habitat.

2.2 Site Location

The Menekaunee Harbor is located to the east of the Ogden Street Bridge over the Menominee River in the City of Marinette, Wisconsin. The harbor and adjacent staging areas are within the NW ¼ of the NW ¼ of Section 9, and the SW ¼ of the NW ¼ of Section 4, Township 30 North, Range 24 East. The primary staging and dewatering area will be within the lot to the northeast of the Ogden Street Bridge, with an entrance located approximately at 45.0931 North, 87.5983 West.



2.3 Regulatory Framework

This plan has been prepared as required by the project's application for coverage under Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-S067831-4 (Appendix A). This document addresses the site-specific erosion control plan requirements of NR 216.46 (including the performance standards of NR 151.11), the storm water management plan requirements of NR 216.47, and the reporting and monitoring requirements of NR 216.48.

This plan also fulfills the requirements in the City of Marinette's Construction Site Erosion Control (6.0602).

Section 3 – Site Evaluation

3.1 Site Information and Considerations

The project site is located at the harbor where the Menominee River exits to the Green Bay in Lake Michigan. Site disturbance shall consist of 8.7 acres of harbor (below waterline, to be dredged), 1.5 acres of shoreline treatment (above waterline, to be repaired/replaced), and 1.9 acres of land for staging, dewatering, and storage. A construction site map meeting the requirements of NR 216.46(5) is provided as Sheet C3.1 in the plan set (Appendix B).

The site contains and surrounds the Menekaunee Harbor, which is part of the Menominee River and Lake Michigan, though the harbor is currently blocked off at the Ogden Street Bridge from its upstream connection to the river. Stormwater runoff from the land-based construction, staging, and dewatering areas drains to the harbor. However, silt fence will be installed around these areas, and the gentle slopes of the land adjacent should slow surface runoff, allow for greater infiltration and dissipation before entering the surface water. Additionally, a turbidity barrier will be installed at the outlet to Lake Michigan.

3.2 Nature of the Construction Activity

Site activities involve dredging the harbor to a navigable depth of 8.0 feet as measured during historic low lake levels—568.0 mean sea level (msl)—in all locations to remove contaminants at or above the Threshold Effect Concentration (TEC) for arsenic, copper, lead, mercury, and/or zinc (Appendix B, Sheet C3.1. Harbor Dredging Plan & Intermediary Contours). Deeper dredging depths will be achieved in areas where contaminants have been located below 568.0 msl. The non-navigational areas on the eastern side of the harbor will be backfilled to 576.0 msl to provide final water depths of approximately two feet for habitat restoration purposes (Appendix B, Sheet C3.2. Final Harbor Plan & Contours). Clean dredge spoils (termed “beneficial-use fill”) removed from the west side of the harbor will be used to bring the east side to the desired restoration depths.

The project will be performance-specified in order to allow contractors to bid the project by use of mechanical or hydraulic methods to complete dredging and treatment requirements. It is anticipated that some level of mechanical dredging will be required regardless, due to woody debris observable on the bed and encountered during subsurface explorations. The total anticipated dredge volume to achieve navigation and contamination removal goals is 72,500 cubic yards.

The existing shoreline timber pile wall removal and replacement will need to take place in conjunction with the dredging operations as dredging along the existing timber pile walls may cause the walls to become undermined and the shoreline to collapse. The existing timber pile walls are to be cut off at a minimum of two feet below final grade and covered with beneficial-use fill and/or riprap as indicated on the plans. The project includes shoreline improvements consisting of approximately 1,100 feet of riprap installations, 200 feet of anchored sheet pile wall, and 150 feet of stepped ledge stone. The remaining shoreline (to the east side of the harbor) will remain in its natural state, as there is currently no timber pile or riprap.

3.3 Sequence of Construction Activities

Dredging, shoreline treatments, disposal of environmental dredge spoils, beneficial re-use of navigational dredge spoils, and on-shore containment of excess navigational dredge spoils activities are planned to occur in the year 2014. Sediment barriers will be installed prior to dredging operations at the outlet of the harbor where it enters the Green Bay; the installed barriers will allow the passage of boat traffic. No barriers will be required at the upstream inlet to the harbor as this location is closed with riprap at the Ogden Street Bridge.

The following sequencing is a suggestion, and the final construction schedule shall be determined by the selected contractor. However, activity cannot occur in the water until after June 15th, due to restrictions related to fish spawning.

1. Mobilize to harbor and set up staging and dewatering areas as required.
2. Install erosion control around dewatering areas and install sediment barriers in harbor.
3. Remove highly contaminated sediments by hydraulic or mechanical dredging methods (estimated 27,500 CY of environmental dredge spoils to be generated).
4. Shape shoreline to desired final slopes removing existing timber pile walls to 2-feet below final grades.
5. Place riprap or ledge stone as shoreline treatments (and filter fabric/bedding where required) in conjunction with dredging and shaping of shoreline slopes to minimize harbor shoreline erosion.
6. Construct sheet pile wall.
7. Dewater and haul sediment with greater contamination levels (environmental dredge spoils) to Landfill in Michigan (treat interstitial/carriage water as required by WDNR).
8. Prepare Lot 24 for excess navigational dredge spoils containment (*note: this site is addressed by a separate plan*).
9. Remove remaining navigational dredge spoils to achieve final navigational depths in outlet channel and west side of harbor by hydraulic or mechanical dredging methods (estimated 45,000 CY of navigational dredge spoils generated).
10. Backfill east side of harbor to final contour grades with navigational dredge spoils (used as beneficial-use fill) (estimated 22,500 CY of navigational dredge spoils to be beneficially re-used).
11. Dewater and haul remaining navigational dredge spoils to lot 24 Navigational Dredge Spoils Containment Site (estimated 22,500 CY). Manage interstitial/carriage water by disposal to wastewater treatment plant or on site treatment facility.
12. Complete remaining shoreline treatments, habitat restoration, and final grading to meet design plan.
13. Complete site restorations, remove erosion controls, and demobilize.

3.4 Discharge Information

The following have been identified as potential sources of pollution at the harbor that could be discharged if exposed to stormwater:

Pollutant-Generating Activity or Material	Pollutants or Pollutant Constituents	Location on Site
Clearing	Sediment	See Appendix B
Grading and Excavation	Sediment	See Appendix B
Dredge spoils	Sediment, arsenic, copper, lead, mercury, zinc	See Appendix B
Concrete	Limestone, sand, pH, chromium	See Appendix B
Hydraulic oil/fluids	Mineral oil	Leaks or broken hoses on equipment
Antifreeze/coolant	Ethylene glycol, propylene glycol, heavy metals	Leaks or broken hoses on equipment
Gasoline	Benzene, ethyl benzene, toluene, xylene, MTBE	Secondary containment/staging area
Diesel Fuel	Petroleum distillate, oil and grease, naphthalene, xylenes	Secondary containment/staging area
Fertilizer (phosphorus-free)	Nitrogen	Upland areas to be permanently vegetated
General Activity	Trash	All

The following have been identified as potential non-stormwater discharges at the harbor:

Non-Stormwater Discharge	Location on Site
Interstitial water from dredge spoils ¹	Dewatering area
Water used to control dust	Staging area
Water used to wash vehicles and equipment	Staging area
Uncontaminated, non-turbid discharges of ground water	Shoreline

¹ This water has the potential to be contaminated, and the BMP prescribed in 5.1 of this plan must be followed.

Section 4 – Erosion and Sediment Controls

4.1 Perimeter Controls and Sediment Barriers

Silt Fence

<i>BMP Description</i>	Silt fences will be installed around the perimeter of the site, except at the construction entrance and in the wetland at the east side of the harbor. Silt fence will comply with WDNR Conservation Practice Standard 1056. Geotextile fabric and posts will comply with the requirements of WIDOT Std. Spec., Subsection 628.2.6, except geotextile fabric shall have a maximum flow rate of 10 gallons/minute/square foot at 50 mm constant head as determined by multiplying permittivity in 1/second as determined by ASTM D4491 by a conversion factor of 74.
<i>Installation Schedule</i>	The silt fences will be installed before construction begins at the site, and around any stockpiles once they have been established.
<i>Maintenance and Inspection</i>	Silt fences will be inspected weekly and within 24 hours of a 0.5 inch rain event to ensure it is intact, that there are no gaps where the fence meets the ground, and that there are no tears in the fence. If gaps or tears are found during the inspection the fabric will be repaired or replaced within 24 hours. Accumulated sediment will be removed from the fence base if it reaches one half of the above-ground height of the silt fence, and be hauled off-site to Lot 24 for disposal. If accumulated sediment is creating noticeable strain on the fabric and fence the sediment will be removed more frequently. Before the fence is removed from the project area the sediment will be removed and disposed of at Lot 24. The anticipated lifespan of silt fence is 6 months and may need to be replaced after this period.
<i>Responsible Staff</i>	Contractor to be determined

Fiber Rolls/Filter Logs

<i>BMP Description</i>	Fiber rolls or filter logs will be installed at locations where topography or subsurface roots disallow installation of silt fence. The fiber rolls will comply with WDNR Conservation Practice Standard 1071, and with the WIDOT Erosion Control Product Acceptability List.
<i>Installation Schedule</i>	The fiber rolls/filter logs will be installed before construction begins at the site, and may be installed in place of silt fence around any stockpiles once they have been established.

<i>Maintenance and Inspection</i>	Fiber rolls/filter logs will be inspected weekly and within 24 hours of a 0.5 inch rain event to ensure it is intact, that there are no gaps where the rolls/logs meet the ground, and that there are no rips in the body of the log. If gaps or damage are found during the inspection the rolls/logs will be repaired or replaced within 24 hours. Accumulated sediment will be removed from the base of the roll/log if it reaches half the height of the roll/log, and be hauled off-site to Lot 24 for disposal. If accumulated sediment is creating noticeable strain on the fabric and fence the sediment will be removed more frequently. Before the rolls/logs are removed from around stockpiles the sediment will be removed and disposed of at Lot 24. The rolls/logs have a lifespan of at least one year, and do not have to be removed at the end of the project if in a location where no access or use of the space will be impeded.
<i>Responsible Staff</i>	Contractor

Turbidity Barrier

<i>BMP Description</i>	A floating turbidity barrier will be installed outside the work area between the harbor and the Green Bay. It is not necessary to place a barrier upstream of the work area as the space between the south channel of the Menominee River and the harbor is blocked off with riprap beneath the Ogden Street Bridge. This barrier shall contain suspended sediment within the harbor while still allowing the passage of boat traffic. The turbidity barrier shall comply with WDNR Conservation Practice Standard 1069.
<i>Installation Schedule</i>	The turbidity barrier will be installed before dredging or shoreline work begins.
<i>Maintenance and Inspection</i>	The turbidity barrier will be inspected weekly and within 24 hours of a 0.5 inch rain event to ensure it is intact.
<i>Responsible Staff</i>	Contractor

Silt Curtain

<i>BMP Description</i>	Silt curtains may be utilized around the immediate area in which dredging is taking place. Silt curtains shall comply with WDNR Conservation Practice Standard 1070.
<i>Installation Schedule</i>	Silt curtains will be installed as needed during dredging.
<i>Maintenance and Inspection</i>	Silt curtains will be inspected weekly and within 24 hours of a 0.5 inch rain event to ensure it is intact.
<i>Responsible Staff</i>	Contractor

4.2 Sediment Track-Out

<i>BMP Description</i>	A stone tracking pad will be installed at the primary site access north of the Ogden Street bridge. The stabilized exit will be at least 50 feet long and 20 feet wide and will consist of a 12-inch-thick layer of crushed stone a minimum of 3 inches in diameter. The crushed stone will be placed over a layer of geotextile filter fabric to reduce the migration of sediment from the underlying soil. The tracking pad will be flared at the end closest to the paved road in order to accommodate the turning radius of trucks and equipment. Orange-colored plastic mesh fence will be installed along the length of the construction exit to keep construction vehicles and equipment on the stone tracking pad. The stone tracking pad will comply with WDNR Conservation Practice Standard 1057.
<i>Installation Schedule</i>	The tracking pad will be installed before dredging and construction begin at the site.
<i>Maintenance and Inspection</i>	The tracking pad will be inspected weekly and within 24 hours of a 0.5 inch rain event to ensure it is intact and is maintained in a condition that will prevent sediment tracking off-site. Maintenance may involve placement of additional crushed stone. Replacement of the entire pad may be necessary if the pad becomes completely filled with sediment. Where sediment has been tracked from the site onto the surface of the adjacent street the deposited sediment will be removed by the end of the same work day. Removal of tracked sediment deposited off-site will occur through sweeping or shoveling the surfaces. No tracked-out sediment will be swept into any stormwater conveyance, storm drain inlet, or surface water.
<i>Responsible Staff</i>	Contractor

4.3 Dust Control

<i>BMP Description</i>	Dust control will be implemented as needed once site grading has been initiated and during windy conditions (forecasted or actual wind conditions of 20 mph or greater) while site grading is occurring. Spraying of potable water at a rate of 300 gallons per acre or less will be performed by a mobile pressure-type distributor truck no more than three times per day during the months of May through September and once per day during the months of October through April. Dust control will comply with WDNR Conservation Practice Standard 1068.
<i>Responsible Staff</i>	Contractor

4.4 Dewatering Practices

<i>BMP Description</i>	Dewatering of dredge spoils will vary dependent upon the dredging method. Hydraulic dredging will utilize gravity filter bags. Mechanical dredging will use a system of impermeable pads and berms beneath and around dewatering piles. Both methods may also include additives for dewatering, which would be proposed in the selected contractor's dredging and dewatering plan. Dewatering will comply with WDNR Conservation Practice Standard 1061.
<i>Installation Schedule</i>	Dewatering will occur at the dredge spoils settling area.
<i>Maintenance and Inspection</i>	Dewatering will be observed daily, with emphasis on ensuring that there are no tears or breaches in the filtering material. The resultant water will be sampled as specified in the QAPP and specifications in order to ensure that it meets the requirements of the local wastewater treatment plant (if going into the sanitary sewer system) or the WDNR limits (if discharged to groundwater or surface water)
<i>Responsible Staff</i>	Contractor

4.5 Site Stabilization

Temporary Vegetative Stabilization

<i>BMP Description</i>	Temporary vegetative cover will be established by either hydroseeding or seeding by hand for areas of exposed soil (including stockpiles) where construction will cease for more than 30 days. Temporary seeding shall comply with WDNR Conservation Practice Standard 1059 and utilize a native seed mix conforming to WisDOT Standard Specification 630.2.1.5.1.4.
<i>Installation Schedule</i>	Temporary stabilization measures will be applied to portions of the site where construction activities will temporarily cease for more than 30 days.
<i>Maintenance and Inspection</i>	Stabilized areas will be inspected weekly and within 24 hours of a 0.5 inch rain event until a dense cover of vegetation has become established. If failure is noted at the seeded area, the exposed soil will be reseeded and mulched immediately.
<i>Responsible Staff</i>	Contractor

Permanent Vegetative Stabilization

<i>BMP Description</i>	Permanent seeding will be applied immediately after the final design grades are achieved on portions of the site, but no later than 30 days after construction activities have permanently ceased in that area. In areas where disturbance results in subsoil being the final grade surface, topsoil will be spread over the finished area at a depth of 2 to 6 inches. The seedbed will be free of large clods, rocks, woody debris, and other objectionable materials. Fertilizer and lime will be applied to the seedbed (in upland areas) according to the manufacturer's recommendations. The top layer of soil will be loosened to a depth of 3 to 5 inches by raking, tiling, disking, or other suitable means. Permanent seeding shall comply with WDNR Conservation Practice Standard 1059 and utilize a native seed mix appropriate to WisDOT Standard Specification 630.2.1.5.1.1.
<i>Installation Schedule</i>	Permanent stabilization measures will be applied to portions of the site where construction activities have permanently ceased, but at least within 30 days.
<i>Maintenance and Inspection</i>	Stabilized areas will be inspected weekly and within 24 hours of a 0.5 inch rain event until a dense cover of vegetation has become established. If failure is noted at the seeded area, the exposed soil will be reseeded and mulched immediately. After construction is completed at the site, permanently stabilized areas will be monitored until final stabilization is reached.
<i>Responsible Staff</i>	Contractor. City to monitor post-construction

Mulching

<i>BMP Description</i>	Mulching will provide immediate protection to exposed soils during short periods of construction. Mulching may consist of either hydromulching or traditional straw mulching. The mulch should cover 75-90% of the ground surface. Mulch materials shall comply with WDNR Conservation Practice Standard 1058.
<i>Installation Schedule</i>	Mulch will be applied to portions of the site where soil grading or landscaping has taken place or in conjunction with seeding.
<i>Maintenance and Inspection</i>	Stabilized areas will be inspected weekly and within 24 hours of a 0.5 inch rain event until a dense cover of vegetation has become established. If failure is noted at the seeded area, the exposed soil will be reseeded and mulched immediately.
<i>Responsible Staff</i>	Contractor

Erosion Control Mats/Blankets

BMP Description Erosion control mats/blankets are to be used to provide stabilization for slopes on the shoreline prior to final treatment, and on other steeper graded areas as needed. The ground surface must be smooth and free of large rocks, clods, or other abnormalities in topography which can create an opportunity for erosion. The mat/blanket will cover the entire area of the graded slopes, will be installed on a slope the long way from top to bottom, and will be held in place with staples. Mats/blankets should overlap a minimum of 2 inches (with the uphill on top of the downhill) when multiple mats/blankets are needed. Erosion control mat/blanket materials shall comply with WDNR Conservation Practice Standard 1052.

Installation Schedule Permanent stabilization measures will be applied to portions of the site where construction activities have permanently ceased as soon as possible, but no later than 30 days after construction ceases.

Maintenance and Inspection Stabilized areas will be inspected weekly and within 24 hours of a 0.5 inch rain event to determine if beaches or tears have formed. If so the mat will be repaired or replaced immediately. Good contact with the soil will be maintained and erosion will not occur under the mat. Any areas where the mat is not in close contact with the ground will be repaired or staked down.

Responsible Staff Contractor

Section 5 – Pollution Prevention Standards

5.1 Interstitial/Carriage Water Sampling Procedures

<i>BMP Description</i>	A grab sample will be collected prior to the discharge of interstitial/carriage water to the sanitary sewer system, ground water, or a surface water in order to verify compliance with City (sanitary sewer) and/or WDNR (groundwater/surface water) mandated acceptance levels.
<i>Installation Schedule</i>	The interstitial/carriage water sampling procedures will be implemented once dredging begins.
<i>Maintenance and Inspection</i>	Samples shall be collected at the following frequency: once prior to the initial wastewater discharge; two times on two different days during the first calendar week of discharge; one time per week during the second through fifth calendar weeks of discharge; and one time per month after the fifth week of discharge. The monthly frequency only applies if data indicated substantial compliance in all prior testing.
<i>Responsible Staff</i>	Testing Agency to be determined

5.2 Spill Prevention and Response

<i>BMP Description</i>	All employees will be trained via tailgate meetings on proper spill prevention practices regarding fueling and maintenance of vehicles and storage of hazardous materials, as well as spill response practices. Spill response involves cleaning up spills immediately upon discovery with the use of spill kits located within the materials storage area and concrete washout pit. Immediately after the spill is cleaned up the spent absorbent materials and rags will be hauled off-site for disposal. Spills large enough to discharge to surface water will be reported to the National Response Center at 1-800-424-8802. Material safety data sheets, a material inventory, and emergency contact information will be maintained at the on-site project trailer.
<i>Installation Schedule</i>	The spill prevention and response procedures will be implemented following mobilization.
<i>Maintenance and Inspection</i>	All personnel will be instructed during tailgate training sessions regarding the correct procedures for spill prevention and response. Notice of these practices will be posted in the project trailer and the individual managing day-to-day site operations will be responsible for seeing that these procedures are followed.
<i>Responsible Staff</i>	Contractor

5.3 Fueling and Maintenance of Equipment and Vehicles

<i>BMP Description</i>	A wide range of vehicles and equipment will be used on-site throughout the project including, but not limited to; graders, scrapers, excavators, loaders, rollers, trucks and trailers, backhoes, forklifts, pumps, dredge pipeline, mechanical dredges, hydraulic dredges, boats and barges. All maintenance and fueling will be performed in compliance with local, state, and federal laws. All equipment fluids generated from maintenance activities will be disposed of into designated drums stored on spill pallets. Absorbent spill cleanup materials and spill kits will be available at the materials storage area. Drip pans will be placed under all equipment receiving maintenance and any vehicles or equipment parked on-site overnight. Vehicles and equipment will be inspected for leaks daily, and will be repaired immediately.
<i>Installation Schedule</i>	Fueling and maintenance procedures will be implemented following mobilization.
<i>Maintenance and Inspection</i>	All personnel will be instructed during tailgate training sessions regarding the correct procedures for fueling and maintenance. Notice of these practices will be posted in the project trailer and the individual managing day-to-day site operations will be responsible for seeing that these procedures are followed.
<i>Responsible Staff</i>	Contractor

5.4 Washing of Equipment and Vehicles

<i>BMP Description</i>	Equipment and vehicles involved in the dredging or transport of dredged sediment shall be decontaminated. Equipment will be scraped of earthen materials, and will also be hosed down with a portable high-pressure hot-water washer. Rinsate will be collected in approved tanks or drums and transported to the sediment dewatering area for treatment prior to discharge. Scrapings shall be stored on-site and covered until it can be disposed of at an approved offsite facility.
<i>Installation Schedule</i>	Washing procedures will be implemented following mobilization.
<i>Maintenance and Inspection</i>	All personnel will be instructed during tailgate training sessions regarding the correct procedures for vehicle and equipment washing. Notice of these practices will be posted in the project trailer and the individual managing day-to-day site operations will be responsible for seeing that these procedures are followed.
<i>Responsible Staff</i>	Contractor

5.5 Storage, Handling, and Disposal of Construction Materials and Waste

Petroleum Products, Other Chemicals, and Hazardous or Toxic Waste

<i>BMP Description</i>	All hazardous waste materials such as oil filters, petroleum products, paints, and equipment maintenance fluids will be stored in structurally sound and sealed shipping containers in the hazardous materials storage area, segregated from other non-waste materials. Secondary containment will be provided for all materials in the hazardous materials storage area and will consist of commercially available spill pallets. Additionally, all hazardous waste materials will not be disposed of into the on-site dumpsters. All personnel will be instructed during tailgate training sessions regarding proper procedures for hazardous waste disposal. Material safety data sheets will be posted in the project trailer.
<i>Installation Schedule</i>	Shipping containers used to store hazardous waste materials will be installed once the materials storage area has been established.
<i>Maintenance and Inspection</i>	The hazardous materials storage area will be inspected daily by the individual managing day-to-day site operations. This person will ensure that that the material inventory is up-to-date and that storage areas are clean, well-organized, and equipped with ample cleanup supplies for the materials being stored.
<i>Responsible Staff</i>	Contractor

Construction and Domestic Waste

<i>BMP Description</i>	All non-hazardous waste materials will be collected and disposed of into metal trash dumpsters located in the staging area. Dumpsters will have a secure watertight lid, be placed away from any stormwater conveyances or drains, and meet all local and state solid waste management regulations. Only trash and construction debris from the site will be deposited in the dumpsters. All personnel will be instructed during tailgate training sessions regarding proper procedures for disposal of trash and construction debris
<i>Installation Schedule</i>	Trash dumpsters will be installed once the staging area has been established.
<i>Maintenance and Inspection</i>	The dumpsters and site area will be inspected daily by the individual managing day-to-day site operations. This person will ensure that that only non-hazardous waste is being disposed of in the dumpsters, and that trash is not disposed of on the ground or in the water of the project site. The dumpsters will be emptied weekly, and the trash taken to a trash collection facility by the company the contractor retains to provide the service. If trash and construction debris are exceeding the dumpsters' capacity, the dumpsters will be emptied more frequently or additional dumpsters will be brought in.
<i>Responsible Staff</i>	Contractor

Sanitary Waste

<i>BMP Description</i>	Temporary sanitary facilities (portable toilets) will be provided at the site. The toilets will be located on level ground away from any concentrated flow paths and heavy traffic flow, and will have collection pans underneath as secondary containment.
<i>Installation Schedule</i>	The portable toilets will be brought to the site following mobilization.
<i>Maintenance and Inspection</i>	All sanitary waste will be collected from the portable toilets a minimum of once per week by the company the contractor retains to provide the facilities. The toilets will be inspected weekly for evidence of leaking holding tanks. Toilets with leaking holding tanks will be removed from the site and replaced with new portable toilets.
<i>Responsible Staff</i>	Contractor

Section 6 – Inspections

6.1 Inspection Schedule

Inspections of implemented erosion and sediment control best management practices shall occur at least once per calendar week, and within 24 hours of a 24-hour rain event resulting in 0.5 inch or more rainfall (NR 216.48(4)(a)).

Precipitation data will be obtained from the Menominee Automatic Weather Observing/Reporting System (KMNM) located at the Menominee-Marquette Twin County Airport, approximately 2.5 miles northwest of the project site. Data is available for the previous three days on the NOAA website at the address <http://w1.weather.gov/data/obhistory/KMNM.html>.

6.2 Inspection Reports

Weekly inspection reports shall follow the form found in Appendix D and shall be retained as a part of this plan in Appendix D for at least three years post-project completion. Inspection reports shall be made available to the project management team and the contractor each week and shall also be maintained at the site. All inspection reports shall be made provided to the WDNR and City of Marinette at their requests.

Per NR 216.48(4)(c) the weekly inspection reports shall include the following:

1. The date, time and location of the construction site inspection.
2. The name of the individual who performed the inspection.
3. An assessment of the condition of erosion and sediment controls.
4. A description of the present phase of any erosion and sediment control best management practice implementation and maintenance performed.
5. A description of the present phase of land disturbing construction activity at the construction site.

6.3 Personnel Responsible for Inspections

Environmental compliance inspector to be determined.

6.4 Corrective Actions

The contractor shall be responsible for addressing corrective actions prescribed as a result of the weekly inspections. Per NR 216.48(4)(b) repair or replacement of erosion and sediment control best management practices must occur within 24 hours of an inspection or department notification that repair or replacement is necessary. A record of prescribed and completed corrective action shall follow the log in Appendix D, and shall be retained as a part of the plan in Appendix D for at least three years post-project completion.

Appendix A
WPDES Permit No. WI-S067831-4



**STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES**

**GENERAL PERMIT TO DISCHARGE UNDER THE
WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM
WPDES Permit No. WI-S067831-4**

In compliance with the provisions of ch. 283, Wis. Stats., and chs. NR 151 and 216, Wis. Adm. Code, landowners engaged in land disturbing construction activities including clearing, grading and excavating activities are permitted to discharge

CONSTRUCTION SITE STORM WATER RUNOFF

to waters of the state in accordance with the conditions set forth in this permit.

Unless notified by the Department of Natural Resources to the contrary, the effective date of coverage under this permit is 14 working days after an applicant's complete Notice of Intent (NOI) has been received by the Department of Natural Resources.

Permit coverage continues until submittal of a Notice of Termination for a project and terminates upon written confirmation by the Department of Natural Resources. **The maximum period of permit coverage for any project is limited to 3 years per NOI.** Therefore, permit coverage terminates unless another NOI for the original project including application fee is submitted to retain coverage under this permit or a reissued version of this permit.

State of Wisconsin Department of Natural Resources
For the Secretary

By Susan Sylvester
Susan Sylvester, Acting Director
Bureau of Watershed Management
Division of Water
9/30/11
Date Permit Signed/Issued

EXPIRATION DATE: September 30, 2016

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1. APPLICABILITY CRITERIA

1.1 Eligibility

1.1.1 Subject to the provisions of Sections 1.1.3, 1.1.4 and 1.2.1 through 1.2.5:

1.1.1.1 Pursuant to the applicability criteria in s. NR 216.42, Wis. Adm. Code, this general Wisconsin Pollutant Discharge Elimination System (WPDES) permit is applicable to all new and existing storm water discharges from land disturbing construction activity occurring after the effective date of this permit until permit coverage is terminated in accordance with Section 2.9 or automatically terminates under Section 2.10. Construction activities eligible for coverage by this permit are those that involve land disturbing construction activity affecting one acre or more of land. This permit also is applicable to discharges of pit/trench dewatering at construction sites covered under this permit. Examples of some dewatering activities that may be regulated by this permit include dewatering of construction pits, sewer extension construction, pipe trenches, and other similar operations. Discharges from dewatering wells regulated under ch. NR 812, Wis. Adm. Code, that cannot be effectively treated by on-site sediment control best management practices without compromising the effectiveness of those controls for the treatment of storm water runoff are not covered by this permit.

1.1.1.2 The Department may require the landowner of any storm water discharge associated with land disturbing construction activity to apply for and obtain a storm water discharge permit if the storm water discharge is contributing to the violation of a water quality standard or contributing significant pollution to waters of the state.

1.1.2 This permit authorizes storm water discharges from land disturbing construction activities that may become mixed with other storm or wastewater discharges. Subject to compliance with the terms and conditions of this permit, storm water discharges from temporary support activities such as concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, and borrow areas are authorized under this permit provided that the support activity is directly related to and part of the construction site covered under this permit. This permit does not authorize a support activity that is a commercial operation serving multiple unrelated construction sites and that operates beyond the completion of the permitted construction site associated with the support activity. Other storm water or wastewater discharges that require coverage under another general or individual WPDES permit are not authorized under this permit.

1.1.3 Storm water discharges associated with industrial activity that are subject to an industrial storm water WPDES permit or which are issued an individual WPDES construction site storm water discharge permit are not authorized by this permit. For example, non-metallic mining is an industrial activity that includes land disturbance as a normal part of its operation and such land disturbance is regulated under an industrial storm water permit for that activity. If an industrial facility underwent construction or expanded its operations and land disturbance is not a normal part of its operations, then coverage under this permit would be applicable.

1.1.4 This general permit does not apply to construction sites otherwise eligible for this permit where the Wisconsin Department of Natural Resources (the Department) determines, pursuant to s. NR 216.51(5), Wis. Adm. Code, that coverage under an individual WPDES storm water discharge permit is more appropriate. The Department may require individual permit coverage for storm water discharge from a construction site otherwise eligible for coverage under this permit if any of the following occur:

1.1.4.1 The storm water discharge from a construction site is determined to be a significant source of pollution and more appropriately regulated by an individual WPDES storm water discharge permit.

1.1.4.2 The storm water discharge from a construction site is not in compliance with the terms and conditions of this general permit or subch. III of ch. NR 216, Wis. Adm. Code.

1.1.4.3 A change occurs in the availability of demonstrated technology or BMPs for the control or abatement of pollutants from the storm water discharge.

1.1.4.4 Effluent limitations or standards are promulgated for a storm water discharge from the construction site different from the conditions contained in ch. 216, Wis. Adm. Code.

1.2 Exclusions

The following are not eligible for coverage under this permit:

1.2.1 Storm water discharges from Indian activities within Indian Country.

Note: Permit coverage is required from the United States Environmental Protection Agency for construction site storm water discharges within Indian County and information on such permitting is available at: <http://cfpub1.epa.gov/npdes/stormwater/cgp.cfm>

1.2.2 Land disturbing construction activity and associated storm water discharges that affect wetlands, unless the Department determines that the land disturbing construction activity and associated storm water discharges comply with the wetland water quality standards provisions in ch. NR 103, Wis. Adm. Code.

1.2.3 Land disturbing construction activity and associated storm water discharges that affect endangered and threatened resources, unless the Department determines that the land disturbing construction activity and associated storm water discharges comply with the endangered and threatened resource protection requirements of s. 29.604, Wis. Stats., and ch. NR 27, Wis. Adm. Code.

1.2.4 Land disturbing construction activity and associated storm water discharges that affect any historic property that is listed property, or on the inventory or on the list of locally designated historic places under s. 44.45, Wis. Stats., unless the Department determines that the land disturbing construction activity and associated storm water discharges will not have an adverse effect on any historic property pursuant to s. 44.40 (3), Wis. Stats.

1.2.5 Discharges that the Department, prior to authorization of coverage under this permit, determines will cause or have reasonable potential to cause or contribute to an excursion above any applicable water quality standard. Where such determinations have been made prior to authorization, the Department may notify the applicant that an individual permit application is necessary. However, the Department may authorize coverage under this permit where the erosion control and storm water management plan required under this permit will include appropriate controls and implementation procedures designed to bring the storm water discharge into compliance with water quality standards.

1.3 Authorization

1.3.1 A landowner planning a land disturbing construction activity of one acre or more must submit a completed Notice of Intent (NOI) to the Department or to an authorized local program approved under s. NR 216.415, Wis. Adm. Code, in accordance with the requirements of Section 2.1 of this permit to be authorized to discharge storm water under this permit.

Note: The Department may approve an authorized local program if the requirements of s. NR 216.415, Wis. Adm. Code, are met. The Department will maintain a list of authorized local programs on its Internet site.

1.3.2 Only a landowner or person who becomes a qualified landowner, and who submits an NOI in compliance with Section 2. of this permit is authorized to discharge storm water from a land disturbing construction activity of one acre or more under the terms and conditions of this permit.

1.3.3 Storm water discharges from construction sites that are regulated, reviewed and approved by other Department programs and determined by the Department to meet the requirements of subch. III of ch. NR 216, Wis. Adm. Code, may be deemed by the Department to be covered by this permit and shall comply with the conditions of this permit.

1.4 More than One General Permit Can Apply

This permit may be issued to existing holders of general or individual WPDES permits, resulting in multiple WPDES permits for some sites. Facilities having other permits which do not regulate storm water discharges from land disturbing construction activities shall be subject to this permit when construction activities will disturb one acre or more of land at the site. However, storm water discharges from land disturbing construction activity associated with the normal operation of an industrial facility does not require coverage under this permit when it is regulated under an industrial storm water permit pursuant to subch. II of NR 216, Wis. Adm. Code.

1.5 Transfers

A person who has submitted a completed NOI and does not intend to control the permitted activities on the site may transfer authorization under this permit to the landowner who will control the permitted activities. The transfer shall occur upon written notification, signed by both the current permittee and the proposed permittee and sent via certified or registered mail to the Department. Unless the Department notifies the permittee to the contrary, the Department will recognize this permit coverage transfer upon receipt of written notification. The Department may require additional information to be filed prior to granting the transfer of permit coverage. The Department may, if appropriate, require an application for an individual WPDES storm water discharge permit.

Note: Transfer of permit coverage may not occur where the original landowner still owns a portion of the construction site that requires permit coverage. Where multiple landowners are required to have construction site permit coverage, each must file an NOI with the Department. Multiple landowners may utilize the same erosion control and storm water management plans if the plans address the specific needs of the construction site that they own.

1.6 Public Access to Information including Notices of Intent

Construction site NOIs that are submitted to the Department are entered into the Department's database and will be automatically listed on the Department's website.

Note: NOIs received are posted on the Department's website at:
<http://www.dnr.state.wi.us/runoff/stormwater/permits/>

Notices of Intent and any associated information submitted to the Department for a construction site regulated under this permit are maintained at Department regional offices. The appropriate Department regional storm water staff person may be contacted to obtain access to such information.

Note: Department storm water program contacts are listed on the Department's website at: <http://dnr.wi.gov/runoff/stormwater/contact.htm>. Alternatively, you may contact the storm water program at (608) 267-7694 for assistance in determining the appropriate regional storm water contact.

2. NOTICE OF INTENT AND TERMINATION REQUIREMENTS

2.1 Application Procedures

2.1.1 Persons required to obtain coverage under this permit for storm water discharge from a construction site shall submit a completed NOI to the Department or to an authorized local program in accordance with the requirements of subch. III of ch. NR 216, Wis. Adm. Code. The Department must receive the completed NOI in accordance with the requirements of this section at least 14 working days prior to commencing any land disturbing construction activities unless the Department gives prior authorization. The Department may withhold permit coverage beyond 14 working days in order to request additional information or to review project compliance with erosion control, storm water management, wetland protection, endangered and threatened resources or historic property requirements. A NOI shall be submitted on forms supplied by the Department or electronically using an Internet-based application process if the Department is capable of accepting the NOI in this manner.

Note: The Department's NOI form (also known as the Water Resources Application for Project Permits or WRAPP) may be obtained through the Department storm water Internet site at: <http://dnr.wi.gov/runoff/stormwater/constrforms.htm>, Department regional offices or by writing to the Wisconsin DNR, Storm Water Program – WT/3, Box 7921, Madison, Wisconsin 53707-7921.

2.1.2 An application fee shall be paid to the Department in accordance with s. NR 216.43(2), Wis. Adm. Code. However, application fees are not paid to the Department for applications filed for projects that are authorized by an authorized local program in accordance with s. NR 216.415, Wis. Adm. Code.

2.1.3 The NOI form shall be signed in accordance with Section 5.15 of this permit.

2.2 Application Retention

A copy of the NOI or other documentation that storm water discharges from the site are covered under a construction site storm water discharge permit shall be kept with the erosion control and storm water management plans on the construction site and with the landowner.

2.3 Permit Certificate

The permittee shall post the permit certificate (DNR Publication # WT-813 rev. 10/06) in a conspicuous place on the construction site. The Department will send the permit certificate to the permittee with the letter of permit coverage. An authorized local program under s. NR 216.415, Wis. Adm. Code, may make its own permit certificate or equivalent notice for posting.

2.4 Failure to Notify

Persons who fail to notify the Department of their intent to be covered under this permit, and who discharge storm water runoff to waters of the state associated with land disturbing construction activities of one acre or more, are in violation of ch. 283, Wis. Stats., ch. NR 216, Wis. Adm. Code, and the federal Clean Water Act. Failure to obtain permit coverage may result in forfeitures of up to \$10,000 per day, pursuant to s. 283.91(2), Stats.

2.5 Incomplete Notice of Intent

Within 14 working days after the date the Department receives the NOI, the Department may require an applicant to submit data necessary to complete any deficient NOI or may require the applicant to submit a complete new NOI when the deficiencies are extensive or the appropriate form has not been used.

2.6 Date Coverage Effective

Unless notified by the Department to the contrary, applicants who submit a complete NOI in accordance with the provisions of subch. III of ch. NR 216, Wis. Adm. Code, are authorized to discharge storm water from land disturbing construction sites under the terms and conditions of this permit 14 working days after the date the Department receives the NOI. The Department may require the landowner to submit erosion control and storm water management plans for review. The Department may deny coverage under this permit and require submittal of an application for an individual WPDES permit based on a review of the completed NOI or other information.

2.7 Where to Submit

The NOI instructs the applicant on the appropriate Department office to which a completed NOI shall be submitted. An NOI may be submitted electronically using an Internet-based application process if the Department is capable of accepting the NOI in this manner.

2.8 Use of Information

All information contained in the NOI other than that specified as confidential by the Department shall be available to the public for inspection and copying. All confidential information, so identified by the applicant, shall be submitted separately. Confidential treatment will be considered only for information identified in documents separate from nonconfidential information, which meets the requirements of s. 283.55(2)(c), Wis. Stats., and for which written application for confidentiality has been made pursuant to s. NR 2.19, Wis. Adm. Code.

2.9 Notice of Termination

Landowners of construction sites regulated by the Department shall comply with this Section 2.9.

2.9.1 Within 45 days after a construction site has undergone final stabilization, temporary erosion control best management practices (BMPs) have been removed and all land disturbing construction activities that required coverage under this permit have ceased, the permittee shall submit a signed Notice of Termination to the Department.

2.9.2 The Notice of Termination shall be submitted on forms available from the Department. Data submitted in the Notice of Termination forms shall be used as a basis for terminating coverage under this permit. An NOT may be submitted electronically using an Internet-based application process if the Department is capable of accepting the NOT in this manner.

Note: Notice of Termination forms may be obtained through the Department storm water Internet site at: <http://dnr.wi.gov/runoff/stormwater/constrforms.htm>, Department regional offices or by writing to the Wisconsin DNR, Storm Water Program – WT/3, Box 7921, Madison, Wisconsin 53707-7921.

2.9.3 The Notice of Termination shall be mailed to the appropriate regional office indicated on the Notice of Termination form. An NOT may be submitted electronically using an Internet-based application process if the Department is capable of accepting the NOT in this manner.

2.9.4 Notice of Termination forms shall be signed in accordance with Section 5.15 of this permit.

2.9.5 Termination of coverage under this permit shall be effective upon the Department's written confirmation of permit termination to the permittee.

2.10 Automatic Termination

The maximum period of permit coverage for any project is limited to 3 years per Notice of Intent. Therefore, permit coverage terminates 3 years after coverage commences, unless another Notice of Intent for the original project, including application fee, is submitted to retain coverage under this permit or a reissued version of this permit.

3. EROSION CONTROL AND STORM WATER MANAGEMENT PLANS

3.1 Erosion Control Plan Requirements

Landowners of construction sites regulated by the Department shall comply with this Section 3.1.

Note: The requirements of Sections 4.2 to 4.4 of this permit apply to erosion control and storm water management plans for all construction sites regulated under this permit.

3.1.1 The permittee shall develop a site-specific construction site erosion control plan for each construction site regulated under subch. III of ch. NR 216, Wis. Adm. Code. The permittee or the permittee's representative shall implement and maintain as required by this permit and subch. III of NR 216, Wis. Adm. Code, all BMPs specified in the construction site erosion control plan from the start of land disturbing construction activities until final stabilization of the construction site.

3.1.2 The construction site erosion control plan shall meet the applicable performance standard in either s. NR 151.11, Wis. Adm. Code, for construction sites that are not transportation facilities or s. NR 151.23, Wis. Adm. Code, for transportation facility construction sites. If BMPs cannot be designed and implemented to meet the sediment reduction performance standard, the construction site erosion control plan shall include a written and site-specific explanation of why the performance standard is not attainable.

Note: Department-approved erosion and sediment control technical standards can be obtained through the Department storm water Internet site at: <http://dnr.wi.gov/runoff/stormwater/techstds.htm>, or contact the Department storm water program in the Bureau of Watershed Management at (608) 267-7694 to get information on how to obtain the erosion and sediment control technical standards.

3.1.3 The erosion control plan shall be completed prior to the submittal of a NOI for coverage under this permit and shall be amended in accordance with Section 3.3.

3.1.4 The construction site erosion control plan shall include, at a minimum, the following items:

3.1.4.1 Description of the construction site and the nature of the land disturbing construction activity, including representation of the limits of land disturbance on a USGS 7.5-minute series topographical map.

3.1.4.2 Description of the intended timing and sequence of major land disturbing construction activities for major portions of the construction site, such as grubbing, excavating, or grading.

3.1.4.3 Estimates of the total area of the construction site and the total area of the construction site that is expected to be disturbed by land disturbing construction activities.

3.1.4.4 Available data describing the surface soil as well as subsoils.

3.1.4.5 Name of immediate named receiving water from the United States Geological Survey 7.5-minute series topographic maps, and whether the receiving water is an outstanding resource water (ORW), exceptional resource water (ERW) or an impaired water.

Note: An updated list of Wisconsin impaired water bodies is available on the Department's Internet site at: <http://dnr.wi.gov/org/water/wm/wqs/303d/303d.html>. ORWs and ERWs are listed in ss. NR 102.10 and 102.11, Wis. Adm. Code. ORWs and ERWs are also listed on the Department's Internet site at: <http://dnr.wi.gov/org/water/wm/wqs/orwerw/>

3.1.5 The construction site erosion control plan shall include a site map with the following items:

3.1.5.1 Pre-existing topography and drainage patterns, roads and surface waters.

3.1.5.2 Boundaries of the construction site.

3.1.5.3 Drainage patterns and approximate slopes anticipated after major grading activities.

3.1.5.4 Areas of soil disturbance.

3.1.5.5 Location of major structural and non-structural controls identified in the construction site erosion control plan.

3.1.5.6 Location of areas where stabilization practices will be employed.

3.1.5.7 Areas that will be vegetated following land disturbing construction activities.

3.1.5.8 Area and location of wetland acreage on the construction site and locations where storm water is discharged to a surface water or wetland within one-quarter mile downstream of the construction site.

3.1.5.9 Areas that will be used for infiltration of post-construction storm water runoff.

3.1.5.10 An alphanumeric or equivalent coordinate system for the entire construction site.

3.1.5.11 Additional items necessary to depict site-specific conditions.

3.1.6 The construction site erosion control plan shall include a description of appropriate erosion and sediment control BMPs that will be installed and maintained at the construction site to prevent pollutants from reaching waters of the state. The construction site erosion control plan shall clearly describe the appropriate erosion and sediment control BMPs for each major land disturbing construction activity and the timing during the period of land disturbing construction activity that the erosion and sediment control BMPs will be implemented. Erosion and sediment control BMPs shall be implemented in accordance with either s. NR 151.11(8), Wis. Adm. Code, for construction sites that are not transportation facilities or s. NR 151.23(6), Wis. Adm. Code, for transportation facility construction sites. The description of erosion and sediment control BMPs shall include the following minimum requirements:

3.1.6.1 Description of the expected level of sediment control on the construction site that achieves compliance with s. NR 151.11 or 151.23, Wis. Adm. Code, where applicable.

3.1.6.2 Description of interim and permanent stabilization practices, including a schedule for implementing the practices. The construction site erosion control plan shall ensure that existing vegetation is preserved where feasible and that disturbed portions of the construction site are stabilized as soon as practicable.

3.1.6.3 Description of any structural practices to divert flow away from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from the construction site.

3.1.6.4 Management of overland flow at all areas of the construction site, unless otherwise controlled by outfall controls.

3.1.6.5 Trapping of sediment in channelized flow.

3.1.6.6 Staging land disturbing construction activities to limit exposed soil areas subject to erosion.

3.1.6.7 Protection of downslope drainage inlets where they occur.

3.1.6.8 Prevent tracking of sediment from the construction site onto roads and other paved surfaces.

3.1.6.9 Prevent the discharge of sediment as part of site de-watering.

3.1.6.10 Protect separate storm drain inlet structures from receiving sediment.

3.1.6.11 Clean up of off-site sediment deposits.

3.1.6.12 Stabilization of drainage ways.

3.1.6.13 Prevent the discharge of sediment eroding from soil stockpiles existing for more than 7 days.

3.1.6.14 Prevent the transport by runoff into waters of the state of untreated wash water from vehicle and wheel washing.

3.1.6.15 Installation of permanent stabilization practices as soon as possible after final grading.

- 3.1.6.16** Description of erosion and sediment control practices put in place for the winter to prevent soil from leaving the construction site during periods of winter and spring thaw and rains.
- 3.1.6.17** Use and storage of chemicals, cement and other compounds and materials used on the construction site shall be managed during the construction period to prevent their transport by runoff into waters of the state.
- 3.1.6.18** Minimization of dust to the maximum extent practicable.
- 3.1.6.19** Minimization of soil compaction and preservation of topsoil.
- 3.1.6.20** Minimization of land disturbing construction activity on slopes of 20% or more.
- 3.1.6.21** Spill prevention and response procedures.
- 3.1.6.22** Additional items necessary to address site-specific conditions.
- 3.1.7** Sediment control BMPs shall be constructed and placed in operation prior to runoff entering waters of the state.
- Note: While regional treatment facilities are appropriate for control of post-construction pollutants they should not be used for construction site sediment removal.
- 3.1.8** No solid materials, including building materials, may be discharged in violation of chs. 30 and 31, Wis. Stats., or 33 USC 1344 or a U.S. Army Corps of Engineers Section 404 permit issued under 33 USC 1344.
- 3.1.9** Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive flow from the structure to a watercourse so that the natural physical and biological characteristics and functions of the watercourse are maintained and protected.
- 3.1.10** Runoff settling basins and pit/trench dewatering settling basins, if used, shall be constructed and operated in accordance with good engineering practices and design standards, and as follows:
- 3.1.10.1** Basins shall discharge to a vegetated or otherwise stabilized area protected from erosion. The principal spillway shall discharge at the bottom of the embankment.
- 3.1.10.2** When the accumulated sediment reaches one-half the height of the sediment control structure, or one-half the depth of the permanent pool, the sediment shall be removed. Materials removed from basins shall be properly disposed of in a manner that will not pollute waters of the state.
- 3.1.10.3** Consideration should be given to installing fences around construction site settling basins for human safety.
- 3.1.11** All maintenance shall be done in accordance with technical standards developed pursuant to subch. V of ch. NR 151, Wis. Adm. Code. Where measures are not in accordance with the technical standards, a description of the procedures used to maintain effective operating

conditions of vegetation, erosion and sediment control measures and other protective measures shall be identified in the erosion control plan.

Note: The storm water technical standards are available on the Department Internet site at: <http://dnr.wi.gov/runoff/stormwater/techstds.htm>.

3.1.12 The construction site erosion control plan shall clearly identify the contractor(s) and subcontractor(s) that will install and maintain erosion and sediment control measures. This information may be added to the plan after the NOI has been submitted to Department. It shall be included in the plan prior to the commencement of land disturbing construction activities.

3.2 Storm Water Management Plan Requirements

3.2.1 Pollution caused by storm water discharges from the site after construction is completed, including rooftops, parking lots, roadways and the maintenance of grassed areas shall be addressed by a storm water management plan. A storm water management plan shall be developed prior to submitting a NOI to the Department.

Note: The requirements of Sections 4.2 to 4.4 of this permit apply to erosion control and storm water management plans for all construction sites regulated under this permit.

3.2.2 The storm water management plan shall meet the applicable performance standards in ch. NR 151, Wis. Adm. Code, as follows:

3.2.2.1 For construction sites that are not transportation facilities, meet the applicable performance standards in either s. NR 151.12, Wis. Adm. Code, or ss. NR 151.121 through NR 151.128, Wis. Adm. Code.

3.2.2.2 For transportation facility construction sites, meet the applicable performance standards in either s. NR 151.24, Wis. Adm. Code, or ss. NR 151.241 through NR 151.249, Wis. Adm. Code.

3.2.3 The storm water management plan shall include a description of the BMPs that will be installed during the construction process to control total suspended solids and peak flow, enhance infiltration, maintain or restore protective areas and to reduce petroleum in runoff that will occur after construction operations have been completed. Storm water BMPs shall be in accordance with applicable state and local regulations.

3.2.4 When permanent infiltration systems are used, appropriate on-site testing shall be conducted to determine if seasonal high groundwater elevation or top of bedrock is within 5 feet of the bottom of the proposed infiltration system.

3.2.5 Storm water BMPs shall be adequately separated from wells to prevent contamination of drinking water, and the following minimum separation distances shall be met:

3.2.5.1 Storm water infiltration systems and ponds shall be located at least 400 feet from a well serving a community water system unless the Department concurs that a lesser separation distance would provide adequate protection of a well from contamination.

3.2.5.2 Storm water BMPs shall be located with a minimum separation distance from any well serving a non-community or private water system as listed within s. NR 812.08, Wis. Adm. Code.

Note: Chapter NR 815, Wis. Adm. Code, regulates injection wells including storm water injection wells. Construction or use of a well to dispose of storm water directly into groundwater is prohibited under s. NR 815.11(5), Wis. Adm. Code.

3.2.6 For any permanent structures, provisions shall be made for long-term maintenance with the municipality or other responsible party. For an NOI submitted to the Department, a copy of the signed long-term maintenance agreement shall be submitted to the Department with the NOI unless the Department agrees that it may be submitted by an alternative date prior to termination of permit coverage. The Department may withhold permit coverage until the long-term maintenance agreement is submitted to the Department.

Note: The long-term maintenance agreement is an important requirement and the Department wants to ensure that appropriate steps are being taken to secure the agreement. For regional treatment structures, the Department encourages the landowner to obtain a municipal agreement for long-term maintenance of regional treatment structures. Long-term storm water BMPs should be maintained after permit termination in accordance with the maintenance agreement and NR 216.005, Wis. Adm. Code.

3.2.7 BMPs to control impacts from storm water runoff include infiltration systems, wet detention ponds, constructed wetlands, grassed swales, vegetative protective areas, reduced imperviousness, beneficial reuse such as irrigation or toilet flushing, combinations of these practices, or other methods which do not cause significant adverse impact on the receiving surface water or groundwater. The storm water management plan shall include an explanation of the technical basis used to select the BMPs.

Note: Department-approved storm water management technical standards can be obtained through the through the Department storm water Internet site at: <http://dnr.wi.gov/runoff/stormwater/techstds.htm>, or contact the Department storm water program in the Bureau of Watershed Management at (608) 267-7694 to get information on how to obtain storm water management standards.

3.3 Amendments

3.3.1 The permittee shall amend the erosion control and storm water management plans if either of the following occurs:

3.3.1.1 There is a change in design, construction, operation or maintenance at the construction site, which has the reasonable potential for the discharge of pollutants and which has not otherwise been addressed in the erosion control and storm water management plans.

3.3.1.2 The actions required by the erosion control and storm water management plans fail to reduce the impacts of pollutants carried by construction site storm water runoff.

3.3.2 For construction sites for which there has been earlier Department review of the erosion control and storm water management plans, if the permittee identifies changes needed in either plan, the permittee shall notify the Department at least 5 working days prior to making the changes in the plan.

3.3.3 The Department may, upon request of a permittee or upon finding of just cause, modify the compliance and reporting schedules or any requirement of a storm water discharge permit.

4. WATER QUALITY STANDARDS, MONITORING AND RECORDS

4.1 Water Quality Standards

This permit specifies the conditions under which storm water may be discharged to waters of the state for the purpose of achieving water quality standards contained in chs. NR 102 through 105, NR 140, and NR 207, Wis. Adm. Code. For the term of this permit, compliance with water quality standards will be addressed by adherence to general narrative-type storm water discharge limitations and implementation of the erosion control and storm water management plans and best management practices. A permittee with a construction site covered under this permit shall select, install, implement and maintain best management practices as necessary to meet applicable water quality standards. Unless notified by the Department in writing to the contrary, compliance with the applicable performance standards of subch. III or IV of ch. NR 151, Wis. Adm. Code, shall be deemed as stringent as necessary to ensure that storm water discharges covered by this permit do not cause or contribute to an excursion above any applicable water quality standard.

4.2 Outstanding and Exceptional Resource Waters

4.2.1 Before beginning land-disturbing construction activity, the permittee shall determine whether any part of its construction or post-construction site storm water will discharge to an outstanding resource water (ORW) or exceptional resource water (ERW) as defined in ch. NR 102, Wis. Adm. Code.

Note: The Department recommends that an applicant for permit coverage check for ORWs and ERWs during project planning prior to submitting an NOI. ORWs and ERWs are listed in ss. NR 102.10 and 102.11, Wis. Adm. Code. A list of ORWs and ERWs may also be found on the Department's Internet site at:

<http://dnr.wi.gov/org/water/wm/wqs/orwerw/>

4.2.2 The permittee may not establish a new storm water discharge of pollutants to an ORW or an ERW unless the erosion control and storm water management plans required under Section 3. of this permit meets the requirements of 4.2.3 of this permit.

4.2.2.1 "New storm water discharge" means a storm water discharge that would first occur after the permittee's start date of coverage under this permit to a surface water to which the construction or post-construction site did not previously discharge storm water.

4.2.3 The permittee's erosion control and storm water management plans required under this permit shall be designed to prevent the discharge of sediment and other pollutants to any ORW or ERW in excess of the background level within the water body. Unless notified by the Department in writing to the contrary, compliance with the applicable performance standards of subch. III or IV of ch. NR 151, Wis. Adm. Code, shall be deemed to be compliance with the requirements of this section. If the Department has sufficient site-specific data to determine that the permittee's construction or post-construction site storm water will discharge a pollutant in excess of the background level within an ORW or ERW, then the Department shall notify the permittee in writing that the permittee must include a written section in the erosion control and storm water management plans that discusses and identifies the management practices and control measures the permittee will implement to prevent the discharge of any pollutant in excess of the background level within the water body. This section of the permittee's plans shall specifically identify control measures and practices that will collectively be used to prevent the discharge of a pollutant in excess of the background level within the water body.

Note: Reducing or eliminating surface water discharges to an ORW or ERW by infiltrating runoff is a method to help prevent the discharge of pollutants to an ORW or ERW in excess of background levels. It is expected that post-construction storm water management practices will be designed to maintain or increase infiltration rates for the site as compared to pre-development infiltration rates for areas that discharge to any ORW or ERW. However, prohibitions, exclusions, or exemptions from infiltrating runoff may apply to runoff from potential sources of contamination or into areas that are prone to groundwater contamination as identified in s. NR 151.12(5)(c)5. and 6., Wis. Adm. Code, or s. NR 151.124(3) and (4), Wis. Adm. Code. Infiltration systems must be designed to comply with the groundwater quality standards contained in ch. NR 140, Wis. Adm. Code.

4.2.4 Protective areas of no less than 75 feet shall be maintained adjacent to any ORW and ERW as required under ss. NR 151.12 (5)(d), NR 151.125, 151.24(6), or NR 151.245, Wis. Adm. Code.

4.3 Fish and Aquatic Life Waters

4.3.1 Before beginning land-disturbing construction activity, the permittee shall determine whether any part of its construction or post-construction site storm water will discharge to a fish and aquatic life water as defined in s. NR 102.13, Wis. Adm. Code.

Note: The Department recommends that an applicant for permit coverage check for fish and aquatic life waters during project planning prior to submitting an NOI. Most receiving waters of the state are classified as a fish and aquatic life water and this classification includes all surface waters of the state except ORWs, ERWs, Great Lakes system waters and variance water identified within ss. NR 104.05 to 104.10, Wis. Adm. Code.

4.3.2 The permittee may not establish a new storm water discharge of pollutants to a fish and aquatic life water unless the erosion control and storm water management plans required under Section 3. of this permit is designed to prevent the significant lowering of water quality of any fish and aquatic life water. Significant lowering of water quality is defined within ch. NR 207, Wis. Adm. Code. Unless notified by the Department in writing to the contrary, compliance with the applicable performance standards of subch. III or IV of ch. NR 151, Wis. Adm. Code, shall be deemed to be compliance with the requirements of this section.

4.3.2.1 “New storm water discharge” has the meaning given in Section 4.2.2.1 of this permit.

4.4 Impaired Water Bodies and Total Maximum Daily Load Requirements

4.4.1 “Pollutant(s) of concern” means a pollutant that is contributing to the impairment of a water body.

4.4.2 Before beginning land-disturbing construction activity, the permittee shall determine whether any part of its construction or post-construction site storm water will discharge to an impaired water body listed in accordance with section 303(d)(1) of the federal Clean Water Act, 33 USC §1313(d)(1)(C), and the implementing regulation of the US Environmental Protection Agency, 40 CFR §130.7(c)(1). Impaired waters are those that are not meeting applicable water quality standards.

Note: The Department recommends that an applicant for permit coverage check for impaired waters during project planning prior to submitting an NOI. The section 303 (d) list of Wisconsin impaired surface water bodies may be obtained by contacting the Department or by searching for the section 303 (d) list on the Department's Internet site. The Department updates the section 303 (d) list approximately every two years. The updated list is effective upon approval by EPA. The link to the section 303 (d) list is: <http://dnr.wi.gov/org/water/wm/wqs/303d/>

4.4.3 A permittee that will discharge a pollutant of concern via storm water to an impaired water body shall include a written section in the erosion control and storm water management plans that specifically identifies control measures and management practices that will collectively be used to reduce, with the goal of eliminating, the storm water discharge of pollutant(s) of concern that contribute to the impairment of the water body and explain why these control measures and management practices were chosen as opposed to other alternatives. Unless notified by the Department in writing to the contrary, compliance with the applicable performance standards of subch. III or IV of ch. NR 151, Wis. Adm. Code, shall be deemed to be compliance with the requirements of this section.

4.4.4 The permittee may not establish a new storm water discharge of a pollutant of concern to an impaired water body or increase an existing discharge of a pollutant of concern to an impaired water body unless the new or increased discharge causes the receiving water to meet applicable water quality standards, or the discharge is consistent with an EPA approved total maximum daily load (TMDL) allocation for the impaired water body. Unless notified by the Department in writing to the contrary, compliance with the applicable performance standards of subch. III or IV of ch. NR 151, Wis. Adm. Code, shall be deemed to be compliance with the requirements of this section.

4.4.4.1 "New storm water discharge" has the meaning given in Section 4.2.2.1 of this permit.

4.4.5 Before beginning land-disturbing construction activity, the permittee shall determine whether any part of its construction or post-construction site storm water will discharge a pollutant of concern via storm water to a water body included in a State and Federal approved TMDL. If so, the permittee shall assess whether the TMDL wasteload allocation for the facility's discharge will be met through the existing erosion control and storm water management plans and compliance with the applicable performance standards of subch. III or IV of ch. NR 151, Wis. Adm. Code, or whether changes to the plans are necessary.

Note: The Department recommends that an applicant for permit coverage check for approved TMDLs during project planning prior to submitting an NOI. State and Federal approved TMDLs can be identified by contacting the Department, or by searching for the State and Federal approved TMDL list on the Department Internet site. The link to identify the list of State and Federal approved Final TMDLs is:

http://dnr.wi.gov/org/water/wm/wqs/303d/Approved_TMDLs.html

4.4.6 After determining whether the construction or post-construction site storm water discharge is included in an EPA approved TMDL and determining that any TMDL wasteload allocation for the construction or post-construction site's discharge is not being met, the permittee shall amend the erosion control and storm water management plans. The amended plans shall include the necessary control measures to meet the requirements of the EPA approved TMDL wasteload allocation for the construction or post-construction site. If a specific wasteload allocation has not been assigned to the construction or post-construction site under a TMDL,

compliance with the applicable performance standards of subch. III or IV of ch. NR 151, Wis. Adm. Code, and this permit shall be deemed to be compliance with the TMDL.

4.5 Inspections and Maintenance

The permittee shall:

4.5.1 Conduct the following construction site inspections:

4.5.1.1 Weekly inspections of implemented erosion and sediment controls; and

4.5.1.2 Inspections of erosion and sediment controls within 24 hours after a rainfall event of 0.5 inches or greater. A “rainfall event” may be considered to be the total amount of rainfall recorded in any continuous 24-hour period.

4.5.2 Repair or replace erosion and sediment control BMPs as necessary within 24 hours of an inspection or notification indicating that repair or replacement is needed.

4.5.3 Maintain, at the construction site or via an Internet site, weekly written reports of all inspections conducted by or for the permittee. If an Internet site method is used, the landowner shall provide the Internet address to the Department prior to its use. Weekly inspection reports shall include all of the following:

4.5.3.1 The date, time and exact location of the inspection.

4.5.3.2 The name of the individual who performed the inspection.

4.5.3.3 An assessment of the condition of erosion and sediment controls.

4.5.3.4 A description of any erosion and sediment control installation or maintenance performed in response to the inspection.

4.5.3.5 A description of the present phase of construction at the site.

Note: The Department has developed a model inspection report that includes the above items and it is available through the Department’s storm water Internet site at:

<http://dnr.wi.gov/runoff/stormwater/constrforms.htm>

4.5.4 Submit the information maintained in accordance with Section 4.5.3 to the Department upon request.

4.6 Records

4.6.1 The permittee shall retain records of all construction site inspections, copies of all reports and plans required by this permit, and records of all data used to obtain coverage under this permit. Minimum periods of retention are as follows:

4.6.1.1 If there is a secure location, such as a construction site trailer, the erosion control and storm water management plans and amendments to the erosion control and storm water management plans shall be retained at the construction site until permit coverage is terminated.

4.6.1.2 All reports required by subch. III of ch. NR 216, Wis. Adm. Code, or information submitted to obtain coverage under this permit, including the erosion control and storm water management plans, amendments, and background information used in their preparation, shall be kept by the permittee for a period of at least 3 years from the date of Notice of Termination.

4.6.2 A landowner operating a construction site under approved municipal erosion and sediment plans, grading plans, or storm water management plans shall also submit signed copies of the NOI to the local agency approving the plans. If storm water from the construction site discharges to a municipal separate storm sewer system that is operating pursuant to a municipal storm water discharge permit issued pursuant to subch. I of ch. NR 216, Wis. Adm. Code, then a signed copy of the NOI shall also be sent to the operator of the system.

4.6.3 Upon request by the Department the permittee shall provide a copy of the erosion control and storm water management plans, construction site inspections and any additional data requested, within 5 working days to the Department, to the operator of the municipal storm sewer system that receives the discharge, and any municipal agency approving erosion and sediment plans, grading plans or storm water management plans. Additional information may be requested by the Department for resource waters that require additional protection such as outstanding or exceptional resource waters, or other sensitive water resources.

4.7 Compliance with Other Applicable Regulations

4.7.1 The erosion control and storm water management plans shall document other applicable municipal regulatory provisions, compliance with which will also meet the requirements of this permit. If these municipal provisions are more stringent than those provisions appearing in this permit issued pursuant to subch. III of ch. NR 216, Wis. Adm. Code, the erosion control and storm water management plans shall also include a description of how compliance with the municipal provisions will be achieved.

4.7.2 The erosion control and storm water management plans shall comply with applicable state plumbing regulations.

4.8 Department Actions

4.8.1 The Department may notify the permittee at any time that the erosion control and storm water management plans do not meet one or more of the minimum requirements of subch. III of ch. NR 216, Wis. Adm. Code, or this permit, for reducing and preventing the discharge of pollutants. The notification shall identify those provisions that are not being met by the erosion control and storm water management plan, and identify which provisions of the plan require modification in order to meet the requirements. Within the time frame identified by the Department in its notification, the permittee shall make the required changes to the erosion control and storm water management plans, perform all actions required by the revised plans, and submit to the Department a written certification that the requested changes have been made and implemented, and such other information the Department requires. The Department may revoke coverage under this permit for failure to comply with this section or it may take action under s. 283.89, Wis. Stats., or both. The landowner of a construction site where the Department has revoked coverage under this permit may not discharge storm water to waters of the state from the construction site unless an individual WPDES permit for storm water discharge is issued to the landowner.

4.8.2 The Department shall withdraw a construction site from coverage under this permit and issue an individual WPDES permit upon written request of the discharger. This permit authorizing storm water discharges from the construction site remains in effect until the Department acts on such a request and issues a specific individual WPDES permit.

4.8.3 The Department may deny coverage under this permit and require submittal of an application for an individual WPDES storm water discharge permit based on a review of the completed NOI or other relevant information. The landowner of a construction site denied or revoked coverage under this permit may not discharge storm water to waters of the state from the construction site until an individual WPDES permit for storm water discharge is issued to the landowner.

4.8.4 The Department may require the landowner of any storm water discharge covered by this permit, to apply for and obtain an individual WPDES storm water discharge permit if any of the following occur:

4.8.4.1 The storm water discharge is determined to be a significant source of pollution and more appropriately regulated by an individual WPDES storm water discharge permit.

4.8.4.2 The storm water discharge is not in compliance with the terms and conditions of subch. III of ch. NR 216, Wis. Adm. Code, or of this permit.

4.8.4.3 A change occurs in the availability of demonstrated technology or BMPs for the control or abatement of pollutants from the storm water discharge.

4.8.4.4 Effluent limitations or standards are promulgated for a storm water discharge that is different than the conditions contained in subch. III of ch. NR 216, Wis. Adm. Code.

4.8.5 Any person may submit a written request to the Department that it take action under Section 4.8.4 above.

5. STANDARD CONDITIONS

The conditions in s. NR 205.07(1) and (3), Wis. Adm. Code, are incorporated by reference in this permit. The permittee shall be responsible for meeting these requirements, except for s. NR 205.07(1)(n), which does not apply to facilities covered under general permits. Some of these requirements are outlined below in Sections 5.1 through 5.25 of this permit. Requirements not specifically outlined below can be found in s. NR 205.07(1) and (3), Wis. Adm. Code.

5.1 Spill Reporting: The permittee shall immediately notify the Department in accordance with ch. NR 706, Wis. Adm. Code, in the event that a spill or accidental release of any material or substance results in the discharge of pollutants to the waters of the state. The Department shall be notified via the 24-hour spill hotline (1-800-943-0003).

5.2 Non-storm Water Discharges: All discharges authorized by this permit shall be composed entirely of storm water associated with land disturbing construction activity, as defined in ch. NR 216, Wis. Adm. Code, or storm water and/or groundwater from excavations and/or pit dewatering.

Note: Other direct and indirect waste discharge to waters of the state is prohibited unless covered by another WPDES permit.

5.3 Work near Surface Waters and Wetlands: Any work performed in wetland areas or within areas subject to local floodplain and shoreland regulations must be in compliance with all applicable county and/or local ordinances. All applicable state permits and/or contracts required by Chapters 30, 31, and 87, Wis. Stats., (or Wisconsin Administrative Code adopted under these laws, including ch. NR 103) and applicable federal permits must be obtained as necessary.

5.4 Work near Wells: Adequate separation distances from wells shall be maintained for storm water BMPs including ponds, storm sewers, and infiltration structures as necessary in accordance with chs. NR 811 and 812, Wis. Adm. Code.

5.5 Duty to Comply: Any act of noncompliance with this permit is a violation of this permit and is grounds for enforcement action or withdrawal of permit coverage under this permit and issuance of an individual permit. If the permittee files a request for an individual WPDES permit or a notification of planned changes or anticipated noncompliance, this action by itself does not relieve the permittee of any permit condition.

5.6 Enforcement Action: The Department is authorized under s. 283.89 and 283.91, Wis. Stats., to utilize citations or referrals to the Department of Justice to enforce the conditions of this permit. Violation of a condition of this permit is subject to a fine of up to \$10,000 per day of the violation.

5.7 Continuation of the Expired General Permit: The Department's goal is to reissue this general permit prior to its expiration date. However, if that does not occur, s. NR 205.08(9), Wis. Adm. Code, specifies that an application for reissuance of the permit will be considered to have been submitted for all of the dischargers in the class or category covered by this general permit. The class application for general permit reissuance allows the conditions and requirements of the expired permit to remain in effect until the permit is reissued or revoked.

5.8 Duty to halt or reduce activity: Upon failure or impairment of BMPs identified in the erosion control and storm water management plan, the permittee shall, to the extent practical and necessary to maintain permit compliance, modify or curtail operations until the BMPs are restored or an alternative method of erosion and storm water control is provided.

5.9 Other Information: When the permittee becomes aware that he or she failed to submit any relevant facts in an application for permit coverage or included incorrect information in plans or reports submitted to the Department, the permittee shall promptly submit such facts or corrected information to the Department.

5.10 Permit actions: As provided in s. 283.53, Wis. Stats., after notice and opportunity for a hearing this permit may be modified or revoked and reissued for cause.

5.11 Modifications to Permit Requirements: The Department may, upon request of a permittee and/or upon finding of just cause, grant modifications to the compliance and reporting schedules or any requirements of this permit. If the Department took this step at its discretion, it would change this general permit following required public noticing and the change would apply to all dischargers covered under this permit.

5.12 Duty to Mitigate: The permittee shall take all reasonable steps to minimize or prevent any adverse impacts on the waters of the state resulting from noncompliance with this permit.

5.13 Proper Operation and Maintenance: The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with this permit and the erosion control and storm water

management plan. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with conditions of this permit.

5.14 Duty to Provide Information. The permittee shall furnish the Department, within a reasonable time, any information that the Department may request to determine whether cause exists for modifying, revoking, or reissuing this permit or to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records or reports required to be kept by the permittee.

5.15 Certification and Signature Requirements: The Notice of Intent for coverage under this permit, the Notice of Termination, and all reports or information submitted to the Department as required by this permit shall be signed by the permittee as follows:

5.15.1 For a corporation, by a responsible corporate officer including president, secretary, treasurer, vice president, manager, or a duly authorized representative having overall responsibility for the operation covered by this permit.

5.15.2 For a unit of government, by a ranking elected official or other duly authorized representative.

5.15.3 For a limited liability company, by a manager.

5.15.4 For a partnership, by a general partner; and for a sole proprietorship, by the proprietor.

5.16 Liabilities under Other Laws: Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under section 311 of the federal Clean Water Act (CWA), any applicable federal, state or local law or regulation under authority preserved by section 510 of the CWA.

5.17 Property Rights: This permit does not convey any property rights of any sort, or any exclusive privilege. This permit does not authorize any injury or damage to private property or any invasion of personal rights, or any infringement of federal, state or local laws or regulations.

5.18 Severability: The provisions of this permit are severable, and if any provisions of this permit or the application of any provision of this permit to any circumstance is held invalid the remainder of this permit shall not be affected thereby.

5.19 Transfers: Coverage under this permit is not transferable to any person except after notice to the Department in accordance with Section 1.5 of this permit.

5.20 Inspection and Entry: The permittee shall allow authorized representatives of the Department, upon the presentation of credentials, to:

5.20.1 Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are required to be maintained under the conditions of this permit.

5.20.2 Have access to and copy, at reasonable times, any records required under the conditions of this permit.

5.20.3 Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit.

5.20.4 Sample or monitor at reasonable times, for the purposes of assuring permit compliance, any substances or parameters at any location.

5.21 Submitting Records: Unless otherwise specified, any reports submitted to the Department shall be submitted to the appropriate Department regional storm water contact or to Wisconsin DNR, Storm Water Program – WT/3, P.O. Box 7921, Madison, WI 53707-7921.

5.22 Noncompliance: Upon becoming aware of any permit noncompliance that may endanger public health or the environment, the permittee shall report this information by a telephone call to the Department regional storm water specialist within 24 hours. A written report describing the noncompliance shall be submitted to the Department regional storm water specialist within 5 days after the permittee became aware of the noncompliance. The Department may waive the written report on a case-by-case basis based on the oral report received within 24 hours. The written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and if the noncompliance has not been corrected, the length of time it is expected to continue.

5.23 Enforcement: Any violation of s. 283.33, Wis. Stats., ch. NR 216, Wis. Adm. Code, or this permit is enforceable under s. 283.89, Wis. Stats.

5.24 Removed Substances: Solids, sludges, filter backwash or other pollutants removed from or resulting from treatment or control of storm water shall be stored and disposed of in a manner to prevent any pollutant from the materials from entering the waters of the state, and to comply with all applicable federal, state, and local regulations.

5.25 Attainment of Water Quality Standards after Authorization: At any time after authorization, the Department may determine that the discharge of storm water from a permittee's construction site may cause, have the reasonable potential to cause, or contribute to an excursion of any applicable water quality standard. If such determination is made, the Department may require the permittee to do one of the following:

5.25.1 Develop and implement an action plan to adequately address the identified water quality concern.

5.25.2 Submit an individual permit application.

6. DEFINITIONS

Definitions for some of the terms found in this permit are as follows:

6.1 Authorized Local Program means a municipality that has received approval from the Department pursuant to s. NR 216.415, Wis. Adm. Code, to administer the Department's construction site permit program within its jurisdiction.

6.2 Best Management Practices or BMPs means structural or non-structural measures, practices, techniques or devices employed to avoid or minimize soil, sediment or pollutants carried in runoff to waters of the state.

6.3 Construction Site means an area upon which one or more land disturbing construction activities occur that in total will disturb one acre or more of land, including areas that are part of a larger common plan of development or sale where multiple separate and distinct land disturbing construction activities may be taking place at different times on different schedules but under one plan such that the total disturbed area is one acre or more.

6.4 Department means the State of Wisconsin Department of Natural Resources.

6.5 Erosion means the process by which the land's surface is worn away by the action of wind, water, ice or gravity.

6.6 Final Stabilization means that all land disturbing construction activities at the construction site have been completed and that a uniform perennial vegetative cover has been established with a density of at least 70% of the cover for the unpaved areas and areas not covered by permanent structures or that employ equivalent permanent stabilization measures.

6.7 Infiltration means the entry and movement of precipitation or runoff into or through soil.

6.8 Infiltration System means a device or practice such as a basin, trench, rain garden or swale designed specifically to encourage infiltration, but does not include natural infiltration in pervious surfaces such as lawns, redirecting of rooftop downspouts onto lawns or minimal infiltration from practices, such as swales or road side channels designed for conveyance and pollutant removal only.

6.9 Land Disturbing Construction Activity means any man-made alteration of the land surface resulting in a change in the topography or existing vegetative or non-vegetative soil cover that may result in storm water runoff and lead to increased soil erosion and movement of sediment into waters of the state. Land disturbing construction activity includes, but is not limited to, clearing and grubbing, demolition, excavating, pit trench dewatering, filling and grading activities.

6.10 Landowner means any person holding fee title, an easement or other interest in property that allows the person to undertake land disturbing construction activity on the property.

6.11 Municipality means any city, town, village, county, county utility district, town sanitary district, town utility district, school district or metropolitan sewage district or any other public entity created pursuant to law and having authority to collect, treat or dispose of sewage, industrial wastes, storm water or other wastes.

6.12 Notice of Intent or NOI means the Department form that must be completed and sent to the Department to obtain coverage under this permit.

6.13 Performance Standard means a narrative or measurable number specifying the minimum acceptable outcome for a facility or practice.

6.14 Permittee means a person who has applied for and received WPDES permit coverage for storm water discharge under NR 216, Wis. Adm. Code, and this permit.

6.15 Sediment means settleable solid material that is transported by runoff, suspended within runoff or deposited by runoff away from its original location.

6.16 Significant contributor means a person who discharges to waters of the state pollutants that contribute to or have the reasonable potential to contribute to an exceedence of a water quality

standard.

6.17 Stabilize means the process of making a site steadfast or firm, minimizing soil movement by the use of practices such as mulching and seeding, sodding, landscaping, paving, graveling or other appropriate measures.

6.18 Storm Water means runoff from precipitation including rain, snow, ice melt or similar water that moves on the land surface via sheet or channelized flow.

6.19 Storm Water Management Plan means a comprehensive plan designed to reduce the discharge of pollutants from storm water, after the site has undergone final stabilization, following completion of the construction activity.

6.20 Waters of the State means those portions of Lake Michigan and Lake Superior within the boundaries of Wisconsin, all lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, water courses, drainage systems and other surface water or groundwater, natural or artificial, public or private within the state or under its jurisdiction, except those waters which are entirely confined and retained completely upon the property of a person.

6.21 Working Day means any day except Saturday and Sunday and holidays designated in s. 230.35(4)(a), Wis. Stats.

6.22 WPDES Permit means a Wisconsin Pollutant Discharge Elimination System permit issued pursuant to ch. 283, Wis. Stats.

Appendix B
Plan Set

Appendix C
Erosion and Sediment Control Specifications

Appendix D
Construction Site Inspection Report & Corrective Action
Records

Date	Name	Location
Issue		Action
Date	Name	Location
Issue		Action
Date	Name	Location
Issue		Action
Date	Name	Location
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Issue		Action

Appendix E
Long-term Maintenance Agreement

**Menekaunee Harbor Improvements
City of Marinette
Marinette, WI
Long-term Storm Water Management Maintenance Provisions**

Site Name

Menekaunee Harbor
Harbor Improvements

Responsible Party

The Contractor is responsible for satisfying the provisions of this agreement throughout the duration of the construction period. Upon completion of all construction phases, City of Marinette shall assume responsibility.

Permanent Components of the Storm Water System

The storm water system consists of the natural turf.

Inspection and Maintenance

All components of the storm water system shall be inspected at least semi-annually in early spring and early autumn. Repairs will be made whenever the performance of a storm water system is compromised.

Mowing; Fertilizer and Chemical Application

Mowing will be performed as needed. Applications of fertilizers, herbicides, pesticides or other chemical applications are prohibited near waterways.

Duty to Provide Maintenance

City of Marinette shall have the authority to inspect and maintain all components of the storm water system.

Signature

The undersigned agrees to the provision set forth in this agreement.

For City of Marinette:

BRIAN R. MILLER
Name

City Engineer
Title

Brian R. Miller
Signature

5.19.14
Date

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
Northeast Region Headquarters
2984 Shawano Avenue
Green Bay, WI 54313-6727

Scott Walker, Governor
Cathy Stepp, Secretary
Jean Romback-Bartels, Regional Director
Telephone (920) 662-5100
FAX (920) 662-5159
TDD (920) 662-5413



June 4, 2014

Brian Miller
City of Marinette
1905 Hall Avenue
Marinette WI 54143

SUBJECT: Coverage Under WPDES General Permit No. WI-S067831-04: Construction Site Storm Water Runoff
Permittee Name: City of Marinette
Site Name: Menekaunee Harbor Improvements
FIN: 50937

Dear Permittee:

The Wisconsin Department of Natural Resources received your Water Resources Application for Project Permits or Notice of Intent, on May 23, 2014, for the Menekaunee Harbor Improvements site and has evaluated the information provided regarding storm water discharges from your construction site. We have determined that your construction site activities will be regulated under ch. 283, Wis. Stats., ch. NR 216, Wis. Adm. Code, and in accordance with Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit No. WI-S067831-04, Construction Site Storm Water Runoff. All erosion control and storm water management activities undertaken at the site must be done in accordance with the terms and conditions of the general permit.

The **Start Date** of permit coverage for this site is June 04, 2014. The maximum period of permit coverage for this site is limited to 3 years from the **Start Date**. Therefore, permit coverage automatically expires and terminates 3 years from the Start Date and storm water discharges are no longer authorized unless another Notice of Intent and application fee to retain coverage under this permit or a reissued version of this permit is submitted to the Department 14 working days prior to expiration.

A copy of the general permit along with extensive storm water information including technical standards, forms, guidance and other documents is accessible on the Department's storm water program Internet site. To obtain a copy of the general permit, please download it and the associated documents listed below from the following Department Internet site:
<http://dnr.wi.gov/topic/stormwater/construction/forms.html>

- Construction Site Storm Water Runoff WPDES general permit No. WI-S067831-04
- Construction site inspection report form
- Notice of Termination form

If, for any reason, you are unable to access these documents over the Internet, please contact me and I will send them to you.

To ensure compliance with the general permit, please read it carefully and be sure you understand its contents. Please take special note of the following requirements (This is not a complete list of the terms and conditions of the general permit.):

1. The Construction Site Erosion Control Plan and Storm Water Management Plan that you completed prior to submitting your permit application must be implemented and maintained throughout construction. Failure to do so may result in enforcement action by the Department.

2. The general permit requires that erosion and sediment controls be routinely inspected at least every 7 days, and within 24 hours after a rainfall event of 0.5 inches or greater. Weekly written reports of all inspections must be maintained. The reports must contain the following information:

- a. Date, time, and exact place of inspection;
- b. Name(s) of individual(s) performing inspection;
- c. An assessment of the condition of erosion and sediment controls;
- d. A description of any erosion and sediment control implementation and maintenance performed;
- e. A description of the site's present phase of construction.

3. A **Certificate of Permit Coverage** must be posted in a conspicuous place on the construction site. The Certificate of Permit Coverage (WDNR Publication # WT-813) is enclosed for your use.

4. When construction activities have ceased and the site has undergone final stabilization, a Notice of Termination (NOT) of coverage under the general permit must be submitted to the Department.

It is important that you read and understand the terms and conditions of the general permit because they have the force of law and apply to you. Your project may lose its permit coverage if you do not comply with its terms and conditions. The Department may also withdraw your project from coverage under the general permit and require that you obtain an individual WPDES permit instead, based on the Department's own motion, upon the filing of a written petition by any person, or upon your request.

If you believe that you have a right to challenge this decision to grant permit coverage, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed. For judicial review of a decision pursuant to ss. 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review must name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to s. 227.42, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. All requests for contested case hearings must be made in accordance with s. NR 2.05(5), Wis. Adm. Code, and served on the Secretary in accordance with s. NR 2.03, Wis. Adm. Code. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

Thank you for your cooperation with the Construction Site Storm Water Discharge Permit Program. If you have any questions concerning the contents of this letter or the general permit, please contact Sarah Anderson at (920) 662-5441.

Sincerely,



Sarah Anderson
Northeast Region
Storm Water Management Specialist

ENCLOSURE: Certificate of Permit Coverage

Cc: Chris Goodwin, Ayres Associates (email copy)
Cheryl Bougie, WDNR Green Bay (email copy)



CERTIFICATE OF PERMIT COVERAGE

UNDER THE
WPDES CONSTRUCTION SITE STORM WATER RUNOFF PERMIT
Permit No. WI-S067831-04

Under s. NR 216.455(2), Wis. Adm. Code, landowners of construction sites with storm water discharges regulated by the Wisconsin Department of Natural Resources (WDNR) Storm Water Permit Program are required to post this certificate in a conspicuous place at the construction site. This certifies that the site has been granted WDNR storm water permit coverage. The landowner must implement and maintain erosion control practices to limit sediment-contaminated runoff to waters of the state in accordance with the permit.

EROSION CONTROL COMPLAINTS

should be reported to the WDNR Tip Line at
1-800-TIP-WDNR (1-800-847-9367)

I-54

Please provide the following information to the Tip Line:

WDNR Site No. (FIN): 50937

Site Name: Menekaunee Harbor Improvements

Address/Location: East of Ogden Street near Menominee River, City of MARINETTE

Additional Information:

Landowner: City of Marinette

Landowner's Contact Person: Brian Miller

Contact Telephone Number: (715) 732-5135

Permit Start Date: June 04, 2014

By: *Brian Miller* 06-04-14

STORM WATER POLLUTION PREVENTION PLAN

Lot 24 Navigational Dredge Spoils Containment Area



Menekaunee Harbor Restoration Project Marinette, Wisconsin

**Prepared for:
City of Marinette, Wisconsin**

April 2014

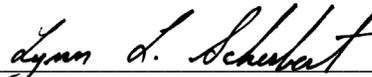
Storm Water Pollution Prevention Plan
Lot 24 Navigational Dredge Spoils Containment Area
Menekaunee Harbor Restoration Project
Marinette, Wisconsin

Prepared by:



Dean R. Free, PE
Project Engineer

Reviewed by:



Lynn Scherbert, PE
Project Manager

AYRES
ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54702-1590
(715) 834-3161, FAX (715) 831-7500

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1.2 Site Setting and Geology.....	2
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2.1.1 Erosion and Sediment Control Practices.....	3
2.2 Storm Water Management Plan	4
2.2.1 Site-Specific Best Management Practices.....	4
2.2.2 Reporting and Monitoring.....	5

List of Appendices

Appendix A – WRAPP Forms and Attachments

- Form 3500-056 (R 3/14) [completed]
 - Region 3 WSFR Section 7 Evaluation Documentation
- Form 3500-052A (R 9/12) [completed]
- Form 3500-052B (R 12/12) [completed]
- Form 3400-187 (R 9/04) [blank]

Appendix B – Wetland Delineation Report [copy of previously submitted document]

Appendix C – Revised – Low-Hazard Waste Exemption Request with 100%-Level Design Report [copy of previously submitted document]

Appendix D – Public and Private Water Supply Wells Figure and Well Report (Frederiksen)

1.0 Introduction

This Storm Water Pollution Prevention Plan (SWPPP) has been prepared to support the development of an on-shore dredge containment site that has been determined necessary as part of the Menekaunee Harbor Restoration project for the City of Marinette, Wisconsin (City). The City is the owner of the Menekaunee Harbor Restoration project and the Lot 24 Containment Site. Ayres Associates Inc is the City's engineer that is completing the necessary design and permitting activities for the City. A contractor(s) will be selected and contracted by the City to complete the project construction efforts. The contractor will be bound by the contract documents, which include implementing the project in accordance with permits and applicable regulations, including the storm water and sediment management requirements.

For additional project background information, purpose and scope of the project, and general project details refer to the *Revised – Low-Hazard Waste Exemption Request with 100%-Level Design*, March 2014, prepared by Ayres Associates Inc (submitted separately). This information is being provided to the Wisconsin Department of Natural Resources Storm Water Program (WDNR-SWP) for their review and approval.

This SWPPP includes the following text sections and four appendices.

1.1 Regulatory Framework

This *Request* is being submitted in accordance with Wisconsin Administrative Code (WAC) NR 216 – *STORM WATER DISCHARGE PERMITS*. In following the requirements of NR 216.43, a Notice of Intent (NOI) has been prepared using the applicable WDNR-SWP form and supporting forms and information, following the permitting procedure known as the Water Resources Application for Project Permits (WRAPP) as follows:

- WRAPP Form 3500-056 (R 3/14)
 - Wetland Delineation Report, January 2014, Ayres Associates Inc
 - Region 3 WSFR Section 7 Evaluation Documentation
 - WRAPP Form 3500-052A (R 9/12)
 - WRAPP Form 3500-052B (R 12/12)

The completed WRAPP forms and the Region 3 WSFR Section 7 Evaluation Documentation are included with this SWPPP in Appendix A. The Wetland Delineation Report was submitted previously, but is included in Appendix B for reference.

The required application fee for this SWPPP and its review will be submitted to the WDNR by the City directly.

This SWPPP has been prepared to meet the site-specific erosion control plan requirements of NR 216.46 (including the performance standards of NR 151.11 – *Construction site performance standard for sites of one acre or more*); the storm water management plan requirements of NR 216.47; and the reporting and monitoring requirements of NR 216.48.

1.2 Site Setting and Geology

The site consists of disturbed grassland, mesic woods, and an excavated basin with an excavated swale/access. The site appears to have historically been stripped of soil/sand and backfilled with off-site soils, as evidenced by: exposed sand piles; unnatural topography; and garbage, debris, and gravel in the surface soils. The site is bordered by an upland field to the north, a residential property to the west, woods and a telecommunications site to the south, and an industrial property with a retention pond to the east. Topography varies from semi-level to gently sloping, with the lowest areas adjacent to the excavated basin and the cul-de-sac. Elevations range from approximately 622 mean sea level (msl) at the utility easement at the western edge of the site, gently sloping to a low of approximately 610 msl at the southwest and eastern edges of the site. Soils mapped within the site by the *NRCS Soil Survey of Marinette County* are described in the Wetland Delineation Report included with this submittal for reference. Refer to the project drawings in the exemption request and design for the Lot 24 containment area for additional information.

The project site is generally covered by an average thickness of 18 inches of vegetated topsoil. Beneath the topsoil exists at least several feet of existing fine-grained, sand. The site soils appear to be well-drained. The sand will generally not be disturbed to construct and operate the spoils containment area. The sand soils may likely only be encountered during installation of the project culvert and drainageway. The water table appears to exist approximately 28 to 56 inches below the ground surface and within the fine-grained sand. The water table is believed to mildly fluctuate throughout the year.

One artificial wetland was identified and delineated within the project area during the October 7 and 8, 2013, site visits. The wetland is an artificial wet meadow/shrub-carr community in the ditch adjacent to the cul-de-sac at the eastern edge of the site, and has an area of 0.01-acre. There is no direct connection to surface waters. Soils at the wetland are mapped as excessively drained, and the wetland likely formed only after the cul-de-sac was constructed. There is a precedent that wetlands such as this are not jurisdictional, due to having been artificially created in upland soils. Additional information is available in the Wetland Delineation Report for the project site.

2.0 Storm Water Pollution Prevention Plan

2.1 Site-Specific Erosion Control Plan

The Site-Specific Erosion Control Plan has been prepared in accordance with NR 151.11(5) and to meet the performance standards of WAC Ch. NR 216.46. The performance standards require compliance with NR 151 – *RUNOFF MANAGEMENT*, and specifically NR 151.11, subsections (4), (5), (6m), (7), and (8), apply to this project as discussed herein.

In accordance with NR 151.11(4), the City of Marinette is the property owner and the responsible party. The selected project contractor will be contracted to complete the project and to meet the requirements of this plan.

2.1.1 Erosion and Sediment Control Practices

In accordance with NR 151.11(6m)(a), and completed Form 3500-052A, erosion and sediment control practices will be implemented to prevent and reduce the deposition of soil and sediment onto public streets, to areas outside the limits of construction, and to areas beyond the property limits. Storm water that falls within the limits of construction will be controlled using grading and directed to a perimeter drainage swale surrounding the containment area, as applicable. The drainage swale will direct storm water to a drainageway that will carry storm water to the site's existing storm water detention basin. Refer to the provided document titled, *Revised – Low-Hazard Waste Exemption Request with 100%-Level Design* (submitted separately) for additional information. Erosion and sediments from the project site are not anticipated to impact adjacent properties or waters of the state.

The navigational dredge spoils that will be brought to Lot 24 for containment will be initially dewatered at a location adjacent to the harbor project. After placement within the containment area on Lot 24, the dredge spoils may continue to stabilize and some consolidation water may drain from the spoils over time.

In accordance with NR 151.11(6m)(c), as preventative measures, the project design has established a buffer using widths of existing vegetation around the limits of construction to assist in controlling sediment. Additionally, silt fencing, erosion bales, and other measures will be utilized to control sediment transport around the project areas, in accordance with NR 151.11(7). Best Management Practices (BMPs) will be implemented in accordance with NR 151.11(8) before the site work begins, will be maintained throughout the project, and will continue to be utilized until post-construction site restoration measures are deemed sufficient. Form 3500-052B has been completed and is included in Appendix A regarding post-construction activities.

2.2 Storm Water Management Plan

A site-specific storm water management plan has been prepared to meet the requirements of WAC Ch. NR 216.47. The practices to be utilized during construction are explained in the document titled, *Revised – Low-Hazard Waste Exemption Request with 100%-Level Design*, which was submitted previously, but is included in Appendix C; and, as referenced in the completed WRAPP Forms in Appendix A. The project does not include a groundwater infiltration system. The nearest water supply well to the project site is a private well (Frederiksen) located approximately 100 feet west of the northwest corner of the Lot 24 property line. This closest well is approximately 370 feet to the northwest corner of the proposed dredge spoils containment pile location. The next closest water supply wells are several hundred feet to the north of the project site. Refer to the attached figure showing the location of the water supply wells relative to Lot 24 in Appendix B. A copy of the report of the closest well (Frederiksen well) is also included in Appendix B.

BMPs have been selected to manage storm water, to control erosion, and to prevent and minimize the transport of sediments to areas outside the limits of construction. The BMPs will be implemented to the extent practicable prior to construction, will be maintained during construction and containment site activities, and following site use during the post-construction phase.

2.2.1 Site-Specific Best Management Practices

The site-specific BMPs selected for the project are discussed and shown on project drawings and appendices within the *Revised – Low-Hazard Waste Exemption Request with 100%-Level Design* (Appendix C; Section 2.5.1 and Appendix G, respectively). The BMPs are summarized as follows:

- A 20-foot setback from the property line to the limits of construction has been established. This width of land will be maintained with its existing vegetation.
- Silt fence will be installed around the perimeter of the project's defined limits of construction, including the proposed topsoil stockpile.
- A 20-foot storm water management area setback from the limits of construction has been established to include a perimeter drainage swale with a culvert beneath the containment area access road. The perimeter drainage swale will remain after project completion.
- The swale will be constructed as early in the project as possible and vegetated with fast-growing vegetation, so that vegetation can be re-established quickly to limit erosion along the swale during the project.
- Erosion matting, ditch checks, sediment bales, and silt fence will be utilized along the perimeter drainage swale to limit erosion and sediment transport during the project.
- A new 8-foot wide stone (riprap) drainageway will be constructed to carry the drainage swale storm water into the existing storm water detention basin.

- The existing vegetation within the storm water detention basin will remain in place.
- A stone tracking pad and tire washing will be utilized to keep sediment and soil from leaving the containment area and limits of construction.
- The containment area will be graded to maintain storm water that falls within the containment area to remain within the containment area to the extent possible. Grading will be used to contain sediment and soil within the containment site to the extent possible.
- During dry and windy periods, watering of the site gravel access roads and those areas being disturbed within the limits of construction and containment area will be conducted to limit dust from migrating off site.
- Vehicle fueling activities will be completed using applicable spill prevention and containment measures.
- During revegetation efforts, mulch will be applied, along with more substantial erosion control measures where necessary.
- BMPs will be maintained during the project and post-closure period until sufficient restoration of the project site and vegetation is achieved.

Because the project parcel is owned by the City of Marinette, the City will provide long-term maintenance of the BMPs during the post-construction period, in accordance with these plans and applicable regulations, including NR 216.47(5).

2.2.2 Reporting and Monitoring

The implemented storm water management, and erosion and sediment control practices will be inspected on a weekly basis following their implementation. Within 24 hours of a rainfall event of greater than 0.5 inches (on a 24-hour basis), an inspection will also occur. A Construction Site Inspection Report (WDNR-SWP) Form 3400-187 (R 9/04) will be utilized to document each inspection, and a blank copy is included in Appendix A. A copy of the forms will be maintained at the project site (if a facility is available such as a project trailer) and at the City offices that will be available for review upon request. An electronic record of the project documents, including the inspection reports, will be created and available for inspection upon request. Project documents will be retained by the City for at least 3 years following completion of the project. The City is the owner of both the harbor restoration project and the Lot 24 parcel, and is the local regulatory entity with respect to storm water jurisdiction.

Appendix A

WRAPP Forms and Attachments

Section 5: Pre-Application Resource Screening

Screening your project site for the presence of sensitive natural or cultural resources before applying for a permit can assist you in planning and designing your project to avoid or minimize impacts to these resources. Please identify any screening you have already completed and attach any supporting documentation to your application. If sensitive resources are identified during the permit review, it may result in delays in processing your application and/or project re-design.

Waterways: Provide the name(s) of closest waterbodies:

Wetlands: Has the project site been assessed for the presence of wetlands? Yes No

If yes, select all sources of information used and attach supporting report or documentation:

- Wisconsin Wetland Inventory
- Wetland Locator Tool - <http://dnr.wi.gov/topic/wetlands/locating.html>
- Wetland Delineation by consultant
- NRCS Soils Map
- DNR Wetland Identification letter - <http://dnr.wi.gov/topic/wetlands/identification.html>
- DNR Wetland Confirmation letter - <http://dnr.wi.gov/topic/wetlands/identification.html>
- Army Corps of Engineers Concurrence letter
- Other: _____

Are wetlands proposed to be filled, excavated or disturbed during construction or as part of this project? Yes No

Endangered or Threatened Resources:

Has the presence of endangered or threatened resources been evaluated according to the protocols developed by the DNR Bureau of Natural Heritage Conservation (BNHC)? dnr.wi.gov/topic/ERReview/ Yes No

If yes, select how evaluation was completed and attach supporting report or documentation:

- DNR BNHC ER Review Letter
- Certified ER Review Letter
- Broad Incidental Take Permit/Authorization - specify (e.g. No/Low Impact Activities, Grassland and Savanna Management, etc.)

Other: Region 3 WSFR Section 7 Evaluation Documentation

Section 6: Project Information (attach additional sheets as necessary)

Duration: 05/01/2014 10/31/2014
 Anticipated Project Start Date (mm/dd/yyyy) Anticipated Project End Date (mm/dd/yyyy)

Photos: Provide photographs of the "before" condition. October 15, 2013
 Date of Photographs

Project Purpose and Need: Provide a one to two paragraph description of the proposed project, including land and water alterations and intended use(s) of the project.

The development of an on-shore dredge containment site has been determined necessary to support the Menekaunee Harbor Restoration project for the City of Marinette, Wisconsin (City). A property called Lot 24 has been provided by the City as a location for the placement of applicable dredge spoils (harbor sediments). The type and characteristics of the dredge spoils designated for containment on Lot 24 and the request for use of Lot 24 to accept these spoils has been submitted to the WDNR Solid Waste Program (Gregory Tilkins) for approval as a Low-Hazard Waste Exemption Request in accordance with NR 500.08(5)(a) and WI Statutes s. 289.43(8).

The project will result in disturbance to approximately 4 acres of the 7.6-acre property. Topsoil will be excavated and stockpiled, the containment area will be prepared/graded, the dredge spoils will be placed and dewatered, the final dredge spoils pile will be covered with the stockpiled topsoil (approximately 6 inches over the pile), and the pile will be seeded and mulched. Disturbed areas will be restored (properly graded and vegetated). Best management practices will be employed to manage storm water and sediment. Storm water and consolidation water from the dredge spoils will be managed and directed to the existing on site detention basin.

Section 7: Certification and Permission

Certification: I hereby certify that I am the owner or authorized representative of the owner of the property which is the subject of this Permit Application. I certify that the information contained in this form and attachments is true and accurate. I certify that the project will be in compliance with all permit conditions. I understand that failure to comply with any or all of the provisions of the permit may result in permit revocation and a fine and/or imprisonment or forfeiture under the provisions of applicable laws.

Permission: I hereby give the Department permission to enter and inspect the property at reasonable times, to evaluate this notice and application, and to determine compliance with any resulting permit coverage.

Brian R. Miller
Signature of Landowner / Authorized Representative – For Stormwater applications,
signature of landowner is required. Authorized representative is not sufficient.

4.22.14
Date Signed

City of Marinette / Brian Miller
Printed Name of Landowner / Authorized Representative

Director of Public Works
Title

This Attachment is to be used in conjunction with the **Water Resources Application for Project Permits** (Form 3500-053, rev 9/12) and will not be accepted if submitted separately. Use this form when there is land-disturbing activity of one acre or more or work in a waterway or wetland and the project is required to have an erosion and sediment control plan.

Project Characteristics

Project Name Menekaunee Harbor Restoration Project	County Marinette
Type of Development Project	

- Residential Commercial/Industrial Transportation Utility Agriculture

Total Area of Construction Site (acres): 7.6 Total Estimated Disturbed area (acres): 4.0

Persons or Entities Involved (Entity or person responsible for installation and maintenance of the erosion and sediment control practices.)

Name (Organization or Entity)	Contact Person	Title	
City of Marinette	Brian Miller	Public Works Director	
Mailing Address	City	State	ZIP Code
1905 Hall Avenue	Marinette	WI	54143-1716
Email Address	Phone Number (incl. area code)	FAX Number (incl. area code)	
bmiller@marinette.wi.us	(715) 732-5135	(715) 735-9419	

Name of local agencies with authority to review the project
 City of Marinette; however, Lot 24 project site being permitted by WDNR Waste Management Section and the design plan includes required stormwater and sediment management plans.

Description of Construction Activity

Describe the construction activity. Include a description of the site, nature of construction activity, sequence of work, and proposed structural and soil stabilization best management practices (BMPs)

The development of an on-shore dredge containment site has been determined necessary to support the Menekaunee Harbor Restoration project for the City of Marinette, Wisconsin (City). A property called Lot 24 has been provided by the City as a location for the placement of applicable dredge spoils (harbor sediments). The type and characteristics of the dredge spoils designated for containment on Lot 24 and the request for use of Lot 24 to accept these spoils has been submitted to the WDNR Solid Waste Program (Gregory Tilkins) for approval as a Low-Hazard Waste Exemption Request in accordance with NR 500.08(5)(a) and WI Statutes s. 289.43(8).

The project will result in disturbance to approximately 4 acres of the 7.6-acre property. Topsoil will be excavated and stockpiled, the containment area will be prepared/graded, the dredge spoils will be placed and dewatered, the final dredge spoils pile will be covered with the stockpiled topsoil (approximately 6 inches over the pile), and the pile will be seeded and mulched. Disturbed areas will be restored (properly graded and vegetated). Best management practices will be employed to manage storm water and sediment. Storm water and consolidation water from the dredge spoils will be managed and directed to the existing on site detention basin.

The best management practices proposed for the project include sloping the base grade of the containment area to direct storm water and consolidation water toward the south. Constructed, temporary, perimeter swales will be used to convey the water to the existing on site detention basin. Silt fencing will be installed around the perimeter of the project area to contain sediment transport. Straw bale ditch checks and other measures will be used in the swales or other pertinent locations to manage storm water and sediment. Grassed buffer areas will be used where possible to additionally control sediment transport. The completed containment site and disturbed areas will be graded and vegetated following completion of the project.

Predominant Soil Types (list surface and subsurface soils)

The surface soil is sandy/silty topsoil ranging from 17 to 28 inches thick. Beneath the topsoil is fine-grained, dense sand. The sand will not be disturbed during this project. Only an average of 6 inches of topsoil thickness will be removed and stockpiled to construct the dredge spoils containment area.

Erosion and Sediment Control Plan

Plan and Implementation Requirements	Yes			No			N/A			Explanation for No and NA (Identify any exemptions)	Plan Sheet Location (page #)
	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A		

Attachment A - Construction Erosion and Sediment Control

Form 3500-052A (R 9/12)

Page 2 of 3

Project Name Menekaunee Harbor Restoration Project

County Marinette

Plan and Implementation Requirements	Yes	No	N/A	Explanation for No and NA (Identify any exemptions)	Plan Sheet Location (page #)
1. Site map is prepared in accordance with s. NR 216.46(5), Wis. Adm. Code	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		App. C (Dwgs. C2.0 - C2.4)
2. Erosion and sediment control best management practices plan is prepared in accordance with s. NR 216.46(6), Wis. Adm. Code.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		SWPPP Text and App. C (Section 2.5.1 & App. G)
3. Compliance with mandatory controls:					
a. Design meets the 80% reduction of sediment goal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
b. Tracking control practices are located at entrances and exits.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
c. Inlet protection is provided.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
d. BMPs are installed on disturbed areas.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
e. BMPs are installed to prevent discharge of sediment from drainage ways.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
f. Dewatering plan is provided in the event that dewatering is needed.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
g. Soil stockpiles that exist for more than 7 days are controlled.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
h. Building and waste material is properly handled to prevent runoff of material into waters of the state*.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
i. Wash water from vehicle and wheel washing is treated before entering waters of the state.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Truck washing water is directed to on site detention basin not to waters of the state; also no treatment proposed. No detergent to be used.	
j. Existing vegetation is maintained whenever possible, especially when adjacent to surface waters.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
k. Soil compaction is minimized and topsoil is preserved.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
l. Land disturbing construction activity on slopes of 20% or more is minimized.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
m. Spill prevention and response procedures have been developed.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
n. BMPs are located so that treatment occurs before runoff enters waters of the state*.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Silt fencing, bale checks.	
4. No solid material is discharged in violation of chs. 30 or 31 Wis. Stats., or 33 USC 1344 permits.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5. Dissipation of velocity at outfalls to assure non-erosive flow is provided.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6. Inspection schedule and record keeping is in accordance with s. NR 216.46(9), Wis. Adm. Code.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Attachment A - Construction Erosion and Sediment Control

Form 3500-052A (R 9/12)

Page 3 of 3

Project Name Menekaunee Harbor Restoration Project

County Marinette

7. A model was used to estimate compliance with the 80% sediment reduction and a summary of input and output and model version is attached.	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	Until RUSLE 2 is available, the response is N/A for DNR submittals.	
8. The Erosion Control Plan has been submitted to and is in compliance with any requirements of local authorities.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	City is local permitting agency and permit applicant to WDNR.	Deferring to WDNR.
9. This acknowledges that a copy of the Construction Site Erosion Control Plan has been prepared, will be kept on site, and made available upon request.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		

Technical Standards Employed (check all that apply) Website: http://dnr.wi.gov/topic/stormwater/standards/const_standards.html

Where the applicant specifies a technical standard, the applicant agrees to adhere to the criteria prescribed in the standard. Where a best management practice is proposed for which there is no technical standard or the technical standard is not used in whole, references on effectiveness in meeting the performance standard must be provided.

Erosion and Stabilization Practices	Technical Standard #	Erosion and Stabilization Practices	Technical Standard #
<input checked="" type="checkbox"/> Channel Erosion Mat	1053	<input checked="" type="checkbox"/> Mulching for Construction Sites	1058
<input checked="" type="checkbox"/> Construction Site Diversion	1066	<input checked="" type="checkbox"/> Non-Channel Erosion Mat	1052
<input checked="" type="checkbox"/> Ditch Check	1062	<input checked="" type="checkbox"/> Seeding for Construction Site Erosion Control	1059
<input checked="" type="checkbox"/> Dust Control on Construction Sites	1068	<input checked="" type="checkbox"/> Stone Tracking Pad and Tire Washing	1057
<input type="checkbox"/> Land Application of Anionic Polyacrylamide	1050	<input checked="" type="checkbox"/> Temporary Grading Practices for Erosion Control	1067
		<input checked="" type="checkbox"/> Vegetative Buffer for Construction Sites	1054
Sediment Control Practices	Technical Standard #	Sediment Control Practices (cont.)	Technical Standard #
<input checked="" type="checkbox"/> Dewatering	1061	<input type="checkbox"/> Silt Curtain*	1070
<input checked="" type="checkbox"/> Sediment Bale Barrier (Non-Channel)	1055	<input checked="" type="checkbox"/> Silt Fence	1056
<input checked="" type="checkbox"/> Ditch Check	1062	<input checked="" type="checkbox"/> Storm Drain Inlet Protection for Construction Sites	1060
<input checked="" type="checkbox"/> Sediment Basin	1064	<input type="checkbox"/> Turbidity Barriers*	1069
<input checked="" type="checkbox"/> Sediment Trap	1063	<input type="checkbox"/> Water Application of Polymers	1051

*unless BMPs that are in-stream controls or materials such as bridge footings are needed

Comments

WDNR Technical Standards are incorporated by reference into project specifications that will become contractor requirements of performance. Included in SWPPP Appendix C.

This Attachment is to be used in conjunction with the **Water Resources Application for Project Permits** (Form 3500-053, R 9/12) and will not be accepted if submitted separately. Use this form when there is land disturbing activity of one acre or more and the project is required to have a post-construction storm water management plan under ch. NR 216, Wis. Adm. Code. This form is not required for work in a waterway or wetland.

Project Characteristics

Project Name: **Menekaunee Harbor Restoration Project** County: **Marinette**

Type of Development Project

In-fill Redevelopment New Development

Impervious Area (as a percent of total land disturbance): Before Construction: 0 % After Construction: 0 %

Total Area of Construction Site (acres): 7.6 Total Estimated Disturbed area (acres): 4.0

Persons or Entities Involved - Entity or person responsible for installation and maintenance of the erosion and sediment control practices

Name (Organization or Entity)	Contact Person	Title		
City of Marinette	Brian Miller	Public Works Director		
Mailing Address	City	State	ZIP Code	
1905 Hall Avenue	Marinette	WI	54143-1716	
Email Address	Phone Number (incl. area code)	FAX Number (incl. area code)		
bmillier@marinette.wi.us	(715) 732-5135	(715) 735-9419		

Description of Post-Construction Activity

Describe the post-construction activity. Include a description of the development site with any site limitations, proposed combination of structural best management practices (BMPs) to control pollutants, peak flow, volume and drainage areas to practices)
 The Lot 24 dredge spoils containment site will be closed by placing the stockpiled topsoil over the containment pile. The containment pile area and disturbed areas will be re-vegetated. Mulching, erosion matting, ditch checks, silt fencing, and other applicable best management practices (BMPs) will be employed to restore the property. BMPs will be managed until no longer necessary to do so and until site vegetation is sufficiently re-established.

Storm Water Management Plan

Plan and Implementation Requirements	Yes	No	N/A	Explanation for No and NA (Identify any exemptions)	Plan Sheet Location (page#)
1. All BMPs will be installed by the time the construction site is considered stabilized.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		App. C (Section 2.4.3 & Dwg. C2.1)
2. BMPs are located on-site and prior to waters of the state.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		App. C (Dwg. C2.1)
3. If an off-site BMP is used, a letter or permission and details about the design of the practice is attached.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No off-site BMPs are proposed.	
4. A long-term maintenance agreement is attached.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Self-maintained by City, as owner of parcel, following project.	
5. Infiltration BMPs and ponds are adequately separated from wells:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		App. D
a. 400 ft. from a community well and					
b. In accordance with s. NR 812.08, Wis. Adm. Code for non-community or private wells	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		App. D
6. The site is required to meet the performance standards of ss. NR 151.122 to 151.128 or 151.242 to 151.249, Wis. Adm. Code. (If the answer is no for all performance standards, explain why and skip questions 7-14.) Transportation projects under Subchapter IV must still meet the performance standard, NR 151.245, Wis. Adm. Code. NOTE: a post-construction storm water management plan is still required.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		App. C

Attachment B - Post-Construction Storm Water Management

Form 3500-052B (R 12/12)

Page 2 of 3

Project Name Menekaunee Harbor Restoration Project

County Marinette

Plan and Implementation Requirements	Yes	No	N/A	Explanation for No and NA (Identify any exemptions)	Plan Sheet Location (page#)
7. The site meets the applicable TSS reduction goal of s. NR 151.122 or 151.242, Wis. Adm. Code. TSS reduction is <u>80</u> %.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8. The site meets the applicable peak flow control goal of s. NR 151.123 or 151.243, Wis. Adm. Code.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	In-fill development area of less than 5 acres.	
9. The site meets the applicable infiltration goal of s. NR 151.124 or 151.244, Wis. Adm. Code. i. Design infiltration rate used is _____ in/hr. ii. Percent of pre-development infiltration volume infiltrated is <u>100</u> %. iii. Area dedicated to infiltration is <u>100</u> % of the project area.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	In-fill development area of less than 5 acres.	
10. Pretreatment is provided before infiltration of runoff from parking lots or commercial, industrial, and institutional roads.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	There are no applicable parking lots or roads.	
11. A summary of the results of the site evaluation, similar to Step D in Technical Standard 1002, is attached.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Site evaluated for Solid Waste Exemption Request & design.	
12. A protective area is established or maintained in accordance with s. NR 151.125 or 151.245, Wis. Adm. Code. Minimum protective area width is <u>NA</u> ft.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	This is an in-fill development area of <5 acres. A protective area width of 40 ft from property line is used to containment edge. At least a 25 ft buffer will be used from delineated wetland.	
13. For fueling and vehicle maintenance areas, the plan meets the no visible sheen goal of s. NR 151.126 or 151.246, Wis. Adm. Code.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
14. Modeling was used to estimate compliance with the TSS, peak flow, and/or infiltration requirements and a summary of input, output and model version is attached.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Modeling not performed.	
15. The Storm Water Management Plan has been submitted to and is in compliance with local requirements. Date of local compliance letter: _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	City is local permitting agency and permit applicant to WDNR.	
16. This acknowledges that a copy of the Storm Water Management Plan has been prepared, will be kept on site, and made available upon request	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Technical Standards Employed (check all that apply) Website: http://dnr.wi.gov/topic/stormwater/standards/posconst_standards.html

Where the applicant specifies a technical standard, the applicant agrees to adhere to the criteria prescribed in the standard. Where a best management practice is proposed for which there is no technical standard or the technical standard is not used in whole, references on effectiveness in meeting the performance standard must be provided.

TSS Reduction, Peak Flow Control, Infiltration Practices:

Technical Standard # or other reference

- | | |
|--|----------------------------|
| <input type="checkbox"/> Bioretention for Infiltration | 1004 |
| <input type="checkbox"/> Compost | S100 |
| <input checked="" type="checkbox"/> Infiltration Basin | 1003 |
| <input type="checkbox"/> Proprietary Storm Water Sedimentation Devices | 1006 |
| <input type="checkbox"/> Rain Gardens | DNR Publication PUB-WT-776 |
| <input type="checkbox"/> Site Evaluation for Storm Water Infiltration | 1002 |
| <input type="checkbox"/> Vegetated Infiltration Swales | 1005 |
| <input type="checkbox"/> Wet Detention Pond | 1001 |

**Attachment B - Post-Construction
Storm Water Management**

Form 3500-052B (R 12/12)

Page 3 of 3

Project Name Menekaunee Harbor Restoration Project

County Marinette

Comments

Post-construction efforts include closure of site, restoration, and maintenance in accordance with project design plans and exemption request submitted to WDNR Waste Management Section who is permitting the project. Completion and submittal of a Notice of Termination (form 3400-162) will be performed after final stabilization of project site is substantially achieved. Site storm water management inspections will be completed and the inspection report (form 3400-187) will be completed and records will be retained throughout the period of general permit coverage.

REGION 3 WSFR SECTION 7 EVALUATION DOCUMENTATION

PHASE 1: COMPLETED BY GRANTEE

(See Phase 1 Instructions for Completion)

State: Wisconsin **Grantee:** Wis Dept Natural Resources **Grant Program(s):** EPA GLRI Block Grant

Grant Title and Number (add amendment no): Menekaunee Harbor Restoration, # to be assigned

I. Location:

A. List counties where grant activities will occur. **Marinette**

B. Describe the action area (see instructions).

The City of Marinette in cooperation with WDNR and US EPA are partnering (all three funding sources) to restore Menekaunee Harbor, City of Marinette, Marinette County, T30N, R24E, Sec 9 (Harbor) and T30N, R23E, Sec 14 (Lot # 24). Restoration activities to include: removal of old seawall, dredging impacted and non-impacted sediments & dispose of at landfill in Menominee, Michigan and Lot # 24, respectively, fish and wildlife habitat restoration and wetland enhancement. Refer to attached maps showing Menekaunee Harbor and Lot # 24 for dredging, habitat, wetland enhancement and disposal boundaries.

II. Species/Critical Habitat:

A. Species information

1. Using the FWS web site (<http://www.fws.gov/midwest/Endangered/>), list species that are/or may be Present in the county(ies):

The US FWS website on April 22, 2013, for federally listed threatened and endangered species and critical habitat. According to the Federal website, one species is listed and is present in Marinette County: piping plover (*Charadrius melodus*), the Kirtland's warbler (*Dendroica kirtlandii*) and the Canada lynx (*Lynx canadensis*). In addition the piping plover critical habitat is also listed for the county.

2. List species, from "1." above, that are not in the action area, and explain why:

The action areas for the proposed projects is Menekaunee Harbor proper and a undeveloped city lot (Lot # 24) (zoned industrial) owned by the City of Marinette. After speaking with John Huff, WDNR Wildlife Biologist, it was relayed that there is no documentation of the piping plover nesting in Menekaunee Harbor or the project area. This is likely due to lack of suitable habitat for the species. The Harbor does not contain the "sandy" Great Lakes Beach Shorelines, but rather old wooden sea walls and rip-rap, also not suitable for the piping plover. In addition there are no young jack pine stands for nesting of the Kirtland's warbler. The disposal site Lot # 24 (fill site) does not contain suitable habitat for the piping plover or the Kirtland's warbler as there are no Great Lakes Beach Shorelines at the site or young jack pine stands. The Harbor is located in a highly urbanized area of the city, it is not likely to support the Canada lynx. Lot # 24 does not contain suitable habitat for the Canada lynx, open fill site.

Using the FWS web site, identify whether federally designated or proposed critical habitat is present within the action area:

Yes. Critical Habitat is designated for the piping plover (*Charadrius melodus*). However, after speaking with John Huff, WDNR Wildlife Biologist, it was relayed that there is no documentation of the piping plover nesting in Menekaunee Harbor or the project area. This is likely due to lack of suitable habitat for the species. The Harbor does not contain the "sandy" Great Lakes Beach Shorelines, but rather old wooden sea walls and rip-rap, also not suitable for the piping plover. The disposal site Lot # 24 does not contain suitable habitat for the piping plover (fill site) as there is no Great Lakes Beach Shorelines at the site.

*Note: If II.A and II.B above have no species or critical habitat, skip sections III and IV and go to V.

III. Description of Proposed Action: In the space provided or on an attached sheet, describe the action(s) in sufficient detail so that the potential effects of the action can be identified and fully evaluated.

IV. Description of Effects: In the space provided or on an attached sheet, describe the effects, including beneficial, of the project actions on the identified species, species habitats and federal critical habitat (see II above).

V. Recommended Determination(s) of Effect(s): For all species and critical habitat identified in the action area, mark (X) the appropriate determinations.

A. Listed, Proposed and Candidate Species

a) "No Effect"

List species for which this recommendation is applicable (or attach list):
Piping plover (*Charadrius melodus*), the Kirtland's warbler (*Dendroica kirtlandii*) and the Canada lynx (*Lynx Canadensis*).

b) "May Affect, but is Not Likely to Adversely Affect"

List species for which this recommendation is applicable (or attach list):

c) "May Affect, and is Likely to Adversely Affect"

List species for which this recommendation is applicable (or attach list):

B. Federal Designated and Proposed Critical Habitat

a) "No Effect" to Critical Habitat

List critical habitat(s) for which the recommendation is applicable. Piping plover critical habitat.

b) "May Affect, but is not likely to Adversely Affect"

List critical habitat(s) for which the recommendation is applied. _____

c) "May Affect, and is Likely to Adversely Affect"

List critical habitat(s) for which the recommendation is applied. _____

Grantee Signatures:

Prepared by:

Name/Title: Cheryl A. Bougie, Great Lakes Sediment & WQ Data Coordinator

Signature: Cheryl A. Bougie Date: 4/24/13
Telephone No. (920) 662-5170 email: cheryl.bougie@wisconsin.gov

Reviewed by:

Name/Title: Rori Palosta / Conservation Biologist

Signature: Rori Palosta Date: 4-25-13
Telephone No. 608-264-1040 email: rori.palosta@wis.gov

O:/Forms/Phase1Sec7090217.doc

Appendix B
Wetland Delineation Report

WETLAND DELINEATION REPORT

**Menekaunee Harbor Restoration Project
Lot 24 Navigational Dredge Spoils Containment Site
Marinette, Wisconsin**

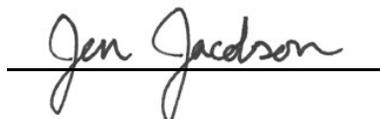


Prepared for:

**City of Marinette, Wisconsin
November 2013
Updated January 2014**

WETLAND DELINEATION REPORT

Menekaunee Harbor Restoration Project Lot 24 Navigational Dredge Spoils Containment Site Marinette, Wisconsin



Jen Jacobson
Environmental Scientist



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- Figure 1. Project Location and Topography
- Figure 2. NRCS Soil Survey
- Figure 3. Wisconsin Wetland Inventory
- Figure 4. Wetland Determination Data

APPENDICES

- Appendix A – Wetland Data Forms
- Appendix B – Site Photography

INTRODUCTION

Ayres Associates performed a wetland determination and delineation at the site proposed for containment of navigational dredge spoils on behalf of the City of Marinette. The site is located in Section 14 of Township 30 North, Range 23 East, in the City of Marinette, Marinette County, Wisconsin (Figure 1). The project is located west and northwest off of the cul-de-sac at the end of Murray Street.

The objective of the wetland determination and delineation was to identify the extent and spatial arrangement of wetlands on the site. The wetland delineation was performed by Jen Jacobson, an Environmental Scientist with Ayres Associates, on October 7 and 8, 2013, during which one artificial wetland was identified. Ms. Jacobson has a Bachelor of Science in Ecology and Environmental Biology from the University of Wisconsin-Eau Claire, and has five years of wetland and natural resource experience on projects throughout Wisconsin, Michigan, and Illinois. Ms. Jacobson has completed Wisconsin Department of Natural Resources training, including Basic and Advanced Wetland Delineation workshops, and Critical Methods in Wetland Delineation.

Most wetlands are considered waters of the U.S. and are therefore subject to regulation under the Clean Water Act (CWA). Specifically, non-isolated wetlands are regulated under Section 404 of the CWA and the jurisdictional regulatory authority lies with the United States Army Corps of Engineers (USACE). Additionally, the Wisconsin Department of Natural Resources (WDNR) has regulatory authority over wetlands, navigable waters, and adjacent lands under Chapter 30 Wisconsin State Statutes, Act 6, and NR 103 Wisconsin Administrative Code. However, the identified wetland is isolated (does not have any direct connections to surface waters), and as a result is not regulated by the USACE. Ayres Associates recommends this report be submitted to the Wisconsin Department of Natural Resources for concurrence.

METHODS

According to the U.S. Army Corps of Engineers (USACE), wetlands are “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Based on the methods outlined in the *Corps of Engineers Wetland Delineation Manual* (USACE, 1987), the presence of a wetland is determined based on three hydric criteria – vegetation, soils, and hydrology. The boundary of a wetland is where one or more of these hydric characteristics give way to upland features.

Wetland determinations were conducted using the criteria and methods outlined in the USACE Wetland Delineation Manual (USACE, 1987), subsequent guidance documents (USACE, 1991 and 1992), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)* (USACE, 2012); *Guidelines for Submitting Wetland Delineations in Wisconsin to the St. Paul District Corps of Engineers* (USACE 1996), and the *Basic Guide to Wisconsin’s Wetlands and their Boundaries* (Wisconsin Department of Administration Coastal Management Program, 1995).

The first phase of the wetland determination and delineation process included an initial review of the following documents, which provide information on previously identified wetlands, or areas where wetlands are likely to occur:

- Marinette County Soil Survey (USDA, 1991) (Figure 2);
- Natural Resources Conservation Service (NRCS) list of hydric soil for Marinette County (USDA, 2013);
- U.S. Geological Survey 7.5-minute Wisconsin quadrangle maps;
- Wisconsin Wetland Inventory (WWI) maps (Figure 3); and
- National Agriculture Imagery Program (NAIP) aerial photography.

The second phase of the investigation was the onsite delineation. Transects were established perpendicular to any wetlands at a representative transition zone, with one point in obvious wetland and one point in obvious upland. Transects were also established in the disturbed upland areas where there was variation in community. A field data form was completed for each data point, at which:

1. The presence or absence of normal circumstances was determined.
2. The plant community was characterized and dominant plant species were identified using the “50/20” rule and, in some cases, the prevalence index.
3. Soil pits were dug to a depth of at least 20 inches, where possible, and the soil was evaluated for hydric soil characteristics; and
4. Hydrology was assessed by observing for primary and secondary indicators of wetland hydrology, as defined by the USACE Northcentral and Northeast regional supplement.

Data points and boundaries were flagged and located with a GPS capable of sub-meter accuracy and are identified on Figure 4. Field data forms are included in Appendix A.

RESULTS

Site Description

The site consists of disturbed grassland, mesic woods, and an excavated basin with an excavated swale/access. The site appears to have historically been stripped of soil/sand and backfilled with off-site soils, as evidenced by: exposed sand piles; unnatural topography; and garbage, debris, and gravel in the surface soils. It also appears that dredge spoils, soils, gravel, and garbage were dumped on the site in the past. This is supported by irregular soils and topography. The site is bordered by an upland field to the north, a residential property to the west, woods and a telecommunications site to the south, and an industrial property with a retention pond to the east.

Topography varies from semi-level to gently sloping, with the lowest areas adjacent to the excavated basin and the cul-de-sac. Elevations range from approximately 622 mean sea level (msl) at the utility easement at the western edge of the site, gently sloping to a low of approximately 610 msl at the southwest and eastern edges of the site.

Soils mapped within the site by the *NRCS Soil Survey of Marinette County* are described in Table 1. The wetland identified during the field investigation was located in a soil mapped as non-hydric (Figure 2).

Table 1. Summary of NRCS Soil Map Units within Project Area

SOIL SYMBOL	SOIL MAP UNIT	CLASSIFICATION	DRAINAGE CLASS	HYDRIC COMPONENT OR INCLUSIONS
De	Deford mucky fine sand	Typic Psammaquents	Poorly	Hydric
SfB, SfC	Shawano loamy fine sand	Typic Udipsamments	Excessively	Non-hydric
WaA	Wainola loamy fine sand	Typic Endoaquods	Somewhat Poorly	Non-hydric

The Wisconsin Wetland Inventory (WWI) identifies one “excavated pond” and a forested wetland in a portion of the southwest corner of the site, and a “wetland too small to delineate” in the northwest corner of the site (Figure 3). The field delineated wetland was not located near any of these areas.

Wetlands

One artificial wetland was identified and delineated within the project area during the October 7 and 8, 2013 site visits. USACE data sheets were completed for six sample points along transects through the wetland and adjacent uplands and are contained in Appendix A. Photographs can be found in Appendix B. The wetland boundary and sample point locations are shown on Figure 4.

The wetland (W-1) is an artificial wet meadow/shrub-carr community in the ditch adjacent to the cul-de-sac at the eastern edge of the site, and has an area of 0.01 acre. There is no direct connection to surface waters. Soils at the wetland are mapped as excessively drained, and the wetland likely formed only after the cul-de-sac was constructed. There is a precedent that wetlands such as this are not jurisdictional, due to having been artificially created in upland soils.

Vegetation

Dominant plant species identified at the sample point completed within the wetland include Kentucky blue grass (*Poa pratensis*), reed canary grass (*Phalaris arundinacea*), speckled alder (*Alnus incana*), and sandbar willow (*Salix interior*). Outside of the area of the sample point, there was primarily giant reed grass (*Phragmites australis*) in the northeastern portion of the wetland. Other common species identified in the wetland are listed on the data forms contained in Appendix A. The dominant species within the wetland are primarily hydrophytic vegetation (OBL, FACW, and/or FAC) and meet the hydrophytic vegetation criterion.

Soils

Soils within the wetland are mapped by the NRCS as Shawano loamy fine sand. The Shawano series consists of very deep, excessively drained soils formed in sandy outwash or eolian deposits on outwash plains, outwash terraces, lake plains, and moraines. The soils observed did not appear consistent with the characteristics of that series. The NRCS Field Indicator of hydric soil S5-Sandy Redox was observed, satisfying the hydric soil criterion.

Hydrology

The wetland appears to have a seasonally saturated/inundated hydroperiod. Saturation (A3) was observed as a primary indicator of wetland hydrology, satisfying the wetland hydrology criterion within W-1. Additionally, the secondary indicator FAC-Neutral Test (D5) was observed. Although the wetland is located in a low concave area, it did not meet the secondary indicator of wetland hydrology of Geomorphic Position (D2) due to the man-made nature of the ditch.

Wetland Boundary

The wetland boundary was determined based on distinct differences in vegetation, soils, hydrology, and topography consisting of the following: 1) Transition from a wet meadow/shrub-carr wetland community to disturbed upland grassland; 2) Transition from saturated soils within the wetland to lack of wetland hydrology indicators within the adjacent upland; and 3) Transition from hydric soils to well drained soils. The transition from wetland to upland characteristics correlated with a topographic break, with the wetland being confined within a concave portion of the landscape (the ditch).

Uplands

Uplands in the project area are composed of mesic woods and disturbed grassland. Soils mapped by the NRCS were Shawano loamy fine sand and Wainola loamy fine sand. The Wainola series consists of very deep, somewhat poorly drained soils formed in fine sandy glaciofluvial deposits on outwash plains, lake plains, and glacial lake deltas. The Shawano series is described in the soils section for W-1. The soils observed were disturbed, with occasional trash and gravel, and did not meet any hydric soil indicators. Furthermore, no primary indicators of wetland hydrology were observed at any of the upland sample points.

Vegetation varied slightly throughout the site, but it was clear that reed canary grass has been in the process of taking over much of the acreage. Apart from the reed canary grass, other dominant species included Kentucky blue grass, alfalfa (*Medicago sativa*), Canada goldenrod (*Solidago canadensis*), giant goldenrod (*Solidago gigantea*), fall panic grass (*Panicum dichotomiflorum*), red osier dogwood (*Cornus alba*), black willow (*Salix nigra*), and sandbar willow. Other species identified within the upland areas are listed on the data forms contained in Appendix A.

The upland areas at sample points II-p3, II-p4, and III-p6 met the criterion for hydrophytic vegetation, and also met the secondary indicator of wetland hydrology of FAC-Neutral Test (D5). Although II-p4 was located in the low concave area adjacent to the excavated basin it did not meet the secondary indicator of wetland hydrology of Geomorphic Position (D2) due to the topography having resulted from disturbance (excavation of sand). These areas were determined to be upland because soils did not exhibit hydric characteristics, and because at least two secondary indicators are required to meet the hydrology criterion. The sample points at I-p1 and III-p5 did not satisfy any of the three wetland criteria.

The widespread presence of wetland plant species in upland portions of the site can likely be attributed to the past disturbance on the site. Some of these species are either invasive or are native but occasionally need control and are fast to colonize disturbed sites. Additionally, it is possible that soils brought to the site in the past contained a seed bank of wetland vegetation, assisting in the establishment of these species.

CONCLUSIONS AND RECOMMENDATIONS

Ayres Associates performed a wetland determination and delineation at the site proposed for containment of non-contaminated navigational dredge spoils on behalf of the City of Marinette. The site is located in Section 14 of Township 30 North, Range 23 East, in the City of Marinette, Marinette County, Wisconsin. The objective of the wetland determination and delineation was to identify the extent and spatial arrangement of wetlands within the site.

One artificial wetland was identified and delineated at the site in accordance with state and federal guidelines. The wetland is an artificially-created wet meadow and shrub-carr community in a ditch. Adjacent uplands are composed of mesic woods and disturbed grassland. A total of 0.01 acre of wetland was identified and mapped within the project area.

The USACE has regulatory authority over waters of the U.S. including adjacent wetlands, and the WDNR has regulatory authority over wetlands, navigable waters, and adjacent lands under Chapter 30 Wisconsin State Statutes, Act 6, and NR 103 Wisconsin Administrative Code. Wisconsin Administrative Code NR 151.125 requires that a “protective area,” commonly referred to as a buffer or setback, be determined from the top of the channel of lakes, streams and rivers, or at the delineated boundary of wetlands. Based on the “protective buffer” widths/standards provided for the various categories of wetlands, the setback from the wetland would be 10% of the wetland width, but no less than 10 feet, nor more than 30 feet. However, due to the artificial nature of the wetland, no setback may be necessary. Any disturbance of the wetland may require permits through the WDNR. Local jurisdictions may have additional regulatory authority through shoreland or wetland zoning ordinances.

Prior to beginning work at this site or disturbing or altering wetlands, waterways, or adjacent lands in any way, Ayres Associates recommends that the owner obtain the necessary permits or other agency regulatory review and concurrence with regard to the proposed work to comply with applicable regulations.

The information provided by Ayres Associates regarding wetland boundaries is a scientific-based analysis of the wetland and upland conditions present on the site at the time of the fieldwork, and is normally valid for a period of five years upon approval. The delineation was performed by experienced and qualified professionals using standard practices and sound professional judgment. The ultimate decision on wetland boundaries and jurisdiction rests with the USACE and, in some cases, the WDNR or a local unit of government. As a result, there may be adjustments to boundaries based upon review by a regulatory agency. An agency determination can vary from time to time depending on various factors including, but not limited to recent precipitation patterns and the season of the year. In addition, the physical characteristics of the site can change over time, depending on the weather, vegetation patterns, drainage activities on adjacent parcels, or other events. Any of these factors can change the nature and extent of wetlands on the site.

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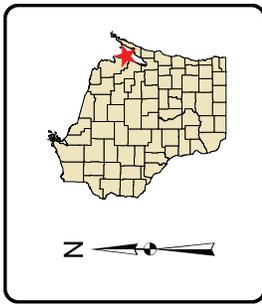
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FIGURES

Figure 1. Site Location and Topography

Menasha Harbor -
Lot 24



Location
Section 14, T30N, R23E
Marquette County, Wisconsin

Project Information
Project Number: 19-0277.32
Modified: November 12, 2013



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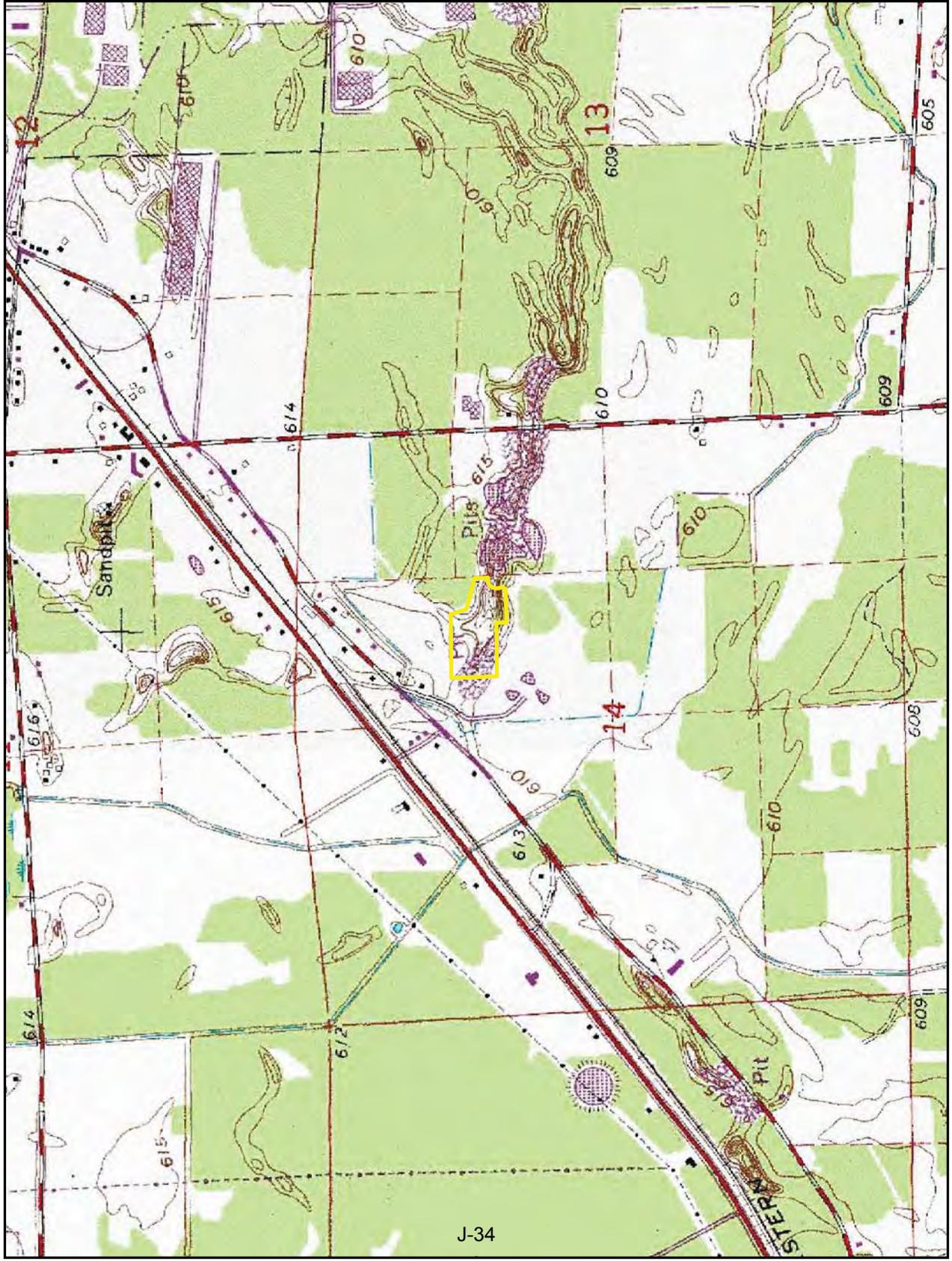
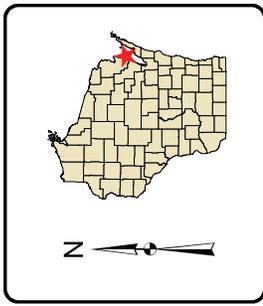


Figure 2. NRCS Soil Survey

Menekaune Harbor - Lot 24



Location
Section 14, T30N, R23E
Marinette County, Wisconsin

Project Information
Project Number: 19-0277.32
Modified: January 21, 2014

Legend

- Project Area
- Non-Hydric Soils
- Partially Hydric Soils
- Hydric Soils

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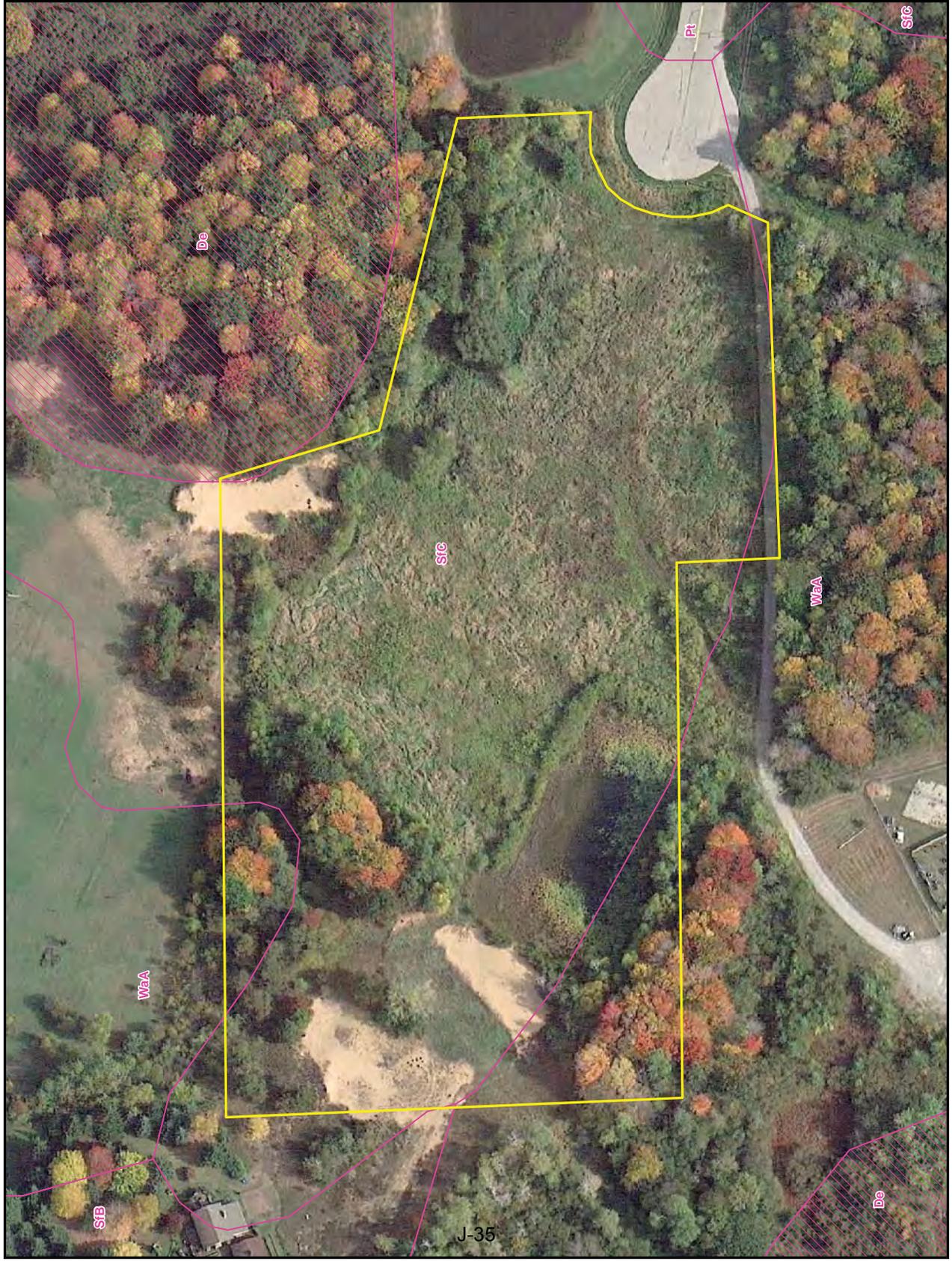




Figure 3. Wisconsin Wetland Inventory



1: 3,000



0.1 Miles

0.05

0

0.1

NAD_1983_HARN_Wisconsin_TM
© Latitude Geographics Group Ltd.

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/ov/legal/>



Legend

Wetland Class Points

- Dammed pond
- Excavated pond
- Filled excavated pond
- Filled/draind wetland
- Wetland too small to delineate

Filled Points



Wetland Class Areas



Wetland



Upland

Filled Areas



2010 Air Photos (WROC)

Notes

**Figure 4. Wetland
Determination Data
Menekaunee Harbor -
Lot 24**



Location
Section 14, T30N, R23E
Marinette County, Wisconsin

Project Information
Project Number: 19-0277.32
Modified: January 21, 2014



- Legend**
- Sample Point
 - Project Area
 - Wetland Boundary

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Eau Claire, Wisconsin 54701



APPENDIX A

Wetland Data Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Menekaunee Harbor - Lot 24 City/County: Marinette, Marinette County Sampling Date: 10-7-2013
 Applicant/Owner: City of Marinette State: WI Sampling Point: l-p1
 Investigator(s): Jen Jacobson Section, Township, Range: Sec 14, T30N-R23E
 Landform (hillslope, terrace, etc.) _____ Local relief (concave, convex, none): None
 Slope (%): 2% Lat.: 45.074056 Long.: -87.665306 Datum: NAD 1983
 Soil Map Unit Name: Shawano loamy fine sand NWI Classification: N/A
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
 Are vegetation _____, soil X, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland?	<u>No</u>
Hydric soil present? <u>N</u>		
Wetland hydrology present? <u>N</u>		If yes, optional wetland site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
 Soils were disturbed, with gravel throughout. Site appears to have been stripped and backfilled in the past.

VEGETATION - Use scientific names of plants

Tree Stratum	Plot Size ()	Absolute % Cover	Dominant Species	Indicator Staus	50/20 Thresholds	20%	50%
1					Tree Stratum	0	0
2					Sapling/Shrub Stratum	1	2
3					Herb Stratum	20	51
4					Woody Vine Stratum	0	0
5					Dominance Test Worksheet		
_____ = Total Cover					Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)		
Sapling/Shrub Stratum Plot Size () _____ = Total Cover					Total Number of Dominant Species Across all Strata: <u>2</u> (B)		
1		2	N	NI	Percent of Dominant Species that are OBL, FACW, or FAC: 0% (A/B)		
2		2	N	FAC			
3							
4							
5							
_____ = Total Cover					Prevalence Index Worksheet		
Herb Stratum Plot Size () _____ = Total Cover					Total % Cover of:		
1		50	Y	FACU	OBL species	0 x 1 =	0
2		15	Y	UPL	FACW species	0 x 2 =	0
3		10	N	FAC	FAC species	27 x 3 =	81
4		10	N	FAC	FACU species	62 x 4 =	248
5		5	N	FACU	UPL species	15 x 5 =	75
6		5	N	FACU	Column totals	104 (A)	404 (B)
7		5	N	FAC	Prevalence Index = B/A = 3.88		
8		2	N	FACU	Hydrophytic Vegetation Indicators:		
9					_____ Rapid test for hydrophytic vegetation		
10					_____ Dominance test is >50%		
_____ = Total Cover					_____ Prevalence index is ≤3.0*		
Woody Vine Stratum Plot Size () _____ = Total Cover					_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)		
1					_____ Problematic hydrophytic vegetation* (explain)		
2					_____		
_____ = Total Cover					*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
Remarks: (Include photo numbers here or on a separate sheet)					Hydrophytic vegetation present? <u>N</u>		

SOIL

Sampling Point:

I-p1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/2						Fine Sandy Loam	
6-14	10YR 3/2		10YR 3/4	5	C	M	Fine Sand	
14-20	10YR 4/2		10YR 3/4	5	C	M	Fine Sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|---|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> (LRR R, MLRA 149B) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> (LRR K, L) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric soil present? N

Remarks:

Small rocks throughout.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (minimum of two required)

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Marl Deposits (B15) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Moss Trim Lines (B16) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Microtopographic Relief (D4) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present? Yes _____ No X Depth (inches): _____
 Water table present? Yes _____ No X Depth (inches): _____
 Saturation present? Yes _____ No X Depth (inches): _____
 (includes capillary fringe)

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Menekaunee Harbor - Lot 24 City/County: Marinette, Marinette County Sampling Date: 10-7-2013
 Applicant/Owner: City of Marinette State: WI Sampling Point: l-p2
 Investigator(s): Jen Jacobson Section, Township, Range: Sec 14, T30N-R23E
 Landform (hillslope, terrace, etc.) _____ Local relief (concave, convex, none): Concave
 Slope (%): 0% Lat.: 45.07405 Long.: -87.665196 Datum: NAD 1983
 Soil Map Unit Name: Shawano loamy fine sand NWI Classification: N/A
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
 Are vegetation X, soil X, or hydrology X significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland?	<u>Yes</u>
Hydric soil present?	<u>Y</u>		
Wetland hydrology present?	<u>Y</u>		
If yes, optional wetland site ID: _____			

Remarks: (Explain alternative procedures here or in a separate report.)
 Sample point is located at a ditch that was excavated incidental to the installation of the adjacent cul-de-sac, is an artificial wetland. Ditch does not appear to drain correctly.

VEGETATION - Use scientific names of plants

Tree Stratum	Plot Size ()	Absolute % Cover	Dominant Species	Indicator Staus	50/20 Thresholds	20%	50%
1					Tree Stratum	0	0
2					Sapling/Shrub Stratum	2	5
3					Herb Stratum	19	48
4					Woody Vine Stratum	0	0
5							
0 = Total Cover					Dominance Test Worksheet		
Sapling/Shrub Stratum					Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A)		
1		5	Y	FACW	Total Number of Dominant Species Across all Strata: <u>4</u> (B)		
2		5	Y	FACW	Percent of Dominant Species that are OBL, FACW, or FAC: 75% (A/B)		
3							
4							
5							
10 = Total Cover					Prevalence Index Worksheet		
Herb Stratum					Total % Cover of:		
1		40	Y	FACU	OBL species	5 x 1 =	5
2		30	Y	FACW	FACW species	45 x 2 =	90
3		15	N	FAC	FAC species	15 x 3 =	45
4		5	N	OBL	FACU species	40 x 4 =	160
5		5	N	FACW	UPL species	0 x 5 =	0
6					Column totals	105 (A)	300 (B)
7					Prevalence Index = B/A = 2.86		
8					Hydrophytic Vegetation Indicators:		
9					Rapid test for hydrophytic vegetation		
10					<u>X</u> Dominance test is >50%		
95 = Total Cover					<u>X</u> Prevalence index is ≤3.0*		
Woody Vine Stratum					Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)		
1					Problematic hydrophytic vegetation* (explain)		
2							
0 = Total Cover							
Remarks: (Include photo numbers here or on a separate sheet)					*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
					Hydrophytic vegetation present? <u>Y</u>		

SOIL

Sampling Point:

I-p2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	10YR 2/1						Fine Sandy Loam	
4-10	10YR 2/2		10YR 3/4	10	C	M	Fine Sand	
			10YR 4/4	10	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|---|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> (LRR R, MLRA 149B) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> (LRR K, L) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input checked="" type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric soil present? Y

Remarks:

Met with refusal at 10 inches due to rocks.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (minimum of two required)

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Marl Deposits (B15) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Moss Trim Lines (B16) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Microtopographic Relief (D4) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present? Yes _____ No X Depth (inches): _____
 Water table present? Yes _____ No X Depth (inches): _____
 Saturation present? Yes X No _____ Depth (inches): 0
 (includes capillary fringe)

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Geomorphic position was not met due to the artificial, constructed nature of the ditch.

SOIL

Sampling Point:

II-p3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18	10YR 2/2						Fine Sandy Loam	
18-22	10YR 4/2	60					Fine Sand	
18-22	10YR 3/2	20					Fine Sand	
18-22	10YR 3/4	20					Fine Sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|---|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> (LRR R, MLRA 149B) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> (LRR K, L) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric soil present? N

Remarks:

Small rocks throughout. Second horizon is mixed.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (minimum of two required)

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Marl Deposits (B15) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Moss Trim Lines (B16) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Microtopographic Relief (D4) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present? Yes _____ No X Depth (inches): _____
 Water table present? Yes _____ No X Depth (inches): _____
 Saturation present? Yes _____ No X Depth (inches): _____
 (includes capillary fringe)

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Menekaunee Harbor - Lot 24 City/County: Marinette, Marinette County Sampling Date: 10-7-2013
 Applicant/Owner: City of Marinette State: WI Sampling Point: II-p4
 Investigator(s): Jen Jacobson Section, Township, Range: Sec 14, T30N-R23E
 Landform (hillslope, terrace, etc.) _____ Local relief (concave, convex, none): Concave
 Slope (%): 1% Lat.: 45.074313 Long.: -87.667113 Datum: NAD 1983
 Soil Map Unit Name: Shawano loamy fine sand NWI Classification: N/A
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
 Are vegetation _____, soil X, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland?	<u>No</u>
Hydric soil present?	<u>N</u>		
Wetland hydrology present?	<u>N</u>		If yes, optional wetland site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
 Soils were disturbed. Site appears to have been stripped and backfilled in the past.

VEGETATION - Use scientific names of plants

Tree Stratum	Plot Size ()	Absolute % Cover	Dominant Species	Indicator Staus	50/20 Thresholds	20%	50%
1					Tree Stratum	0	0
2					Sapling/Shrub Stratum	7	18
3					Herb Stratum	12	31
4					Woody Vine Stratum	0	0
5							
0 = Total Cover					Dominance Test Worksheet		
Sapling/Shrub Stratum					Number of Dominant Species that are OBL, FACW, or FAC: <u>4</u> (A)		
1	<i>Salix nigra</i>	30	Y	OBL	Total Number of Dominant Species Across all Strata: <u>4</u> (B)		
2	<i>Salix interior</i>	5	N	FACW	Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)		
3							
4							
5							
35 = Total Cover					Prevalence Index Worksheet		
Herb Stratum					Total % Cover of:		
1	<i>Panicum dichotomiflorum</i>	30	Y	FACW	OBL species	30 x 1 =	30
2	<i>Cornus alba</i>	10	Y	FACW	FACW species	62 x 2 =	124
3	<i>Phalaris arundinacea</i>	10	Y	FACW	FAC species	5 x 3 =	15
4	<i>Solidago gigantea</i>	5	N	FACW	FACU species	0 x 4 =	0
5	<i>Euthamia graminifolia</i>	5	N	FAC	UPL species	0 x 5 =	0
6	<i>Phragmites australis</i>	2	N	FACW	Column totals	97 (A)	169 (B)
7							
8							
9							
10					Prevalence Index = B/A = 1.74		
62 = Total Cover					Hydrophytic Vegetation Indicators:		
Woody Vine Stratum					Rapid test for hydrophytic vegetation		
1					<u>X</u>	Dominance test is >50%	
2					<u>X</u>	Prevalence index is ≤3.0*	
					Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)		
					Problematic hydrophytic vegetation* (explain)		
0 = Total Cover					*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
Remarks: (Include photo numbers here or on a separate sheet)					Hydrophytic vegetation present? <u>Y</u>		

SOIL

Sampling Point:

II-p4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-10	10YR 2/1						Loam	
10-14	10YR 2/2		10YR 3/4	10	C	M	Fine Sand	
			10YR 4/4	10	C	M		
14-22	10YR 4/4		7.5YR 4/6	5	C	M	Fine Sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|---|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> (LRR R, MLRA 149B) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> (LRR K, L) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric soil present? N

Remarks:

Small rocks throughout.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (minimum of two required)

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Marl Deposits (B15) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Moss Trim Lines (B16) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Microtopographic Relief (D4) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <u> 22 </u>
Saturation present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <u> 14 </u>

(includes capillary fringe)

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Geomorphic position was not met due to the the topography having resulted from disturbance (excavation of sand).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Menekaunee Harbor - Lot 24 City/County: Marinette, Marinette County Sampling Date: 10-7-2013
 Applicant/Owner: City of Marinette State: WI Sampling Point: III-p5
 Investigator(s): Jen Jacobson Section, Township, Range: Sec 14, T30N-R23E
 Landform (hillslope, terrace, etc.) _____ Local relief (concave, convex, none): None
 Slope (%): 1% Lat.: 45.074667 Long.: -87.667117 Datum: NAD 1983
 Soil Map Unit Name: Shawano loamy fine sand NWI Classification: N/A
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
 Are vegetation _____, soil X, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland?	<u>No</u>
Hydric soil present? <u>N</u>		
Wetland hydrology present? <u>N</u>		If yes, optional wetland site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
 Soils were disturbed, with gravel throughout, and garbage. Site appears to have been stripped and backfilled in the past.

VEGETATION - Use scientific names of plants

Tree Stratum	Plot Size ()	Absolute % Cover	Dominant Species	Indicator Staus	50/20 Thresholds	20%	50%
1					Tree Stratum	0	0
2					Sapling/Shrub Stratum	0	0
3					Herb Stratum	21	54
4					Woody Vine Stratum	0	0
5							
<u>0</u> = Total Cover					Dominance Test Worksheet		
Sapling/Shrub Stratum Plot Size ()					Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A)		
1					Total Number of Dominant Species Across all Strata: <u>3</u> (B)		
2					Percent of Dominant Species that are OBL, FACW, or FAC: 33% (A/B)		
3							
4							
5							
<u>0</u> = Total Cover					Prevalence Index Worksheet		
Herb Stratum Plot Size ()					Total % Cover of:		
1	<i>Poa pratensis</i>	40	Y	FACU	OBL species	<u>0</u> x 1 =	<u>0</u>
2	<i>Phalaris arundinacea</i>	20	Y	FACW	FACW species	<u>32</u> x 2 =	<u>64</u>
3	<i>Solidago canadensis</i>	20	Y	FACU	FAC species	<u>0</u> x 3 =	<u>0</u>
4	<i>Solidago speciosa</i>	10	N	NI	FACU species	<u>60</u> x 4 =	<u>240</u>
5	<i>Solidago gigantea</i>	10	N	FACW	UPL species	<u>5</u> x 5 =	<u>25</u>
6	<i>Medicago sativa</i>	5	N	UPL	Column totals	<u>97</u> (A)	<u>329</u> (B)
7	<i>Elymus virginicus</i>	2	N	FACW			
8					Prevalence Index = B/A =	3.39	
9					Hydrophytic Vegetation Indicators:		
10					Rapid test for hydrophytic vegetation		
					Dominance test is >50%		
					Prevalence index is ≤3.0*		
					Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)		
					Problematic hydrophytic vegetation* (explain)		
					*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
<u>107</u> = Total Cover							
Woody Vine Stratum Plot Size ()							
1							
2							
<u>0</u> = Total Cover							
Remarks: (Include photo numbers here or on a separate sheet)							
					Hydrophytic vegetation present? <u>N</u>		

SOIL

Sampling Point:

III-p5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-10	10YR 2/2						Loam	
10-20	10YR 3/2		10YR 5/6	5	C	M	Fine Sandy Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|---|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> (LRR R, MLRA 149B) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> (LRR K, L) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric soil present? N

Remarks:

Small rocks throughout, some appearing burnt. Black plastic trash bag around 12 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (minimum of two required)

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Marl Deposits (B15) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Moss Trim Lines (B16) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Microtopographic Relief (D4) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present? Yes _____ No X Depth (inches): _____
 Water table present? Yes _____ No X Depth (inches): _____
 Saturation present? Yes _____ No X Depth (inches): _____
 (includes capillary fringe)

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Menekaunee Harbor - Lot 24 City/County: Marinette, Marinette County Sampling Date: 10-7-2013
 Applicant/Owner: City of Marinette State: WI Sampling Point: III-p6
 Investigator(s): Jen Jacobson Section, Township, Range: Sec 14, T30N-R23E
 Landform (hillslope, terrace, etc.) _____ Local relief (concave, convex, none): None
 Slope (%): 1% Lat.: 45.074692 Long.: -87.666918 Datum: NAD 1983
 Soil Map Unit Name: Shawano loamy fine sand NWI Classification: N/A
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
 Are vegetation _____, soil X, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland?	<u>No</u>
Hydric soil present?	<u>N</u>		
Wetland hydrology present?	<u>N</u>		

Remarks: (Explain alternative procedures here or in a separate report.)
 Soils were disturbed, with gravel throughout. Site appears to have been stripped and backfilled in the past.

VEGETATION - Use scientific names of plants

Tree Stratum	Plot Size ()	Absolute % Cover	Dominant Species	Indicator Staus	50/20 Thresholds	20%	50%
1					Tree Stratum	0	0
2					Sapling/Shrub Stratum	6	15
3					Herb Stratum	19	48
4					Woody Vine Stratum	0	0
5							
0 = Total Cover					Dominance Test Worksheet		
Sapling/Shrub Stratum Plot Size ()					Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A)		
1	<i>Salix interior</i>	30	Y	FACW	Total Number of Dominant Species Across all Strata: <u>3</u> (B)		
2					Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)		
3					Prevalence Index Worksheet		
30 = Total Cover					Total % Cover of:		
1	<i>Phalaris arundinacea</i>	40	Y	FACW	OBL species	0 x 1 =	0
2	<i>Solidago gigantea</i>	30	Y	FACW	FACW species	105 x 2 =	210
3	<i>Solidago speciosa</i>	10	N	NI	FAC species	10 x 3 =	30
4	<i>Euthamia graminifolia</i>	10	N	FAC	FACU species	0 x 4 =	0
5	<i>Salix interior</i>	5	N	FACW	UPL species	0 x 5 =	0
6					Column totals	115 (A)	240 (B)
7					Prevalence Index = B/A = 2.09		
8					Hydrophytic Vegetation Indicators:		
9					Rapid test for hydrophytic vegetation		
10					<input checked="" type="checkbox"/> Dominance test is >50%		
95 = Total Cover					<input checked="" type="checkbox"/> Prevalence index is ≤3.0*		
Woody Vine Stratum Plot Size ()					Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)		
1					<input type="checkbox"/> Problematic hydrophytic vegetation* (explain)		
2							
0 = Total Cover					*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
Remarks: (Include photo numbers here or on a separate sheet)					Hydrophytic vegetation present? <u>Y</u>		

SOIL

Sampling Point:

III-p6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-10	10YR 2/2						Loam	
10-16	10YR 2/2		10YR 4/6	10	C	M	Fine Sand	
16-20	10YR 4/4		10YR 4/6	10	C	M	Fine Sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains **Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:			Indicators for Problematic Hydric Soils:		
<input type="checkbox"/> Histisol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> (LRR R, MLRA 149B)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> (LRR K, L)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):		Hydric soil present? <u> N </u>
Type: _____	Depth (inches): _____	
Remarks: Small rocks throughout.		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)		<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Microtopographic Relief (D4)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations:		Wetland hydrology present? <u> N </u>
Surface water present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water table present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u> 20 </u>	

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX B

Site Photography



1. NE end of W-1



J-52

2. View N through W-1



3. View W through W-1



4. Upland near E end of site



5. View NE at excavated swale



J-54

6. View SW at excavated swale



7. View SE from II-p4



8. Vegetation near II-p3



9. View SW toward II-p3 and excavated basin



10. Vegetation near III-p5



11. View ENE from III-p6



12. View NW at vegetation surrounding III-p6

Appendix C

Revised – Low-Hazard Waste Exemption Request with 100%-Level Design

REVISED – LOW-HAZARD WASTE EXEMPTION REQUEST WITH 100%-LEVEL DESIGN

Lot 24 Navigational Dredge Spoils Containment Area



**Menekaunee Harbor Restoration Project
Marinette, Wisconsin**

**Prepared for:
City of Marinette, Wisconsin**

March 2014

**REVISED – Low-Hazard Waste Exemption Request
With 100%-Level Design**

Lot 24 Navigational Dredge Spoils Containment Area

**Menekaunee Harbor Restoration Project
Marinette, Wisconsin**

Prepared by:



Dean R. Free, PE
Project Engineer

Reviewed by:



Lynn Scherbert, PE
Project Manager

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Ayres Associates Project No. 19-0277.36

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1.0 Introduction

1.1 Background

The development of an on-shore dredge containment site has been determined necessary to support the Menekaunee Harbor Restoration project for the City of Marinette, Wisconsin (City). A candidate property has been provided by the City as a location for the placement of applicable dredge spoils. The harbor improvement process will ultimately aid in the restoration of the benthos and address several of the Beneficial Use Impairments identified within the Menominee River Area of Concern (AOC), including fish and wildlife restrictions, degradation of fish and wildlife populations, and loss of habitat. The proposed increase in harbor depth will allow for safer navigation of watercraft and the potential return of recreational boating activities to the harbor. The overarching goal of the Menekaunee Harbor dredge and restoration efforts is the eventual delisting of the Lower Menominee River AOC. Dredging the harbor, removing contaminated sediments, and the eventual benthos and habitat restoration activities are essential elements in the AOC restoration efforts. Refer to Drawing G1.0 for the project locations.

1.2 Purpose

The Menekaunee Harbor Restoration project involves the dredging and removal of contaminated sediments and restoration activities within the harbor and along its shorelines. The removed material will consist of sediments that exceed established contaminant concentration limits (environmental dredge spoils) and sediments that do not exceed established contaminant concentration limits (navigational dredge spoils). The project will likely also generate wood debris (e.g., logs, lumber, and brush) and small amounts of miscellaneous materials (e.g., metal debris) from within the harbor and shoreline areas. The environmental dredge spoils that will be transported to a licensed landfill for disposal generally consist of the finer-grained sediments located at the top of the sediment profile. The navigational dredge spoils will generally be the coarser-grained sediments located beneath the finer-grained sediments.

The navigational dredge spoils will either be utilized as “aquatic habitat restoration material” within designated Menekaunee Harbor project areas or transported off site to either a landfill for disposal or to the proposed dredge spoils containment site, which is the City-owned parcel called “Lot 24”, for permanent containment. The navigational dredge spoils are further divided into those that can and will be used in the harbor and those that can be placed on Lot 24. The differentiating criteria is further described later in this *Request*. The wood debris will be managed as uncontaminated green-waste and will be hauled to a suitable private disposal facility. More substantial wood debris (e.g., wood logs) may be beneficially reused for emergent, shallow-water habitat needs or hauled off-site as saw logs. Miscellaneous materials will be managed as appropriate, including using recycling or landfill disposal alternatives.

1.3 Scope

This project focuses on implementing the City’s and Wisconsin Department of Natural Resources’ (WDNRs’) goals and objectives for addressing the cleanup and restoration of Menekaunee Harbor in accordance with contractual requirements and applicable local,

state, and federal regulations. As such, Ayres Associates has prepared this *Low-Hazard Waste Exemption Request (Request)*, on behalf of the City to receive approval from the WDNR to place a “subset” of the navigational dredge spoils removed from Menekaunee Harbor onto Lot 24, a vacant parcel owned by the City. Some of the navigational dredge spoils may be designated for beneficial-reuse to improve aquatic habitat within the harbor or shoreline areas to meet restoration needs. The harbor and shoreline restoration uses are outside the scope of this Request, but will impact the final volume of sediments that will require containment on Lot 24. The details for the two subsets of navigational dredge spoils are discussed later in this *Request*.

This *Request* includes the 100%-level design (text and drawings) for the Lot 24 containment site design. For purposes of the Exemption Request, this design should be considered “final”; however, if changes are necessary prior to contractor bidding or construction to account for final WDNR comments and potential revisions, a final design amendment will be issued as appropriate. Additionally, the project plans that are included within this *Request* are:

- Site Design Plan
- Site Operations Plan
- Site Closure Plan
- Site Maintenance Plan

The *Dredging and Spoils Handling Plan (DSHP)*, which will include the activities associated with differentiating between the environmental and navigational dredge spoils during dredging, is referenced in this *Request*; however, the actual *DSHP* will be submitted to the WDNR separately for review and approval. The *Landfill Acceptance Plan (LAP)* for the environmental dredge spoils transportation and disposal at an approved, licensed landfill will also be prepared and submitted under separate cover.

This document provides the information necessary to support the review and approval of the *Request*, which includes general project information, the 100%-level design of the Lot 24 Containment Site, sediment and soil information, and proposed documentation activities for the project.

This *Request* is supported by a letter titled, Development of Lot 24 Spoils Acceptance Criteria, submitted by Ayres Associates to Mr. Gregory Tilkins of the WDNR, on February 4, 2014. This letter is attached in Appendix A for reference. The letter provided an approach to establishing criteria to be used to segregate the sediments removed from the harbor, which would be used to determine the final disposition of those sediments (i.e., landfill disposal, beneficial reuse in the harbor area, or containment on Lot 24). At this time, we believe the approach has been approved by the WDNR and the project is proceeding accordingly. Specifically, this *Request* discusses the sediments that may be placed within the containment area on Lot 24 and as such requires an exemption for a specific subset of the navigational dredge spoils.

1.4 Project Contact and Site Information

Ayres Associates has been retained by the City to prepare this *Request*. The project contact and site information are as follows:

Containment Site Property (Lot 24) “Owner” and Dredge Spoils “Generator” Contact:

Mr. Brian Miller, Director of Public Works
City of Marinette
1905 Hall Avenue
Marinette, Wisconsin, 54143-1716
(715) 732-5135

Dredge Spoils Containment Site:

City Parcel No. 24 (“Lot 24”)
West end of Murray Street
Marinette, Wisconsin 54143

Property Parcel Location Description:

Parcel (Lot 24) located in the NW ¼ and SW ¼ of the NE ¼ of Section 14, T30N, R23E, Marinette County, Wisconsin. Refer to Drawing G1.0 for the project locations.

Certifying Wisconsin Professional Engineer:

Mr. Dean Free, PE (Project Engineer)
Wisconsin PE # 30395-6
Expiration Date: July 31, 2014
Ayres Associates Inc
3433 Oakwood Hills Parkway
Eau Claire, WI 54701

1.5 Regulatory Framework

This *Request* is being submitted in accordance with Wisconsin Administrative Code (WAC) NR 500.08(5)(a) – *Beneficial Reuse* and Wisconsin Statutes (WI Stats) s.289.43(8) – *Exemption from Regulation, Low-Hazard Exemption*. As part of the restoration of Menekaunee Harbor, dredging activities will generate both environmental and navigational dredge spoils. The criteria that will be used to evaluate and segregate the dredge spoils was presented in the February 4, 2014, letter to Mr. Tilkins of the WDNR, refer to Appendix A. Additional details pertaining to the harbor dredging efforts will be submitted by Ayres Associates separately in the *DSHP*.

In accordance with WAC NR 347.06 (3)(c), Lot 24 is an “upland disposal site” and as such soil sampling was performed for comparison of the site soil conditions to the Menekaunee Harbor sediments. The Lot 24 soil investigation and sampling efforts are discussed in Section 3.0 of this *Request*. Henceforth in this *Request*, Lot 24 is termed the “Navigational Dredge Spoils Containment Site”.

1.5.1 Professional Engineer Certification

This *Request* is hereby certified, in accordance with WAC, Ch. NR 500.05 (4), as follows:

I, Dean R. Free, hereby certify that I am a licensed professional engineer in the State of Wisconsin in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 500 to 538, Wis. Adm. Code.

1.6 Project Schedule

A project schedule has been prepared for the Navigational Dredge Spoils Containment Site project. The original schedule included 65 business days for the WDNR review of this *Request* in accordance with WAC Ch. NR 500.07. Because this is the final *Revised Request* (because it now includes the 100%-level design), and the February 4, 2014, letter to Mr. Tilkins of the WDNR, has been reviewed and approved, we have included approximately three weeks for the review and approval of this *Request* in the revised project schedule in Appendix B (this time period is only a placeholder and we understand that the review and approval will be expedited to the extent possible). As such, the estimated approval date of this *Request* has been set as April 10, 2014 in the schedule. The containment site design for Lot 24 that is included with this *Request* has been prepared to approximately the 100%-level design, including descriptive text and drawings. Refer to the project schedule in Appendix B for additional project milestones and dates for the design process.

2.0 Project Development

2.1 Introduction

This section of the *Request* includes the Site Design Plan for the proposed project, including the 100%-level design of the Lot 24 Navigational Dredge Spoils Containment Site, and the Site Operations Plan, the Site Closure Plan, and the Site Maintenance Plan. Information regarding the sediments and site soil are further discussed in Section 3.0 of this Request. Section 4.0 presents the documentation activities associated with the site development, use, and closure.

2.2 Menekaunee Harbor

Menekaunee Harbor is located in the City, approximately 53 miles north of Green Bay, Wisconsin, on the west shores of Lake Michigan's Green Bay, in northeast Wisconsin. Menekaunee Harbor is a 13-acre natural embayment of the Menominee River, and is included within the boundaries of the Lower Menominee River AOC. The adjacent shoreline is largely owned by the City with smaller portions being privately owned. Refer to Drawing G1.0 and Drawing C1.0 for the location of Menekaunee Harbor.

In 2013, the WDNR and the City developed plans to remove contaminated sediment, improve navigational and recreational opportunities, and restore fish and wildlife habitat in Menekaunee Harbor. The restoration efforts proposed for the harbor will generate dredge spoils that will require disposal at a landfill, containment at an on-shore containment site, or that can be beneficially reused in the harbor depending upon the contaminant concentrations within the spoils. Lot 24 has been selected by the City as a suitable property to provide a containment site for dredge spoils meeting specific contaminant quality criteria as discussed within this *Request*.

2.3 Lot 24 Containment Site

Lot 24 is a parcel owned by the City that is located at the west end (cul-de-sac) of Murray Street. The parcel is approximately 1,400 feet west of Roosevelt Road and approximately 900 feet southeast of U.S. Highway 41. The site is located approximately 5 miles from the harbor project area. Refer to Drawing G1.0 and Drawing C1.0 for the location of Lot 24 with respect to Menekaunee Harbor. Lot 24 is accessed immediately off the southwest end of the Murray Street cul-de-sac using the gravel site access road. The road is also used by local utilities to access a communication tower and dish antenna array property located south of Lot 24. Refer to Drawing C2.0 for the existing site conditions.

Most of the parcel is composed of fairly level terrain containing upland grassy vegetation. The northern and southwestern property perimeter areas contain woodlands. Portions of the northern and western ends of the parcel include bare sandy soil. The southwestern corner area of the property includes a constructed stormwater detention basin that may intermittently contain water during significantly wet weather periods. Stormwater appears to drain primarily by overland flow in varying directions within and off of the property. Refer to representative project photographs in Appendix C for various views of Lot 24.

2.3.1 Wetlands

Ayres Associates performed a wetland delineation of Lot 24 on October 7 and 8, 2013. The report discussing this effort, titled, *Wetland Delineation Report*, was submitted to the WDNR for review. The edges of the delineated wetland are shown on Drawing C2.0. The only delineated wetland located on Lot 24 is immediately adjacent to the cul-de-sac and is associated with stormwater drainage from Lot 24 that flows toward the cul-de-sac and then to the northeast or south along existing drainage patterns.

The project will be managed so as not to impact the delineated wetland. Best management practices will be implemented to control sediment transport from beyond the project work areas. The site stormwater management efforts will be addressed separately through a NR 216 permit submittal by Ayres Associates.

2.3.2 Lot 24 Historical Evaluation

Historically, Lot 24 had received minor amounts of fill placed within portions of the eastern third of the parcel, including what is understood to be clean fill, stumps, and leaves collected from City neighborhoods. The property has not had any past interactions with the WDNR.

In 2013, the Great Lakes Archaeological Research Center, Inc. (GLARC) performed a Phase I archaeological investigation and architectural/historical study of the project area. The investigation and study (September 2013) did not identify any items of concern associated with Lot 24. Refer to the GLARC report that was previously submitted for additional information (not included with this *Request*).

2.4 Site Design Plan

2.4.1 Introduction

This 100%-level design of the Lot 24 Navigational Dredge Spoils Containment Site has been prepared to take into account the natural and artificial features and constraints that exist on the property. Based on these site design limitations, the property was evaluated to determine the maximum footprint that may be used for development of a spoils containment site. This approach was taken so that the resulting height of the containment pile would be minimized. The site evaluation included surveying to determine the approximate site topographic elevations and a site reconnaissance visit to identify key site natural and artificial features that would influence the design.

The containment site design was completed using a 30%-, 60%-, 100%-level (final) design procedure. The 30%-level design was submitted with the original *Request* in October 2013 and a revised *Request* was submitted with the 60%-level design in February 2014. Each design level is submitted to project participants for review and comment, including the WDNR. The design information provided with this *Request* is considered to be final, at a 100%-level, which has been revised to include comments from the most recent discussions with the WDNR. The objective of providing the 100%-level design with this *Request* is to provide the WDNR the final design of the Lot 24 Navigational Dredge Spoils Containment Site to support their review and approval of this *Request*.

2.4.2 Containment Site Design Footprint

Based on the site constraints, a containment site footprint was prepared for the project. The perimeter of the containment site has been located with suitable setbacks from the existing property lines and utilities, and to provide ample room to manage stormwater and sediments around the containment site perimeter. The site footprint requires clearing and grubbing of wooded areas. The containment site footprint takes up approximately 3.03 acres of the parcel. Refer to Drawing C2.1 for a plan view of the containment site footprint. This footprint is being utilized for this *Request* and project so that the capacity of the containment site may be maximized. Ultimately, the height of the completed containment site will be determined based on the actual volume of navigational dredge spoils placed within it.

2.4.3 Containment Site Development

The final height of the completed containment site will result from the dredging and spoils segregation efforts at the harbor. If more spoils are disposed of at the landfill and are reused beneficially in the harbor following dredging, then less will be contained on Lot 24.

The development of the Lot 24 Navigational Dredge Spoils Containment Site will generally evolve as follows:

- The perimeter area of the containment area, as shown on Drawing C2.2, will include a perimeter drainage swale within the 20-foot wide stormwater management area. Topsoil and some sand may be excavated to shape the drainage swale that will extend around the perimeter of the containment site to direct “leachate” to the existing stormwater detention basin. The prepared drainage swale will have a minimum of 6 inches of topsoil placed on it.
- The perimeter drainage swale will be constructed ahead of project operations to the extent possible, to establish vegetation as soon as possible, to support containment site operations. Seeding and erosion control is discussed below.
- “Leachate” is defined as water that may drain from the placed dredge spoils as the consolidation water remaining within the spoils from the harbor, or from precipitation that falls onto the spoils within the containment site. The facility design is such that leachate is contained on site and not allowed to flow into the on site delineated wetland or to off site locations.
- If small volumes of existing site fill, including boulders, stumps, logs, or other undesirable items are identified within the containment site footprint during its development, these items will be consolidated within the containment site and as such will remain as part of the containment site fill.
- Material generated during site preparation, including that from woodland clearing and grubbing activities will be managed as yard waste and either processed and reused on site or hauled to a suitable private waste management facility. Larger wood items will be managed as firewood or lumber logs as appropriate.
- No insitu sand (exists beneath the topsoil layer) will be excavated from within the Lot 24 containment site area.

- Approximately 3 to 9 inches of topsoil will be stripped from the containment area and stockpiled on-site for later reuse when closing the containment site. The topsoil will be stockpiled at the southwest side of Lot 24 as shown on Drawing C2.1. This drawing shows the approximate limits of construction. Because there is considerable existing topsoil thicknesses located within the containment site (approximately 18 inches average thickness), the remaining, existing topsoil thickness will remain in place at the base on the containment site. This remaining topsoil will bed the contained spoils and provide for some attenuative capacity against the potential leaching of the low level contaminants that may exist within the contained spoils.
- The edge of the excavation to prepare the containment area will be made using approximately 3 horizontal to 1 vertical (3H:1V) slopes downward and inward from the defined perimeter to prepare the base of the containment area. Refer to Drawing C2.2 for the containment site base design. The containment area will be accessed by the construction of a short, gravel access road that will come off of the north side of the existing site access road as shown on Drawing C2.2. This road is located at the location that the City has historically used to access the site.
- The base of the containment site will be gradually sloped to the south and to the west toward the existing detention basin to the extent possible; the project will use existing perimeter drainage patterns to the extent possible. As such, free moisture that remains in the navigational dredge spoils at the time of placement, and precipitation, will be directed to drain away from the spoils piles to promote material stabilization.
- The prepared topsoil base of the containment site will receive approximately 3 to 4 inches of shredded wood / wood chips from the City's offsite stockpile. This additional bedding material will provide for additional attenuative capacity for potential contaminants leaching from the spoils. This wood material will serve to provide a more stable base for truck access into and out of the containment site area. Additional shredded wood will be used throughout the project to promote site operations. A total of approximately 2,000 CY of shredded wood will be utilized within the containment site. Refer to the attached February 4, 2014, letter in Appendix A for additional details regarding this wood.
- Dredge spoils will be placed systematically within the containment site initiating in the interior, higher elevation areas, toward the northwest corner. Spoils placement will proceed from the west to the east toward the site entrance. Placement will be accomplished to promote dewatering.
- Spoils will be placed to minimize the overall height of the containment site and to slopes not greater than 4H:1V. Slopes may be less based on material behavior and material quantities, and adjustments will be made as part of site operations. Refer to Drawing C2.3 showing the containment site filled to approximately its maximum capacity.
- The ultimate configuration of the placed dredge spoils will be to create a somewhat uniform plateau with positive drainage off of the containment pile. The closure of the Lot 24 containment site and disturbed areas on the parcel will

include placement of at least 6 inches of topsoil over the contained spoils, from that stripped to develop the site and revegetation.

- Construction efforts to prepare the dredge spoils containment site will include development and implementation of suitable construction quality control and assurance procedures.
- A cross section of the Lot 24 Containment Site is provided as Drawing C2.4.

2.4.4 Project Specifications

A set of draft specifications have been prepared for the project construction and operations. These specifications are provided in draft form in Appendix G and are for the technical aspects of the project only. The specifications detailing project construction administration and management have not yet been developed, but will be included in the bidding documents that will be prepared and issued later as part of the overall harbor restoration project that will include the dredge and seawall bid documents. The provided project technical specifications include several Storm Water Construction Standards provided by the WDNR through their website that are incorporated into this project as required specifications for use in managing project site stormwater and erosion/sediment control. These specifications are included in Appendix G also.

2.5 Site Operations Plan

2.5.1 Best Management Practices

Best management practices will be utilized during site development and operations to manage stormwater and to prevent transport of dredge materials to areas outside the construction limits of the perimeter drainage swale and existing detention basin, as shown on Drawing C2.2; and, to prevent sediment transport from disturbed areas to beyond the property line or to delineated wetlands. Best management practices will include the use of targeted site drainage ditching, culverts, ditch checks, silt fencing, erosion socks, rip rap, and revegetation of disturbed areas in timely fashion. Dust control during site operations will include water application over traveled areas to limit the amount of airborne soil transport. Silt fencing will be placed around the perimeter of the project, along the limits of construction lines, as shown on Drawing C2.2.

Tracking pads will be used to reduce the amount of soil that may be inadvertently carried by site vehicles onto Murray Street. Appropriate street clean-up activities will be performed to collect soil materials that may be deposited on streets during the project. Refer to Drawing C1.0 for the currently proposed truck route for transporting dredge spoils to either the landfill or to Lot 24. The routes will be adjusted based on the City's needs to maintain safe traffic flow.

The stormwater and the consolidation water from the dredge spoils will be maintained within the containment site boundaries to the extent possible. If this water (referred to as leachate) escapes the containment area perimeter it will be captured within the perimeter drainage swale. This swale will direct the leachate toward the existing detention basin area at the southwest side of Lot 24. A 4-foot width of erosion matting will be installed the entire length of the perimeter drainage swale. Straw bale ditch

checks will be placed approximately every 250 feet and at changes in swale path direction.

The project design has been prepared to control generated leachate on site. The site stormwater management plan will also be presented in a NR 216 permit submittal separately by Ayres Associates.

2.5.2 Dredge Spoils Treatment

Dredge spoils treatment for the environmental and navigational dredge spoils is outside the scope of this *Request*. Primary dewatering will take place during dredging at harbor locations. The dredge spoils dewatering methods are currently being evaluated by Ayres Associates and potential dredging contractors, and methods will be developed accordingly. The selected dewatering methods will be discussed as part of the DSHP, which will be submitted separately.

2.5.3 Dredge Spoils Transportation

The transportation of the navigational dredge spoils from Menekaunee Harbor to the Lot 24 containment site will involve trucks using existing public roads. The truck route is tentatively shown on Drawing C1.0; however, may be adjusted to meet safety and traffic needs by the City during the project.

2.5.4 Containment Area Operations

Containment area operations will be managed by a contractor retained by the City through a competitive bid process. The operations contractor may or may not be the same contractor that is retained to complete the harbor dredging efforts. The containment site operations contractor will be responsible for meeting site operational requirements that will be defined in the project specifications, which will be technically and performance based. Ayres Associates has developed the technical specifications, which are included with this submittal in draft form. The Site Operations Plan consists of the final design and the draft project technical specifications, which are provided in Appendix G.

The operations contractor will be expected to utilize suitable equipment, materials, procedures, and personnel to efficiently run and manage the necessary site activities so as not to cause unnecessary delays to the dredging project. Site operations will include development and implementation of suitable construction quality control and assurance procedures. The selected contractor will be required to follow the final project design and operations specifications.

2.6 Site Closure Plan

The closure of the Lot 24 containment site will include the final shaping of the contained navigational dredge spoils as necessary to meet City access or end-use needs. Following shaping of the contained spoils, the containment site will be topsoiled using the stockpiled topsoil. The topsoil will be fertilized (if necessary), seeded, and mulched. The seed mixture is proposed to be Wisconsin Department of Transportation (WI-DOT) #70 that will be applied at a rate of at least 17.5 pounds per acre. This type of seed mixture should be planted between mid August and late September for proper fall germination. Therefore, this time period will be targeted for final closure seeding of the

containment area site. The seed mixture will include an annual nurse crop such as rye or oats.

Erosion matting will be used in areas of greater or faster stormwater flow. Other erosion control measures will be utilized as necessary to limit erosion and improve the success of revegetation. Site closure activities will follow the project design and specifications, and include suitable construction quality control and assurance procedures.

2.6.1 Site Final-Use Plan

A containment site access road will be constructed at approximately the location shown on Drawing C2.2. A culvert will be installed to allow for water within the perimeter drainage swale to pass. The short access road will extend off of the north side of the existing parcel access road and extend to the north to permit access into the containment area. The road design will include removal of topsoil, placement of the culvert, road fabric, base coarse aggregate, and followed by surface coarse aggregate. A minimum of 6 inches of topsoil will be placed over disturbed areas including the drainage swale.

2.7 Site Maintenance Plan

The Post-Closure Site Maintenance Plan is discussed in this section. The closed containment site will remain under the ownership of the City and as such, the maintenance of the site will be managed by the City. During the period immediately following closure, efforts will be focused on re-establishing vegetation and controlling erosion and sediment transport across the disturbed areas within and outside the containment site. The establishment of sufficient vegetation may require two to three growing seasons. The City will monitor revegetation performance and address site needs following closure.

The existing detention basin area will be cleaned of sediment as necessary to provide for sufficient area and freeboard for the capture of project and post-closure sediments. Removed sediment will be placed within the containment area if the operation is still active. Following closure, removed sediments will be hauled off site and properly disposed of.

The site access roads may require supplemental aggregate materials to address possible localized settlement that may occur during the project and over time.

Localized settlement or erosion may occur periodically over the closed containment site and within adjacent areas. The addition of fill may be necessary to correct settled or eroded areas to promote positive stormwater drainage. Settled areas will be repaired if the settlement has resulted in ponding or unsuitable surface grade that is not promoting proper stormwater drainage. Eroded areas will be repaired as necessary to minimize sediment transport.

Re-seeding of repaired area will be completed using the same seed mixture as presented above. The reseeded areas will be mulched and may include placement of erosion matting and other erosion barriers as necessary based on the size and location of the areas repaired.

Erosion and sediment control features (e.g., silt fencing and ditch checks) will be maintained and replaced as necessary until sufficient vegetation is reestablished. When no longer needed, erosion and sediment control features will be removed.

3.0 Soil and Sediment Information

3.1 Introduction

This section of the *Request* provides quality and quantity information for the soil existing on Lot 24 and for the Menekaunee Harbor sediment. This section provides estimates of the volume of navigational dredge spoils that may be contained on Lot 24.

3.2 Lot 24 Survey and Site Reconnaissance

The site survey and reconnaissance visits of Lot 24 and Lots 7/8 (other nearby City parcels) were performed on October 13, 2013, by Ayres Associates. Drawing C2.0 provides existing topographic information and site features for Lot 24. Site surveying provided a general understanding of the site topography as shown on the drawing. Site reconnaissance included consultations with Diggers' Hotline to mark existing utilities and evaluation of site features and conditions. During the site visit, test pits were excavated at the locations shown on Drawing C2.0. The test pits were performed on Lot 24 and the results are discussed in Section 3.3. During the Lot 24 test pit investigation, two additional City parcels called Lots 7/8 were briefly evaluated by excavating post-holes manually and collecting soil samples. This information is presented in Section 3.4.

3.2.1 Existing Lot 24 Utilities

The site evaluation identified a high-pressure natural gas pipeline running through the western end of the property and communications utilities extending across the southern end of the parcel. These utilities are shown on Drawing C2.0. The utility companies had been contacted for additional information including development and easement restrictions. The following utility information was received and/or is known to exist:

- TransCanada, owner of ANR Pipeline (office in Bonduel, Wisconsin) provided an aerial depiction of the underground 16-inch high-pressure natural gas pipeline location. Diggers' Hotline was able to mark the pipeline location, and surveying was completed of the marking stakes. ANR Pipeline indicated that there is an easement prohibiting activities within 25-feet of the pipeline on both sides. Refer to Appendix D for utility-provided information.
- Underground communications utilities that exist together along the south side of the parcel are believed to be those of Time Warner Cable, CenturyLink, and CenturyTel Communications. These utility companies were contacted and did not respond to requests for additional information. Efforts to contact these utilities will be made again during project bidding. A standard setback of approximately 25 feet has been provided for the containment site development to avoid disturbing these utilities. However, the containment area access road extension will travel over the communications utilities.
- The remaining utilities identified at the site are those that had been stubbed-out and available at the end of the cul-de-sac for potential future use of the parcel,

and include City sewer and water, natural gas, communications, and electricity. These utilities are not located within the project area and will be protected from site operational activities and from vehicles accessing the parcel during the project.

Refer to Drawing C2.1 for the location of the utilities with respect to the proposed footprint of the containment site.

3.3 Lot 24 Soil

3.3.1 Lot 24 Soil Evaluation

During the site reconnaissance visit, four test pits were excavated 4 to 5 feet below ground surface (bgs) using a small, rubber-tired backhoe. The location of the test pits is shown on the Drawing C2.0 along with the existing site conditions. The test pit results indicated that the non-woody vegetated areas of the site contained approximately 17 to 28 inches of black, organic topsoil, with the thicker amounts located toward the east side of the property. Beneath the topsoil was dense sand that became fully saturated at depths ranging from 28 to 56 inches bgs. The sand observed in the test pits did not contain fill and appeared to be undisturbed. Refer to the table in Appendix E titled, Lots 7/8 and 24 Soil Investigation Results, for the test pit information.

3.3.2 Lot 24 Soil Quality

A single, representative soil sample was taken from each test pit from a depth just below the bottom of the topsoil layer. The samples were analyzed for grain-size information and for specific contaminants of concern. The soil was found to be poorly-graded, fine-grained and naturally-occurring dense sand at the locations evaluated. The samples were collected and provided to a laboratory for analyses. The geotechnical laboratory results are provided in Appendix E.

The analytical soil testing was performed for the following contaminants:

- Total metals and/or metals by the Synthetic Precipitation Leaching Procedure (SPLP), including arsenic, copper, lead, mercury, and zinc.
- Polycyclic aromatic hydrocarbons (PAHs)

The laboratory analytical results for the Lot 24 and Lots 7/8 sand are further discussed and compared to the proposed criteria for management of the dredge spoils in Section 3.4.4 below. A copy of the laboratory chain of custody record is included in Appendix E.

3.3.3 Lot 24 Soil Volume

The in situ sand that exists at Lot 24 will not be excavated for development of the containment site. The project proposes to excavate an average of 6 inches of topsoil across the 3.03-acre containment area, which is approximately 2,440 cubic yards (cy) of topsoil that will be stockpiled for final closure of the site. Refer to Drawing C2.2 for additional details.

3.4 Sediment Information

3.4.1 Sediment Quality

This section of the *Request* discusses the analytical information for the existing sediments within the Menekaunee Harbor project area. Several rounds of previous sediment sampling had taken place and a historical summary of the analytical data was provided in a letter to Mr. Gregory Tilkins, WDNR, by Ayres Associates, dated March 21, 2012. The letter includes documentation of the sediment sampling events and the tabularized data. The letter is included in Appendix F for reference. Appendix F also includes various figures that depict the locations of the historical sediment sampling.

On October 25, 2013, Ayres Associates performed additional sampling to represent the quality of the dredge water that will be generated during dewatering activities. This sampling was performed to determine the appropriate management methods for the dredge water that may be generated during dredging and dewatering at the harbor project locations. The analytical results and pertinent discussion regarding this recent effort will be provided separately to the WDNR.

In the February 4, 2014, letter to Mr. Gregory Tilkins, WDNR, Ayres Associates provided an additional summary of sediment sampling data and developed an approach to acceptance criteria for the navigational dredge spoils to be contained on Lot 24. Mr. Tilkins indicated verbally that the approach presented in the letter was acceptable; and therefore, we are submitting this document as the formal *Request*, which includes that letter by reference. A copy of this letter with sediment analyses summary tables is included in Appendix A.

3.4.2 Environmental Dredge Spoils

The definition of the “environmental dredge spoils” is presented in the February 4 letter in Appendix A. These spoils will be transported to an approved, licensed landfill for disposal. The information pertaining to the landfill acceptance of the environmental dredge spoils and potentially excess navigational dredge spoils that cannot be contained on Lot 24 will be provided to the WDNR at a later date.

3.4.3 Navigational Dredge Spoils

The “navigational dredge spoils” will be those sediments that are removed from Menekaunee Harbor that do not exceed the specified contaminant levels as discussed in the February 4 letter. These spoils are proposed to be beneficially reused within the harbor restoration areas, with excess spoils going to Lot 24 for containment if the specified criteria are met. Lot 24 will accept navigational dredge spoils if the total arsenic concentration is less than 6.0 mg/Kg and the other applicable criteria are met.

The navigational dredge spoils have been shown to be the coarser-grained sediments that exist beneath the finer-grained and more contaminated sediments (environmental dredge spoils). The quality control and assurance procedures to be used during the dredging portion of the project, including that for sediment sampling, analyses, and identifying sediment variabilities will be discussed in the *DSHP*, to be submitted separately.

3.4.4 Lot 24 Soil Data Compared to Navigational Dredge Spoils

The analytical results for the Lots 24 and 7/8 soil samples are summarized in the tables provided as part of the February 4, 2014, letter included in Appendix A. The soil located beneath the topsoil (fine-grained sand) was sampled and analyzed for a specific list of metals (as totals and/or SPLP) and PAHs. The metals results indicated low-level detections of the target metals in the samples. No PAHs were detected in the samples. The Lots 24 and 7/8 analytical data are well below regulatory limits and appear to represent background levels for these sites. The proposed navigational dredge spoils are not anticipated to have a deleterious effect on the natural conditions at Lot 24; and therefore, we believe that Lot 24 is a suitable parcel for use as a containment site for this material. Refer to the February 4 letter for additional discussion.

3.4.5 Sediment Volume Estimates

Menekaunee Harbor is estimated to have 72,500 cy of sediment that require removal to achieve design bottom elevations. The sediment varies in thickness from several inches to several feet. The proposed dredging locations and the development of the dredge volume estimates will be further discussed in the *DSHP*, to be submitted separately. Refer to the information provided in Appendix F for the currently proposed plans for harbor restoration activities.

The following sediment and resulting dredge spoils volumes are currently understood:

- The environmental dredge spoils exist generally within the top 1 to 2 feet of the harbor sediments (finer-grained material). Current estimates indicate that approximately 27,500 cy of environmental dredge spoils will be generated depending on the dredging methods utilized.
- After removal of the environmental dredge spoils, estimates indicate that another approximately 45,000 cy of navigational dredge spoils will need to be removed to meet navigation and habitat restoration goals.
- To achieve the final design contours within the harbor area, approximately 22,500 cy of the navigational dredge spoils (approximately half) removed from the harbor will be used. The remaining half, or approximately 22,500 cy, will be transported to Lot 24 for containment, provided that the acceptance criteria is met.

3.5 Lot 24 Design Capacity Summary and Conclusion

Until determinations are made as to the final design contours for the Menekaunee Harbor area, the dredging methods used, the resulting quantities of each type of sediment, the amount of navigational dredge spoils that may be beneficially reused at harbor areas, and the conclusion of the regulatory approval processes, the actual volume of navigational dredge spoils that will be placed in the Lot 24 containment site is difficult to accurately predict. At this time, the navigational dredge spoils volume that may require containment on Lot 24 is estimated to be 22,500 cy.

Using the design parameters discussed in this *Request*, Lot 24 has a dredge spoils capacity of at approximately 54,500 cy for navigational dredge spoils containment. Refer to Drawing C2.3 for the best case (maximum) fill design estimates. However, the

development and operational logistics of the Lot 24 containment site will have to take into account site access, stripping and stockpiling efforts, stormwater controls, and spoils placement and grading. Each of these activities may reduce the effective area of the containment site.

Some general assumptions were made as part of the design presented herein; however, the resulting minimum capacity of 54,500 cy provides nearly 60% more capacity than the current maximum anticipated volume of 22,500 cy of navigation dredge spoils requiring containment. As the quantity of navigational dredge spoils contained on Lot 24 is reduced, the containment site footprint and its final elevations may be reduced accordingly. The goal is to minimize the overall height of the completed containment site.

4.0 Documentation

This section presents the observation and documentation activities that will be performed for the construction, operation, and closure of the Lot 24 Navigational Dredge Spoils Containment Site. The following activities and information will be documented throughout the project:

- Health and safety program implementation.
- Schedule, budget, and personnel details.
- Conformance to project specifications.
- Stormwater management practices implementation.
- Dust control management practices implementation.
- Surveying of containment site topography.
- Construction quantities management.
- Materials and equipment taken off site and brought on site.
- Photographs and written records management.
- Construction materials utilized, including those for erosion and sediment control, and seed mixes placed.
- Site challenges and actions taken to address.

Following completion of site preparation, the containment site will be surveyed and an as-constructed site plan will be prepared. Following the conclusion of site operations and closure, a final site survey will be performed and an as-constructed final grades site plan will be prepared. The documentation gathered during site construction, operations, and closure, including the as-constructed drawings, will be assembled into a project documentation report that will be provided to the WDNR following cessation of site spoils containment activities and closure. The documentation report will include mention of updates to the site post-closure maintenance plan, as appropriate.

Drawings

MENKAUNEE HARBOR IMPROVEMENTS CITY OF MARINETTE MARINETTE, WISCONSIN

FEBRUARY 2014



DRAWING INDEX	
SHT NO.	DESCRIPTION
G1.0	TITLE SHEET
G1.1	LEGEND & ABBREVIATIONS
C1.0	ANTICIPATED DREDGE SPOILS TRUCK ROUTES
C2.0	LOT 24 EXISTING CONDITIONS CONFINED DREDGE SPOILS CONTAINMENT SITE
C2.1	LOT 24 DREDGE SPOILS CONTAINMENT SITE LAYOUT
C2.2	LOT 24 BASE OF DREDGE SPOILS CONTAINMENT SITE DESIGN
C2.3	LOT 24 MAXIMUM FINAL GRADES OF DREDGE SPOILS CONTAINMENT SITE
C3.0	EXISTING HARBOR SITE PLAN & CONTOURS
C3.1	HARBOR DREDGING PLAN & INTERMEDIARY CONTOURS
C3.2	FINAL HARBOR SITE PLAN & CONTOURS
C4.0	HARBOR GROSS SECTION - 1
C4.1	HARBOR GROSS SECTION - 2
C4.2	HARBOR GROSS SECTION - 3
C4.3	HARBOR GROSS SECTION - 4
C4.4	HARBOR GROSS SECTION - 5
C5.0	TYPICAL GROSS SECTIONS - 1
C5.1	TYPICAL GROSS SECTIONS - 2
C6.0	MISC. SITE DETAILS

NOTE:
THIS PLAN SET WAS PREPARED IN COLOR.
REPRODUCTION BY MEANS OTHER THAN
EQUIVALENT COLOR COPYING MAY CAUSE SOME
DATA TO BE LOST OR MISREPRESENTED.

PROJECT AREA



MENKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN



TITLE SHEET

SHEET NO
G1.0

DES BY G. SHAMBEAU	PROJ NO 14-0277-33	DATE FEB 2014	NO.	DATE	REVISION
CHK BY C. GODDARD					

NOT FOR CONSTRUCTION



CONTINUE ON HWY 41
TO WASTE MANAGEMENT
ELMWOOD ROAD NUMBER 4
MENOMONEE, MI 49858

TRUCK ROUTE TO/FROM
LANDFILL

MENEKAUNEE HARBOR
(APPROX. DREDGE AREA)

TRUCK ROUTE TO/FROM
LOT 24 DREDGE SPOILS
CONTAINMENT AREA

LOT 24
(APPROX. DREDGE
SPOILS CONTAINMENT
SITE AREA)

BOOK NO	PROJECT NO	DATE	NO.	DATE	REVISION
BY G. SHAMBEAU	9-0277-33	FEB 2014			
BY G. SHAMBEAU					
BY C. GOODWIN					

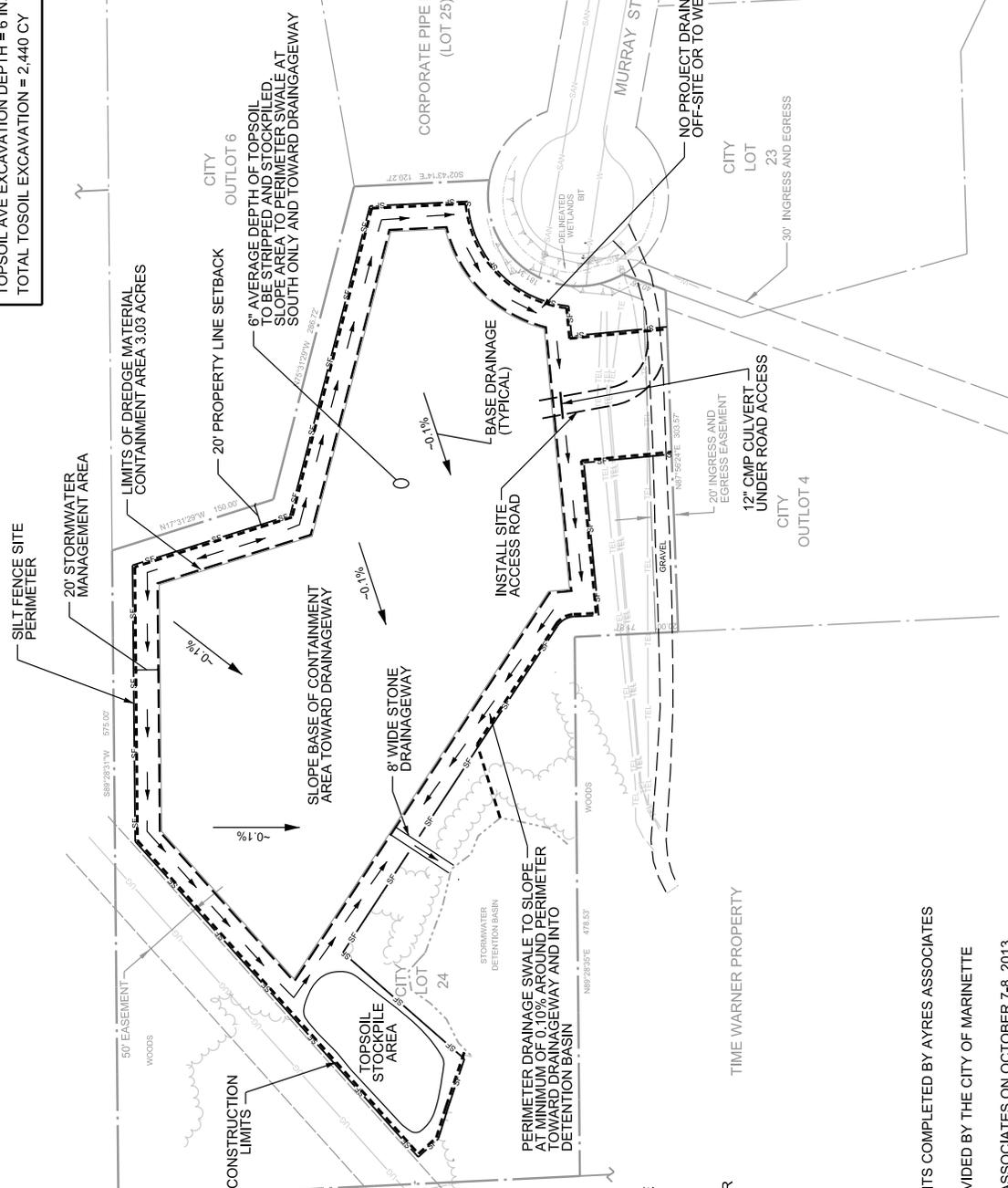
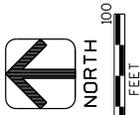
MENEKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN

ANTICIPATED DREDGE SPOILS TRUCK ROUTES

HEET NO
C1.0



EARTHWORK ESTIMATES
 SILT FENCE SITE PERIMETER
 TOPSOIL AVE EXCAVATION DEPTH = 6 IN.
 TOTAL TOPSOIL EXCAVATION = 2,440 CY



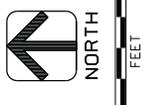
- LEGEND**
- TREE LINE
 - EDGE OF GRAVEL
 - PROPERTY LINE
 - RIGHT OF WAY
 - 2-FOOT ELEVATION CONTOURS
 - DELINEATED WETLAND AREAS
 - UNDERGROUND GAS LINE
 - UNDERGROUND TELEPHONE LINE
 - UNDERGROUND WATER LINE
 - UNDERGROUND ELECTRIC LINE
 - UNDERGROUND SANITARY SEWER
 - STORM SEWER PIPE
 - DITCH CENTERLINE
 - APPROXIMATE EDGE OF WATER
 - CONSTRUCTION LIMITS
 - SILT FENCE

NOTES:

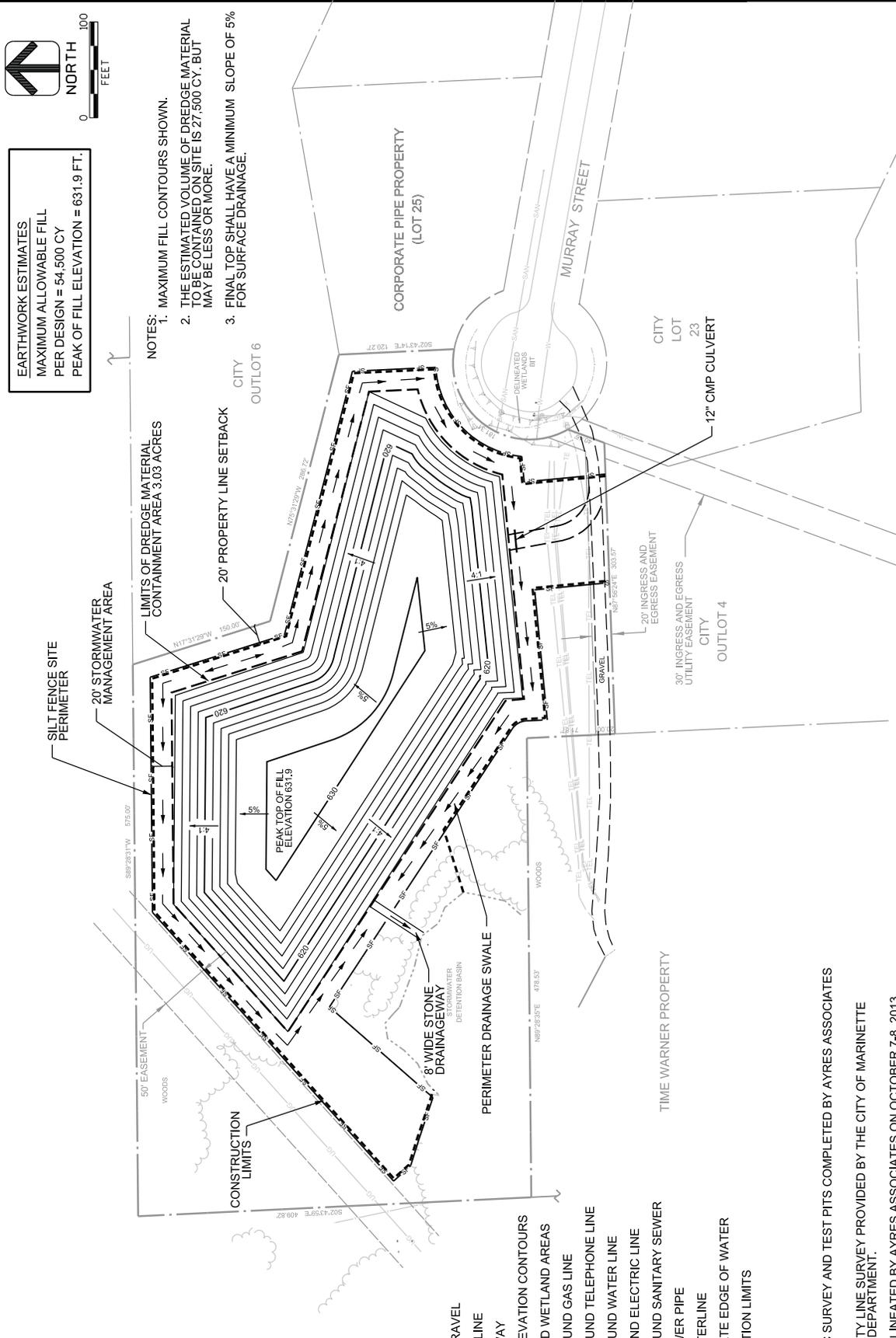
1. TOPOGRAPHIC SURVEY AND TEST PITS COMPLETED BY AYRES ASSOCIATES ON 10-13-2013.
2. PLAT/PROPERTY LINE SURVEY PROVIDED BY THE CITY OF MARINETTE ENGINEERING DEPARTMENT.
3. WETLANDS DELINEATED BY AYRES ASSOCIATES ON OCTOBER 7-8, 2013.

DRAWING NO. C2.2	PROJECT LOT 24 BASE DESIGN NAVIGATIONAL DREDGE SPOILS CONTAINMENT SITE												
CLIENT MENEAUNEE HARBOR IMPROVEMENTS CITY OF MARINETTE MARINETTE, WISCONSIN	DESIGNER AYRES ASSOCIATES <small>Est. 1984 • 9200 Grand</small>												
DATE 10/13/2013	REVISION <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td>1</td> <td>10/13/2013</td> <td>50% Design Lead Plans</td> </tr> <tr> <td>2</td> <td>10/14/2013</td> <td>60% Design Lead Plans</td> </tr> <tr> <td>3</td> <td>10/19/2013</td> <td>100% Design Lead Plans</td> </tr> </table>	NO.	DATE	DESCRIPTION	1	10/13/2013	50% Design Lead Plans	2	10/14/2013	60% Design Lead Plans	3	10/19/2013	100% Design Lead Plans
NO.	DATE	DESCRIPTION											
1	10/13/2013	50% Design Lead Plans											
2	10/14/2013	60% Design Lead Plans											
3	10/19/2013	100% Design Lead Plans											

EARTHWORK ESTIMATES
 MAXIMUM ALLOWABLE FILL
 PER DESIGN = 64,500 CY
 PEAK OF FILL ELEVATION = 631.9 FT.



- NOTES:**
1. MAXIMUM FILL CONTOURS SHOWN.
 2. THE ESTIMATED VOLUME OF DREDGE MATERIAL TO BE CONTAINED ON SITE IS 27,500 CY, BUT MAY BE LESS OR MORE.
 3. FINAL TOP SHALL HAVE A MINIMUM SLOPE OF 5% FOR SURFACE DRAINAGE.



- LEGEND**
- TREE LINE
 - EDGE OF GRAVEL
 - PROPERTY LINE
 - RIGHT OF WAY
 - 2-FOOT ELEVATION CONTOURS
 - DELINEATED WETLAND AREAS
 - UNDERGROUND GAS LINE
 - UNDERGROUND TELEPHONE LINE
 - UNDERGROUND WATER LINE
 - UNDERGROUND ELECTRIC LINE
 - UNDERGROUND SANITARY SEWER
 - STORM SEWER PIPE
 - DITCH CENTERLINE
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 - CONSTRUCTION LIMITS
 - SILT FENCE

- NOTES:**
1. TOPOGRAPHIC SURVEY AND TEST PITS COMPLETED BY AYRES ASSOCIATES ON 10-13-2013.
 2. PLAT/PROPERTY LINE SURVEY PROVIDED BY THE CITY OF MARINETTE ENGINEERING DEPARTMENT.
 3. WETLANDS DELINEATED BY AYRES ASSOCIATES ON OCTOBER 7-8, 2013.

DRYBY	T. BURDET	BOOK NO.	
DATE	DATE	DATE	DATE
SCALE	SCALE	SCALE	SCALE
REVISION	NO.	DATE	DESCRIPTION
NOT FOR CONSTRUCTION			
MENEKAUNEE HARBOR IMPROVEMENTS CITY OF MARINETTE MARINETTE, WISCONSIN			
AYRES ASSOCIATES Civil, Geotechnical, Environmental			DRAWING NO. C2.3
NAVIGATIONAL DREDGE SPOILS CONTAINMENT SITE			LOT 24 FINAL GRADES

Appendices

Appendix A

Correspondence

February 4, 2014

Mr. Gregory Tilkins, PG
Waste and Materials Management Program
Northeast Region
Wisconsin Department of Natural Resources
2984 Shawano Drive
Green Bay, WI 54313-6727

Re: Development of Lot 24 Spoils Acceptance Criteria
To Support Low-Hazard Waste Exemption Request
Menekaunee Harbor Restoration Project
Marinette, Wisconsin

Dear Mr. Tilkins:

On behalf of the City of Marinette, Wisconsin (City), Ayres Associates is submitting this explanation of the development of the Lot 24 Sediment Acceptance Criteria to support the low-hazard waste exemption request that will seek approval to utilize Lot 24, a vacant parcel owned by the City, for containment of “navigational dredge spoils” from the Menekaunee Harbor restoration project. This letter has been prepared ahead of the revised exemption request submittal so that you can review the proposed approach. Following your review, we can discuss any comments you may have and then submit the final version of the exemption request.

This letter does not provide details pertaining to the dredging activities or the dredge spoils quality and confirmation sampling efforts. Those details will be provided separately to the Wisconsin Department of Natural Resources (WDNR) and the United States Environmental Protection Agency (USEPA) for their review as part of other submittals including quality assurance project plans.

Lot 24 Wetlands

Lot 24 has been evaluated for wetlands. Ayres Associates has prepared a wetland delineation report and the final report was submitted to the WDNR on January 23, 2014. The report indicates that there is one delineated wetland area on Lot 24, located along the edge of the cul-de-sac at the site entrance. The edges of the delineated wetlands are shown on Drawing C2.0 in Attachment A. This wetland is associated with a portion of the stormwater drainage from Lot 24 that flows toward the cul-de-sac and then to the northeast or south along existing drainage patterns. The existing Lot 24 access road will be used to enter and exit the site during containment activities and the wetland will not be directly impacted. A culvert, located at the south end of the delineated wetland at the road crossing, allows water to flow from one side of the existing access road to the other.

The wetland will be protected during site containment activities by use of best management practices (BMPs) for stormwater and sediment control. Necessary permitting for stormwater and sediment management will be addressed separately through the NR216 permitting process, in accordance with those regulations.

Sediment Management Criteria

The sediment quality within the Menekaunee Harbor project area has been arduously evaluated and discussed over the last several years as the sediment removal project has advanced toward reality. Active project participants, including the City of Marinette, the Wisconsin Department of Natural Resources (WDNR), the United States Environmental Protection Agency (USEPA), and Ayres Associates have worked together to select an appropriate set of criteria to apply to the harbor sediment which is to be managed during the project. As such, the guidance selected as applicable to this project has been determined to be the *Consensus-Based Sediment Quality Guidelines*, prepared by the WDNR Contaminated Sediment Standing Team, December 2003 (WT-732 2003).

The harbor sediment quality was evaluated by the WDNR and compared to the toxicity thresholds in the referenced guidance. Following this evaluation and based on subsequent discussions with the WDNR, a final set of criteria was established for determining the management of the sediments removed from the harbor. The contaminant concentrations in the sediment were compared to the three concentration criteria in the guidance as follows:

- The Threshold Effect Concentration (TEC); lowest effect level for toxicity effects.
- The Midpoint Effect Concentration (MEC); halfway between lower and upper levels.
- The Probable Effect Concentration (PEC); upper effect level for toxicity effects.

The WDNR indicated that PAHs will not be used to determine the appropriate management option for the dredge spoils because the majority of the sediments to be removed include low-level contaminant concentrations and the significantly PAH-impacted sediments are those that are also impacted by significant metals concentrations that will require the sediments be disposed of at an approved landfill.

The target group of metals that have been selected as indicator parameters for use in the determination of sediment quality includes: Arsenic, Copper, Lead, Mercury, and zinc, as total metals. A summary spreadsheet of the historical analytical data for the target metals in the Menekaunee Harbor sediments and in the in-situ soils at Lots 7/8 and 24 has been prepared and is attached to this letter for reference as Table 1.

Lot 24 Sediment Acceptance Criteria

The total metals concentrations identified at Lots 7/8 and 24 have been compared against the values in the sediments to determine an appropriate cut-off value for what may be acceptable for containment in Lot 24. To support the decision making effort, some synthetic precipitation leaching procedure (SPLP) analyses were performed for the target metals. Refer to the attached Table 1 spreadsheet showing the Summary of Metals in Soil and Sediment that includes the PAL values. Based on our research and discussions with the WDNR, we understand that arsenic is a key metal when considering the target group of metals that have been selected for evaluation.

Our April 2012 SPLP sampling confirmed that all arsenic results from the harbor sediment samples exceeded the NR 140 preventative action limit (PAL) for arsenic (0.001 mg/L) ranging from 0.0053 to 0.0078 mg/L. Of the other target metals sampled, only one result exceeded the PAL; lead was detected just above the PAL (0.0015) at 0.002 mg/L. Arsenic appears to leach more readily out of impacted sediment than the other metals. Therefore, arsenic has been selected as the primary target parameter that will be used to determine the final management option of removed dredge spoils and, therefore, an appropriate concentration must be selected to define which dredge spoils may be classified as navigational dredge spoils for containment on Lot 24.

Based on discussions with WDNR staff regarding the existing sediment quality, initial criteria have been established to segregate the dredge spoils during the project. The criteria are based on the TEC, MEC, and PEC concentrations as discussed above. The selected criteria define which sediments have to be removed from the harbor and which sediments may be beneficially reused within the harbor because they are considered "clean". For the dredge spoils that have to be removed from the harbor, the project is seeking approval from the WDNR to dispose of a portion of those removed spoils, those which are only mildly impacted, in a containment site on Lot 24. The use of an inland containment site for a portion of the spoils is being proposed as a low-hazard disposal option that will result in a significant cost savings for the overall project. The request to permit the development and use of the Lot 24 Containment Site for navigational dredge spoils will be finalized and submitted to the WDNR following the outcome of the WDNR's review of the information presented in this letter.

Because of the concerns associated with the leachability of arsenic, and the understanding that the acceptable state background concentrations for arsenic are 8 mg/kg (RR-940, July 2013), we sampled the soils at Lot 24 and at nearby Lots 7/8 to determine background levels of arsenic. The results indicate that the background levels for arsenic in the fine-grained, sand soil range from not detected to 3.7 mg/kg in the area.

We have reviewed the available sediment data with respect to the known contaminant concentrations and the depths of sediment that are proposed to be removed from the harbor. Our review shows that a significant volume of sediment contains total arsenic between 5 and 6 mg/kg, and that the majority of sediments containing over 6 mg/kg arsenic, also contain contaminant levels greater than the MEC criteria that necessitates landfill disposal. Refer to the attached Table 2 spreadsheet showing the Summary of Metals in Harbor Sediments and Management Plan. Also refer to attached Figure 1, titled Sample Location Map, for additional information.

In light of the soil and sediment information and the need to accomplish the harbor restoration project in an environmentally-sound, yet financially-prudent manner, we believe that a total arsenic concentration of 6 mg/kg is practical for the low-hazard exemption request for the containment of navigational dredge spoils on Lot 24.

Therefore, after the environmental dredge spoils have been removed from the harbor (spoils exceeding the MEC) and disposed of at a landfill, the arsenic concentration of 6 mg/kg would be used to in determining which of the remaining navigational dredge spoils have to be landfilled

and which may be contained on Lot 24. The arsenic TEC is 9.8 mg/kg; however, this value is not considered part of the decision making process. Based on the proposed arsenic value of 6 mg/kg, the comprehensive criteria (using target total metals concentrations and the TEC, MEC, and PEC values) for determining the appropriate management option for the dredge spoils are as follows:

- Sediment with total metals concentrations that are \geq MEC values will go to an approved landfill for disposal.
- Sediment with total metals concentrations that are $<$ MEC, but total arsenic concentrations \geq 6.0 mg/kg, will also go to an approved landfill for disposal.
- Sediment with total metals concentrations \geq TEC, but $<$ MEC and total arsenic $<$ 6.0 mg/kg, will go to Lot 24 for containment on that property.
- Sediment with total metals concentrations $<$ TEC (sediment $<$ 9.8 mg/kg total arsenic per TEC) will be reused within the harbor as “beneficial reuse sediments” to establish project design grades, to the extent possible. Excess beneficial reuse sediments will go to Lot 24 for containment, but only if total arsenic $<$ 6 mg/kg.

As shown in the above dredge spoils management criteria, there may be instances where dredge spoils will satisfy beneficial reuse criteria; however, they may not be needed within the harbor. These “extra” dredge spoils may have to go to the landfill, rather than to Lot 24, if the total arsenic concentration is greater than or equal to 6.0 mg/kg. Refer to attached Figure 2, titled Dredge Spoils Management Chart, for a graphical representation of criteria to be used for the Lot 24 acceptance of navigational dredge spoils.

Within the harbor sediment, sampling has shown that the material composed of the finer-grained soil particles are the sediments that typically exceed the PEC and MEC contaminant limits. Therefore, the dredged sediments that pass the #200 sieve will first be targeted for removal and disposed of at an approved landfill as environmental dredge spoils. Subsequently, the sediments will be classified using visual identification methods and confirmation with laboratory chemical analyses to further categorize the spoils based on the criteria presented above.

Because dredging is not a precise process, the dredging methods will err on the side of caution and the navigational dredge spoils that will ultimately end up being placed on Lot 24 will likely have arsenic concentrations lower than 6 mg/kg. However, we request the 6 mg/kg limit so that occasional confirmation sample results of dredge spoils that are determined to be between 5 and 6 mg/kg will be acceptable for Lot 24 containment.

Using the 6 mg/kg limit, approximately 27,500 CY of environmental dredge spoils will require disposal at a landfill. If the arsenic concentration limit for Lot 24 was lowered to 5 mg/kg, an additional approximately 9,000 CY of dredge spoils would have to be landfilled, which is a 33% increase. These additional spoils, weighing approximately 12,000 tons and going to the landfill, would increase project tipping fees by approximately \$312,000, at \$26/ton. If the acceptance criteria would be 6 mg/kg, rather than 5 mg/kg, this would allow the 9,000 CY to be taken to Lot

24 instead. The total estimated volume of navigational dredge spoils going to Lot 24 would increase from 13,500 CY to 22,500 CY. Lot 24 has capacity for approximately 55,000 CY of fill. For clarity, the most recent volume of environmental dredge spoils planned for landfill disposal was estimated based on the spoils removed from the harbor that were above MEC levels (23,000 CY total). Upon tightening the acceptance criteria for containment of navigational dredge spoils on Lot 24, approximately an additional 4,500 CY (27,500 CY total) would have to be landfilled using the 6.0 mg/kg limit, or an additional 9,000 CY (36,500 CY total) would have to be landfilled if a 5.0 mg/kg limit was applied.

Additional Considerations

The topsoil on Lot 24 will be stripped and stockpiled on-site for later reuse when closing the containment site. The WDNR has requested that approximately 6 inches of the existing topsoil be stripped to form the base for the spoils containment site. The existing topsoil thickness on Lot 24 ranges from approximately 17 to 28 inches. The topsoil left in place beneath the contained dredge spoils will provide for additional attenuation capacity of the low-level metals that may potentially remain exist within the spoils. The design proposes to excavate between 3 to 9 inches (6 inches average excavation depth) of existing topsoil so that sufficient slope can be achieved across the containment area base to facilitate surface water drainage, constructability, and operation needs.

The City has approximately 2,000 CY of shredded wood that the City will provide to the containment site for project use. This material has been pre-approved both by Greg Tilkins and Valerie Joosten, both of the WDNR. Prior to placement of the dredge spoils, the prepared containment site base area will be covered with approximately 3 to 4 inches of shredded wood to provide for an improved surface on which trucks and site operations vehicles may travel. This 3- to 4-inch layer will utilize approximately 1,250 to 1,500 CY of the available wood chips. The remaining wood chips (approximately 500 to 750 CY) will be used during site containment operations to improve site access and ground conditions to support site vehicle movement. The 2,000 CY of shredded wood will, therefore, be included in the total contained volume at the site. The use of the shredded wood at the base of the proposed dredge spoils containment site may provide for additional attenuation capacity of dredge spoils contaminants.

After the containment site has received all of the navigational dredge spoils that need to be contained and that meet the required criteria, the site will be covered with approximately 6 inches of topsoil using the topsoil that had been stripped and stockpiled to prepare the containment site. Assuming the containment site is 3.03 acres in size, the site will be covered with approximately 2,500 CY of topsoil upon completion of the project.

Mr. Gregory Tilkins
February 3, 2014
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Closing

We appreciate your timely review of this information and we can be available to discuss your comments at your convenience. If you have any questions regarding this letter, please contact me.

Sincerely,

Ayres Associates Inc



Dean R. Free, PE
Project Manager

715.831.7633 Direct
FreeD@AyresAssociates.com

DRF/LS:sem

Enclosure: Summary of Metals in Soil and Sediment (spreadsheet)
Summary of Metals in Harbor Sediment and Management Plan (spreadsheet)
Sample Location Map
Dredge Spoils Management Chart

cc: Brian Miller, City of Marinette (hard copy)
Robert Rosenberger, WDNR (electronic)
Jim Killian, WDNR (electronic)
Cheryl Bougie, WDNR (electronic)
Lynn Scherbert, Ayres (hard copy)

SUMMARY OF METALS IN SOIL AND SEDIMENT

Menekaunee Harbor Restoration Project

February 4, 2014

Sample Location and Name	Sample Interval / Depth (in.)	Total Metals Analyses (mg/kg)					SPLP Metals Analyses (mg/L)				
		Arsenic	Copper	Lead	Zinc	Mercury	Arsenic	Copper	Lead	Zinc	Mercury
		-	-	-	Groundwater PAL:		0.001	0.130	0.0015	2.5	0.0002
LOT 24 (10/15/2013) - NOTE 1											
TP-1	20	ND	1.2	0.76	5.4	ND	ND	ND	ND	ND	ND
TP-2	24	-	-	-	-	-	ND	0.0033	ND	ND	ND
TP-3	20	1.1	1.4	0.71	3.9	ND	ND	ND	ND	0.00002	0.00002
TP-4	30	ND	1.6	0.56	3.3	ND	ND	ND	ND	0.0038	0.00002
LOTS 7/8 (10/15/2013) - NOTE 1											
PH-1	18	ND	0.7	0.77	4.8	ND	ND	ND	ND	ND	ND
PH-2	16	-	-	-	-	-	ND	ND	ND	ND	ND
PH-3	14	ND	0.57	1.4	4.2	ND	ND	ND	ND	0.0019	0.00002
LOTS 7/8 (4/23/2012) - NOTE 2											
SS7-1	12-24	3.1	-	-	-	-	-	-	-	-	-
SS7-1A	36-48	2.6	-	-	-	-	-	-	-	-	-
SS7-2	12-24	3.7	-	-	-	-	-	-	-	-	-
SS7-3	12-24	2.7	-	-	-	-	-	-	-	-	-
SS7-4T	12-24	1.6	-	-	-	-	-	-	-	-	-
SS7-4TA	24-36	1.5	-	-	-	-	-	-	-	-	-
SS8-1	12-24	0.59	-	-	-	-	-	-	-	-	-
SS8-2	24-36	1.7	-	-	-	-	-	-	-	-	-
SS8-3	12-24	1.3	-	-	-	-	-	-	-	-	-
MENKAUNEE HARBOR (4/23/2012) - NOTE 3											
MHS1A,B	0-30	-	-	-	-	-	0.0074	0.0033	0.002	0.03	<0.000016
MHS2A,B	0-30	-	-	-	-	-	0.0078	<0.003	0.0015	0.0047	<0.000016
MHS3A,B	0-30	-	-	-	-	-	0.0071	<0.003	<0.0014	0.0052	<0.000016
MHS4A,B	0-30	-	-	-	-	-	0.0053	<0.003	<0.0014	0.0031	0.00004
MHS5A	0-30	2.2	2.5	1.0	15.8	0.0038	-	-	-	-	-
MHS5B	0-30	1.5	3.3	1.1	14	0.00056	-	-	-	-	-
MHS5C	0-30	1.3	2.2	0.98	14.8	<0.00051	-	-	-	-	-
MHS6A	0-30	4.3	4.8	5.7	23.5	0.016	-	-	-	-	-
MHS6B	0-30	2.2	4.6	1.3	17.5	0.0015	-	-	-	-	-
MHS6C	0-30	1.0	1.7	0.83	13	0.0005	-	-	-	-	-
MENKAUNEE HARBOR (July 2007) - NOTE 4											
MH07-SS-01-01	0-18	13	16.4	30	70.3	0.20	-	-	-	-	-
MH07-SS-01-02	18-42	4.0	14.8	17.2	41.7	0.15	-	-	-	-	-
MH07-SS-01-03	42-61	1.8	2.2	0.61	15.6	0.018	-	-	-	-	-
MH07-SS-02-01	0-14	2.3	2.4	1.1	14.5	0.02	-	-	-	-	-
MH07-SS-02-02	14-38	1.9	2.1	1.1	14.1	0.018	-	-	-	-	-
MH07-SS-02-03	38-50	1.4	1.9	0.8	11.8	0.017	-	-	-	-	-
MH07-SS-03-01	0-15	9.3	17.9	19.3	58.8	0.033	-	-	-	-	-
MH07-SS-04-01	0-23	5.8	12	11.9	33.7	0.06	-	-	-	-	-
MH07-SS-04-02	23-47	3.2	5.2	6.8	40.2	0.033	-	-	-	-	-
MH07-SS-04-03	47-59	3.6	5.8	8.2	25.5	0.11	-	-	-	-	-
MH07-SS-05-01	0-24	5.6	9.3	14.5	37.5	0.044	-	-	-	-	-
MH07-SS-05-02	24-36	3.6	7.4	8.0	23.1	0.054	-	-	-	-	-
MH07-SS-06-01	0-16	4.7	12.0	14.4	54.6	0.042	-	-	-	-	-
MH07-SS-06-02	16-40	3.2	3.8	3.6	19.9	0.024	-	-	-	-	-
MH07-SS-06-03	40-68	2.3	2.0	0.99	12.6	0.017	-	-	-	-	-
MH07-SS-07-01	0-23	4.7	10.1	14.1	47.6	0.14	-	-	-	-	-
MH07-SS-08-01	0-12	26.2	36.9	104	146	0.39	-	-	-	-	-
MH07-SS-08-02	12-30	11.3	29.5	45.9	113	0.64	-	-	-	-	-
MH07-SS-08-03	30-39	5.4	27.7	69.7	128	0.61	-	-	-	-	-
MH07-SS-09-01	0-24	28.8	29.1	47	118	0.23	-	-	-	-	-
MH07-SS-09-02	24-48	20.9	44.30	54.9	146	1.1	-	-	-	-	-
MH07-SS-09-03	48-72	7.8	26.1	43.2	95.6	0.45	-	-	-	-	-
MH07-SS-09-04	72-89	4.9	26.3	32.7	71.7	0.28	-	-	-	-	-
MH07-SS-10-01	0-19	6.0	4.3	6.4	19.6	0.02	-	-	-	-	-
MH07-SS-10-02	19-43	5.7	3.5	5.7	19.0	0.019	-	-	-	-	-
MH07-SS-10-03	43-67	24.9	28.2	46.4	112	0.24	-	-	-	-	-
MH07-SS-10-04	67-86	38.1	67.4	87	220	1.9	-	-	-	-	-
MH07-SS-11-01	0-18	5.5	3.4	5.4	19.1	0.026	-	-	-	-	-
MH07-SS-13-01	0-24	4.6	9.8	49.6	254	0.13	-	-	-	-	-
MH07-SS-13-02	24-37	3.1	10.6	29.7	62.3	0.2	-	-	-	-	-
MH07-SS-14-01	0-19	8.0	7.9	12.5	36	0.18	-	-	-	-	-
MENKAUNEE HARBOR (1997) - NOTE 5											
HTM-1	0-24	5.82	5.23	11.36	44	ND	-	-	-	-	-
HTM-1A	24-48	-	7.08	39.31	81.8	3.14	-	-	-	-	-
HTM-1A	24-31.9	5.61	-	-	-	-	-	-	-	-	-
HTM-1B	31.9-39.8	5.46	-	-	-	-	-	-	-	-	-
HTM-1C	39.8-48	5.58	-	-	-	-	-	-	-	-	-
HTM-2	0-24	3.79	8.16	13.12	52.5	1.78	-	-	-	-	-
HTM-2A	24-48	-	37.16	79.96	1.46	3.0	-	-	-	-	-
HTM-2A	24-31.9	13.58	-	-	-	-	-	-	-	-	-
HTM-2B	31.9-39.8	5.26	-	-	-	-	-	-	-	-	-
HTM-2C	39.8	7.12	-	-	-	-	-	-	-	-	-
HTM-3	31.9-39.8	5.34	5.74	83.27	-	12.8	-	-	-	-	-
HTM-3	39.8-48	2.54	4.73	46.49	65.6	ND	-	-	-	-	-
HTM-4	0-24	5.55	9.18	16.41	56.2	1.26	-	-	-	-	-
HTM-4	24-48	20.43	12.24	21.27	53.2	ND	-	-	-	-	-

NOTES

1. Sampling of Lots 24 and 7/8 by Ayres Associates, October 15, 2013, to support exemption request for containment site.
2. Proposed Menekaunee Harbor Dredge Spoils Disposal Site (Letter); Ayres Associates to Mr. Gregory Tilkins, WDNR, May 11, 2012.
3. Sampling of Menekaunee Harbor by Ayres Associates, April 23, 2012.
4. Menekaunee Harbor Sediment Report, Final, June 6, 2008, Weston Solutions, Inc.
5. Sampling and Analysis Plan for Characterizing Sediments, January 13, 1997, White Water Associates, Inc.
6. A "-" signifies that sampling was not performed for the noted parameter.

SUMMARY OF METALS IN HARBOR SEDIMENT AND MANAGEMENT PLAN

**Menekaunee Harbor Restoration Project
January 30, 2014**

Sample Location and Name	Sample Interval / Depth (in.)	Total Metals Analyses (mg/kg)								Proposed Spoils Management: See Legend and Color Key in Notes below.
		Arsenic	Cadmium	Copper	Iron	Lead	Nickel	Zinc	Mercury	
Sediment Guidelines (see Note 4)	TEC	9.8	0.99	32	20,000	36	23	120	0.18	
	MEC	21.4	3.0	91	30,000	83	36	290	0.64	
	PEC	33	5.0	150	40,000	130	49	460	1.1	
MENEKAUNEE HARBOR (4/23/2012) - NOTE 1										
MHS5A	0-30	2.2	-	2.5	-	1.0	-	15.8	0.0038	Beneficial Reuse; excess to Lot 24
MHS5B	0-30	1.5	-	3.3	-	1.1	-	14	0.00056	Beneficial Reuse; excess to Lot 24
MHS5C	0-30	1.3	-	2.2	-	0.98	-	14.8	<0.00051	Beneficial Reuse; excess to Lot 24
MHS6A	0-30	4.3	-	4.8	-	5.7	-	23.5	0.016	Beneficial Reuse; excess to Lot 24
MHS6B	0-30	2.2	-	4.6	-	1.3	-	17.5	0.0015	Beneficial Reuse; excess to Lot 24
MHS6C	0-30	1.0	-	1.7	-	0.83	-	13	0.0005	Beneficial Reuse; excess to Lot 24
MENEKAUNEE HARBOR (July 2007) - NOTE 2										
MH07-SS-01-01	0-18	13	0.320	16.4	10,900	30	8.0	70.3	0.20	Landfill
MH07-SS-01-02	18-42	4.0	0.220	14.8	11,700	17.2	8.6	41.7	0.15	Beneficial Reuse; excess to Lot 24
MH07-SS-01-03	42-61	1.8	0.045	2.2	7,810	0.61	4.3	15.6	0.018	Beneficial Reuse; excess to Lot 24
MH07-SS-02-01	0-14	2.3	0.049	2.4	5,930	1.1	3.8	14.5	0.02	Beneficial Reuse; excess to Lot 24
MH07-SS-02-02	14-38	1.9	0.067	2.1	6,410	1.1	3.9	14.1	0.018	Beneficial Reuse; excess to Lot 24
MH07-SS-02-03	38-50	1.4	0.042	1.9	5,750	0.8	3.8	11.8	0.017	Beneficial Reuse; excess to Lot 24
MH07-SS-03-01	0-15	9.3	0.210	17.9	13,600	19.3	9.5	58.8	0.033	Landfill
MH07-SS-04-01	0-23	5.8	0.200	12	10,500	11.9	6.9	33.7	0.06	Beneficial Reuse; excess to Lot 24
MH07-SS-04-02	23-47	3.2	0.086	5.2	8,810	6.8	5.0	40.2	0.033	Not Dredged
MH07-SS-04-03	47-59	3.6	0.120	5.8	9,590	8.2	6.7	25.5	0.11	Not Dredged
MH07-SS-05-01	0-24	5.6	0.240	9.3	12,200	14.5	7.7	37.5	0.044	Beneficial Reuse; excess to Lot 24
MH07-SS-05-02	24-36	3.6	0.150	7.4	8,000	8.0	5.2	23.1	0.054	Beneficial Reuse; excess to Lot 24
MH07-SS-06-01	0-16	4.7	0.220	12.0	13,200	14.4	8.8	54.6	0.042	Beneficial Reuse; excess to Lot 24
MH07-SS-06-02	16-40	3.2	0.069	3.8	7,950	3.6	4.7	19.9	0.024	Beneficial Reuse; excess to Lot 24
MH07-SS-06-03	40-68	2.3	0.035	2.0	6,320	0.99	3.6	12.6	0.017	Beneficial Reuse; excess to Lot 24
MH07-SS-07-01	0-23	4.7	0.130	10.1	9,970	14.1	7.4	47.6	0.14	Beneficial Reuse; excess to Lot 24
MH07-SS-08-01	0-12	26.2	0.950	36.9	19,800	104	14.2	146	0.39	Landfill
MH07-SS-08-02	12-30	11.3	0.700	29.5	12,600	45.9	10.9	113	0.64	Landfill
MH07-SS-08-03	30-39	5.4	0.680	27.7	12,000	69.7	9.2	128	0.61	Lot 24
MH07-SS-09-01	0-24	28.8	0.940	29.1	21,200	47	17.2	118	0.23	Landfill
MH07-SS-09-02	24-48	20.9	1.000	44.30	20,000	54.9	18.1	146	1.1	Landfill
MH07-SS-09-03	48-72	7.8	0.580	26.1	12,800	43.2	11.0	95.6	0.45	Not Dredged
MH07-SS-09-04	72-89	4.9	0.350	26.3	12,200	32.7	8.9	71.7	0.28	Not Dredged
MH07-SS-10-01	0-19	6.0	0.047	4.3	7,590	6.4	4.6	19.6	0.02	Beneficial Reuse; or to Landfill?
MH07-SS-10-02	19-43	5.7	0.046	3.5	7,580	5.7	4.2	19.0	0.019	Beneficial Reuse; excess to Lot 24
MH07-SS-10-03	43-67	24.9	1.000	28.2	18,300	46.4	14.5	112	0.24	Landfill
MH07-SS-10-04	67-86	38.1	1.700	67.4	24,600	87	21.3	220	1.9	Landfill
MH07-SS-11-01	0-18	5.5	0.096	3.4	7,800	5.4	4.4	19.1	0.026	Beneficial Reuse; excess to Lot 24
MH07-SS-13-01	0-24	4.6	0.310	9.8	8,100	49.6	6.3	254	0.13	Lot 24
MH07-SS-13-02	24-37	3.1	0.160	10.6	9,230	29.7	6.4	62.3	0.2	Lot 24
MH07-SS-14-01	0-19	8.0	0.150	7.9	8,020	12.5	6.0	36	0.18	Beneficial Reuse; or to Landfill?
MENEKAUNEE HARBOR (1997) - NOTE 3										
HTM-1	0-24	5.82	0.128	5.23	5,800	11.36	ND	44	ND	Beneficial Reuse; excess to Lot 24
HTM-1A	24-48	-	0.542	7.08	14,700	39.31	17.4	81.8	3.14	Landfill
HTM-1A	24-31.9	5.61	-	-	-	-	-	-	-	Beneficial Reuse; excess to Lot 24
HTM-1B	31.9-39.8	5.46	-	-	-	-	-	-	-	Beneficial Reuse; excess to Lot 24
HTM-1C	39.8-48	5.58	-	-	-	-	-	-	-	Beneficial Reuse; excess to Lot 24
HTM-2	0-24	3.79	0.201	8.16	6,800	13.12	ND	52.5	1.78	Landfill
HTM-2A	24-48	-	0.658	37.16	17,900	79.96	23.2	1.46	3.0	Landfill
HTM-2A	24-31.9	13.58	-	-	-	-	-	-	-	Landfill
HTM-2B	31.9-39.8	5.26	-	-	-	-	-	-	-	Beneficial Reuse; excess to Lot 24
HTM-2C	39.8	7.12	-	-	-	-	-	-	-	Beneficial Reuse; or to Landfill?
HTM-3	0-24	5.34	0.202	5.74	4,450	83.27	ND	-	12.8	Lot 24
HTM-3	24-48	2.54	0.193	4.73	4,740	46.49	ND	65.6	ND	Lot 24
HTM-4	0-24	5.55	0.272	9.18	7,640	16.41	11.4	56.2	1.26	Landfill
HTM-4	24-48	20.43	0.523	12.24	13,700	21.27	14.0	53.2	ND	Landfill

NOTES

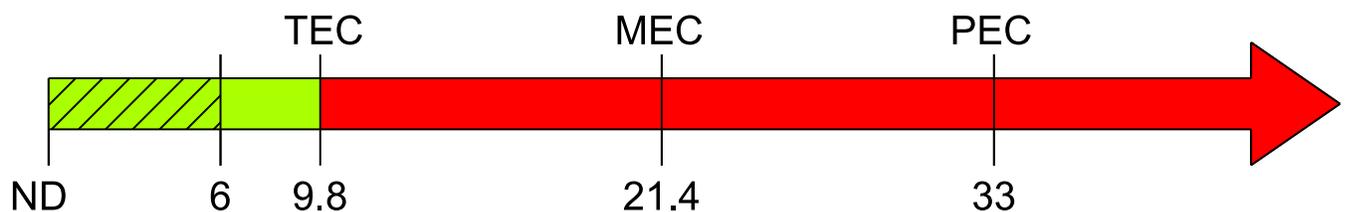
1. Sampling of Menekaunee Harbor by Ayres Associates, April 23, 2012.
2. Menekaunee Harbor Sediment Report, Final, June 6, 2008, Weston Solutions, Inc.
3. Sampling and Analysis Plan for Characterizing Sediments, January 13, 1997, White Water Associates, Inc.
4. Recommended sediment quality guideline values for metals and associated levels of concern; from Consensus-Based Sediment Quality Guidelines, WDNR, WT-732 2003; December 2003.

LEGEND and COLOR KEY

	-Indicates results <TEC, but arsenic concentration ≥ 6.0. For some of these samples only arsenic analysis performed.
	-Indicates results <TEC, but arsenic concentration > 5.0. For some of these samples only arsenic analysis performed.
	-Indicates results ≥TEC, but <MEC and total arsenic concentration <6.0. Therefore, these dredge spoils go to Lot 24 Containment.
	-Indicates results ≥MEC or <MEC with total arsenic ≥ 6.0. Therefore these dredge spoils go to landfill.
	-Indicates results are suitable for beneficial reuse in the harbor or Lot 24.
	-Indicates results are suitable for beneficial reuse in the harbor, or if removed must go to landfill.
	-Indicates results >TEC criteria.
	-Indicates results >MEC criteria.
	-Indicates results >PEC criteria

Dredge Spoils Management Criteria

FOR LOT 24 ACCEPTANCE OF DREDGE SPOILS



DISPOSAL BASED ON ARSENIC LEVEL

ALL UNITS IN mg/Kg/(ppm)

USING TOTAL METALS CONCENTRATIONS

	TEC	MEC	PEC
ARSENIC	9.8	21.4	33
COPPER	32	91	150
LEAD	36	83	130
MERCURY	0.18	0.64	1.1
ZINC	120	290	460

* <6.0 Arsenic Proposed for Lot 24 acceptance

LEGEND

-  = REMAIN IN HARBOR AS BENEFICIAL REUSE
-  = TO LOT 24 CONTAINMENT SITE
-  = TO LANDFILL
- ND = NOT DETECTED

Appendix B

Project Schedule

Lot 24 Confined Disposal Site for Navigational Dredge Material - Menekaunee Harbor Project
March 2014

Task	Begin	End	9/10/13	9/30/13	10/31/13	11/30/13	12/31/13	1/31/14	2/28/14	3/31/14	4/30/14	5/31/14	6/30/14
Marinette Council Approval of Master Plan [Lot 24 Design Start]	9/10/13	9/10/13											
Complete Lot 24 walk thru and soil survey (test pits)	10/15/13	10/16/13											
Complete Lot 24 topographic survey and mapping	10/15/13	10/18/13											
Prepare Lot 24 Conceptual Plans (Design, Operation, Closure, and Maintenance)	9/10/13	10/15/13											
Prepare DRAFT Low-Hazard Waste/Beneficial Reuse Exemption Request [NR 500.08(5)]	10/21/13	11/8/13											
Prepare Lot 24 30%-Level Design Plans; includes internal review	10/21/13	11/8/13											
Submit DRAFT Exemption Request/30%-Level Design to WDNR ¹	11/8/13	1/9/14											
Follow-up discussions regarding wetlands, wood chips, and Lot 24 spoils acceptance criteria	1/9/14	1/16/14											
Prepare/Submit Lot 24 Spoils Acceptance Criteria Letter and Submit to WDNR for Review	1/16/14	2/4/14											
Receive approval from WDNR of Approach to Spoils Acceptance, letter dated 2/4/14	2/7/14	2/14/14											
Prepare FINAL Low-Hazard Waste/Beneficial Reuse Exemption Request [NR 500.08(5)]	2/14/14	2/18/14											
Prepare Lot 24 60%-Level Design	2/14/14	2/18/14											
Submit FINAL DRAFT Exemption Request/60%-Level Design to WDNR ¹	2/18/14	3/13/14											
Prepare Environmental Dredge Spoils Management Plan for disposal at licensed landfill	2/18/14	4/4/14											
Prepare Lot 24 FINAL 100%-Level Design with Draft Specifications	3/13/14	3/20/14											
Submit 100%-level Design to WDNR for Review (3 Weeks allotted) ²	3/20/14	4/10/14											
Prepare Lot 24 NR216 Stormwater Permit Application and SWPPP	3/1/14	3/30/14											
Internal Review of NR216 Permit/SWPPP; by City and interested parties	3/31/14	4/3/14											
Submit NR216 Permit App/SWPPP to WDNR for Review (30 days allotted) ³	3/7/14	4/18/14											
Prepare Lot 24 Final Specifications and Bidding Documents, including COAPP	4/7/14	4/21/14											
WDNR Approval of Exemption Request and Final Design (3 weeks passed)	4/10/14	4/10/14											
Bidding Efforts Initiated: Conduct Lot 24 Pre-Bid Conference Call; bidding assistance	4/21/14	5/1/14											
Issue Lot 24 bid package [by City] - 14-day bidding period	5/1/14	5/14/14											
Bid Opening [by City]	5/14/14	5/14/14											
Receive final approval of all permits for Lot 24 Containment Site Project and Proceed	5/19/14	5/19/14											

Completed Items

City of Marinette Activities

Ayres Associates' Activities

WDNR Review and Approval Activities

Footnotes

- ¹ The WDNR review of the Exemption Request includes draft reviews with the 30%- and 60%-level designs. The Exemption Request follows submittal and approval of February 4, 2014, letter to WDNR, with approach to spoils management criteria for Lot 24 acceptance. The overall review period allotted per code is 65 days; however, the review has been completed in phases and the total time period is difficult to predict.
- ² The WDNR review period for the FINAL 100%-level Design is not known; 3 weeks assumed.
- ³ The review period for the NR216/Stormwater permitting and SWPPP is unknown; 30 days assumed.

PROJECT SCHEDULE

Appendix C
Aerial Images and Representative Site Photographs

Lot 24 - Proposed Navigational
Dredge Spoils Containment Site
Menekaunee Harbor Project,
Marinette, WI - Ayres Associates

LOT 23

Murray Street

Lot 24 Proposed Spoils
Containment Area

Site Access Road

Site Access Road

Lot 24 Proposed Spoils
Containment Area

LOT 24
7.6 ACRES

Existing Site
Depression Area

Murray Street

Communications
Antenna Array and
Tower Area

NORTH

NORTH

Lot 24 - Proposed Navigational
Dredge Spoils Containment Site
Menekaunee Harbor Project,
Marinette, WI - Ayres Associates

Lot 24 – City of Marinette Property
October 15, 2013 - Sheet 1



Looking west into Parcel No. Lot 24, from end of Murray Street.



Looking west-southwest at site entrance road that travels along south side of parcel.

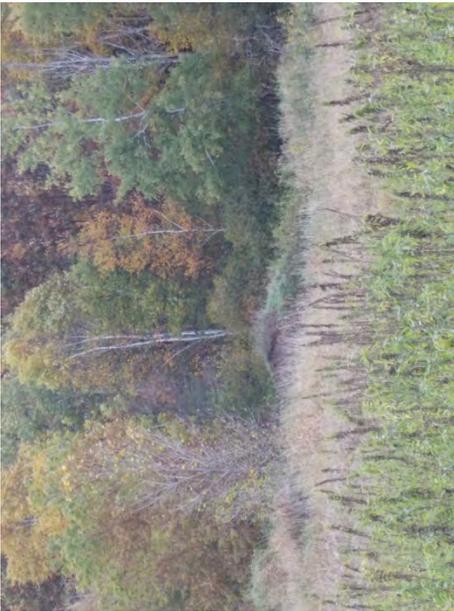


Looking east along site entrance road toward Murray Street cul-de-sac.



Looking west into Lot 24 with City water sewer utilities stubbed at edge of cul-de-sac.

Lot 24 – City of Marinette Property
October 15, 2013 - Sheet 2



Looking north from eastern part of Lot 24.



Looking at soil profile in test pit TP-4; dense, fine-grained, sand.



Looking into test pit TP-1; saturated conditions at base of pit.



Looking into test pit TP-2; typical in situ sand profile.

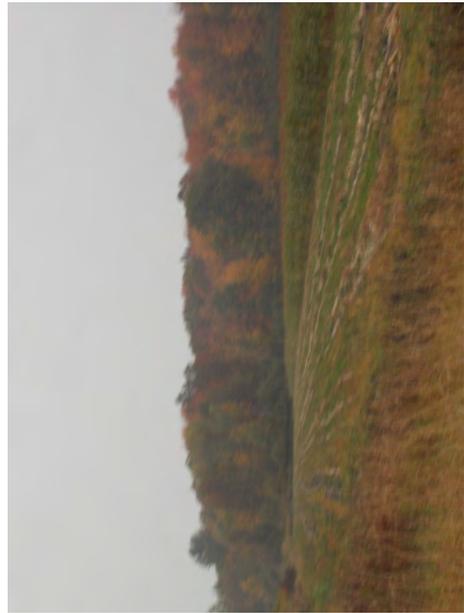
Lots 7/8 – City of Marinette Property
October 15, 2013 - Sheet 3



Looking east-southeast from Parsek Street cul-de-sac into City Lots 7/8.



Looking south at Lots 7/8; drainage ditch along road, corn field and wooded area beyond that.

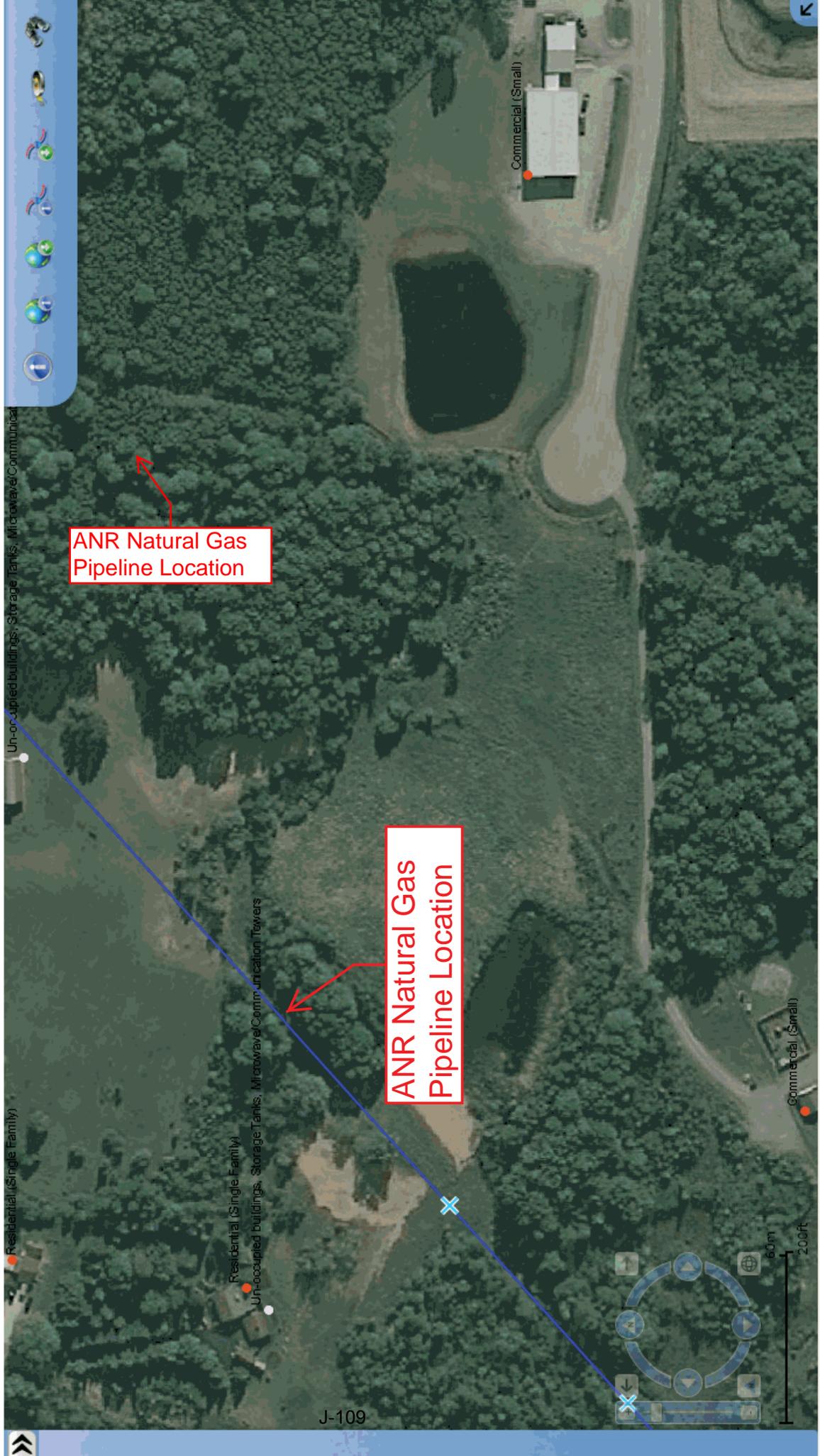


Looking southeast into Lots 7/8.



View of post-hole with dense, fine-grained sand below topsoil.

Appendix D
Site Utilities Information



ANR Natural Gas Pipeline Location

ANR Natural Gas Pipeline Location

Appendix E

Soil Information

Soil Analytical Results Summary

City of Marinette Lots 24 and 7/8

Menekaunee Harbor Redevelopment Project

Sample Location	Units	Lot 24				Lots 7/8		
		TP-1	TP-2	TP-3	TP-4	PH-1	PH-2	PH-3
Solids	% by wt.	79.8	84.5	84.9	78.1	86.5	NA	82.3
Total Organic Carbon	% by wt.	0.24	NA	NA	0.06	0.25	NA	0.40
Total Metals Analyses								
Arsenic	mg/kg	ND	NA	1.1	ND	ND	NA	ND
Copper	mg/kg	1.2	NA	1.4	1.6	0.7	NA	0.57
Lead	mg/kg	0.76	NA	0.74	0.56	0.77	NA	1.4
Zinc	mg/kg	5.4	NA	3.9	3.3	4.8	NA	4.2
Mercury	mg/kg	ND	NA	ND	ND	ND	NA	ND
SPLP Metals Analyses								
Arsenic	mg/kg	ND	ND	ND	ND	ND	ND	ND
Copper	mg/kg	ND	0.0033	ND	ND	ND	ND	ND
Lead	mg/kg	ND	ND	ND	ND	ND	ND	ND
Zinc	mg/kg	ND	ND	ND	0.0038	ND	ND	0.0019
Mercury	mg/kg	ND	ND	0.000020	0.000020	ND	ND	0.000020
Organics Analyses								
PAHs	mg/kg	ND	ND	ND	ND	ND	NA	ND
[Refer to Analytical Report for list of analytes.]								
Notes								

1. "NA" = Analyte Not Analyzed.
2. "ND" = Analyte Not Detected.
3. Refer to Analytical Report by CT Labs for additional information.
4. Date of Sampling: October 15, 2013, Ayres Associates.

Lots 7/8 and 24 Soil Investigation Results
Menekaunee Harbor Redevelopment Project
City of Marinette, Wisconsin

Soil Excavation Location Name	Excavation Location	Topsoil Thickness (in.)	Approximate Sand Sample Depth (in.)	Estimated Depth to Saturated Conditions (in.)
TP-1	Lot 24	18	20	33
TP-2	Lot 24	18	24	32
TP-3	Lot 24	17	20	28
TP-4	Lot 24	28	30	56
PH-1	Lots 7/8	12	18	NA
PH-2	Lots 7/8	12	16	NA
PH-3	Lots 7/8	10	14	NA

NOTES

1. Refer to CT Lab report for chemical analyses results.
2. Refer to MES Lab results for sieve analyses results.
3. Refer to Existing Conditions Map for site and soil investigation locations.
4. NA = Data Not Available.
5. Topsoil generally very dark, black, and organic in composition.
6. Soil beneath topsoil consistently a very dense fine to medium coarse, brown sand, with trace orange and gray mottling.

ANALYTICAL REPORT

AYRES ASSOCIATES

DEAN FREE

3433 OAKWOOD HILLS PKWY

EAU CLAIRE, WI 54701-1590

Project Name: MARINETTE-MENKAUNEE

Project Phase:

Contract #: 1451

Project #: 19-0277

Folder #: 100773

Purchase Order #:

Page 1 of 12

Arrival Temperature: See COC

Report Date: 11/13/2013

Date Received: 10/17/2013

Reprint Date: 11/13/2013

CT LAB Sample#: 383123 Sample Description: TEST PIT SAND (TP-1)

LOT 24 (MURRAY)

Sampled: 10/15/2013 0830

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results										
Solids, Percent	79.8	%	0.1	0.1	1			10/22/2013 11:47	AGK	EPA 8000C
Total Organic Carbon as % OM	0.24	%	N/A	N/A	1			10/23/2013 15:00	LJS	MOSA 29-4,3,2,4
Metals Results										
Arsenic	<0.74	mg/kg	0.74	2.2	1		11/01/2013 08:30	11/01/2013 20:52	NAH	EPA 6010C
Copper	1.2	mg/kg	0.61 *	2.1	1		11/01/2013 08:30	11/01/2013 20:52	NAH	EPA 6010C
Lead	0.76	mg/kg	0.15	0.49	1		11/01/2013 08:30	11/01/2013 20:52	NAH	EPA 6010C
Zinc	5.4	mg/kg	0.29	0.97	1		11/01/2013 08:30	11/01/2013 20:52	NAH	EPA 6010C
Mercury	<0.00047	mg/kg	0.00047	0.0016	1		10/29/2013 13:00	10/30/2013 12:47	LJF	EPA 7471B
Organic Results										
1-Methylnaphthalene	<0.014	mg/kg	0.014	0.047	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
2-Methylnaphthalene	<0.016	mg/kg	0.016	0.052	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Acenaphthene	<0.029	mg/kg	0.029	0.094	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Acenaphthylene	<0.015	mg/kg	0.015	0.048	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Anthracene	<0.0076	mg/kg	0.0074	0.026	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310

Solid sample results reported on a Dry Weight Basis

Sampled: 10/15/2013 0830

LOT 24 (MURRAY)

CT LAB Sample#: 383123 Sample Description: TEST PIT SAND (TP-1)

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Benzo(a)anthracene	<0.00038	mg/kg	0.00037	0.0012	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Benzo(a)pyrene	<0.0011	mg/kg	0.0011	0.0037	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Benzo(b)fluoranthene	<0.0029	mg/kg	0.0029	0.0097	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Benzo(g,h,i)perylene	<0.0051	mg/kg	0.0050	0.015	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Benzo(k)fluoranthene	<0.0013	mg/kg	0.0012	0.0041	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Chrysene	<0.0033	mg/kg	0.0032	0.011	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Dibenzo(a,h)anthracene	<0.0063	mg/kg	0.0062	0.022	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Fluoranthene	<0.0018	mg/kg	0.0017	0.0057	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Fluorene	<0.010	mg/kg	0.0099	0.032	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Indeno(1,2,3-cd)pyrene	<0.0063	mg/kg	0.0062	0.021	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Naphthalene	<0.014	mg/kg	0.014	0.043	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Phenanthrene	<0.0051	mg/kg	0.0050	0.015	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310
Pyrene	<0.0027	mg/kg	0.0026	0.0088	1		10/29/2013 12:00	11/12/2013 23:34	RED	EPA 8310

Sampled: 10/15/2013 0830

LOT 24 (MURRAY)

CT LAB Sample#: 383124 Sample Description: TEST PIT SAND (TP-1)

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Metals Results										
SPLP Arsenic	<0.0050	mg/L	0.0050	0.016	1		10/25/2013 08:00	10/31/2013 11:10	NAH	EPA 6010C
SPLP Copper	<0.0030	mg/L	0.0030	0.0099	1		10/25/2013 08:00	10/31/2013 11:10	NAH	EPA 6010C
SPLP Lead	<0.0014	mg/L	0.0014	0.0047	1		10/25/2013 08:00	10/31/2013 11:10	NAH	EPA 6010C
SPLP Zinc	<0.0011	mg/L	0.0011	0.0036	1		10/25/2013 08:00	10/31/2013 11:10	NAH	EPA 6010C
SPLP Mercury	<0.000016	mg/L	0.000016	0.00053	1		10/25/2013 08:00	10/29/2013 15:18	LJF	EPA 7470A

Sampled: 10/15/2013 0900

LOT 24 (MURRAY)

CT LAB Sample#: 383125 Sample Description: TEST PIT SAND (TP-2)

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results										
Solids, Percent	84.5	%	0.1	0.1	1			10/22/2013 11:47	AGK	EPA 8000C
Organic Results										
1-Methylnaphthalene	<0.013	mg/kg	0.013	0.045	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
2-Methylnaphthalene	<0.015	mg/kg	0.015	0.050	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Acenaphthene	<0.027	mg/kg	0.027	0.090	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Acenaphthylene	<0.014	mg/kg	0.014	0.046	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Anthracene	<0.0071	mg/kg	0.0071	0.025	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Benzo(a)anthracene	<0.00036	mg/kg	0.00036	0.0012	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Benzo(a)pyrene	<0.0011	mg/kg	0.0011	0.0036	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Benzo(b)fluoranthene	<0.0027	mg/kg	0.0027	0.0092	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Benzo(g,h,i)perylene	<0.0047	mg/kg	0.0047	0.014	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Benzo(k)fluoranthene	<0.0012	mg/kg	0.0012	0.0039	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Chrysene	<0.0031	mg/kg	0.0031	0.010	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Dibenzo(a,h)anthracene	<0.0059	mg/kg	0.0059	0.021	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Fluoranthene	<0.0017	mg/kg	0.0017	0.0054	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Fluorene	<0.0095	mg/kg	0.0095	0.031	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Indeno(1,2,3-cd)pyrene	<0.0059	mg/kg	0.0059	0.020	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Naphthalene	<0.013	mg/kg	0.013	0.041	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Phenanthrene	<0.0047	mg/kg	0.0047	0.014	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310
Pyrene	<0.0025	mg/kg	0.0025	0.0084	1		10/29/2013 12:00	11/13/2013 00:03	RED	EPA 8310

CT LAB Sample#: 383126 Sample Description: TEST PIT SAND (TP-2) LOT 24 (MURRAY)

Sampled: 10/15/2013 0900

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Metals Results										
SPLP Arsenic	<0.0050	mg/L	0.0050	0.016	1		10/25/2013 08:00	10/31/2013 11:14	NAH	EPA 6010C
SPLP Copper	0.0033	mg/L	0.0030 *	0.0099	1		10/25/2013 08:00	10/31/2013 11:14	NAH	EPA 6010C
SPLP Lead	<0.0014	mg/L	0.0014	0.0047	1		10/25/2013 08:00	10/31/2013 11:14	NAH	EPA 6010C
SPLP Zinc	<0.0011	mg/L	0.0011	0.0036	1		10/25/2013 08:00	10/31/2013 11:14	NAH	EPA 6010C
SPLP Mercury	<0.000016	mg/L	0.000016	0.00053	1		10/25/2013 08:00	10/29/2013 15:24	LJF	EPA 7470A

CT LAB Sample#: 383127 Sample Description: TEST PIT SAND (TP-3) LOT 24 (MURRAY)

Sampled: 10/15/2013 0930

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results										
Solids, Percent	84.9	%	0.1	0.1	1			10/22/2013 11:47	AGK	EPA 8000C
Metals Results										
Arsenic	1.1	mg/kg	0.69 *	2.1	1		11/01/2013 08:30	11/01/2013 21:18	NAH	EPA 6010C
Copper	1.4	mg/kg	0.58 *	2.0	1		11/01/2013 08:30	11/01/2013 21:18	NAH	EPA 6010C
Lead	0.74	mg/kg	0.14	0.46	1		11/01/2013 08:30	11/01/2013 21:18	NAH	EPA 6010C
Zinc	3.9	mg/kg	0.28	0.91	1		11/01/2013 08:30	11/01/2013 21:18	NAH	EPA 6010C
Mercury	<0.00045	mg/kg	0.00045	0.0015	1		10/29/2013 13:00	10/30/2013 12:49	LJF	EPA 7471B
Organic Results										
1-Methylnaphthalene	<0.013	mg/kg	0.013	0.044	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
2-Methylnaphthalene	<0.015	mg/kg	0.015	0.049	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Acenaphthene	<0.027	mg/kg	0.027	0.089	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Acenaphthylene	<0.014	mg/kg	0.014	0.046	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Anthracene	<0.0071	mg/kg	0.0070	0.025	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310

Solid sample results reported on a Dry Weight Basis

Sampled: 10/15/2013 0930

LOT 24 (MURRAY)

CT LAB Sample#: 383127 Sample Description: TEST PIT SAND (TP-3)

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Benzo(a)anthracene	<0.00036	mg/kg	0.00035	0.0012	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Benzo(a)pyrene	<0.0011	mg/kg	0.0011	0.0035	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Benzo(b)fluoranthene	<0.0027	mg/kg	0.0027	0.0091	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Benzo(g,h,i)perylene	<0.0048	mg/kg	0.0047	0.014	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Benzo(k)fluoranthene	<0.0012	mg/kg	0.0012	0.0039	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Chrysene	<0.0031	mg/kg	0.0030	0.010	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Dibenzo(a,h)anthracene	<0.0059	mg/kg	0.0058	0.021	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Fluoranthene	<0.0017	mg/kg	0.0016	0.0054	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Fluorene	<0.0095	mg/kg	0.0093	0.030	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Indeno(1,2,3-cd)pyrene	<0.0059	mg/kg	0.0058	0.020	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Naphthalene	<0.013	mg/kg	0.013	0.041	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Phenanthrene	<0.0048	mg/kg	0.0047	0.014	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310
Pyrene	<0.0025	mg/kg	0.0025	0.0083	1		10/29/2013 12:00	11/13/2013 00:33	RED	EPA 8310

Sampled: 10/15/2013 0930

LOT 24 (MURRAY)

CT LAB Sample#: 383128 Sample Description: TEST PIT SAND (TP-3)

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Metals Results										
SPLP Arsenic	<0.0050	mg/L	0.0050	0.016	1		10/25/2013 08:00	10/31/2013 11:18	NAH	EPA 6010C
SPLP Copper	<0.0030	mg/L	0.0030	0.0099	1		10/25/2013 08:00	10/31/2013 11:18	NAH	EPA 6010C
SPLP Lead	<0.0014	mg/L	0.0014	0.0047	1		10/25/2013 08:00	10/31/2013 11:18	NAH	EPA 6010C
SPLP Zinc	<0.0011	mg/L	0.0011	0.0036	1		10/25/2013 08:00	10/31/2013 11:18	NAH	EPA 6010C
SPLP Mercury	0.000020	mg/L	0.000016 *	0.00053	1		10/25/2013 08:00	10/29/2013 15:30	LJF	EPA 7470A

Sampled: 10/15/2013 1000

LOT 24 (MURRAY)

CT LAB Sample#: 383129 Sample Description: TEST PIT SAND (TP-4)

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results										
Solids, Percent	78.1	%	0.1	0.1	1		11/01/2013 08:30	10/22/2013 11:47	AGK	EPA 8000C
Total Organic Carbon as % OM	0.06	%	N/A	N/A	1		11/01/2013 08:30	10/23/2013 15:00	LJS	MOSA 29-4,3,2,4
Metals Results										
Arsenic	<0.77	mg/kg	0.77	2.3	1		11/01/2013 08:30	11/01/2013 21:22	NAH	EPA 6010C
Copper	1.6	mg/kg	0.64 *	2.2	1		11/01/2013 08:30	11/01/2013 21:22	NAH	EPA 6010C
Lead	0.56	mg/kg	0.15	0.51	1		11/01/2013 08:30	11/01/2013 21:22	NAH	EPA 6010C
Zinc	3.3	mg/kg	0.31	1.0	1		11/01/2013 08:30	11/01/2013 21:22	NAH	EPA 6010C
Mercury	<0.00049	mg/kg	0.00049	0.0017	1		10/29/2013 13:00	10/30/2013 12:51	LJF	EPA 7471B
Organic Results										
1-Methylnaphthalene	<0.014	mg/kg	0.014	0.049	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
2-Methylnaphthalene	<0.017	mg/kg	0.017	0.054	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Acenaphthene	<0.030	mg/kg	0.030	0.098	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Acenaphthylene	<0.015	mg/kg	0.015	0.050	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Anthracene	<0.0077	mg/kg	0.0077	0.027	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Benzo(a)anthracene	<0.00039	mg/kg	0.00039	0.0013	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Benzo(a)pyrene	<0.0012	mg/kg	0.0012	0.0039	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Benzo(b)fluoranthene	<0.0030	mg/kg	0.0030	0.010	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Benzo(g,h,i)perylene	<0.0051	mg/kg	0.0051	0.015	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Benzo(k)fluoranthene	<0.0013	mg/kg	0.0013	0.0042	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Chrysene	<0.0033	mg/kg	0.0033	0.011	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Dibenzo(a,h)anthracene	<0.0064	mg/kg	0.0064	0.023	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Fluoranthene	<0.0018	mg/kg	0.0018	0.0059	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Fluorene	<0.010	mg/kg	0.010	0.033	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310

Solid sample results reported on a Dry Weight Basis

CT LAB Sample#: 383129 Sample Description: TEST PIT SAND (TP-4) LOT 24 (MURRAY) Sampled: 10/15/2013 1000

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Indeno(1,2,3-cd)pyrene	<0.0064	mg/kg	0.0064	0.022	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Naphthalene	<0.014	mg/kg	0.014	0.045	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Phenanthrene	<0.0051	mg/kg	0.0051	0.015	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310
Pyrene	<0.0027	mg/kg	0.0027	0.0091	1		10/29/2013 12:00	11/13/2013 01:02	RED	EPA 8310

CT LAB Sample#: 383130 Sample Description: TEST PIT SAND (TP-4) LOT 24 (MURRAY) Sampled: 10/15/2013 1000

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Metals Results										
SPLP Arsenic	<0.0050	mg/L	0.0050	0.016	1		10/25/2013 08:00	10/31/2013 11:21	NAH	EPA 6010C
SPLP Copper	<0.0030	mg/L	0.0030	0.0099	1		10/25/2013 08:00	10/31/2013 11:21	NAH	EPA 6010C
SPLP Lead	<0.0014	mg/L	0.0014	0.0047	1		10/25/2013 08:00	10/31/2013 11:21	NAH	EPA 6010C
SPLP Zinc	0.0038	mg/L	0.0011	0.0036	1		10/25/2013 08:00	10/31/2013 11:21	NAH	EPA 6010C
SPLP Mercury	0.000020	mg/L	0.000016 *	0.00053	1		10/25/2013 08:00	10/29/2013 15:32	LJF	EPA 7470A

CT LAB Sample#: 383131 Sample Description: POST HOLE SAND (PH-1) LOTS 7/8 (PARSEK) Sampled: 10/15/2013 1100

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results										
Solids, Percent	86.5	%	0.1	0.1	1			10/22/2013 10:44	AGK	EPA 8000C
Total Organic Carbon as % OM	0.25	%	N/A	N/A	1			10/23/2013 15:00	LJS	MOSA 29-4,3,2,4
Metals Results										
Arsenic	<0.68	mg/kg	0.68	2.0	1		11/01/2013 08:30	11/01/2013 21:26	NAH	EPA 6010C
Copper	0.70	mg/kg	0.57 *	1.9	1		11/01/2013 08:30	11/01/2013 21:26	NAH	EPA 6010C

Solid sample results reported on a Dry Weight Basis

Sampled: 10/15/2013 1100

LOTS 7/8 (PARSEK)

CT LAB Sample#: 383131 Sample Description: POST HOLE SAND (PH-1)

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Lead	0.77	mg/kg	0.14	0.45	1		11/01/2013 08:30	11/01/2013 21:26	NAH	EPA 6010C
Zinc	4.8	mg/kg	0.27	0.90	1		11/01/2013 08:30	11/01/2013 21:26	NAH	EPA 6010C
Mercury	<0.00046	mg/kg	0.00046	0.0016	1		10/29/2013 13:00	10/30/2013 12:53	LJF	EPA 7471B
Organic Results										
1-Methylnaphthalene	<0.013	mg/kg	0.013	0.044	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
2-Methylnaphthalene	<0.015	mg/kg	0.015	0.049	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Acenaphthene	<0.027	mg/kg	0.027	0.088	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Acenaphthylene	<0.014	mg/kg	0.014	0.045	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Anthracene	<0.0069	mg/kg	0.0069	0.024	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Benzo(a)anthracene	<0.00035	mg/kg	0.00035	0.0012	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Benzo(a)pyrene	<0.0010	mg/kg	0.0010	0.0035	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Benzo(b)fluoranthene	<0.0027	mg/kg	0.0027	0.0090	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Benzo(g,h,i)perylene	<0.0046	mg/kg	0.0046	0.014	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Benzo(k)fluoranthene	<0.0012	mg/kg	0.0012	0.0038	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Chrysene	<0.0030	mg/kg	0.0030	0.010	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Dibenzo(a,h)anthracene	<0.0058	mg/kg	0.0058	0.021	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Fluoranthene	<0.0016	mg/kg	0.0016	0.0053	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Fluorene	<0.0093	mg/kg	0.0093	0.030	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Indeno(1,2,3-cd)pyrene	<0.0058	mg/kg	0.0058	0.020	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Naphthalene	<0.013	mg/kg	0.013	0.041	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Phenanthrene	<0.0046	mg/kg	0.0046	0.014	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310
Pyrene	<0.0024	mg/kg	0.0024	0.0082	1		10/29/2013 12:00	11/13/2013 01:32	RED	EPA 8310

CT LAB Sample#: 383132 Sample Description: POST HOLE SAND (PH-1) LOTS 7/8 (PARSEK)

Sampled: 10/15/2013 1100

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Metals Results										
SPLP Arsenic	<0.0050	mg/L	0.0050	0.016	1		10/25/2013 08:00	10/31/2013 11:25	NAH	EPA 6010C
SPLP Copper	<0.0030	mg/L	0.0030	0.0099	1		10/25/2013 08:00	10/31/2013 11:25	NAH	EPA 6010C
SPLP Lead	<0.0014	mg/L	0.0014	0.0047	1		10/25/2013 08:00	10/31/2013 11:25	NAH	EPA 6010C
SPLP Zinc	<0.0011	mg/L	0.0011	0.0036	1		10/25/2013 08:00	10/31/2013 11:25	NAH	EPA 6010C
SPLP Mercury	<0.000016	mg/L	0.000016	0.00053	1		10/25/2013 08:00	10/29/2013 15:34	LJF	EPA 7470A

CT LAB Sample#: 383133 Sample Description: POST HOLE SAND (PH-2) LOTS 7/8 (PARSEK)

Sampled: 10/15/2013 1130

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Metals Results										
SPLP Arsenic	<0.0050	mg/L	0.0050	0.016	1		10/25/2013 08:00	10/31/2013 11:29	NAH	EPA 6010C
SPLP Copper	<0.0030	mg/L	0.0030	0.0099	1		10/25/2013 08:00	10/31/2013 11:29	NAH	EPA 6010C
SPLP Lead	<0.0014	mg/L	0.0014	0.0047	1		10/25/2013 08:00	10/31/2013 11:29	NAH	EPA 6010C
SPLP Zinc	<0.0011	mg/L	0.0011	0.0036	1		10/25/2013 08:00	10/31/2013 11:29	NAH	EPA 6010C
SPLP Mercury	<0.000016	mg/L	0.000016	0.00053	1		10/25/2013 08:00	10/29/2013 15:36	LJF	EPA 7470A

CT LAB Sample#: 383134 Sample Description: POST HOLE SAND (PH-3) LOTS 7/8 (PARSEK)

Sampled: 10/15/2013 1200

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results										
Solids, Percent	82.3	%	0.1	0.1	1			10/22/2013 10:44	AGK	EPA 8000C
Total Organic Carbon as % OM	0.40	%	N/A	N/A	1			10/23/2013 15:00	LJS	MOSA 29-4.3.2.4
Metals Results										

Solid sample results reported on a Dry Weight Basis

CT LAB Sample#: 383134 Sample Description: POST HOLE SAND (PH-3) LOTS 7/8 (PARSEK)

Sampled: 10/15/2013 1200

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Arsenic	<0.69	mg/kg	0.69	2.1	1		11/01/2013 08:30	11/01/2013 21:30	NAH	EPA 6010C
Copper	0.57	mg/kg	0.57 *	1.9	1		11/01/2013 08:30	11/01/2013 21:30	NAH	EPA 6010C
Lead	1.4	mg/kg	0.14	0.46	1		11/01/2013 08:30	11/01/2013 21:30	NAH	EPA 6010C
Zinc	4.2	mg/kg	0.28	0.91	1		11/01/2013 08:30	11/01/2013 21:30	NAH	EPA 6010C
Mercury	<0.00046	mg/kg	0.00046	0.0016	1		10/29/2013 13:00	10/30/2013 12:55	LJF	EPA 7471B
Organic Results										
1-Methylnaphthalene	<0.013	mg/kg	0.013	0.046	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
2-Methylnaphthalene	<0.016	mg/kg	0.016	0.051	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Acenaphthene	<0.028	mg/kg	0.028	0.093	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Acenaphthylene	<0.015	mg/kg	0.015	0.047	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Anthracene	<0.0073	mg/kg	0.0073	0.026	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Benzo(a)anthracene	<0.00037	mg/kg	0.00037	0.0012	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Benzo(a)pyrene	<0.0011	mg/kg	0.0011	0.0037	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Benzo(b)fluoranthene	<0.0028	mg/kg	0.0028	0.0095	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Benzo(g,h,i)perylene	<0.0049	mg/kg	0.0049	0.015	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Benzo(k)fluoranthene	<0.0012	mg/kg	0.0012	0.0040	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Chrysene	<0.0032	mg/kg	0.0032	0.010	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Dibenzo(a,h)anthracene	<0.0061	mg/kg	0.0061	0.022	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Fluoranthene	<0.0017	mg/kg	0.0017	0.0056	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Fluorene	<0.0097	mg/kg	0.0097	0.032	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Indeno(1,2,3-cd)pyrene	<0.0061	mg/kg	0.0061	0.021	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Naphthalene	<0.013	mg/kg	0.013	0.043	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Phenanthrene	<0.0049	mg/kg	0.0049	0.015	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310
Pyrene	<0.0026	mg/kg	0.0026	0.0086	1		10/29/2013 12:00	11/13/2013 02:01	RED	EPA 8310

Solid sample results reported on a Dry Weight Basis

CT LAB Sample#: 383135 Sample Description: POST HOLE SAND (PH-3) LOTS 7/8 (PARSEK) Sampled: 10/15/2013 1200

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Metals Results										
SPLP Arsenic	<0.0050	mg/L	0.0050	0.016	1		10/25/2013 08:00	10/31/2013 11:33	NAH	EPA 6010C
SPLP Copper	<0.0030	mg/L	0.0030	0.0099	1		10/25/2013 08:00	10/31/2013 11:33	NAH	EPA 6010C
SPLP Lead	<0.0014	mg/L	0.0014	0.0047	1		10/25/2013 08:00	10/31/2013 11:33	NAH	EPA 6010C
SPLP Zinc	0.0019	mg/L	0.0011 *	0.0036	1		10/25/2013 08:00	10/31/2013 11:33	NAH	EPA 6010C
SPLP Mercury	0.000020	mg/L	0.000016 *	0.00053	1		10/25/2013 08:00	10/29/2013 15:38	LJF	EPA 7470A

Notes: * Indicates Value in between the LOD (limit of detection) and the LOQ (limit of quantitation).

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

Submitted by: Eric T. Korthals
Project Manager
608-356-2760

Current CT Laboratories Certifications

- Illinois NELAP ID# 002413
- Kansas NELAP ID# E-10368
- Kentucky ID# 0023
- Pennsylvania NELAP ID# 68-04201
- New Jersey NELAP ID# WI001
- North Carolina ID# 674
- Wisconsin (WDNR) Chemistry ID# 157066030
- Wisconsin (DATCP) Bacteriology ID# 105-289
- DoD-ELAP A2LA Cert # 3317.013
- Alaska ID # UST-099
- Louisiana ID # 115843
- Virginia ID# 460203
- ISO/IEC 17025-2005 A2LA Cert # 3317.01
- GA EPD Stipulation ID 115843, Expires Annually

CHAIN OF CUSTODY RECORD

PROJECT NO. 19-0277	PROJECT NAME/CLIENT Marinette - Menekaune	NO. OF CONTAINERS	REMARKS
SAMPLERS: (Signatures) <i>Dean Free</i>			100773
SAMPLE NO.	DATE	TIME	DESCRIPTION
TP-1	10-15-13	0830	TEST PIT SAND
TP-2	"	0900	"
TP-3	"	0930	"
TP-4	"	1000	"
~~~~~			
PH-1	10-15-13	1100	POST HOLE SAND
PH-2	"	1130	"
PH-3	"	1200	"
~~~~~			
***** Folder #: 100773 Company: AYRES ASSOCIATES Project: MARINETTE-MENEKAU Logged By: JLS PM: ET *****			
Ayres Project Contact: Dean Free - Eau Claire		Ayres Project Manager: Lynn Scherbert - Waukesha	
Invoice To: Dean Free - "			
RELINQUISHED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
<i>Dean Free</i>	10-16-13 1600	<i>Lynn Scherbert</i>	10-18-13
		COMMENTS:	
		Shipped on ice: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no Received on ice: <input type="checkbox"/> yes <input type="checkbox"/> no Temp. if not received on ice: _____	



Korthals, Eric T

From: Free, Dean <FreeD@AyresAssociates.com>
Sent: Wednesday, October 16, 2013 17:46
To: Linley, Dennis J
Cc: Korthals, Eric T
Subject: Ayres - Marinette Samples
Attachments: Lots 7 8 24 COC.pdf; Lot 24 7 8 CT Lab Quote.pdf

The samples were sent tonight from Eau Clair to CT Labs by UPS; you should get tomorrow.

Attached is the COC copy and Quote revised and signed.

Also, please do a % organic matter on samples TP-1 and TP-4, and PH-1 and PH-3; assuming you have enough sample volume. Thanks.

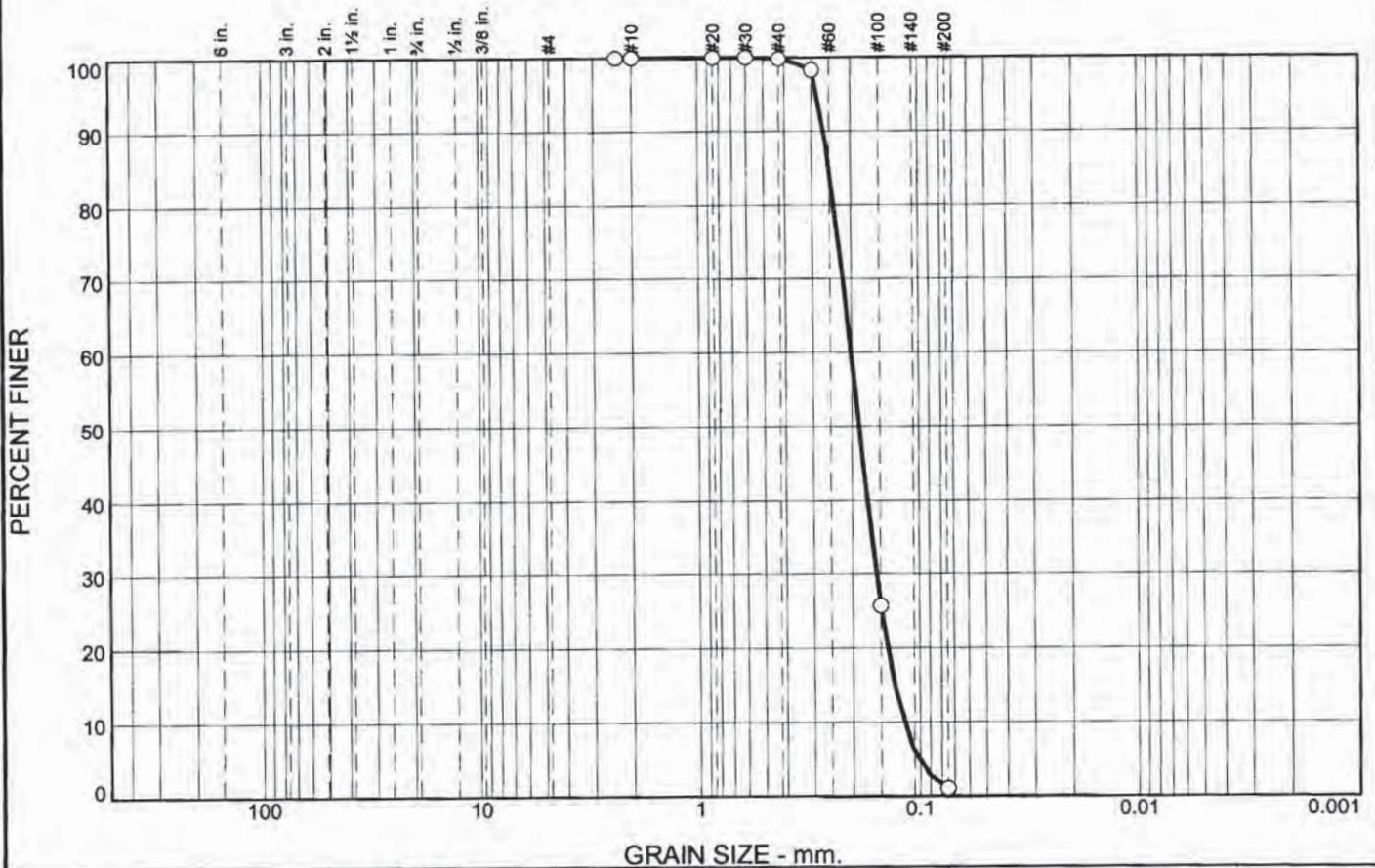
Please let me know what that additional analyses will cost.

Dean Free, PE
Senior Project Leader – Environmental Services

Ayres Associates
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Mobile 608.338.4076
freeD@AyresAssociates.com
www.AyresAssociates.com

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	98.7	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100.0		
#10	100.0		
#20	100.0		
#30	100.0		
#40	99.8		
#50	98.3		
#100	25.7		
#200	1.1		

Material Description

poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 0.2506 D₆₀= 0.2018 D₅₀= 0.1863
D₃₀= 0.1567 D₁₅= 0.1303 D₁₀= 0.1184
C_u= 1.70 C_c= 1.03

Classification

USCS= SP AASHTO= A-3

Remarks

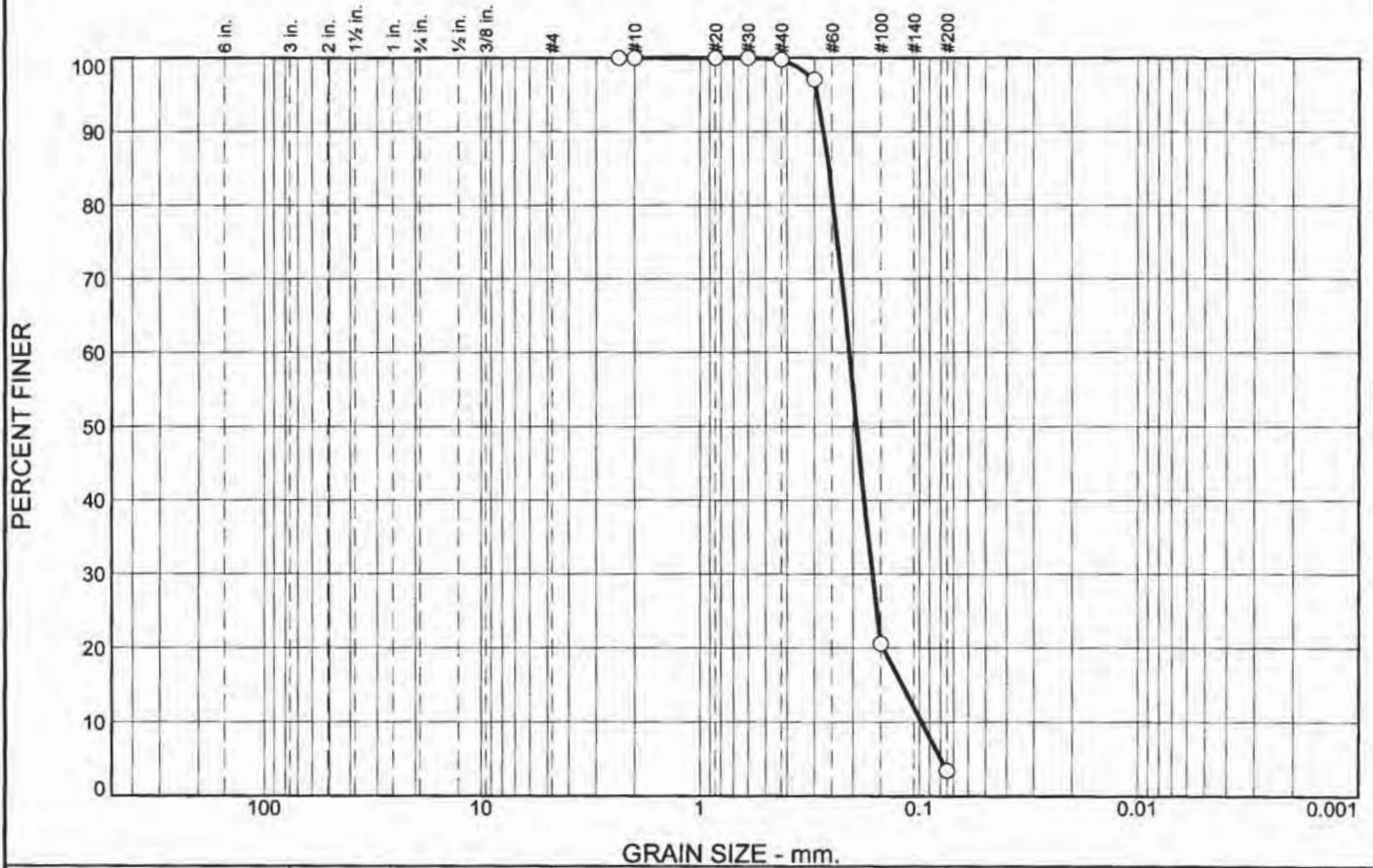
* (no specification provided)

Sample Number: TP 1
Source of Sample: Delivered to Laboratory

Date: 10-18-2013

Midwest Engineering Services	Client: Ayres Associates Project: Marinette, Wisconsin	
Waukesha, Wisconsin	Project No: 4-35187	Figure 1

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	96.4	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100.0		
#10	100.0		
#20	100.0		
#30	100.0		
#40	99.8		
#50	97.1		
#100	20.6		
#200	3.4		

Material Description

poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 0.2568 D₆₀= 0.2083 D₅₀= 0.1931
D₃₀= 0.1644 D₁₅= 0.1196 D₁₀= 0.0977
C_u= 2.13 C_c= 1.33

Classification

USCS= SP AASHTO= A-3

Remarks

* (no specification provided)

Sample Number: TP 3
Source of Sample: Delivered to Laboratory

Date: 10-18-2013

Midwest Engineering Services	Client: Ayres Associates
Waukesha, Wisconsin	Project: Marinette, Wisconsin
	Project No: 4-35187
	Figure 2

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME/CLIENT	NO. OF CONTAINERS	Field Filtered:	REMARKS			
19-0277	Marinette - Menegaunee						
SAMPLERS: (Signature) <i>Dean Free</i>							
SAMPLE NO.	DATE	TIME	COMP. GRAB	SAMPLE LOCATION/ DESCRIPTION	NO. OF CONTAINERS	Field Filtered:	REMARKS
TP-1	10-15-13	0830	X	TEST PIT SAND	3	X	20" LOT 24 (Murray)
TP-2	"	0900	X	"	2	X	" " " "
TP-3	"	0930	X	"	3	X	" " " "
TP-4	"	1000	X	"	3	X	" " " "
<i>~~~~~</i>							
PH-1	10-15-13	1100	X	POST HOLE SAND	3	X	18" Lots 7/8 (Parsek)
PH-2	"	1130	X	"	1	X	" " " "
PH-3	"	1200	X	"	3	X	" " " "
<i>~~~~~</i>							
Ayres Project Contact:		Dean Free - Eau Claire		Ayres Project Manager: Lynn Scherbert - Waukesha			
Invoice To:		Dean Free - "					
RELINQUISHED BY: (Signature) <i>Dean Free</i>		RECEIVED BY: (Signature)		DATE / TIME		RECEIVED BY: (Signature)	
				10-16-13			
				1600			
				COMMENTS:			
				Shipped on ice: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no			
				Received on ice: <input type="checkbox"/> yes <input type="checkbox"/> no			
				Temp. if not received on ice: _____			



Owen Ayres & Associates, Inc.
 Engineers/Architects/Scientists/Photogrammetrists
 3433 Oakwood Hills Parkway, P.O. Box 1590, Eau Claire, WI 54701-1590
 (715) 834-3161

Appendix F
Sediment Information

LETTER OF TRANSMITTAL

To: Mr. Gregory Tilken
Wisconsin Dept. of Natural Resources
2984 Shawano Avenue
Green Bay WI 54313

Date: March 20, 2012

Project No.: 19-0277.00

Re: Menekaunee Harbor Data Summary
Letter

Enclosed Under Separate Cover Via _____

No. of Copies	Description
1	Historical Data Summary Cover Letter and Tabulation of 1997 and 2007 Sampling Results

Sent to you for the following reason:

For Approval Review Completed Revise and Resubmit
 For Your Use Not Reviewed Returned
 For Review and Comment _____

Greg,

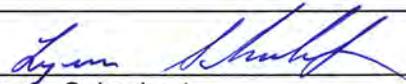
Per your request, we have summarized the findings of the 1997 and 2007 sampling events of the sediments in the City of Marinette's Menekaunee Harbor.

A review of the data indicates that, except for arsenic and lead, none of the metal concentrations exceed NR 720 RCL Wisconsin Administrative Code (WAC) standards. It should be noted that with few exceptions, arsenic concentrations are well within background concentrations for soils in Wisconsin.

With the exception of mercury, the metal concentrations exceed the EPA RSLs for "protection of groundwater". The EPA "protection of groundwater" RSLs tends to be very conservative, as they do not account for site specific geological conditions (i.e. soil type) or contaminant type.

Should you have any questions concerning this summary, please do not hesitate to contact Jeff Steiner at steinerj@ayresassociates.com and phone number 608-443-1259, or myself at scherbertl@ayresassociates.com and 262-522-4923.

Signed: _____


Lynn L. Scherbert
Environmental Supervisor

March 21, 2012

Mr. Greg Tilken
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay, WI 54313

Re: Summary of Historical Analytical Data
Menekaunee Harbor
Marinette, Wisconsin

Dear Mr. Tilken:

Ayres Associates prepared the following summary of analytical data for your review. This summary consists of two parts; the first part includes a chronological history of analytical sampling that occurred at the site by various agencies and consultants. This information was compiled by Ayres Associates based on a review of the project files. The second part of this summary includes a tabulation of the most recent analytical data for metals (1997) and polycyclic aromatic hydrocarbons (2007), the contaminants of most concern at the site. These data were tabulated and compared with soil standards instead of sediment quality objectives to evaluate potential upland disposal options. The data were compared to NR 720 Wisconsin Administrative Code Residual Contaminant Levels (RCLs), Suggested Generic Residual Contaminant Levels for Polycyclic Aromatic Hydrocarbons (PAHs), and EPA Region 9 Regional Screening Levels (RSL).

Chronological List of Sediment Analytical Data

1. *Menekaunee Harbor Dredging Project*-December 1983
Robert E. Lee & Associates, Inc.
 - Analysis of material indicates that it is not classified as toxic and hazardous
2. *Menominee River Remedial Action Plan Update*-February 1996
Wisconsin Department of Natural Resources
 - Arsenic Concentrations in Menekaunee Harbor of 26 ug/L
3. *Master Plan for Menekaunee Harbor*-August 2004
U.P. Engineers & Architects, Inc. (UPEA)
 - Elevated levels arsenic, copper, cyanide, lead, mercury, zinc, PCBs, oil & grease, phosphorus, and ammonia-nitrogen have been encountered.
 - In 2004, six sediment samples were collected at several locations. Four samples were collected from the upper two feet of sediment, while the other two were collected from two to four feet depth in the sediment.
 - Analyzed for arsenic (2.1 to 5.6 mg/kg), ORO ranged from non-detect <4.4 mg/kg to 79 mg/kg), which is below the 100 mg/kg NR 720 clean-up standard), PAHs (detected below NR 720 soil cleanup standards).

4. *Preliminary Dredging Plan, Menekaunee Harbor-August 15, 2005*
- Sediment sampling- states past sampling is representative of current conditions. Refers to Robert E. Lee 1983 report; unnamed WDNR reports but likely including *Menominee River Remedial Action Plan Update-* February 1996; and 1997 investigation by White Water Associates for Harbor Town Marine.
 - The White Water report was reviewed by the WDNR and summarized in a March 4, 1997 memo. The conclusions drawn were: 1. pesticides and PCBs are not a concern; 2. nutrient concentrations are not a concern except ammonia may be needed to be control during dredging to prevent transport and release of ammonia- bearing sediment that may be toxic to aquatic organisms.
 - The presence of elevated PAHs would require control to prevent potential damage to benthic and aquatic organisms. Human exposure would need to be considered when developing a disposal plan.
 - Coal tar is not considered the source of the PAHs.
 - Arsenic was analyzed was found to be for the most part to be within the range of natural variability and not considered to be a concern.
 - Unexpectedly high levels of mercury were found which can lead to severe impacts on benthic organisms, and also the potential production of methylmercury. Highest concentrations were found in the zero to two foot interval.
 - On July1, 2004, USPEA collected six sediment samples, which were analyzed for arsenic, DRO, PAHs. Results were consistent with previously collected data.
5. *WDNR Review and Comments on the August 15, 2005 Preliminary Dredging Application for Menekaunee Harbor & Transmittal Note – October 25, 2005*
WDNR and U.P. Engineers & Architects, Inc.
- DRO and PAHs were somewhat elevated near shore on the north side, possibly because of parking lot runoff. PAH concentrations represent a low-level ubiquitous, urban-related concentration. DRO results may be false positive because of natural organics interference.
 - No further testing is required for NR 347.06, with the only qualifier that mercury concentrations are not negligible and sediments removed under standard conditions and controls should minimize release of mercury to the water.
6. *Menekaunee Harbor Sediment Report, Final-* June 6, 2008
Weston Solutions, Inc
- 14 total samples locations (10 within proposed dredging area, four samples outside and adjacent to proposed dredging area, in and around an emergent wetland samples collected on July 23 and July 24, 2007).
 - Sampled for: PCBs, RCRA metals, mercury, total organic carbon, black carbon, grain size analysis.
 - TEC -threshold effect concentration; MEG - midpoint effect concentration; PEG-probable effect concentration
 - Although detected in four samples, PCBs do not appear to be a concern.
 - PAH samples results were almost evenly divided between being pyrogenic and petrogenic with a lean towards petrogenic.

Pyrogenic- non-alkalyated PAHs that result from incomplete, high temperature short-duration combustion of organic matter including fossil fuels and biomass.

petrogenic- created by diagenic processes at relatively low temperatures over geological time scales, leading to the formation of petroleum and other fossil fuels containing PAHs.

- PAHs were detected in all soil boring locations. Total concentrations did not exceed the MEG near below the proposed dredging elevation. Highest concentrations were observed in northern, south-central, and western perimeters of the harbor.
- BC, TOG, and elevated total metal concentrations were observed in areas of the fine grain fraction greater than 50%, along the south and southeast perimeter of the harbor.
- The highest arsenic and mercury concentrations and elevated concentration was observed in the southeast corner of the harbor.
- The highest lead and zinc concentrations, along with elevated arsenic and mercury concentrations in the south-central portion of the harbor.
- In general, the greatest number of TEC, MEG, and/or PEG exceedances for metals were observed in the south and southeast portion of the harbor (both surface and subsurface).
- In general, total metals concentrations decrease and the fine fraction remains consistent or decreases with depth.

Summary of Analytical Data

The most recent sediment analytical data for metals (1997) and PAH (2007) were tabulated and reviewed with respect to soil quality standards in order to evaluate potential hazards based on direct contact and protection of groundwater. Soil standards based on these criteria are more appropriate for evaluating potential upland disposal options than Sediment Quality Guidelines that consider potential impacts to in-stream benthic organisms; the criteria which have historically been used to evaluate sediment quality in the harbor. Metal and PAH concentrations in sediment samples are presented in the attached tables.

A review of the data indicates that, except for arsenic and lead, none of the metal concentrations exceed NR 720 RCL Wisconsin Administrative Code (WAC) standards. It should be noted that with few exceptions, arsenic concentrations are well within background concentrations for soils in Wisconsin.

Concentrations of some of the metals exceed their respective EPA regional screening levels. With the exception of mercury, the metal concentrations exceed the EPA RSLs for "protection of groundwater". The EPA "protection of groundwater" RSLs tends to be very conservative, as they do not account for site specific geological conditions (i.e. soil type) or contaminant type.

Analytical data for PAH constituents in sediments indicate that concentrations for some constituents exceed suggested guidance RCLs for direct contact, as well as EPA screening levels for residential soils and protection of groundwater. The potential exposure risk from direct contact with sediments, while minimal, can be eliminated by capping the sediments. The potential threat to groundwater from the low level PAH concentrations is likely over stated by comparison with EPA RSLs, as these generic screening values are very conservative; in addition the PAH constituents have a low solubility in water and an affinity for adhering to soil,

and are not likely to leach to groundwater. Additional analysis will be performed on sediment samples using the Synthetic Precipitation Leaching Procedure (SPLP) to evaluate the leachability of the contaminants of concern during upland disposal.

Respectfully,

Ayres Associates Inc

A handwritten signature in black ink, reading "Jeffrey Steiner". The signature is written in a cursive style with a large initial "J" and "S".

Jeffrey C. Steiner, PG, PH, CPG
Senior Hydrogeologist/Project Manager

Enclosure

Cc: Brian Miller – City of Marinette
Lynn Scherbert – Ayres Associates

Table 1a
Summary of Sediment Sample Laboratory Polyaromatic Hydrocarbons (PAHs) Analytical Results
Weston 2007 Sampling Event

Sample Number/Depth (Inches)	Analytical Result (mg/Kg)						Soil Standards			
	MH07-SS-01-01	MH07-SS-01-02	MH07-SS-01-02-DP	MH07-SS-01-03	MH07-SS-02-01	MH07-SS-02-02	Guidance RCLs ²		EPA RSLs ³	
	0-18	18-42	18-42	42-61	0-14	14-38	GW*	Contact	Residential	GW
PAH	Analytical Result (mg/Kg)									
1-Methylnaphthalene	0.0.93U	0.26	0.25	0.0024U	0.0026U	0.0024U	23	1100	22	0.005
2-Methylnaphthalene	0.0.93U	0.27	0.25	0.0024U	0.0026U	0.0024U	20	600	313	0.137
Acenaphthene	0.0.93U	0.022	0.018	0.0024U	0.0026U	0.0024U	38	900	3,440	4.1
Acenaphthylene	0.0.93U	0.055	0.051	0.0024U	0.0026U	0.0024U	0.7	18	ns	ns
Anthracene	0.3	0.088	0.065	0.0024U	0.0026U	0.0024U	3000	5000	17,200	42
Benzo(a)anthracene	1.6	0.31J	0.28	0.0024U	0.0045	0.0024U	17	0.088	0.15	0.01
Benzo(a)pyrene	1.2	0.34J	0.32	0.0024U	0.0041	0.0024U	48	0.0088	0.015	0.0035
Benzo(b)fluoranthene	1.1	0.28J	0.25	0.0024U	0.0061	0.027	360	0.088	0.15	0.035
Benzo(g,h,i)perylene	0.78	0.19U	0.18	0.0024U	0.0044	0.0024U	6800	1.8	ns	ns
Benzo(k)fluoranthene	1.3	0.23J	0.2	0.0037	0.0037	0.021	870	0.88	1.5	0.35
Chrysene							37	8.8	15	1.1
Dibenzo(a,h)anthracene	0.23	0.042J	0.035	0.0024U	0.0026U	0.0024U	38	0.0088	0.015	0.0113
Fluoranthene	2.9	0.71	0.53	0.0024U	0.001	0.0024U	500	600	2,290	70
Fluorene	0.15	0.049	0.033	0.0024U	0.0026U	0.0024U	100	600	2,290	4.0
Indeno(1,2,3-cd)pyrene	0.9	0.18J	0.17	0.0024U	0.0044	0.0024U	680	0.088	0.15	0.11
Naphthalene	0.17	0.18	0.13	0.0024U	0.0026U	0.0024U	0.4	20	3.6	0.00047
Phenanthrene	1.1	0.36	0.23	0.0024U	0.047	0.027	1.8	18	ns	ns
Pyrene	2.4	0.64	0.51	0.0024U	0.0088	0.0024U	8700	500	1,720	9.5

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mg/Kg

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Concentration exceeds one or more of the NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) and/or EPA Region 9 Regional Screening Levels (RSL).

No NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) established.

Residual Contaminant Level Based on Protection of Groundwater (GW)

Not Analyzed

Concentration less than laboratory method detection limit.

Concentration reported as milligrams per kilogram, equivalent to parts per million (ppm).

¹NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL)

²Soil standards listed for PAHs are "suggested generic residual contaminant levels" outlined in WDNR Guidance Publication (RR-519-97).

³Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons Interim Guidance (1997). This guidance does not establish or affect legal rights or obligations.

⁴EPA Region 9 Regional Screening Levels (RSL). Screening levels do not establish or effect legal rights or obligations (updated 2011).

Results Estimated

Result not detected at the method detection limit.

No code provided.

**Table 1b
Summary of Sediment Sample Laboratory Polycyclic Aromatic Hydrocarbons (PAHs) Analytical Results
Weston 2007 Sampling Event**

Sample Number/Depth (inches)	Analytical Result (mg/Kg)				Soil Standards				
	MH07-SS-02-03 38-50	MH07-SS-03-01 0-15	MH07-SS-04-01 0-23	MH07-SS-04-02 23-47	MH07-SS-04-03 47-59	MH07-SS-05-01 0-24	Guidance RCLs ²		EPA RSLs ³
PAH	Analytical Result (mg/Kg)				GW*	Contact	Residential	GW	
1-Methylnaphthalene	0.0025U	0.034	0.0086	0.0039	0.0032	0.017	1100	22	0.005
2-Methylnaphthalene	0.0025U	0.051	0.011	0.0052	0.0042	0.023	600	313	0.137
Acenaphthene	0.0025U	0.031	0.01	0.0045	0.0029	0.011	38	900	3440
Acenaphthylene	0.0025U	0.062	0.021	0.021	0.0098	0.023	0.7	18	ns
Anthracene	0.0025U	0.11	0.02	0.011	0.01	0.021	3000	5000	17200
Benzo(a)anthracene	0.0025U	0.46J	0.083	0.034	0.033	0.11	17	0.088	0.15
Benzo(a)pyrene	0.0025U	0.4J	0.077	0.037	0.03	0.095	48	0.0088	0.015
Benzo(b)fluoranthene	0.0025U	0.35J	0.079	0.036	0.028	0.11	360	0.088	0.15
Benzo(g,h,i)perylene	0.0025U	0.23J	0.063	0.035	0.027	0.072	6800	1.8	ns
Benzo(k)fluoranthene	0.0025U	0.26J	0.059	0.025	0.021	0.075	870	0.88	1.5
Chrysene							37	8.8	15
Dibenzo(a,h)anthracene	0.0025U	0.055J	0.001	0.0048	0.0042	0.015	38	0.0088	0.015
Fluoranthene	0.0025U	0.76	0.16	0.068	0.061	0.23	500	600	2290
Fluorene	0.0025U	0.046	0.013	0.0074	0.0054	0.015	100	600	2290
Indeno(1,2,3-cd)pyrene	0.0025U	0.21J	0.055	0.029	0.023	0.068	680	0.088	0.15
Naphthalene	0.0025U	0.22	0.06	0.06	0.033	0.086	0.4	20	3.6
Phenanthrene	0.0025U	0.38	0.09	0.042	0.033	0.12	1.8	18	ns
Pyrene	0.0025U	0.8	0.16	0.071	0.061	0.2	8700	500	1720

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Concentration exceeds one or more of the NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) and/or EPA Region 9 Regional Screening Levels (RSL).
 No NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) established.
 Residual Contaminant Level Based on Protection of Groundwater (GW)
 Not Analyzed
 Concentration less than laboratory method detection limit.
 Concentration reported as milligrams per kilogram, equivalent to parts per million (ppm).
 *NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL)
 **Soil standards listed for PAHs are "suggested generic residual contaminant levels" outlined in WDNR Guidance Publication (RR-519-97).
 **Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons Interim Guidance (1997). This guidance does not establish or affect legal rights or obligations.
 **EPA Region 9 Regional Screening Levels (RSL). Screening levels do not establish or effect legal rights or obligations (updated 2011).
 Results Estimated
 Result not detected at the method detection limit.
 No code provided.

Table 1c
Summary of Sediment Sample Laboratory Polyaromatic Hydrocarbons (PAHs) Analytical Results
Weston 2007 Sampling Event

Sample Number/Depth (inches)	Analytical Result (mg/Kg)					Soil Standards				
	MH07-SS-05-01-DP 0-24	MH07-SS-05-02 24-36	MH07-SS-06-01 0-16	MH07-SS-06-02 16-40	MH07-SS-06-02-DP 16-40	MH07-SS-06-03 40-68	Guidance RCLs ²		EPA RSLs ³	
							GW ¹	Contact	Residential	GW
PAH										
1-Methylnaphthalene	0.026	0.0058	0.055J	0.0051	0.0029	0.0024U	23	1100	22	0.005
2-Methylnaphthalene	0.03	0.0077	0.085	0.0064	0.0028	0.0024U	20	600	313	0.137
Acenaphthene	0.017	0.0043	0.071	0.0083	0.0028	0.0024U	38	900	3440	4.1
Acenaphthylene	0.023	0.0093	0.056	0.01	0.041	0.0024U	0.7	18	ns	ns
Anthracene	0.028	0.015	0.16	0.022	0.0061	0.0024U	3000	5000	17200	42
Benzo(a)anthracene	0.14	0.07J	0.91	0.072	0.03	0.0024U	17	0.088	0.15	0.01
Benzo(a)pyrene	0.12	0.067J	0.72	0.071	0.003	0.0024U	48	0.0088	0.015	0.0035
Benzo(b)fluoranthene	0.13	0.059J	0.72	0.061	0.02	0.0024U	360	0.088	0.15	0.035
Benzo(g,h,i)perylene	0.088	0.53J	0.41	0.052	0.023	0.0024U	6800	1.8	ns	ns
Benzo(k)fluoranthene	0.089	0.049J	0.58	0.048	0.02	0.0024U	870	0.88	1.5	0.35
Chrysene										
Dibenz(a,h)anthracene	0.019	0.0096J	0.078	0.0072	0.0038	0.0024U	37	8.8	15	1.1
Fluoranthene	0.28	0.14D	1.9	0.13	0.059	0.0024U	500	0.0088	0.015	0.0113
Fluorene	0.023	0.0073	0.14	0.0094	0.0042	0.0024U	100	600	2290	70
Indeno(1,2,3-cd)pyrene	0.82	0.64J	0.39	0.042	0.019	0.0024U	680	0.088	0.15	0.11
Naphthalene	0.094	0.025	0.31	0.035	0.013	0.0024U	0.4	20	3.6	0.00047
Phenanthrene	0.17	0.063	0.32	0.084	0.032	0.0024U	1.8	18	ns	ns
Pyrene	0.28	0.14D	1.6	0.16	0.06	0.0024U	8700	500	1720	9.5

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mg/Kg

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"D"

Concentration exceeds one or more of the NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) and/or EPA Region 9 Regional Screening Levels (RSL).

No NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) established.

Residual Contaminant Level Based on Protection of Groundwater (GW)

Not Analyzed

Concentration less than laboratory method detection limit.

Concentration reported as milligrams per kilogram, equivalent to parts per million (ppm).

¹NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL)

²Soil standards listed for PAHs are "suggested generic residual contaminant levels" outlined in WDNR Guidance Publication (RR-519-97).

³Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons Interim Guidance (1997). This guidance does not establish or affect legal rights or obligations.

⁴EPA Region 9 Regional Screening Levels (RSL). Screening levels do not establish or affect legal rights or obligations (updated 2011).

Results Estimated

Result not detected at the method detection limit.

No code provided.

**Table 1d
Summary of Sediment Sample Laboratory Polyaromatic Hydrocarbons (PAHs) Analytical Results
Weston 2007 Sampling Event**

Sample Number/Depth (inches)	Analytical Result (mg/kg)				Soil Standards					
	MH07-SS-07-01 48-72	MH07-SS-08-01 0-12	MH07-SS-08-02 12-30	MH07-SS-08-03 30-39	MH07-SS-09-01 0-24	MH07-SS-09-02 24-48	Guidance RCLs ²		EPA RSLs ³	
	Analytical Result (mg/kg)				GW*	Contact	Residential	GW		
PAH										
1-Methylphtalene	0.057	0.16	0.11	0.12	0.068	0.14	23	1100	22	0.005
2-Methylphtalene	0.094	0.24	0.16	0.16	0.09	0.2	20	600	313	0.137
Acenaphthene	0.058	0.062	0.06	0.079	0.025	0.048	38	900	3440	4.1
Acenaphthylene	0.092	0.063	0.065	0.12	0.038	0.082	0.7	18	ns	ns
Anthracene	0.15	0.14	0.11	0.18	0.087	0.14	3000	5000	17200	42
Benzo(a)anthracene	0.74	1.1	0.73	0.99	0.45	0.76J	17	0.088	0.15	0.01
Benzo(a)pyrene	0.73	0.97	0.62	0.94	0.54	0.76J	48	0.0088	0.015	0.0035
Benzo(b)fluoranthene	0.6	0.83	0.62	0.96	0.47	0.77J	360	0.088	0.15	0.035
Benzo(g,h,i)perylene	0.5	0.6	0.4	0.64	0.33	0.49J	6800	1.8	ns	ns
Benzo(k)fluoranthene	0.6	0.83	0.55	0.79	0.41	0.64J	870	0.88	1.5	0.35
Chrysene							37	8.8	15	1.1
Dibenz(a,h)anthracene	0.12	0.11	0.088	0.13	0.071	0.10J	38	0.0088	0.015	0.0113
Fluoranthene	1.6	2.1	1.5	2.0	0.95	1.5	500	600	2290	70
Fluorene	0.1	0.1	0.088	0.12	0.056	0.1	100	600	2290	4.0
Indeno(1,2,3-cd)pyrene	0.51	0.6	0.39	0.6	0.33	0.480J	680	0.088	0.15	0.11
Naphthalene	0.38	0.24	0.25	0.49	0.11	0.23	0.4	20	3.6	0.0047
Phenanthrene	0.61	0.78	0.63	0.92	0.38	0.69	1.8	18	ns	ns
Pyrene	1.4	1.8	1.4	1.8	0.86	1.5	8700	500	1720	9.5

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Concentration exceeds one or more of the NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) and/or EPA Region 9 Regional Screening Levels (RSL).

No NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) established.

Residual Contaminant Level Based on Protection of Groundwater (GW)

Not Analyzed

Concentration less than laboratory method detection limit.

Concentration reported as milligrams per kilogram, equivalent to parts per million (ppm).

NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL)

NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL)

²Soil standards listed for PAHs are "suggested generic residual contaminant levels" outlined in WDNR Guidance Publication (RR-519-97).

³Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons Interim Guidance (1997). This guidance does not establish or affect legal rights or obligations.

⁴EPA Region 9 Regional Screening Levels (RSL). Screening levels do not establish or affect legal rights or obligations (updated 2011).

Results Estimated

Result not detected at the method detection limit.

No code provided.

**Table 1e
 Summary of Sediment Sample Laboratory Polyaromatic Hydrocarbons (PAHs) Analytical Results
 Weston 2007 Sampling Event**

Sample Number/Depth (Inches)	Analytical Result (mg/kg)				Soil Standards				
	MH07-SS-09-03 48-72	MH07-SS-09-04 72-88	MH07-SS-10-01 0-19	MH07-SS-10-02 19-43	MH07-SS-10-03 43-87	MH07-SS-10-04 87-86	Guidance RCLs ²		EPA RSLs ³
	Analytical Result (mg/kg)				GW ¹	Contact	Residential	GW	
PAH									
1-Methylnaphthalene	0.09	0.057	0.004	0.0054	0.047	0.28	1100	22	0.005
2-Methylnaphthalene	0.12	0.075	0.0052	0.007	0.064	0.38	600	313	0.137
Acenaphthene	0.06	0.047	0.0025U	0.0024U	0.016	0.068	38	900	3,440
Acenaphthylene	0.18	0.16	0.0025U	0.0024U	0.027	0.082	0.7	18	ns
Anthracene	0.15	0.15	0.0025	0.0026	0.0068	0.17	3000	5000	17,200
Benzo(a)anthracene	0.62J	0.65	0.015	0.021	0.26J	0.89	17	0.088	0.15
Benzo(a)pyrene	0.68J	0.57	0.014	0.018	0.3J	0.87	46	0.0088	0.015
Benzo(b)fluoranthene	0.64J	0.66	0.019	0.022	0.27J	0.85	360	0.088	0.15
Benzo(g,h,i)perylene	0.42J	0.43	0.012	0.013	0.19J	0.64	6600	1.8	ns
Benzo(k)fluoranthene	0.46J	0.44	0.011	0.013	0.22J	0.78	870	0.88	1.5
Chrysene							37	8.8	15
Dibenzo(a,h)anthracene	0.095J	0.11	0.0033	0.0035	0.041J	0.14	38	0.0088	0.015
Fluoranthene	1.3	1.6	0.028	0.034	0.6	1.8	500	600	2,290
Fluorene	0.1	0.18	0.0025U	0.0024	0.032	0.13	100	600	2,290
Indeno(1,2,3-cd)pyrene	0.39J	0.44	0.013	0.015	0.19J	0.64	680	0.088	0.15
Naphthalene	0.56	0.35	0.0039	0.0052	0.26	0.27	0.4	20	3.6
Phenanthrene	0.7	0.72	0.013	0.017	0.26	0.88	1.8	18	ns
Pyrene	1.3	1.3	0.024	0.032	0.55	1.7	8700	500	1,720

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Concentration exceeds one or more of the NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) and/or EPA Region 9 Regional Screening Levels (RSL).
 No NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) established.
 Residual Contaminant Level Based on Protection of Groundwater (GW)
 Not Analyzed
 Concentration less than laboratory method detection limit.
 Concentration reported as milligrams per kilogram, equivalent to parts per million (ppm).
 1 NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL)
 2 Soil standards listed for PAHs are "suggested generic residual contaminant levels" outlined in WDNR Guidance Publication (RR-519-97).
 3 Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons Interim Guidance (1997). This guidance does not establish or affect legal rights or obligations.
 EPA Region 9 Regional Screening Levels (RSL). Screening levels do not establish or affect legal rights or obligations (updated 2011).
 Results Estimated
 Result not detected at the method detection limit.
 No code provided.

**Table 1f
 Summary of Sediment Sample Laboratory Polyaromatic Hydrocarbons (PAHs) Analytical Results
 Weston 2007 Sampling Event**

Sample Number/Depth (inches)	Analytical Result (mg/kg)				Soil Standards					
	MH07-SS-11-01 0-18	MH07-SS-12 NONE	MH07-SS-13-01 0-24	MH07-SS-13-02 24-37	MH07-SS-13-01-DP 0-24	MH07-SS-14-01 0-19	Guidance RCLs ²		EPA RSLs ³	
	Analytical Result (mg/kg)				GW ¹	Contact	Residential	GW		
PAH										
1-Methylnaphthalene	0.0043		0.016	0.045	0.013	0.036J	23	1100	22	0.005
2-Methylnaphthalene	0.063		0.023	0.069	0.018	0.062J	20	600	313	0.137
Acenaphthene	0.0038U		0.015	0.05	0.011	0.068	38	900	3,440	4.1
Acenaphthylene	0.0047		0.029	0.041	0.02	0.053J	0.7	18	ns	ns
Anthracene	0.011		0.028	0.17	0.025	0.36	3000	5000	17,200	42
Benzo(a)anthracene	0.076		0.1	0.39	0.11	0.74	17	0.088	0.15	0.01
Benzo(a)pyrene	0.065		0.093	0.35	0.093	0.46	48	0.0088	0.015	0.0035
Benzo(b)fluoranthene	0.051		0.083	0.29	0.078	0.46	360	0.088	0.15	0.035
Benzo(g,h,i)perylene	0.032		0.074	0.24	0.066	0.31	6600	1.8	ns	ns
Benzo(k)fluoranthene	0.041		0.069	0.29	0.078	0.46	870	0.88	1.5	0.35
Chrysene							37	8.8	15	1.1
Dibenz(a,h)anthracene	0.0086		0.019	0.073	0.021	0.11	38	0.0088	0.015	0.0113
Fluoranthene	0.12		0.24	0.83	0.21	1.5	500	600	2,290	70
Fluorene	0.0048		0.022	0.089	0.015	0.094	100	600	2,290	4.0
Indeno(1,2,3-cd)pyrene	0.029		0.064	0.23	0.06	0.27	680	0.088	0.15	0.11
Naphthalene	0.01		0.13	0.14	0.076	0.068	0.4	20	3.6	0.00047
Phenanthrene	0.054		0.14	0.57	0.1	1.1	1.8	18	ns	ns
Pyrene	0.12		0.24	0.81	0.23	1.9	8700	500	1,720	9.5

BOLD
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 mg/kg
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Concentration exceeds one or more of the NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) and/or EPA Region 9 Regional Screening Levels (RSL).
 No NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) established.
 Residual Contaminant Level Based on Protection of Groundwater (GW)
 Not Analyzed
 Concentration less than laboratory method detection limit.
 Concentration reported as milligrams per kilogram - equivalent to parts per million (ppm).
 Concentration reported as milligrams per kilogram - equivalent to parts per million (ppm).
 1)NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL)
 2)Soil standards listed for PAHs are "suggested generic residual contaminant levels" outlined in WDNR Guidance Publication (RR-519-97).
 3)Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons Interim Guidance (1997). This guidance does not establish or affect legal rights or obligations.
 4)EPA Region 9 Regional Screening Levels (RSL). Screening levels do not establish or effect legal rights or obligations (updated 2011).
 Results Estimated
 Result not detected at the method detection limit.
 No code provided.

Table 2a Metals
Summary of 1997 Sediment Sample Laboratory Analytical Results

Sample Number/Depth (inches)	Analytical Result (mg/Kg)										Soil Standards									
	HTM-1 0-24	HTM-1A 24-48	HTM-1A 24-31.9	HTM-1B 31.9-39.8	HTM-1C 39.8-48	HTM-2 0-24	HTM-2A 24-48	NR 720 RCL ¹			EPA RSL ³									
	Analytical Result (mg/Kg)										Non-Industrial	Industrial	Residential	GW						
Metals																				
Arsenic	5.82	NR	5.61	5.46	5.58	3.79	NR	0.039	1.6	0.39	0.0013									
Barium	7.8	22	NR	NR	NR	12.5	22.6	NR	NR	NR	15000	120								
Cadmium	0.128	0.542	NR	NR	NR	0.201	0.658	NR	NR	8	70	0.52								
Chromium	5.22	37.67	NR	NR	NR	10.88	35.6	NR	NR	16,000	ns	ns								
Copper	5.23	7.08	NR	NR	NR	8.16	37.16	NR	NR	ns	ns	ns								
Iron	5800	14700	NR	NR	NR	6800	17900	NR	NR	ns	ns	274								
Lead	11.36	39.31	NR	NR	NR	13.12	79.96	NR	NR	50	500	14								
Manganese	116	286	NR	NR	NR	140	390	NR	NR	ns	ns	21								
Mercury	ND	3.14	NR	NR	NR	1.78	3	NR	NR	ns	ns	0.03								
Nickel	ND	17.4	NR	NR	NR	ND	23.2	NR	NR	ns	ns	ns								
Selenium	0.47	1.35	NR	NR	NR	0.69	1.46	NR	NR	ns	ns	0.4								
Zinc	44	81.8	NR	NR	NR	52.5	1.46	NR	NR	ns	ns	291								
Cyanide	ND	ND	NR	NR	NR	ND	ND	NR	NR	ns	ns	1560								

BOLD Concentration exceeds one or more of the NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) and/or EPA Region 9 Regional Screening Levels (RSL.)

ns No NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) established or EPA Region 9 standard published.

* Residual Contaminant Level Based on Protection of Groundwater (GW)

- Not Analyzed

< Concentration less than laboratory method detection limit.

mg/Kg Concentration reported as milligrams per kilogram, equivalent to parts per million (ppm).

NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL)

NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL)

"Soil standards listed for PAHs are "suggested generic residual contaminant levels" outlined in WDNR Guidance Publication (RR-519-87).

"Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons Interim Guidance (1997). This guidance does not establish or affect legal rights or obligations.

¹EPA Region 9 Regional Screening Levels (RSL). Screening levels do not establish or effect legal rights or obligations (updated 2011).

Results Estimated

Result not detected at the method detection limit.

No code provided.

No Detect

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**Table 2b Metals
Summary of 1997 Sediment Sample Laboratory Analytical Results**

Sample Number/Depth (inches)	Analytical Result (mg/kg)				Soil Standards				
	HTM-2A 24-31.9	HTM-2B 31.9-39.8	HTM-2C 39.8	HTM-3 31.9-39.8	HTM-3 39.8-48	HTM-4 0-24	HTM-4 24-48	EPA RSL ³	
Metals	Analytical Result (mg/kg)				NR 720 RCL ¹		Residential		GW
	5.26	7.12	5.34	2.54	0.039	1.6	0.39	0.0013	
Arsenic	NR	NR	14	9.87	ns	ns	15000	ns	120
Barium	NR	NR	10.3	11.3	8	510	70	ns	0.52
Cadmium	NR	NR	0.202	0.193	16,000	14.09	ns	ns	ns
Chromium	NR	NR	6.05	6.56	ns	ns	3130	ns	22
Copper	NR	NR	5.74	4.73	ns	ns	54800	ns	274
Iron	NR	NR	4450	4740	50	500	400	ns	14
Lead	NR	NR	83.27	46.49	ns	ns	1830	ns	21
Manganese	NR	NR	138	116	ns	ns	10	ns	0.03
Mercury	NR	NR	12.8	ND	ns	ns	ns	ns	ns
Nickel	NR	NR	NR	ND	ns	ns	ns	ns	ns
Selenium	NR	NR	NR	0.52	ns	ns	390	ns	0.4
Zinc	NR	NR	NR	65.6	ns	ns	23500	ns	291
Cyanide	NR	NR	NR	ND	ns	ns	1560	ns	3.14

BOLD Concentration exceeds one or more of the NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) and/or EPA Region 9 Regional Screening Levels (RSL).

ns No NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL) established or EPA Region 9 standard published.

* Residual Contaminant Level Based on Protection of Groundwater (GW)

- Not Analyzed

< Concentration less than laboratory method detection limit.

mg/kg Concentration reported as milligrams per kilogram, equivalent to parts per million (ppm).

*NR 720 Wisconsin Administrative Code Residual Contaminant Level (RCL)

**Soil standards listed for PAHs are "suggested generic residual contaminant levels" outlined in WDNR Guidance Publication (RR-519-97).

*Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons Interim Guidance (1997). This guidance does not establish or affect legal rights or obligations.

**EPA Region 9 Regional Screening Levels (RSL). Screening levels do not establish or effect legal rights or obligations (updated 2011).

Results Estimated

Result not detected at the method detection limit.

No code provided.

No Detect

Appendix G
Draft Technical Specifications

G1 – Draft Project Specifications

SECTION 01 57 19**TEMPORARY ENVIRONMENTAL CONTROLS****PART 1 GENERAL****1.01 SUMMARY**

- A. Provide temporary environmental controls as shown and as specified. Comply with applicable provisions of Divisions 00 and 01. Follow applicable provisions of Wisconsin Department of Natural Resources technical specifications for stormwater management and sediment/erosion control that are included with this specifications package, unless directed otherwise in writing by A/E. The A/E's project-specific technical specifications supercede the WDNR specifications if there are conflicting requirements.

1.02 MEASUREMENT AND PAYMENT

- A. Environmental control items will be considered incidental to construction and the cost of such work incidental to unit bid items, unless Bid Schedule includes separate pay items, as discussed below.
- B. When Bid Schedule includes a unit price for SILT FENCE, payment will be made at the contract unit price per linear foot. Measurement will be along base of silt fence, center to center of end posts, for total liner foot of silt fence. Unit price shall be full compensation for furnishing, delivering, installing, maintaining, and removing silt fence (only if directed by A/E); and, for removal and disposal of accumulated sediment deposits. Refer to WDNR technical specification for guidance.
- C. When Bid Schedule includes a unit price for SEDIMENT BALES (or DITCH CHECKS), payment will be made at the contract unit price per total linear foot. Measurement will be along length of the bales from end-to-end for each section installed. Unit price shall be full compensation for furnishing, delivering, installing, maintaining, and removing bales (only if directed by A/E); and, for removal and disposal of accumulated sediment deposits. Refer to WDNR technical specification for guidance.
- D. DUST CONTROL will be considered incidental to the project and required. Refer to WDNR technical specification for guidance.
- E. VEGETATIVE BUFFER and TEMPORARY GRADING PRACTICE FOR EROSION CONTROL will be considered incidental to the project and required. Refer to WDNR technical specifications for guidance.
- F. When Bid Schedule includes a unit price for STONE TRACKING PAD, payment will be made at the contract unit price for each pad of the size specified or required to support efficient site operations. Unit price shall be full compensation for furnishing, installing, maintaining, and removing tracking pad. Refer to WDNR technical specification for guidance.

1.03 SUBMITTALS

- A. Inspection Reports: Submit one copy of weekly inspection reports for stormwater management and, erosion/sediment controls.

1.04 PERMITS

- A. A/E will:
 - 1. File "Notice of Intent - Storm Water Discharges Associated with Land Disturbing Construction Activities General Permit" at least 14 working days prior to the start of construction.

2. Provide Contractor with a copy of the Notice of Intent and the site erosion control and stormwater management plan.
 3. File Notice of Termination after construction site has undergone final stabilization.
- B. Contractor shall:
1. Comply with requirements of General Permit, project design, and specifications.
 2. Keep a copy of the Notice of Intent and the site erosion control and stormwater management plan at site during construction.

PART 2 PRODUCTS

2.01 SILT FENCE

- A. Geotextile fabric and support system complying with the requirements of WIDOT Std. Spec., Subsection 628.2.6, except geotextile fabric shall have a maximum flow rate of 10 gal/minute/square feet at 50 mm constant head as determined by multiplying permittivity in 1/second as determined by ASTM D4491 by a conversion factor of .74.

2.02 SEDIMENT BALES (DITCH CHECKS)

- A. Straw or weed-free hay, in good condition, with rectangular surfaces, tightly bound with twine (not wire) and nominal dimensions of 30 in. x 18 in. x 14 in.

2.03 STONE TRACKING PAD MATERIALS

- A. Aggregate: 3 to 6-in. clear or washed stone. All material shall be retained on a 3 in. sieve.
- B. Geotextile Fabric: WIDOT Std. Spec., Section 645, Type R fabric.

2.04 PERMANENT SEED

- A. See Section 32 92 00.

2.05 EROSION MAT

- A. See Section 32 92 00.

PART 3 EXECUTION

3.01 EROSION CONTROL

- A. Applicable Standards: Unless otherwise shown or specified, erosion control measures shall comply with:
 1. "Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit" for storm water discharges associated with construction activities.
 2. WDNR "Stormwater Management Technical Standards" (available on the WDNR web site at dnr.wi.gov/topic/stormwater/standards/const_standards.html); applicable specifications attached to project design and specifications.
- B. General: Maintain erosion control measures to protect the project site and prevent sediment pollution of adjacent water courses and properties. At a minimum, provide erosion control measures as indicated on Drawings and specifications.

- C. Time Period: Install erosion control measures prior to start of construction and maintain measures until final completion of work. Owner will assume responsibility for erosion control measures during post-closure care period following approved Contractor CONTAINMENT SITE CLOSURE AND EXIT PLAN and its execution (31 81 92).
- D. Stripping: Strive to limit stripping of sod and vegetation to a period that will expose bare soil to the least possibility of erosion that construction requirements will allow.
- E. Tracking Pads: Prevent tracking of soils and sediments onto public and private streets by constructing temporary graveled access roads and parking areas as needed at the construction site. Remove at the end of each work day soils and sediment reaching public and private streets not part of the construction site.
- F. Re-establishment of Vegetation: Re-establish temporary or permanent vegetation on disturbed areas within the time limits allowed by applicable standards. Perimeter drainage swale shall be constructed, and vegetated to the extent possible, prior to constructing and operating spoils containment area; refer to Specification 31 05 10.
- G. Sediment Deposits: Remove and dispose of sediment deposits (within containment area) when deposits reach one-half the volume capacity of sediment barrier, unless otherwise indicated.

3.02 EROSION CONTROL MONITORING AND REPORTING

- A. Contractor shall conduct the following inspections:
 1. Weekly inspections of implemented stormwater management and erosion/sediment controls.
 2. Inspections of stormwater management and erosion/sediment controls within 24 hours after a precipitation event that produces 0.5 in. of rain or more during a 24-hour period.
- B. Contractor shall prepare weekly written reports of all inspections that include:
 1. Date, time, and exact places of inspections.
 2. Name of individual who performed inspection.
 3. An assessment of condition of management and controls.
 4. A description of implementation and maintenance performed.
 5. A description of the present phase of construction at site.

3.03 DUST CONTROL

- A. Minimize dispersion of dust from construction operations by application of water. Controls shall confine dust and dirt within the immediate area of project; Refer to WDNR technical specification for guidance.

3.04 NOISE CONTROL

- A. Provide noise control measures to limit the amount of noise and prevent nuisance. Properly equip and maintain all equipment with mufflers. Limit construction activities generating significant noise to normal working hours; unless approved otherwise by A/E.

3.05 HAZARDOUS ENVIRONMENTAL CONDITIONS

- A. If underground petroleum storage tanks, petroleum contaminated soils, or other hazardous environmental conditions are encountered, and are not identified to be part of the work, Contractor shall immediately stop all work in connection with the hazardous condition and notify Owner and A/E (See the General Conditions of the Contract for specific procedures that may apply).

3.06 SITE SECURITY AND TRAFFIC SAFETY

- A. Contractor is responsible for their site security. Site access control is not required or permitted because site access road off of Murray Street cul-de-sac is utilized by adjacent property owner and their contractors. Contractor shall share primary site entrance and be aware of potential non-project traffic entering property and use of access road. Signage is recommended warning traffic of potential traffic conflicts and congestion.

END OF SECTION

Not Bid Specs

SECTION 31 05 10
SITE PREPARATION

PART 1 GENERAL

1.01 SUMMARY

- A. Provide site preparation as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.
- B. Work includes, but is not limited to:
 - 1. Protection of improvements, delineated wetland area, and utilities.
 - 2. Location of utilities and coordination with utility companies.
 - 3. Clearing and grubbing trees and vegetation.
 - 4. Topsoil excavation and salvage.

1.02 MEASUREMENT AND PAYMENT

- A. Site preparation will be considered incidental to the work except where separate bid items are included in Bid Schedule.
- B. Drawing notes related to removals and replacements shall be interpreted as directives to Contractor for such work at no extra cost, except where separate bid items are provided in Bid Schedule.

PART 2 (NOT USED)

PART 3 EXECUTION

3.01 PROTECTION

- A. Protect improvements on site and on adjoining properties. Provide barricades, coverings, or other types of protection as necessary to prevent damage and to safeguard against injury. Restore to original condition improvements damaged by the work or improvements which required temporary removal during construction. See Specification 01 57 19.
- B. Maintain survey monuments, reference points, and benchmarks; notify A/E of disturbance to markers.
- C. No extra payment or time will be allowed for protection work that could have been suspected or anticipated by site inspection and interpretation of bidding documents prior to execution of contract.

3.02 LOCATING EXISTING UTILITIES

- A. Location and description of underground utilities and structures shown on drawings are approximate and are based on records available to Owner, or by observance of surface features indicating their existence. There may be other utilities within project area that are not shown.

- B. Notify all affected utility companies of construction operations at least three working days before beginning work near their facilities. Follow Diggers' Hotline protocols. Do not begin excavation work until underground utility locations have been marked.
- C. Use caution when excavating so that exact location of underground utilities, both known and unknown, may be determined. Provide adequate protection and support for utilities during construction operations.
- D. If uncharted or incorrectly charted utilities are encountered during excavation work, or if proposed construction conflicts with existing utilities, give prompt notice and submit proposed solution to A/E for approval. Cooperate with Owner and public and private utility companies to keep their services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

3.03 SITE CLEARING AND GRUBBING

- A. Remove trees, stumps, snags, shrubs, brush, turf, and other vegetation, improvements, rubbish and debris, and obstructions that interfere with proposed construction; remove items only as necessary for completion of work.
- B. Cut brush and vegetation flush with ground. Grub out stumps, roots having a diameter of 2 inches or larger, and root clusters to a depth of at least 2 feet below design elevation for roadwork, subbase, and embankments and 6 inches below ground surface in other areas.
- C. Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction. Cut back roots a minimum of 1 foot from road work and structures.

3.04 TOPSOIL STRIPPING

- A. Topsoil shall include all friable, fertile, loam soil suitable for grass and plants, found at surface, reasonably free of subsoil, clay lumps, stones, objects over 2-inch diameter, weeds, large roots, root clusters, and other objectionable material.
- B. Strip topsoil from project area to design depths; prevent intermingling with underlying subsoil or other objectionable material.
- C. Where trees are indicated to remain, terminate stripping a sufficient distance from such trees to prevent damage to root system.
- D. Stockpile topsoil in storage pile in area designated. Construct storage pile to freely drain surface water. Control erosion and sediment transport from stockpile area ased on design and specifications.
- D. Topsoil stripped from work area shall be used for restoration work.

3.05 DEBRIS DISPOSAL

- A. Remove logs, non-organic debris, and excess materials from site and legally dispose of it; do not burn debris.
- B. Stumps, tree branches, and brush shall be disposed of within designated project areas. Branches and brush shall be chipped to consolidate material prior to disposal. Larger materials, including stumps, shall be backfilled within containment area in a manner as to limit subsequent settlement of backfilled and surrounding soil.

3.07 DEBRIS DISPOSAL

- A. Remove logs, non-organic debris, and excess materials from site and legally dispose of it. Burning of combustible materials on site will not be permitted. Comply with federal, state, and local laws and regulations.

END OF SECTION

Not Bid Specs

SECTION 31 37 00**RIPRAP****PART 1 GENERAL****1.01 SUMMARY**

- A. Provide loose rock riprap, including geotextile filter fabric, as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

1.02 MEASUREMENT AND PAYMENT

- A. Riprap, including geotextile filter fabric, will be paid for as part of the contract unit price as lump sum for RIPRAP as "8-Foot Wide Stone Drainage Way"; refer to project drawings.

1.03 SUBMITTALS

- A. Product Data:
 - 1. Submit information on source of riprap. Provide access to source to enable A/E to inspect and obtain samples. Do not deliver riprap until reviewed and approved by A/E.
 - 2. Submit fabric product data. Include material samples, certification of physical properties, and installation procedures.
- B. Make submittals in accordance with Section 01 01 00 / 01 33 00.

1.04 TESTING

- A. A/E may perform tests to verify that riprap and completed work meet specified requirements. However, these tests are not intended to provide Contractor with information it may need to assure that materials and workmanship meet requirements of specifications, and their performance will not relieve Contractor of responsibility of performing its own tests for that purpose.

PART 2 PRODUCTS**2.01 RIPRAP**

- A. Durable field or quarry stone that is sound, hard, dense, resistant to the action of air and water, and free of seams, cracks, or other structural defects. Use stone pieces with a length and width no more than twice the thickness.
- B. Riprap gradation shall comply with requirements of WIDOT Std. Spec., Section 606, for light riprap.

2.02 GEOTEXTILE FILTER FABRIC

- A. Fabric shall be a woven or nonwoven polyester, polypropylene, stabilized nylon, polyethylene, or polyvinylidene chloride material whose function is to pass ground water from beneath fabric while restricting migration of subgrade soil particles into overlying stone ballast. Fabric shall be treated to ensure stability under ultraviolet radiation (sunlight).
- B. Fabric shall comply with requirements of WIDOT Std. Spec., Section 645, for Type R fabric.

PART 3 EXECUTION**3.01 SUBGRADE PREPARATION**

- A. Grade subgrade surfaces to lines and grades as shown with an allowance for riprap. Remove organic materials but not all topsoil; remove only necessary depth of topsoil to facilitate proper channel slope. Compact the soft subgrade soils. When fill to achieve subgrade lines is needed, provide granular materials.

3.02 FABRIC INSTALLATION

- A. Provide fabric under all riprap. Install fabric as shown and in accordance with manufacturer's recommendations.
- B. Surface to receive fabric shall be smooth and free of obstructions, depressions, and debris. Lay fabric parallel to direction of water flow.
- C. If lapping of fabric is required, minimum overlap shall be 2 feet.
- D. Secure fabric in place to prevent shifting before or during placement of riprap.
- E. Repair or replace torn or punctured fabric in accordance with manufacturer's instructions (overlap additional fabric to cover rips or tears); no extra compensation will be allowed.

3.03 EQUIPMENT-PLACED ROCK RIPRAP

- A. Riprap shall be placed to full course thickness in one operation from base of slope upward; height of riprap freefall shall not exceed 1 foot. Riprap shall be reasonably homogeneous with larger rocks uniformly distributed and firmly in contact and smaller rocks and spalls rammed into voids between larger rocks to interlock and form an even surface.
- B. Hand placement will be required where necessary to correct obvious irregularities and to prevent damage to adjacent improvements and wherever equipment placement methods are unsatisfactory.

3.04 HAND-PLACED RIPRAP

- A. Riprap shall be securely bedded with larger rocks firmly in contact one to another. Spaces between larger rocks shall be filled with smaller rocks and spalls. Smaller rocks shall not be grouped as a substitute for larger rock. Flat slab rock shall be laid on edge.

END OF SECTION

SECTION 31 81 90

CONTAINMENT SITE OPERATIONS

PART 1 GENERAL

1.01 OPERATIONAL OBJECTIVES

- A. Contractor, under direction of Owner and A/E, shall provide for an organized, nuisance-free operation that will satisfactorily protect the environment and provide for efficient operation of the "Navigational Dredge Spoils Containment Site" (containment site).

1.02 OPERATIONS

- A. Contractor shall operate the containment site as directed by A/E in conformance with the contract requirements, the WDNR-Approved Exemption Request, the project design and specifications, and state and federal regulations. Operational plans, drawings, and approval letters are available from the A/E for use by Contractor.
- B. At a minimum, the operations work shall include:
 - 1. Preparation and maintenance of the project site and containment area.
 - 2. Spoils inspection and acceptance.
 - 3. Spoils placement, grading, and management.
 - 4. Stormwater management and sediment/erosion control.
 - 5. Maintenance of access roads and containment site disposal access.
 - 6. Hauler vehicle assistance.
 - 7. Litter, debris, and sediment control and cleanup.

1.03 HOURS AND DAYS OF SPOILS RECEIPT

- A. The site shall be open to receive spoils whenever hauling is taking place from the Menekaunee Harbor Restoration project. Hauling of spoils to the containment site is the controlling activity and coordination shall be performed with foreman controlling sediment operations at harbor.
- B. Contractor shall be on-site a minimum of 30 minutes prior to receipt of spoils and shall have proper equipment operating by the time spoils are received.
- C. During periods of inclement weather or other warranting conditions, Contractor shall be on-site sufficiently ahead of spoils acceptance to prepare access roads and containment site accessibility, and as directed by A/E.
- D. Weather conditions will not be cause for extra compensation.

1.04 SUBMITTALS

- A. Submit items to A/E shall be in written format, with submittal title and Contractor name prominently identified. Submittals shall be received by A/E prior to the date listed below. Submittal information shall be resubmitted to A/EM within two (2) business days of submittal information changes.
- B. Personnel List: Prior to beginning operations and prior to personnel changes being made, Contractor shall submit a list of personnel scheduled to work at the containment site to A/E.
- C. Spoils Placement Plan: Ten (10) days prior to beginning operations at containment site, review plan for waste placement, sequencing, and stormwater and consolidation water management to A/E and Owner for review and approval.

- D. Contractor Health and Safety Plan: Five (5) business days prior to beginning operations, submit a health and safety plan for Contractor's personnel. Owner or A/E is not responsible for Contractor personnel safety.
- E. Communications Plan: Five (5) business days prior to beginning operations, submit a communications plan. Communications plan shall include, at a minimum, contact information for the site foreman, including phone numbers, and address for all written communications. Foreman for harbor activities associated with spoils loading and hauling shall be included.
- F. Emergency Plan: Five (5) business days prior to the beginning of operations, submit a plan for communications, organization, and responsibilities for Contractor's employees to be implemented during emergencies. Emergencies include, but are not limited to: fires, medical emergencies, weather emergencies, and extended hours of operations. Include contact information in this submittal.

1.05 NOTIFICATIONS

- A. Notifications to A/E for changes in personnel or equipment must be submitted in writing.
- B. Notify A/E three (3) business days before any planned change in designated foreman.
- C. Notify A/E a minimum of 48 hours prior to any planned equipment issues, including those for scheduled repairs, maintenance, etc. Contractor shall be responsible for arranging for approved replacement equipment required to comply with contract requirements.
- D. Notify A/E within eight (8) hours of equipment being designated as out of service.

PART 2 PRODUCTS

2.01 GENERAL

- A. Contractor shall provide all equipment, fuel, lubricants, and labor as required for operation of the containment site, including support equipment such as vehicles, fuel storage tanks, fuel pumps, hoses, electrical wiring, utility charges, and other items incidental to the operation of required equipment and the containment site.

2.02 EQUIPMENT

- A. Contractor shall provide equipment for use in spoils handling, soil and road grading, earth moving, stormwater management, and other duties required for operation and maintenance of the containment site, including:
 - 1. Bulldozer for placing and shaping received dredge spoils.
 - 2. Self-contained water (trash) pump capable of 200 gallons per minute at 20 feet head, operable for 24 hours without refueling, and having sufficient suction and discharge hose to accommodate various pumping needs. A minimum of 40 feet of suction hose and 150 feet of discharge hose shall be readily available within 24 hours after measurable rain, or on request by A/E or Owner.

2.03 COMMUNICATION EQUIPMENT

- A. Contractor shall have cellular telephones to allow them to contact A/E or other designated Owner representative at all times, while on or off the site.

PART 3 EXECUTION

3.01 GENERAL

- A. Execute the work in a timely and diligent manner so as to enable an uninterrupted and organized operation in agreement with the Menekaunee Harbor Restoration operations.

3.02 GENERAL SPOILS PLACEMENT

- A. Place spoils with the goal of achieving lowest possible final grades within the containment area and to allow for final topsoil cap placement in a timely manner following completion of spoils placement. The goal is to utilize the majority of the containment area footprint to limit the overall final height of the containment pile. The pile may need to be consolidated initially to facilitate access and dumping of spoils; however, following termination of spoils delivery, the resulting pile shall be graded to cover majority of containment site footprint in a uniform manner as indicated by the project design and specifications.
- B. Spoils shall be placed starting in the northern parts of the containment site area (filling from areas of higher elevation toward areas of lower elevation) leaving sufficient room for consolidation water and stormwater to drain from the spoils pile primarily toward the perimeter drainage swales along the south side of the containment site, and ultimately to the drainageway and into the existing detention basin.
- C. Place spoils in a single containment pile that will grow in size and expand across the containment area as more spoils are brought to the site. Sufficient surface area shall be maintained to direct consolidation water and stormwater toward the drainageway, while maintaining suitable access for vehicles bringing spoils to the site.
- D. The spoils shall be placed as not to exceed a 4 horizontal to 1 vertical (4H:1V) slopes.
- E. Daily covering of spoils is not required or necessary.
- F. Contractor shall construct and maintain vehicle access within the containment area to manage vehicles delivering spoils. Containment site users shall not have to traverse exposed spoils to discharge spoils loads.
- G. Contractor shall receive and manage shredded wood / wood chips from the Owner to provide the first layer within the containment area that will be located immediately beneath the first layer of spoils. This layer of shredded wood shall be no thicker than four (4) inches. The shredded wood / wood chips may be placed thicker in vehicle access areas to facilitate access by spoils hauling vehicles (i.e., to prevent vehicles from becoming stuck).
- H. Contractor may use aggregate to facilitate spoils hauling vehicles access to the dumping location within the containment area. Contractor shall minimize aggregate use and shall attempt to reuse aggregate as dumping locations change. Contractor shall coordinate aggregate use with A/E by providing information regarding selected materials and its proposed use. A/E and Owner understand that soft access conditions may occur following precipitation events and aggregate use may be necessary.

3.03 SITE MAINTENANCE

- A. Maintain site in a neat and orderly manner at all times. Provide maintenance including, but not limited to, general road grading, site drainage, stabilization and restoration of site erosion problems, and any other such needs within the capabilities of the specified equipment and labor as directed by A/E.
- B. Divert stormwater away from areas containing spoils and whenever practicable within the containment area. Refer to applicable WDNR technical specifications attached to the project design and specifications. Water shall be directed toward constructed drainage courses. Maintain site to control sediment transport and erosion. Water coming in contact with spoils

shall be considered "leachate" and this water shall not be discharged outside of the designated limits of construction, to the delineated wetland, or to offsite areas.

- C. Do not let water pond for long periods of time. Contractor shall have pump(s) available and shall pump ponded water from depressions and correct depressed areas. A minimum slope shall be maintained across the containment site to direct water to the perimeter drainage swales and to the detention basin.
- D. Maintain site in an erosion-free condition in all site drainage features, including, but not limited to slopes, drainage swales, drainageway, and detention pond. Install Contractor-furnished erosion control materials (Specifications 01 57 19 and 31 05 10). Construct and maintain existing site access road and new access road into containment site, and vehicle access to spoils dumping locations with shredded wood / wood chips provided by Owner or aggregate materials provided by Contractor.

3.04 ROAD MAINTENANCE

- A. Contractor shall construct and maintain road access into containment site to facilitate spoils dumping. Road shall be constructed of materials that will not excessively rut or settle, or that are excessively slippery, and in accordance with design and specifications.
- B. Contractor shall maintain existing site entrance and access road (starting at end of Murray Street cul-de-sac and up to connection with, and including, access road constructed to access containment site area. NOTE: Site access road is used by other adjacent property owners and their contractors (shared access road along south side of project property).

3.05 EQUIPMENT MAINTENANCE AND FUELING

- A. Contractor may perform equipment maintenance and fueling on-site, but in such a fashion as not to delay incoming spoils shipments or placement. Contractor shall follow best management practices for spill containment. Contractor shall be responsible for any remedial investigation or remedial action required due to contamination caused by spillage or leakage of Contractor's equipment during operations, maintenance, repair, or fueling.

3.06 LITTER PREVENTION AND CONTROL

- A. Contractor shall take prompt measures to help prevent, control, contain, and collect Contractor-generated waste and debris to satisfaction of A/E and Owner.

3.07 FIRE CONTROL

- A. Contractor shall take suitable precautions to prevent fires and control them if they start. Fire extinguishers shall be furnished and maintained on all equipment and in any temporary personnel or storage buildings. If a fire breaks out in an area under Contractor's control, Contractor shall immediately contact local fire protection agency and then notify A/E and Owner. No additional compensation will be allowed for fire control operations. Contractor shall compensate fire department(s) for services required to extinguish fires, as applicable.

3.08 DUST CONTROL

- A. Provide dust control measures as appropriate following WDNR guidelines presented in WDNR technical specifications attached to the project design and specifications. Dust control shall include at a minimum, application of water on the access roads and within the containment site. Chemicals or oils shall not be used as a dust control agent. Shredded wood / wood chips may provide relief from dust. No additional compensation will be allowed for dust control operations.

3.09 FOUL WEATHER OPERATIONS

- A. Provide for site and containment site access in all weather conditions to the extent practicable. Provide for proper drainage on all roads, excavations, soil stockpiles, and containment site area spoils dumping locations to minimize traffic problems and insure accessible operations. No additional compensation will be allowed for foul weather operations.

3.10 COLD WEATHER OPERATIONS

- A. Provide for proper protection of equipment to enable continued operations during cold conditions. No additional compensation will be allowed for cold weather operations.

3.11 GRASS AND WEED CONTROL

- A. Contractor is not responsible for mowing or cutting vegetation during site operations following completion of proper clearing and grubbing, and site preparation activities in accordance with Specifications 01 57 19 and 31 05 10.

END OF SECTION

Not Bid Specs

SECTION 31 81 92

CONTAINMENT SITE CLOSURE AND EXIT PLAN

PART 1 GENERAL

1.01 EXIT PLAN OBJECTIVES

- A. To clearly define responsibilities between Contractor, A/E, and OWNER at the end of the contract responsibilities for the Spoils Containment Site.

1.02 NOTIFICATION

- A. Notify A/E a minimum of 7 days prior to the anticipated completion of spoils containment and site operations, and to schedule project close-out meeting at the site on last day of site operations.

1.03 SUBMITTALS

- A. Submit a schedule for correction of agreed upon "punch-list" items in writing within two (2) working days of project site close-out meeting between Contractor, A/E, and Owner.

PART 2 (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. Complete the agreed upon punch-list in a timely and diligent manner.

3.02 SITE CONDITIONS

- A. A joint inspection of the containment site in its entirety shall be made by Contractor, A/E, and OWNER at a date prior to end of (but within 2 days of anticipated end of site project operations) Contractor operations.
- B. A "punch-list" of items to be completed by Contractor will be identified and submitted to Contractor in writing by A/E. The list will identify tasks and expected completion dates prior to the overall exit date. Owner reserves the right to add items to "punch-list" throughout the exit plan process.
- C. Prior to the final exit date, a final inspection between A/E and Contractor shall take place to ensure all "punch-list" items have been completed to the Owner's satisfaction.
- D. Contractor equipment shall be removed on final exit date or shortly thereafter, as agreed to with Owner.

3.03 RESTORATION OF DISTURBED AREAS

- A. All areas disturbed by Contractor shall be re-graded and restored to Owner's satisfaction in accordance with Specifications (32 92 00) prior to Contractor's departure. This includes, but is not limited to, topsoil stockpile location, truck cleaning areas (tracking pad), and access roads. Refer to WDNR technical specifications attached to project design and specifications.

3.04 ROUTINE OPERATIONS

- A. Once an exit date is established, Contractor shall continue required operations contract on a regular basis until the exit date. These activities shall not be delayed unreasonably.

END OF SECTION

Not Bid Specs

SECTION 32 15 20**CRUSHED AGGREGATE SURFACING****PART 1 GENERAL****1.01 SUMMARY**

- A. Provide crushed aggregate surfacing as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

1.02 RELATED SECTIONS

31 05 10 Containment Site Preparation.

1.03 MEASUREMENT AND PAYMENT

- A. Aggregate paving will be paid for at the contract unit price per lump sum for CRUSHED AGGREGATE SURFACING. Work involves construction of site access road, which is a new road to permit access into containment area and is extended off of existing site access road. Refer to project drawings and specifications. Work beyond limits shown will not be paid. Work associated with maintaining new access road and existing site access road is incidental to the project and shall be included as part of the provided lump sum for the duration of the project.

1.04 SUBMITTALS

- A. Aggregate samples: Two weeks prior to start of construction, indicate source of proposed aggregate materials and provide source's material specifications for review and approval by A/E. Do not deliver riprap until reviewed and approved by A/E.
- B. Submit fabric product data and sample. Include material samples, certification of physical properties, and installation procedures for approval by A/E.
- C. Make submittals in accordance with Section 01 01 00 / 01 33 00.

1.05 TESTING

- A. A/E may perform tests to verify that aggregate materials, fabric, and completed work meet specified requirements. However, these tests are not intended to provide Contractor with information he may need to assure that materials and workmanship meet requirements of specifications, and their performance will not relieve Contractor of responsibility of performing his own tests for that purpose. Where materials do not conform to that specified, material shall be replaced or reworked to conform. Cost of extra tests for replaced material or reworked areas shall be paid for by Contractor.

PART 2 PRODUCTS**2.01 AGGREGATE**

- A. Hard durable particles of crushed stone or crushed gravel and a filler of natural sand, stone sand, or other finely divided mineral matter complying with the requirements of WIDOT Std. Spec., Section 305. Use 3/4-in. base for top 3 in. of aggregate surfacing and either 3/4-inch or 1-1/4-inch base below.

2.02 GEOTEXTILE FILTER FABRIC

- A. Fabric shall be a woven or nonwoven polyester, polypropylene, stabilized nylon, polyethylene, or polyvinylidene chloride material whose function is to pass ground water from beneath fabric while restricting migration of subgrade soil particles into overlying stone ballast. Fabric shall be treated to ensure stability under ultraviolet radiation (sunlight).
- B. Fabric shall comply with requirements of WIDOT Std. Spec., Section 645, for Type R fabric.

PART 3 EXECUTION

3.01 PLACEMENT

- A. Remove existing topsoil to install culvert under new access road in accordance with Specification 31 05 10, and to construct access road connection to existing access road. Refer to project design and specifications.
- B. Place aggregate surfacing to line, grade, depth, and section shown. Comply with WIDOT Std. Spec., Section 305, except as otherwise specified.
- C. Aggregate shall be compacted to 95% of maximum density as determined by ASTM D698/AASHTO T99 (Standard Proctor test). If required compacted depth of aggregate exceeds 6 in., aggregate shall be constructed in two or more layers of approximately equal thickness.

3.02 FABRIC INSTALLATION

- A. Provide fabric under all aggregate. Install fabric as shown and in accordance with manufacturer's recommendations.
- B. Surface to receive fabric shall be smooth and free of obstructions, depressions, and debris. Lay fabric parallel to direction of access road.
- C. If lapping of fabric is required, minimum overlap shall be 2 feet.
- D. Secure fabric in place to prevent shifting before or during placement of aggregate.
- E. Repair or replace torn or punctured fabric in accordance with manufacturer's instructions (overlap additional fabric to cover rips or tears); no extra compensation will be allowed.

END OF SECTION

SECTION 32 92 00**TURF AND GRASSES****PART 1 GENERAL****1.01 SUMMARY**

- A. Provide turf and grasses as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.
- B. Work includes, but is not limited to: preparation of turf areas, seeding, and planting for restoration of disturbed areas and closure of containment site.

1.02 RELATED SECTIONS**NONE.1.03 SUBMITTALS**

- A. Topsoil Analysis: Submit topsoil analysis as specified in "Testing" article below.
- B. Make submittals in accordance with Section 01 01 00 / 01 33 00.

1.04 TESTING

- A. Contractor shall arrange and pay for analysis of topsoil by a qualified soil testing laboratory, acceptable to Owner and A/E. Analyses shall indicate pH and plant-nutrient content of topsoil. Report the suitability of topsoil for turf growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory topsoil, if recommended.

1.05 WORK SEASONS

- A. Conduct work (restoration and revegetation efforts) during favorable weather conditions between August 15 and September 30. Do not proceed when air temperatures may exceed 90 degrees Fahrenheit, or when ground surface is frozen. If approved by A/E, seeding may be performed in November prior to snow cover if seed is applied over mulch that was placed during period from September 15 to November 1, utilizing dormant seeding protocols for the specified seed mix.

PART 2 PRODUCTS**2.01 TOPSOIL**

- A. Reuse topsoil salvaged from within work area.
- B. Loam, sandy loam, silt loam, silty clay loam, or clay loam humus-bearing surface soil; 100% passing the 2 in. sieve; neither excessively acid, nor excessively alkaline; reasonably free of subsoil, clay lumps, brush, and weeds; and free of extraneous matter harmful to plant growth.

2.02 LIME

- A. Agricultural grade limestone ground sufficiently fine so that 80% passes a No. 8 sieve. Lime shall contain 80% calcium carbonate equivalent. Moisture shall not exceed 8%, by weight.

2.03 FERTILIZER

- A. Solid or liquid form, commercial fertilizer formulated based on recommendations of topsoil analysis report. If using a solid form of fertilizer, use products with a SGN (Size Guide

Number) of 200 or less. Fertilizer formulations with phosphorus will not be approved unless called for in the topsoil analysis report and only for the initial fertilizer application.

2.04 SEED MIX

- A. Seed mixture shall conform to WIDOT #70 Native Mix and the following the required seed percentages, by weight.
- B. Deliver seed mixture in bags tagged and labeled to show percentage of purity and germination. Seed shall have been tested within one year prior to date of seeding and shall conform to latest State and Federal seed laws.

2.05 STRAW MULCH

- A. Straw or hay, reasonably free of grain, weed seed, or mold. Mulch materials shall not contain excessive moisture that prevents uniform feeding through mulching machine and application. Mulch and installation shall meet WDNR specifications, as attached to the project design and specifications.
- B. Mulch shall be crimped following installation with suitable equipment to reduce mulch from washing off placed areas.

2.06 EROSION MAT

- A. Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed on two sides in a photodegradable plastic mesh. Include manufacturer's recommended biodegradable staples, 6 inches long. Refer to WDNR specifications attached to the project design and specifications.

PART 3 EXECUTION

3.01 PROTECTION

- A. Protect improvements from damage caused by turf preparation and planting operations.

3.02 SUBGRADE PREPARATION AND TOPSOIL PLACEMENT

- A. Prior to topsoil placement, remove stones larger than the maximum size allowed for topsoil, along with sticks, roots, debris, and other extraneous matter and legally dispose of them off the Owner's property, as appropriate.
- B. Remove all woody type growths of vegetation from subgrade prior to topsoil placement and seeding.
- C. Place a minimum of 6 inches of topsoil over areas to receive restoration.
- D. Smooth grade topsoil to eliminate irregularities. Finished topsoil grade shall be 1 inch below adjoining grade of any surfaced area.

3.03 SOIL PREPARATION

- A. Loosen topsoil by tilling to a depth of 3 inches. Apply the lime in sufficient quantity to produce a soil pH range of 6.0 to 7.0; mix thoroughly into topsoil. Rake out surface irregularities; remove rocks and hard soil clods, and other debris.
- B. Apply initial application of fertilizer onto topsoil prior to seeding. Apply by broadcast spreading at rate recommended by topsoil analysis report.

3.04 SEEDING

- A. General: Apply seed by broadcast or drilled methods to insure uniform distribution. Cross area in two directions, applying 1/2 of seed in each crossing. Rake the seed lightly into top 1/8 inches of soil, roll lightly.
- B. Apply Seed Mixture at rate of 17.5 pounds per acre; or per manufacturer's specifications as approved by A/E.
- C. Watering is not required.

3.05 PROTECTION OF SEEDED AREAS

- A. Level Areas and Slopes of 4H:1V or Less: Apply straw mulch uniformly in all seeded areas at rate of 1-1/2 tons per acre to a loose depth of 1 to 2 inch. Anchor mulch in all areas by crimping mulch to a minimum depth of 1-1/2 inches at 8 inches on center.
- B. Slopes Greater Than 4H:1V, which includes along each side of all drainage swales, and where designated on Drawings: Provide erosion matting installed and stapled according to manufacturer's recommendations in all seeded areas.
- C. Mulch shall be applied as soon as possible, but within two (2) days after seeding. Suspend mulching operations during periods of high winds.

3.06 ESTABLISHMENT AND REPLACEMENT

- A. Areas seeded in fall (seeded prior to September 30), which fail to show satisfactory growth prior to end of growing season shall be reseeded, fertilized, and protected the following spring before June 1 at the Contractor's expense. Satisfactory growth shall be considered healthy grass germination and growth with no bare spots larger than 12 inches square and total bare spots not exceeding 3 percent of total seeded area.
- B. Contractor, Owner, and A/E shall jointly inspect the restored project areas by approximately November 1 following project completion to determine areas that may not be satisfactorily vegetated. Areas will be staked and documented for Contractor attention during the following spring.

END OF SECTION

G2 – WDNR Technical Specifications

Non-Channel Erosion Mat

(1052)

Wisconsin Department of Natural Resources
Conservation Practice Standard

I. Definition

A protective soil cover made of straw, wood, coconut fiber or other suitable plant residue, or plastic fibers formed into a mat, usually with a plastic or biodegradable mesh on one or both sides. Erosion mats are rolled products available in many varieties and combinations of material and with varying life spans.

II. Purpose

The purpose of this practice is to protect the soil surface from the erosive effect of rainfall and prevent *sheet erosion*¹ during the establishment of grass or other vegetation, and to reduce soil moisture loss due to evaporation. This practice applies to both *Erosion Control Revegetative Mats (ECRM)* and *Turf-Reinforcement Mats (TRM)*.

III. Conditions Where Practice Applies

This standard applies to erosion mat selection for use on erodible slopes.

This standard is not for channel erosion; for channel applications reference WDNR Conservation Practice Standard (1053) Channel Erosion Mat.

IV. Federal, State, and Local Laws

Users of this standard shall be aware of applicable federal, state, and local laws, rules, regulations, or permit requirements governing the use and placement of erosion mat. This standard does not contain the text of federal, state, or local laws.

V. Criteria

This section establishes the minimum allowable standards for design, installation and performance requirements. Only Wisconsin Department of Transportation (WisDOT) Erosion Control Product Acceptability List (PAL) approved mats will be accepted for use in this standard.

Slope and slope length shall be taken into consideration. This information can be found in the Slope Erosion Control Matrix located in the PAL.

To differentiate applications Erosion mats are organized into three Classes of mats, which are further broken down into various Types.

- A. **Class I:** A short-term duration (minimum of 6 months), light duty, organic mat with photodegradable plastic or biodegradable netting.
 - 1. **Type A** – Use on erodible slopes 2.5:1 or flatter.
 - 2. **Type B** – Double netted product for use on erodible slopes 2:1 or flatter.
- B. **Class I, Urban:** A short-term duration (minimum of 6 months), light duty, organic erosion control mat for areas where mowing may be accomplished within two weeks after installation.
 - 1. **Urban, Type A** – Use on erodible soils with slopes 4:1 or flatter.
 - 2. **Urban, Type B** – A double netted product for use on slopes 2.5:1 or flatter.

Conservation Practice Standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your local WDNR office or the Standards Oversight Council office in Madison, WI at (608) 833-1833.

WDNR, WI
08/03

¹ Words in the standard that are shown in italics are described in X. Definitions. The words are italicized the first time they are used in the text.

C. **Class II:** A long-term duration (three years or greater), organic erosion control revegetative mat.

1. **Type A** – Jute fiber only for use on slopes 2:1 or flatter for sod reinforcement.
2. **Type B** – For use on slopes 2:1 or greater made with plastic or biodegradable net.
3. **Type C** – A woven mat of 100% organic fibers for use on slopes 2:1 or flatter and in environmentally and biologically sensitive areas where plastic netting is inappropriate.

D. **Class III:** A permanent 100% synthetic ECRM or TRM. Either a soil stabilizer Type A or Class I, Type A or B erosion mat must be placed over the soil filled TRM.

1. **Type A** – An ECRM for use on slopes 2:1 or flatter.
2. **Type B or C** – A TRM for use on slopes 2:1 or flatter.
3. **Type D** – A TRM for use on slopes 1:1 or flatter.

E. Material Selection

1. For mats that utilize netting, the netting shall be bonded to the parent material to prevent separation of the net for the life of the product.
2. For urban class mats the following material requirements shall be adhered to:
 - a. Only 100% organic biodegradable netted products are allowed, including parent material, stitching, and netting.
 - b. The netting shall be stitched with biodegradable thread/yarn to prevent separation of the net from parent material.
 - c. All materials and additive components used to manufacture

the anchoring devices shall be completely biodegradable as determined by ASTM D 5338.

- d. Mats with photodegradable netting shall not be installed after September 1st.

F. Installation

1. ECRMs shall be installed after all topsoiling, fertilizing, liming and seeding is complete.
2. The mat shall be in firm and intimate contact with the soil. It shall be installed and anchored per the manufacturer's recommendation.
3. TRM shall be installed in conjunction with the topsoiling operation and shall be followed by ECRM installation.
4. At time of installation, document the manufacturer and mat type by retention of material labels and manufacturer's installation instructions. Retain this documentation until the site has been stabilized.

VI. Considerations

- A. Urban mats may be used in lieu of sod.
- B. Documentation of materials used, monitoring logs, project diary and weekly inspection forms, including erosion and stormwater management plans, should be turned over to the authority charged with long term maintenance of the site.

VII. Plans and Specifications

- A. Plans and specifications for installing erosion mat shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. The plans and specifications shall address the following:
 1. Location of erosion mat
 2. Installation Sequence

3. Material specification conforming to standard

- B. All plans, standard detail drawings, or specifications shall include schedule for installation, inspection, and maintenance. The responsible party shall be identified.

VIII. Operation and Maintenance

- A. Erosion mat shall at a minimum be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period.
- B. If there are signs of rilling under the mat, install more staples or more frequent anchoring trenches. If rilling becomes severe enough to prevent establishment of vegetation, remove the section of mat where the damage has occurred. Fill the eroded area with topsoil, compact, reseed and replace the section of mat, trenching and overlapping ends per manufacturer's recommendations. Additional staking is recommended near where rilling was filled.
- C. If the reinforcing plastic netting has separated from the mat, remove the plastic and if necessary replace the mat.
- D. Maintenance shall be completed as soon as possible with consideration to site conditions.

IX. References

WisDOT "Erosion Control Product Acceptability List" is available online at <http://www.dot.wisconsin.gov/business/engrserv/pal.htm> Printed copies are no longer distributed.

X. Definitions

Sheet and Rill Erosion (II): Sheet and rill erosion is the removal of soil by the action of rainfall and shallow overland runoff. It is the first stage in water erosion. As flow becomes more concentrated rills occur. As soil detachment continues or flow increases, rills will become wider and deeper forming gullies.

Erosion Control Revegetative Mats (ECRM) (II): erosion control revegetative mats designed to be placed on the soil surface.

Turf-Reinforcement Mats (TRM) (II): turf-reinforcement mats are permanent devices constructed from various types of synthetic materials and buried below the surface to help stabilize the soil. TRMs must be used in conjunction with an ECRM or an approved Type A soil stabilizer.

Field Code Changed

Channel Erosion Mat

(1053)

Wisconsin Department of Natural Resources
Conservation Practice Standard

I. Definition

A protective soil cover of straw, wood, coconut fiber or other suitable plant residue, or plastic fibers formed into a mat, usually with a plastic or biodegradable mesh on one or both sides. Erosion mats are rolled products available in many varieties and combination of materials and with varying life spans.

II. Purpose

The purpose of this practice is to protect the channel from erosion or act as turf reinforcement during and after the establishment of grass or other vegetation in a channel. This practice applies to both *Erosion Control Revegetative Mats (ECRM¹)* and *Turf-Reinforcement Mats (TRM)*.

III. Conditions Where Practice Applies

This standard applies where runoff channelizes in intermittent flow and vegetation is to be established. Some products may have limited applicability in projects adjacent to navigable waters.

IV. Federal, State, and Local Laws

Users of this standard shall be aware of applicable federal, state, and local laws, rules, regulations, or permit requirements governing the use and placement of erosion mat. This standard does not contain the text of federal, state, or local laws.

V. Criteria

This section establishes the minimum standards for design, installation and performance requirements. To complete the shear calculations, a 2 year, 24 hour storm event shall be used to calculate depth of flows for an ECRM. For sizing a TRM, use the depth of flow corresponding to the maximum design capacity of the channel.

Only mats listed in the Wisconsin Department of Transportation (WisDOT) Erosion Control Product Acceptability List (PAL) will be accepted for use in this standard.

To differentiate applications WisDOT organizes erosion mats into three classes of mats, which are further broken down into various Types.

- A. **Class I:** A short-term duration (minimum of 6 months), light duty, organic ECRM with plastic or biodegradable netting.
 - 1. **Type A** – Only suitable for slope applications, not channel applications.
 - 2. **Type B** – Double netted product for use in channels where the calculated (design) shear stress is 1.5 lbs/ft² or less.
- B. **Class II:** A long-term duration (three years or greater), organic ECRM.
 - 1. **Type A** – Jute fiber only for use in channels to reinforce sod.
 - 2. **Type B** – For use in channels where the calculated (design) shear stress is 2.0 lbs/ft² or less. Made with plastic or biodegradable mat.
 - 3. **Type C** – A woven mat of 100% organic material for use in channels where the calculated (design) shear stress is 2.0 lbs/ft² or less. Applicable

¹ Words in the standard that are shown in italics are described in X. Definitions. The words are italicized the first time they are used in the text.

for use in environmentally sensitive areas where plastic netting is inappropriate.

- C. **Class III:** A permanent 100% synthetic ECRM or TRM. Class I, Type B erosion mat or Class II, Type B or C erosion mat must be placed over a soil filled TRM.
1. **Type A** – An ECRM for use in channels where the calculated (design) shear stress of 2.0 lbs/ft² or less.
 2. **Type B** – A TRM for use in channels where the calculated (design) shear stress of 2.0 lbs/ft² or less.
 3. **Type C** – A TRM for use in channels where the calculated (design) shear stress of 3.5 lbs/ft² or less.
 4. **Type D** – A TRM for use in channels where the calculated (design) shear stress of 5.0 lbs/ft² or less.

D. **Installation**

1. ECRM shall be installed after all topsoiling, fertilizing, liming, and seeding is complete.
2. Erosion mats shall extend for whichever is greater: upslope one-foot minimum vertically from the ditch bottom or 6 inches higher than the design flow depth.
3. The mat shall be in firm and continuous contact with the soil. It shall be anchored, overlapped, staked and entrenched per the manufacturer's recommendations.
4. TRM shall be installed in conjunction with the topsoiling operation and shall be followed by ECRM installation.
5. At time of installation, document the manufacturer and mat type by saving material labels and manufacturer's installation instructions. Retain this documentation until the site is stabilized.

VI. **Considerations**

- A. Erosion mats shall be selected so that they last long enough for the grass or other vegetation to become densely established.
- B. Consider using Class II, Type C mats adjacent to waterways where trapping small animals is to be avoided.
- C. Class III TRM may be appropriate as a replacement for riprap as a channel liner. Check the shear stress criteria for the channel to determine mat applicability.
- D. Once a gully has formed in a channel, it is difficult to stabilize due to loss of soil structure. Even when the gully is filled with topsoil and reseeded, the soil has a tendency to dislodge in the same pattern. If gully formation continues to be a problem the design should be reevaluated, including other mat classes or riprap.
- E. It may be difficult to establish permanent vegetation and adequate erosion protection in a channel with continuous flow. Consider riprap or planting wetland species with an ECRM.
- F. Documentation of materials used, monitoring logs, project diary, and weekly inspection forms including erosion and stormwater management plans, should be provided to the authority charged with long term maintenance of the site.
- G. Channel cross sections may be parabolic, v-shaped or trapezoidal. The use of "V" channels is generally discouraged due to erosion problems experienced.
- H. To help determine the appropriate channel liner, designers can refer to the design matrix in the back of the WisDOT PAL. However, for channels not conforming to the typical section shown in the channel matrix or having a depth of flow greater than 6 inches (150 mm), the designer will need to design

for an appropriate channel liner. One way to do this is to use the "tractive force" method presented in FHWA's Hydraulic Engineering Circular (HEC) No. 15. This method requires that the calculated maximum shear stress of a channel is not to exceed the permissible shear stress of the channel liner. To use this method, permissible shear stress values are stated next to each device listed in the channel matrix.

VII. Plans and Specifications

- A. Plans and specifications for installing erosion mat shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. The plans and specifications shall address the following:
 - 1. Location of erosion mat
 - 2. Installation sequence
 - 3. Material specification conforming to standard
- B. All plans, standard detail drawings, or specifications shall include schedule for installation, inspection, and maintenance. The responsible party shall be identified.

VIII. Operation and Maintenance

- A. Erosion mats shall at a minimum be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period.
- B. If there are signs of rilling under the mat, install more staples or more frequent anchoring trenches. If rilling becomes severe enough to prevent establishment of vegetation, remove the section of mat where the damage has occurred. Fill the eroded area with topsoil, compact, reseed and replace the section of mat, trenching and overlapping ends per manufacturer's recommendations. Additional staking is recommended near where rilling was filled.
- C. If the reinforcing plastic netting has separated from the mat, remove the plastic and if necessary replace the mat.

- D. Maintenance shall be completed as soon as possible with consideration to site conditions.

IX. References

WisDOT "Erosion Control Product Acceptability List" is available online at <http://www.dot.wisconsin.gov/business/engrserv/pal.htm>.

X. Definitions

Channel Erosion: The deepening and widening of a channel due to soil loss caused by flowing water. As rills become larger and flows begin to concentrate, soil detachment occurs primarily as a result of shear.

Erosion Control Revegetative Mats (ECRM) (II): Erosion control revegetative mats are designed to be placed on top of soil.

Turf-Reinforcement Mats (TRM) (II): Turf-reinforcement mats are permanent devices constructed from various types of synthetic materials and buried below the surface to help stabilize the soil. TRMs must be used in conjunction with an ECRM or an approved soil stabilizer Type A (as classified in the WisDOT PAL)

Vegetative Buffer For Construction Sites (1054)

Wisconsin Department of Natural Resources
Conservation Practice Standard

I. Definition

An area of *dense vegetation*¹ intended to slow runoff and trap sediment. Vegetative Buffers are commonly referred to as filter or buffer strips.

II. Purpose

The purpose of this practice is to remove sediment in *sheet flow* by velocity reduction.

III. Conditions Where Practice Applies

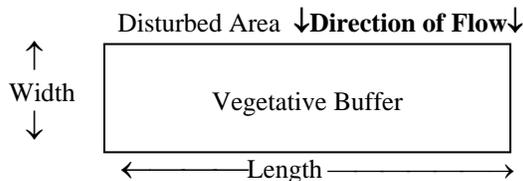
This practice applies to areas where sediment delivery is in the form of *sheet and rill erosion* from disturbed areas.

IV. Federal, State, and Local Laws

Users of this standard shall be aware of applicable federal, state, and local laws, rules, regulations, or permit requirements governing the use and placement of a vegetative buffer. This standard does not contain the text of federal, state, or local laws.

V. Criteria

This section establishes the minimum standards for design, installation and performance requirements.



- A. The vegetative buffer shall be located along the entire length of the down slope edge of the entire disturbed area for which the practice is being applied.

- B. The vegetative buffer shall be located on the contour.
- C. The width of the vegetative buffer shall have slopes less than 5 %.
- D. The disturbed area draining to the vegetative buffer shall have slopes of 6 % or less.
- E. The vegetative buffer shall have a minimum *width* of 25 feet. 25 feet is adequate for disturbed areas up to 125 feet upslope from the vegetative buffer. An additional one foot of width shall be added to the buffer for every 5 feet exceeding 125 feet upslope of the disturbed area draining to the vegetative buffer.
- F. To minimize compaction and destruction of the vegetative cover, designate the vegetative buffer as an area of no disturbance. Construction equipment shall be excluded from the designated area. Vegetative buffers shall be clearly shown on plans and marked in the field.
- G. Vegetative buffers shall be densely vegetated prior to upslope soil disturbance.

VI. Considerations

- A. Maintaining sheet flow is critical to the function of a vegetative buffer. In some conditions, a *level spreader* may need to be constructed at the upslope side of the vegetative buffer to minimize concentrated flow.
- B. Vegetative buffers may require large land areas compared to other erosion control practices.

Conservation Practice Standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your local WDNR office or the Standards Oversight Council office in Madison, WI at (608) 833-1833.

WDNR, WI
05/03

¹ Words in the standard that are shown in italics are described in IX. Definitions. The words are italicized the first time they are used in the text.

- C. Trees should not be cut down to establish a vegetative buffer. Other erosion control measures are preferred.

VII. Plans and Specifications

- A. Plans and specifications for vegetative buffers shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. The plans and specifications shall address the following:
 - 1. Location of vegetative buffer.
 - 2. Limits and slopes of disturbed area and any additional contributory drainage area.
 - 3. Dimensions and slope of vegetative buffer.
- B. All plans, standard detail drawings, or specifications shall include schedule for installation, inspection, and maintenance. The responsible party shall be identified.

VIII. Operation and Maintenance

- A. Vegetative buffers shall be inspected for proper distribution of flows, sediment accumulation and signs of rill formation. Vegetative buffers shall at a minimum be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period.
- B. If the vegetative buffer becomes silt covered, contains rills, or is otherwise rendered ineffective, other perimeter sediment control measures shall be installed. Eroded areas shall be repaired and stabilized. Repair shall be completed as soon as possible with consideration to site conditions.
- C. A stand of dense vegetation shall be maintained to a height of 3 – 12 inches.
- D. Prior to land disturbance the perimeter of vegetative buffers shall be flagged or fenced to prevent equipment from creating ruts, compacting the soil and to prevent damage to vegetation.

IX. Definitions

Dense vegetation (I): is defined as an existing stand of 3 – 12 inch high grassy vegetation that uniformly covers at least 90 % of a representative 1 square yard plot. Woody vegetation shall not be counted for the 90% coverage. No more than 10% of the overall buffer can be comprised of woody vegetation.

Level Spreader (VI.A): Level spreaders disperse flows over a wide area, dissipating the energy of the runoff and creating sheet flow. Common types of level spreaders are weirs and stone trenches.

Sheetflow (II): Sheet flow is over plane surfaces, where runoff water flows in a thin uniform sheet across the land before it collects in a concentrated flow.

Sheet and Rill Erosion (III): Sheet and rill erosion is the removal of soil by the action of rainfall and shallow overland runoff. It is the first stage in water erosion. As flow becomes more concentrated rills occur. As soil detachment continues or flow increases, rills will become wider and deeper.

Width (V.E): Is measured in the direction of flow.

Sediment Bale Barrier (Non-Channel) (1055)

Wisconsin Department of Natural Resources
Conservation Practice Standard

I. Definition

A temporary sediment barrier consisting of a row of entrenched and anchored straw bales, hay bales or equivalent material used to intercept sediment-laden sheet flow from small drainage areas of disturbed soil.

II. Purpose

The purpose of this practice is to reduce slope length of the disturbed area and to intercept and retain transported sediment from disturbed areas.

III. Conditions Where Practice Applies

- A. This standard applies to the following applications where:
1. Erosion occurs in the form of *sheet and rill erosion*¹. There is no concentration of water flowing to the barrier (*channel erosion*).
 2. Where adjacent areas need protection from sediment-laden runoff.
 3. Effectiveness is required for less than 3 months.
 4. Conditions allow for the bales to be properly entrenched and staked as outlined in the Criteria Section V.
- B. Under no circumstance shall sediment bale barriers be used in the following applications:
1. Below the ordinary high watermark or placed perpendicular to flow in streams, swales, ditches or any place where flow is concentrated.

2. Where the maximum gradient upslope of the sediment bale barriers is greater than 50% (2:1).

IV. Federal, State, and Local Laws

Users of this standard shall be aware of applicable federal, state, and local laws, rules, regulations, or permit requirements governing the use and placement of the sediment bale barrier. This standard does not contain the text of federal, state, or local laws.

V. Criteria

This section establishes the minimum standards for design, installation and performance requirements.

A. Placement

1. At a minimum, sediment bale barriers shall be placed in a single row, lengthwise on the contour, with the ends of adjacent sediment bale barriers tightly abutting one another. The holes between bales shall be chinked (filled by wedging) with straw, hay or equivalent material to prevent water from escaping between the bales.
2. The maximum allowable slope lengths contributing runoff to a sediment bale barrier are specified in Table 1.

Slope	Barrier Row Spacing
< 2%	100 feet
2 to 5%	75 feet
5 to 10%	50 feet
10 to 33%	25 feet
33 to 50%	20 feet
> 50%	Not Permitted

3. Sediment bale barriers shall not be placed perpendicular to the contour.
4. The end of the sediment bale barrier shall be extended upslope to prevent water from flowing around the barrier ends.

B. Height – Installed sediment bale barrier shall be a minimum of 10 inches high and shall not exceed a maximum height of 20 inches from ground level.

C. Anchoring and Support

1. The barrier shall be entrenched and backfilled. A trench shall be excavated the width of a sediment bale barrier and the length of the proposed barrier to a minimum depth of 4 inches. After bales are staked and chinked, the excavated soil shall be backfilled and compacted against the barrier. Backfill to ground level on the down slope side. On the upslope side of the sediment bale barrier backfill to 4 inches above ground level.
2. At least two wood stakes, "T" or "U" steel posts, or ½ inch rebar driven through at equidistance along the centerline of the barrier shall securely anchor each bale. The minimum cross sectional area for wood stakes shall be 2.0 by 2.0 inches nominal. The first stake in each bale shall be driven toward the previously laid bale to force the bales together. Stakes shall be driven a minimum 12-inches into the ground to securely anchor the sediment bale barriers.
3. Bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales

in order to prevent deterioration of the bindings.

VI. Considerations

- A. Improper placement as well as improper installation and maintenance of sediment bale barriers will significantly decrease the effectiveness of this practice.
- B. Sediment bale barriers should not be used upslope of the disturbed area.
- C. A double row of sediment bale barriers may be installed in areas where additional protection is needed.
- D. For safety, place all anchoring flush with the sediment bale barrier or cap any exposed anchoring device.

VII. Plans and Specifications

- A. Plans and specifications for installing sediment bale barriers shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. The plans and specifications shall address the following:
 1. Location of sediment bale barrier
 2. Contributory drainage area
 3. Schedules
 4. Standard drawings and installation details
 5. Restoration after removal
- B. All plans, standard detail drawings, or specifications shall include schedule for installation, inspection, and maintenance. The responsible party shall be identified.

VIII. Operation and Maintenance

- A. Sediment bale barriers shall, at a minimum, be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period.
- B. Damaged or decomposed sediment bale barriers, any undercutting, or flow channels

around the end of the sediment bale barriers shall be repaired.

- C. Sediment shall be properly disposed of once the deposits reach 1/2 the height of the sediment bale barrier.
- D. Sediment bale barriers and anchoring devices shall be removed and properly disposed of when they have served their usefulness, but not before the upslope areas have been permanently stabilized.
- E. Any sediment deposits remaining in place after the sediment bale barrier is no longer required shall be dressed to conform to the existing grade, prepared and seeded.

IX. Definitions

Channel Erosion (III.A.1): The deepening and widening of a channel due to soil loss caused by flowing water. As rills become larger and flows begin to concentrate soil detachment occurs primarily as a result of shear. The transport capacity of the flow in a channel is based on the availability of sediment and is a monatomic function of velocity.

Sheet and Rill Erosion (III.A.1): Sheet and rill erosion is the removal of soil by the action of rainfall and shallow overland runoff. It is the first stage in water erosion. As flow becomes more concentrated rills occur. As soil detachment continues or flow increases, rills will become wider and deeper forming gullies.

Silt Fence

(1056)

Wisconsin Department of Natural Resources
Conservation Practice Standard

I. Definition

Silt fence is a temporary sediment barrier of entrenched permeable geotextile fabric designed to intercept and slow the flow of sediment-laden sheet flow runoff from small areas of disturbed soil.

II. Purpose

The purpose of this practice is to reduce slope length of the disturbed area and to intercept and retain transported sediment from disturbed areas.

III. Conditions Where Practice Applies

A. This standard applies to the following applications:

1. Erosion occurs in the form of *sheet and rill erosion*¹. There is no concentration of water flowing to the barrier (*channel erosion*).
2. Where adjacent areas need protection from sediment-laden runoff.
3. Where effectiveness is required for one year or less.
4. Where conditions allow for silt fence to be properly entrenched and staked as outlined in the Criteria Section V.

B. Under no circumstance shall silt fence be used in the following applications:

1. Below the ordinary high watermark or placed perpendicular to flow in streams, swales, ditches or any place where flow is concentrated.
2. Where the maximum gradient upslope of the fence is greater than 50% (2:1).

IV. Federal, State, and Local Laws

Users of this standard shall be aware of applicable federal, state, and local laws, rules, regulations, or permit requirements governing the use and placement of silt fence. This standard does not contain the text of federal, state, or local laws.

V. Criteria

This section establishes the minimum standards for design, installation and performance requirements.

A. Placement

1. When installed as a stand-alone practice on a slope, silt fence shall be placed on the contour. The parallel spacing shall not exceed the maximum slope lengths for the appropriate slope as specified in Table 1.

Slope	Fence Spacing
< 2%	100 feet
2 to 5%	75 feet
5 to 10%	50 feet
10 to 33%	25 feet
> 33%	20 feet

2. Silt fences shall not be placed perpendicular to the contour.
3. The ends of the fence shall be extended upslope to prevent water from flowing around the ends of the fence.

B. Height – Installed silt fences shall be a minimum 14 inches high and shall not exceed 28 inches in height measured from the installed ground elevation.

¹ Words in the standard that are shown in italics are described in X. Definitions. The words are italicized the first time they are used in the text.

C. Support – Silt fences shall be supported by either steel or wood supports as specified below:

1. Wood supports
 - a. The full height of the silt fence shall be supported by 1 1/8 inches by 1 1/8 inches air or kiln dried posts of hickory or oak.
 - b. The silt fence fabric shall be stapled, using at least 0.5-inch staples, to the upslope side of the posts in at least 3 places.
 - c. The posts shall be a minimum of 3 feet long for 24-inch silt fence and a minimum of 4 feet for 36-inch silt fence fabric.

2. Steel supports

- a. The full height of the silt fence shall be supported by steel posts at least 5 feet long with a strength of 1.33 pounds per foot and have projections for the attachment of fasteners.
 - b. The silt fence fabric shall be attached in at least three places on the upslope side with 50 pound plastic tie straps or wire fasteners. To prevent damage to the fabric from fastener, the protruding ends shall be pointed away from the fabric.
3. The maximum spacing of posts for non-woven silt fence shall be 3 feet and for woven fabric 8 feet.
 4. Silt fence shall have a support cord.
 5. Where joints are necessary, each end of the fabric shall be securely fastened to a post. The posts shall then be wrapped around each other to produce a stable, secure joint or shall be overlapped the distance between two posts.
 6. A minimum of 20 inches of the post shall extend into the ground after installation.

D. Anchoring – Silt fence shall be anchored by spreading at least 8 inches of the fabric in a 4 inch wide by 6 inch deep trench, or 6 inch deep V-trench on the upslope side of the fence. The trench shall be backfilled and compacted. Trenches shall not be excavated wider and deeper than necessary for proper installation.

On the terminal ends of silt fence the fabric shall be wrapped around the post such that the staples are not visible.

E. Geotextile Fabric Specifications – The geotextile fabric consists of either woven or non-woven polyester, polypropylene, stabilized nylon, polyethylene, or polyvinylidene chloride. Non-woven fabric may be needle punched, heat bonded, resin bonded, or combinations thereof. All fabric shall meet the following requirements as specified in Table 2.

Table 2.		
Test Requirement	Method	Value ¹
Minimum grab tensile strength in the machine direction	ASTM D 4632	120 lbs. (550 N)
Minimum grab tensile strength in the cross machine direction	ASTM D 4632	100 lbs. (450 N)
Maximum apparent opening size equivalent standard sieve	ASTM D 4751	No. 30 (600 μm)
Minimum permittivity	ASTM D 4491	0.05 scc ⁻¹
Minimum ultraviolet stability percent of strength retained after 500 hours of exposure	ASTM D 4355	70%

(WisDOT Standard Specifications for Road and Bridge Construction, 2001)

¹ All numerical values represent minimum / maximum average roll values. (For example, the average minimum test results on any roll in a lot should meet or exceed the minimum specified values.)

Silt fence shall have a maximum flow rate of 10-gallons/minute/square foot at 50mm constant head as determined by multiplying permittivity in 1/second as determined by ASTM D-4491 by a conversion factor of 74.

F. Removal – Silt fences shall be removed once the disturbed area is permanently stabilized and no longer susceptible to erosion.

VI. Considerations

- A. Improper placement as well as improper installation and maintenance of silt fences will significantly decrease the effectiveness of this practice.

Silt fences should be considered for trapping sediment where sheet and rill erosion may be expected to occur in small drainage areas. Silt fences should not be placed in areas of concentrated flow.

- B. Silt fences should be installed prior to disturbing the upslope area.
- C. Silt fences should not be used to define the boundaries of the entire project. Silt fence should be placed only in areas where it is applicable due to its cost and the fact that it is not biodegradable. For example, silt fence should not be placed in locations where the natural overland flow is from an undisturbed area into disturbed areas of the project. It should also not be used as a diversion.
- D. Silt fence should not be used in areas where the silt fence is at a higher elevation than the disturbed area.
- E. When placing silt fence near trees, care should be taken to minimize damage to the root system. Avoid compaction and root cutting within 1.5 feet multiplied by the inch diameter of the tree (for example: for 10-inch trees keep out a 15-foot radius from the trunk). Refer to UWEX publication Preserving Trees During Construction for more information.
- F. To protect silt fence from damage in areas of active construction or heavy traffic, silt fence should be flagged, marked, or highlighted to improve visibility.
- G. Silt fence effectiveness is generally increased when used in conjunction with other upslope erosion control practices. To further strengthen the silt fence, straw / hay bales can be placed on the down slope side.
- H. To help ensure effectiveness, silt fence should be inspected and repaired as necessary prior to forecasted rain events.

- I. Where installation with wood posts is difficult, such as when hard or frozen ground is encountered, the use of steel post is recommended.
- J. Silt fence can be mechanically installed with a plow type device provided that the silt fence is trenched in a manner such that equivalent performance is achieved to that specified in Section V.D.

VII. Plans and Specifications

- A. Plans and specifications for installing silt fence shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. The plans and specifications shall address the following:
 1. Location of silt fence
 2. Contributory drainage area
 3. Schedules
 4. Material specification conforming to standard
 5. Standard drawings and installation details
 6. Restoration after removal
- B. All plans, standard detail drawings, or specifications shall include schedule for installation, inspection, and maintenance. The responsible party shall be identified.

VIII. Operation and Maintenance

- A. Silt fences shall at a minimum be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24 hour period.
- B. Damaged or decomposed fences, undercutting, or flow channels around the end of barriers shall be repaired or corrected.
- C. Sediment shall be properly disposed of once the deposits reach ½ the height of the fence.

IX. References

X. Definitions

Channel Erosion (III.A.1): The deepening and widening of a channel due to soil loss caused by flowing water. As rills become larger and flows begin to concentrate, soil detachment occurs primarily as a result of shear.

Sheet and Rill Erosion (III.A.1): Sheet and rill erosion is the removal of soil by the action of rainfall and shallow overland runoff. It is the first stage in water erosion. As flow becomes more concentrated rills occur. As soil detachment continues or flow increases, rills will become wider and deeper forming gullies.

Stone Tracking Pad and Tire Washing (1057)

Wisconsin Department of Natural Resources
Conservation Practice Standard

I. Definition

A stabilized pad of stone aggregate or tire washing station located at any point where traffic will egress a construction site.

II. Purpose

The purpose of this standard is to reduce off-site sedimentation by eliminating the tracking of sediment from construction sites.

III. Conditions Where Practice Applies

Either a stone tracking pad or tire washing station shall be used at all points of construction egress. This standard applies where construction traffic is likely to transport sediment off site.

IV. Federal, State, and Local Laws

Users of this standard shall be aware of applicable federal, state, and local laws, rules, regulations, or permit requirements governing the use and placement of this practice. This standard does not contain the text of federal, state, or local laws.

V. Criteria

This section establishes the minimum standards for design, installation and performance requirements.

A. Tracking Pad:

1. The tracking pad shall be installed prior to any traffic leaving the site
2. The aggregate for tracking pads shall be 3 to 6 inch clear or washed stone. All material to be retained on a 3-inch sieve.

3. The aggregate shall be placed in a layer at least 12 inches thick. On sites with a high water table, or where saturated conditions are expected during the life of the practice, stone tracking pads shall be underlain with a WisDOT Type R geotextile fabric to prevent migration of underlying soil into the stone.
4. The tracking pad shall be the full width of the egress point. The tracking pad shall be at a minimum 50 feet long.
5. Surface water must be prevented from passing through the tracking pad. Flows shall be diverted away from tracking pads or conveyed under and around them by using a variety of practices, such as culverts, *water bars*¹, or other similar practices.

B. Tire washing: If conditions on the site are such that the sediment is not removed from vehicle tires by the tracking pad, then tires shall be washed utilizing pressurized water before entering a public road.

1. The washing station shall be located on-site in an area that is stabilized and drains into suitable sediment trapping or settling device.
2. The wash rack shall consist of a heavy grating over a lowered area. The rack shall be strong enough to support the vehicles that will cross it.

C. Rocks lodged between the tires of dual wheel vehicles shall be removed prior to leaving the construction site.

Conservation Practice Standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your local WDNR office or the Standards Oversight Council office in Madison, WI at (608) 833-1833.

¹ Words in the standard that are shown in italics are described in IX. Definitions. The words are italicized the first time they are used in the text.

VI. Considerations

- A. Vehicles traveling across the tracking pad should maintain a slow constant speed.
- B. The best approach to preventing off-site tracking is to restrict vehicles to stabilized areas.
- C. It is always preferable to prevent sediment from being deposited upon the road than cleaning the road later. Sediment on a road can create a safety hazard as well as a pollution problem.
- D. Any sediment tracked onto a public or private road should be removed by street cleaning, not flushing, before the end of each working day.

VII. Plans and Specifications

- A. Plans and specifications for installing tracking pads shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. The plans and specifications shall address the following:
 - 1. Location of all points of egress with tracking pad locations shown
 - 2. Material specifications conforming to standard
 - 3. Schedule for installation and removal
 - 4. Standard drawings and installation details
 - 5. Stabilization after removal
- B. All plans, standard detail drawings, or specifications shall include schedule for installation, inspection, and maintenance. The responsible party shall be identified.

VIII. Operation and Maintenance

- A. Tracking pads and tire washing stations shall, at a minimum, be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period.

- B. The tracking pad performance shall be maintained by scraping or top-dressing with additional aggregate.
- C. A minimum 12-inch thick pad shall be maintained.

IX. Definitions

Water bar (V.A.5): A shallow trench or diversion dam that diverts surface water runoff into a dispersion area.

Mulching For Construction Sites (1058)

Wisconsin Department of Natural Resources
Conservation Practice Standard

I. Definition

Mulching is the application of organic material to the soil surface to protect it from raindrop impact and overland flow. Mulch covers the soil and absorbs the erosive impact of rainfall and reduces the flow velocity of runoff.

II. Purpose

This practice may be used to:

- Reduce soil erosion
- Aid in seed germination and establishment of plant cover
- Conserve soil moisture

III. Conditions Where Practice Applies

This practice may be applied on exposed soils as a temporary control where soil grading or landscaping has taken place or in conjunction with temporary or permanent seeding. Mulching is generally not appropriate in areas of concentrated flow.

IV. Federal, State, and Local Laws

Users of this standard shall comply with applicable federal, state and local laws, rules, regulations or permit requirements governing mulching. This standard does not contain the text of federal, state, or local laws.

V. Criteria

This section establishes the minimum standards for design, installation and performance requirements.

A. Site Preparation:

Soil surface shall be prepared prior to the application of mulch in order to achieve the desired purpose and to ensure optimum contact between soil and mulch. All areas to be mulched shall be reasonably free of rills and gullies.

B. Materials:

Mulch shall consist of natural biodegradable material such as plant residue (including but not limited to straw, hay, wood chips, bark and wood cellulose fiber), or other equivalent materials of sufficient dimension (depth or thickness) and durability to achieve the intended effect for the required time period.

Mulch shall be environmentally harmless to wildlife and plants. Materials such as gravel, plastic, fabric, sawdust, municipal solid waste, *solid waste byproducts*¹, shredded paper, and non-biodegradable products shall not be used.

Mulch shall be free of diseased plant residue (i.e. oak wilt), *noxious weed* seeds, harmful chemical residues, heavy metals, hydrocarbons and other known environmental toxicants.

Marsh hay shall not be used as mulch in lowland areas but may be used on upland sites to prevent the spread of invasive, non-native species (i.e. reed canary grass) commonly found in marsh hay.

Straw and hay mulch that will be crimped shall have a minimum fiber length of 6 inches.

¹ Words in the standard that are shown in italics are described in X. Definitions. The words are italicized the first time they are used in the text.

Wood chips or wood bark shall only be used for sites that are not seeded.

C. Application Rate:

1. Mulch shall cover a minimum of 80% of the soil surface for unseeded areas. For seeded areas, mulch shall be placed loose and open enough to allow some sunlight to penetrate and air to circulate but still cover a minimum of 70% of the soil surface.
2. Mulch shall be applied at a uniform rate of 1½ to 2 tons per acre for sites that are seeded, and 2 to 3 tons per acre for sites that are not seeded. This application results in a layer of ½ to 1½ inches thick for seeded sites, and 1½ to 3 inches thick for sites not seeded.
3. Wood chips or wood bark shall be applied at a rate of 6 to 9 tons per acre to achieve a minimum of 80% ground cover. This application should result in a layer of wood chips or wood bark ½ to 1½ inches thick.

D. Mulch Anchoring Methods

Anchoring of mulch shall be based on the type of mulch applied, site conditions, and accomplished by one of the following techniques:

1. Crimping

Immediately after spreading, the mulch shall be anchored by a mulch crimper or equivalent device consisting of a series of dull flat discs with notched edges spaced approximately 8 inches apart. The mulch shall be impressed in the soil to a depth of 1 to 3 inches.

2. Polypropylene Plastic, or Biodegradable Netting

Apply plastic netting over mulch application and staple according to manufacturer's recommendations.

3. Tackifier

Tackifier shall be sprayed in conjunction with mulch or immediately

after the mulch has been placed. Tackifiers must be selected from those that meet the WisDOT Erosion Control Product Acceptability List (PAL). Asphalt based products shall not be applied.

The tackifiers shall be applied at the following minimum application rates per acre:

- a. Latex-Base: mix 15 gallons of adhesive (or the manufacturer's recommended rate which ever is greater) and a minimum of 250 pounds of recycled newsprint (pulp) as a tracer with 375 gallons of water.
- b. Guar Gum: mix 50 pounds of dry adhesive (or the manufacturer's recommended rate which ever is greater) and a minimum of 250 pounds of recycled newsprint (pulp) as tracer with 1,300 gallons of water.
- e. Other Tackifiers: (Hydrophilic Polymers) mix 100 pounds of dry adhesive (or the manufacturer's recommended rate which ever is greater) and a minimum of 250 pounds of recycled newsprint (pulp) as a tracer with 1,300 gallons of water.

VI. Considerations

- A. Wood products typically absorb available soil nitrogen as they degrade, thus making it unavailable for seed.
- B. The use of mulch behind curb and gutter may not be desirable unless anchored by netting, because air turbulence from nearby traffic can displace the mulch. Consider the use of erosion mat or sod as an alternative.
- C. In areas where lawn type turf will be established, the use of tackifiers is the preferred anchoring method. Crimping will tend to leave an uneven surface and plastic netting can become displaced and entangled in mowing equipment.

- D. A heavier application of mulch may be desired to prevent seedlings from being damaged by frost.
- E. It may be beneficial to apply polyacrylimide in addition to mulch. Refer to WDNR Conservation Practice Standard (1050) Erosion Control Land Application of Anionic Polyacrylamide for information about the advantages and proper use of polymers.
- F. Concentrated flows above the site where mulch is applied should be diverted.
- G. Mulch should be placed within 24 hours of seeding.
- H. Mulching operations should not be performed during periods of excessively high winds that would preclude the proper placement of mulch.
- I. Materials such as gravel may be effective for erosion control but are not considered mulches.

VII. Plans and Specifications

- A. Plans and specifications for mulching shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. The plans and specifications shall address the following:
 1. Type of mulch used
 2. Application rate
 3. Timing of application
 4. Method of anchoring
- B. All plans, standard detail drawings, or specifications shall include schedules for installation, inspection, and maintenance. The responsible party shall be identified.

VIII. Operation and Maintenance

Mulch shall, at a minimum, be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24 hour period.

Mulch that is displaced shall be reapplied and properly anchored. Maintenance shall be completed as soon as possible with consideration to site conditions.

IX. References

WisDOT's Erosion Control Product Acceptability List (PAL) can be found on the WisDOT web site: <http://www.dot.wisconsin.gov/business/engrserv/pal.htm> Printed copies are no longer being distributed.

X. Definitions

Noxious weed (V.B): Any weed a governing body declares to be noxious within its respective boundaries. The State of Wisconsin list of noxious weeds can be found in Statute 66.0407.

Solid Waste Byproducts (V.B): Includes industrial, commercial, residential, and agricultural wastes that have been processed, incinerated, or composted and still contain inorganic wastes such as glass and metals and organic wastes including plastics, textiles, rubber, leather, and other miscellaneous organic wastes which may be toxic or hazardous in nature.

Seeding For Construction Site Erosion Control (1059)

Wisconsin Department of Natural Resources
Conservation Practice Standard

I. Definition

Planting seed to establish temporary or permanent vegetation for erosion control.

II. Purpose

The purpose of *temporary seeding*¹ is to reduce runoff and erosion until permanent vegetation or other erosion control practices can be established. The purpose of *permanent seeding* is to permanently stabilize areas of exposed soil.

III. Conditions Where Practice Applies

This practice applies to areas of exposed soil where the establishment of vegetation is desired. Temporary seeding applies to disturbed areas that will not be brought to final grade or on which land-disturbing activities will not be performed for a period greater than 30 days, and requires vegetative cover for less than one year. Permanent seeding applies to areas where perennial vegetative cover is needed.

IV. Federal, State and Local Laws

Users of this standard shall be aware of all applicable federal, state and local laws, rules, regulations or permit requirements governing seeding. This standard does not contain the text of federal, state or local laws.

V. Criteria

This section establishes the minimum standards for design, installation and performance requirements.

A. Site and Seedbed Preparation

Site preparation activities shall include:

1. Temporary Seeding
 - a. Temporary seeding requires a seedbed of loose soil to a minimum depth of 2 inches.
 - b. Fertilizer application is not generally required for temporary seeding. However, any application of fertilizer or lime shall be based on soil testing results.
 - c. The soil shall have a pH range of 5.5 to 8.0.
2. Permanent Seeding
 - a. *Topsoil* installation shall be completed prior to permanent seeding.
 - b. Permanent seeding requires a seedbed of loose topsoil to a minimum depth of 4 inches with the ability to support a *dense* vegetative cover.
 - c. Application rates of fertilizer or lime shall be based on soil testing results.
 - d. Prepare a tilled, fine, but firm seedbed. Remove rocks, twigs foreign material and clods over two inches that cannot be broken down.
 - e. The soil shall have a pH range of 5.5 to 8.0.

¹ Words in the standard that are shown in italics are described in X. Definitions. The words are italicized the first time they are used in the text.

B. Seeding

1. Seed Selection

- a. Seed mixtures that will produce dense vegetation shall be selected based on soil and site conditions and intended final use. Section IX References, lists sources containing suggested seed mixtures.
- b. All seed shall conform to the requirements of the Wisconsin Statutes and of the Administrative Code Chapter ATCP 20.01 regarding noxious weed seed content and labeling.
- c. Seed mixtures that contain potentially invasive species or species that may be harmful to native plant communities shall be avoided.
- d. Seed shall not be used later than one year after the test date that appears on the label.
- e. Seed shall be tested for purity, germination and noxious weed seed content and shall meet the minimum purity and germination requirements as prescribed in the current edition of Rules for Testing Seed, published by the Association of Official Seed Analysts.

2. Seed Rates

a. Temporary Seeding (Cover Crop)

Areas needing protection during periods when permanent seeding is not applied shall be seeded with annual species for temporary protection. See Table 1 for seeding rates of commonly used species. The residue from this crop may either be incorporated into the soil during seedbed preparation at the next permanent seeding period or left on the soil surface and the planting made as a no-till seeding.

Table 1 Temporary Seeding Species and Rates

Species	Lbs/Acre	Percent Purity
Oats	131 ¹	98
Cereal Rye	131 ²	97
Winter wheat	131 ²	95
Annual Ryegrass	80 ²	97

¹ Spring and summer seeding

² Fall seeding

b. Permanent Seeding

Rates shall be based on pounds or ounces of Pure Live Seed (PLS) per acre. Section IX contains some possible reference documents that provide seeding rates. Permanent seeding rates may be increased above the minimum rates shown in the reference documents to address land use and environmental conditions.

If a *nurse crop* is used in conjunction with permanent seeding, the nurse crop shall not hinder establishment of the permanent vegetation.

A nurse crop shall be applied at 50% its temporary seeding rate when applied with permanent seed.

3. Inoculation

Legume seed shall be inoculated in accordance with the manufacturer's recommendations. Inoculants shall not be mixed with liquid fertilizer.

4. Sowing

Seed grasses and legumes no more than ¼ inch deep. Distribute seed uniformly. Mixtures with low seeding rates require special care in sowing to achieve proper seed distribution.

Seed may be broadcast, drilled, or hydroseeded as appropriate for the site.

Seed when soil temperatures remain consistently above 53° F. *Dormant seed* when the soil temperature is consistently below 53° F (typically

Nov. 1st until snow cover). Seed shall not be applied on top of snow.

VI. Considerations

- A. Consider seeding at a lower rate and making two passes to ensure adequate coverage.
- B. Compacted soil areas may need special site preparation prior to seeding to mitigate compaction. This may be accomplished by chisel plowing to a depth of 12 inches along the contour after heavy equipment has left the site.
- C. Sod may be considered where adequate watering is available.
- D. When working in riparian areas refer to the NRCS Engineering Field Handbook, Chapter 16, Streambank and Shoreline Protection and Chapter 18, *Soil Bioengineering* for Upland Slope Protection and Erosion Reduction.
- E. A site assessment should be conducted to evaluate soil characteristics, topography, exposure to sunlight, proximity to natural plant communities, proximity to nuisance, noxious and/or invasive species, site history, moisture regime, climatic patterns, soil fertility, and previous herbicide applications.
- F. Use *introduced species* only in places where they will not spread into existing natural areas.
- G. Lightly roll or compact the area using suitable equipment when the seedbed is judged to be too loose, or if the seedbed contains clods that might reduce seed germination.
- H. See Section IX. References for suggested seed mixes (NRCS, WisDOT, UWEX) or use their equivalent.
- I. Turf seedlings should not be mowed until the stand is at least 6 inches tall. Do not mow closer than 3 inches during the first year of establishment.
- J. Seeding should not be done when the soil is too wet.

- K. Consider watering to help establish the seed. Water application rates shall be controlled to prevent runoff and erosion.
- L. Prairie plants may not effectively provide erosion control during their establishment period without a nurse crop.
- M. Topsoil originating from agricultural fields may contain residual chemicals. The seedbed should be free of residual herbicide or other contaminants that will prevent establishment and maintenance of vegetation. Testing for soil contaminants may be appropriate if there is doubt concerning the soil's quality.
- N. Consider using mulch or a nurse crop if selected species are not intended for quick germination. When mulching refer to WDNR Conservation Practice Standard Mulching for Construction Sites (1058).

VII. Plans and Specifications

Plans and specifications for seeding shall be in keeping with this standard and shall describe the requirements for applying this practice.

All plans, standard detail drawings, or specifications shall include schedule for installation, inspection, and maintenance. The responsible party shall be identified.

VIII. Operation and Maintenance

- A. During construction areas that have been seeded shall at a minimum be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period. Inspect weekly during the growing season until vegetation is densely established or permit expires. Repair and reseed areas that have erosion damage as necessary.
- B. Limit vehicle traffic and other forms of compaction in areas that are seeded.
- C. A fertilizer program should begin with a soil test. Soil tests provide specific fertilizer recommendations for the site and can help to avoid over-application of fertilizers.

IX. References

A. Seed Selection References

United States Department of Agriculture – Natural Resource Conservation Service Field Office Technical Guide Section IV, Standard 342, Critical Area Planting.

UWEX Publication A3434 Lawn and Establishment & Renovation.

WisDOT, 2003. State of Wisconsin Standard Specifications For Highway and Structure Construction. Section 630, Seeding.

B. General References

Association of Official Seed Analysts, 2003. Rules for Testing Seed. <http://www.aosaseed.com>.

Metropolitan Council, 2003. Urban Small Sites Best Management Practice Manual, Chapter 3, Vegetative Methods 3-85 – 3-91. Minneapolis.

The State of Wisconsin list of noxious weeds can be found in Statute 66.0407.

United States Department of Agriculture – Natural Resources Conservation Service. Engineering Field Handbook, Chapters 16 and 18.

UWEX Publication GWQ002 Lawn & Garden Fertilizers.

Nurse Crop (V.B.2.b): Also known as a companion crop; is the application of temporary (annual) seed with permanent seed.

Permanent seeding (II) Seeding designed to minimize erosion for an indefinite period after land disturbing construction activities have ceased on the site.

Soil Bioengineering (VI.D) Practice of combining mechanical, biological and ecological concepts to arrest and prevent shallow slope failures and erosion.

Temporary Seeding (II) Seeding designed to control erosion for a time period of one year or less that is generally removed in order to perform further construction activities or to permanently stabilize a construction site.

Topsoil (V.A.2.a) Consists of loam, sandy loam, silt loam, silty clay or clay loam humus-bearing soils adapted to sustain plant life with a pH range of 5.5 – 8.0. Manufactured topsoil shall through the addition of sand or organic humus material, peat, manure or compost meet the above criteria.

X. Definitions

Dense (V.A.2.b) A stand of 3-inch high grassy vegetation that uniformly covers at least 70% of a representative 1 square yard plot.

Dormant seed (V.B.4): Seed is applied after climatic conditions prevent germination until the following spring.

Introduced Species (VI.F) Plant species that historically would not have been found in North America until they were brought here by travelers from other parts of the world. This would include smooth brome grass and alfalfa. Some of these species may have a wide distribution such as Kentucky bluegrass.

Ditch Check (Channel) (1062)

Wisconsin Department of Natural Resources
Conservation Practice Standard

I. Definition

A temporary dam constructed across a swale or drainage ditch to reduce the velocity of water flowing in the channel. *Ditch checks*¹ can be constructed out of stone, a double row of straw bales or from engineered products found on the Wisconsin Department of Transportation (WisDOT) Erosion Control Product Acceptability List (PAL).

II. Purpose

The purpose of this practice is to reduce flow velocity and to pond water, thereby reducing active channel erosion and promoting settling of suspended solids behind the ditch check.

III. Conditions Where Practice Applies

This Standard applies where grading activity occurs in areas of channelized flows and a temporary measure is needed to control erosion of the channel until permanent stabilization practices can be applied.

Under no circumstance shall ditch checks be placed in intermittent or perennial stream without permission from WDNR. This Practice may not be substituted for major perimeter trapping measures.

IV. Federal, State, and Local Laws

Users of this standard shall be aware of applicable federal, state, and local laws, rules, regulations, or permit requirements governing the use and placement of ditch checks. This standard does not contain the text of federal, state, or local laws.

V. Criteria

This section establishes the minimum standards for design, installation and performance requirements.

A. Height

1. Installed, the minimum height of ditch checks shall be 10 inches and shall not exceed a maximum height of 16 inches for manufactured or biodegradable materials and 36 inches for stone (or other inorganic materials).
2. Ditch checks must be installed with the center lower than the sides forming a weir. If this is not done stormwater flows are forced to the edge of the ditch check thus promoting scour, or out of the channel causing excessive erosion
3. Stone ditch checks shall have a minimum top width of 2-feet measured in the direction of flow with maximum slopes of 2:1 (2 horizontal to 1 vertical) on the upslope side and 2:1 on the down slope side.

B. Placement

1. At a minimum install one ditch check for every two feet of drop in the channel.
2. Ditch checks shall be placed such that the resultant ponding will not cause inconvenience or damage to adjacent areas.

¹ Words in the standard that are shown in italics are described in X. Definitions. The words are italicized the first time they are used in the text.

C. Material Specifications

1. Stone ditch checks shall be constructed of a well-graded angular stone, a D_{50} of 3 inch or greater, sometimes referred to as breaker run or shot rock.
2. Ditch checks may be constructed of other approved materials but must be capable of withstanding the flow velocities in the channel. Manufactured products listed in WisDOT's PAL are also acceptable for temporary ditch checks.

Note: Silt fence and single rows of straw bales are ineffective as ditch checks and are not permitted.

D. Construction - Refer to Figure 1 & 2

1. Ditch checks shall be utilized during rough grading and shall be removed once the final grading and channel stabilization is applied, unless intended to be part of a permanent stormwater management plan.
2. Channel erosion mat or other non-erodible materials shall be placed at the base of a ditch check, and extended a minimum of 6 feet, to prevent scour and washing out the toe of the ditch check. DNR Conservation Practice Channel Erosion Mat (1053) contains criteria for the placement of erosion mat in this location.
3. Chink or seal stone and rock ditch checks to minimize the flow through the ditch check.

VI. Considerations

- A. For added stability, the base of a stone or rock ditch check should be keyed into the soil to a depth of 6-inches.
- B. Stone ditch checks may be underlain by a nonwoven geotextile fabric to ease installation and removal. If the geotextile fabric is extended, it can serve purpose specified in section V.D.2

- C. Ditch checks installed in grass lined channels may kill the vegetation if water is ponded for extended periods or excessive siltation occurs. Proper maintenance is required to keep areas above and below the ditch check stabilized.
- D. The best way to prevent sediment from entering the storm sewer system is to stabilize the disturbed area of the site as quickly as possible, preventing erosion and stopping sediment transport at its source.
- E. When placing ditch checks in swales adjacent to roadways consider designating a 'clear zone' free of obstacles posing a threat to out of control vehicles.
- F. Mowing operations may throw stones from ditch checks causing a potential safety hazard.

VII. Plans and Specifications

- A. Plans and specifications for installing ditch checks shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. The plans and specifications shall address the following:
 1. Location and spacing of ditch check
 2. Schedules and sequence of installation and removal
 3. Standard drawings and installation details
 4. Rock gradation
- B. All plans, standard detail drawings, or specifications shall include schedule for installation, inspection, and maintenance. The responsible party shall be identified.

VIII. Operation and Maintenance

- A. Ditch checks shall, at a minimum, be inspected weekly and within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24 hour period.
- B. Unless incorporated into a permanent stormwater management system, ditch

checks shall be removed once the final grading and channel stabilization is applied.

- C. Sediment deposits shall be removed when deposits reach 0.5 the height of the barrier. Removal of sediment may require replacement of stone. Maintenance shall be completed as soon as possible with consideration to site conditions.

IX. References

WisDOT "Erosion Control Product Acceptability List" is available online at:

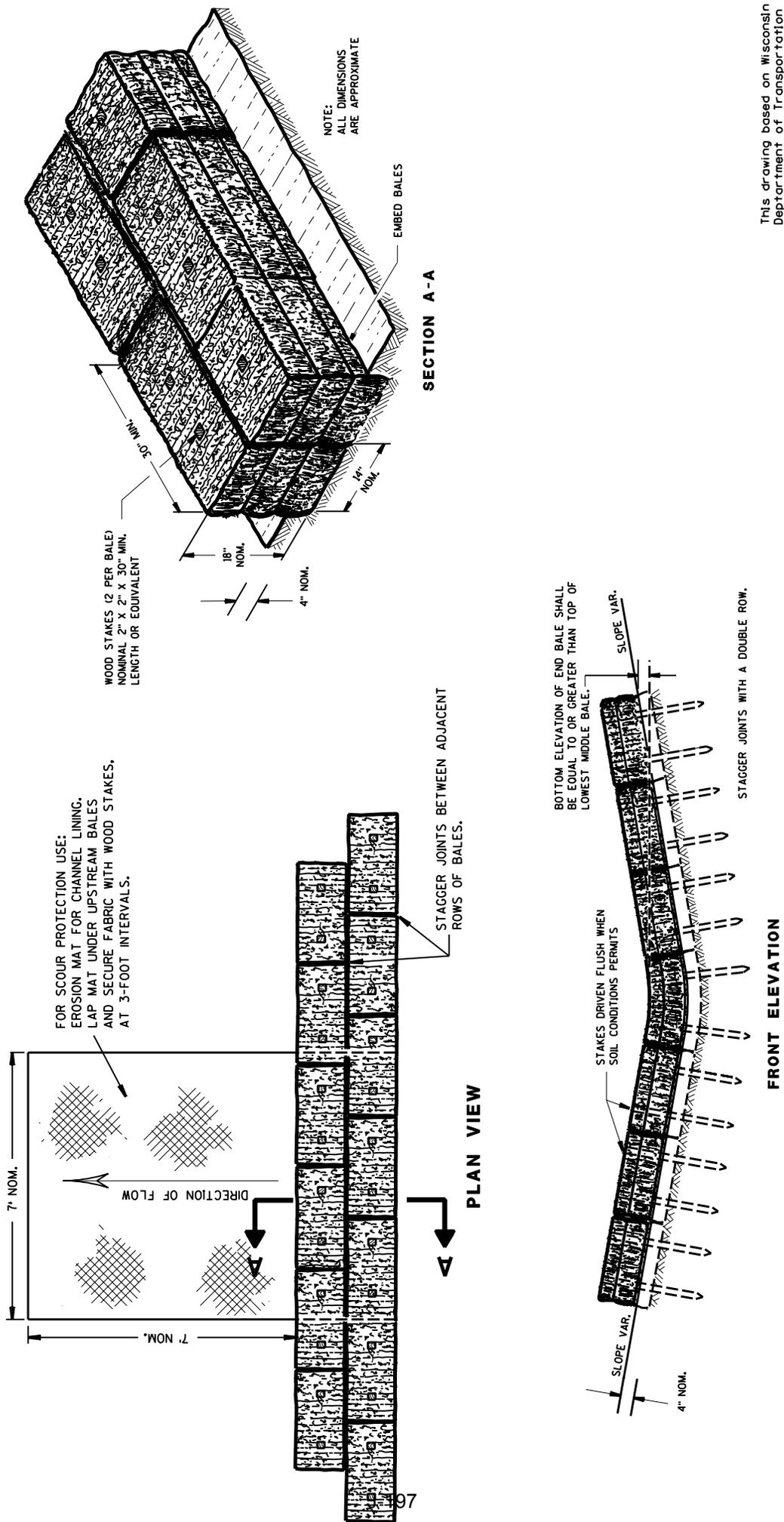
<http://www.dot.wisconsin.gov/business/engrserv/pal.htm> Printed copies are no longer distributed.

X. Definitions

D_{50} (V.C.1): The particle size for which 50% of the material by weight is smaller than that size.

Ditch Checks (I) Are commonly referred to as temporary check dams. Stone ditch checks refer to those made out of either stone or rock.

Figure 1

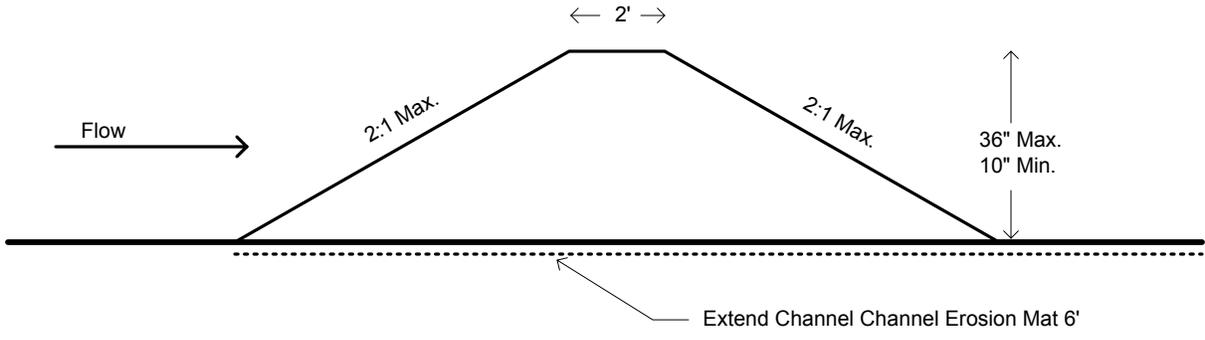


This drawing based on Wisconsin
Department of Transportation
Standard Detail Drawing 8 E 8-3.

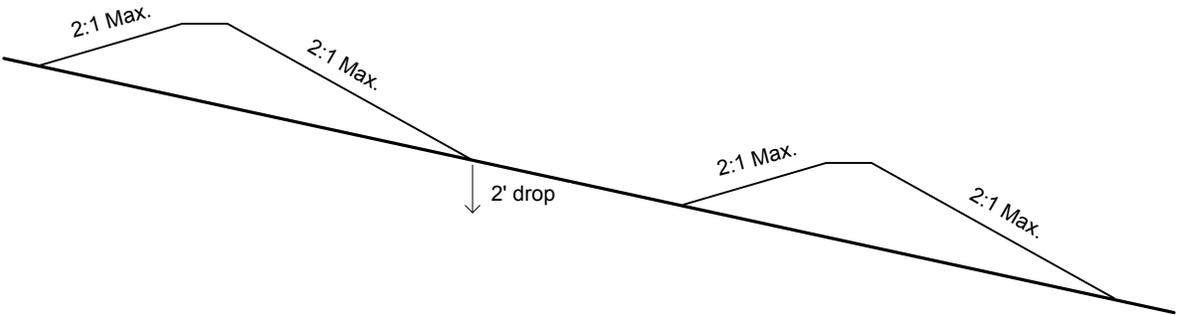
**TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS**

TEMPORARY DITCH CHECK USING EROSION BALES ①

Figure 2. Stone Ditch Check



Side View



Side View

Temporary Grading Practices For Erosion Control

(Surface Roughening and Temporary Ditch Sumps)

(1067)

Wisconsin Department of Natural Resources
Conservation Practice Standard

I. Definition

*Temporary*¹ grading practices used to minimize construction site erosion. These practices include, but are not limited to surface roughening (directional tracking and tillage) and temporary ditch sumps.

II. Purpose

The purpose of these practices are to minimize erosion and sediment transport during grading operations on construction sites.

III. Conditions Where Practice Applies

These practices apply where land disturbing activities occur on construction sites. These practices shall be used in conjunction with other erosion control practices.

IV. Federal, State, and Local Laws

Users of this standard shall be aware of applicable federal, state, and local laws, rules, regulations, or permit requirements governing these practices. This standard does not contain the text of federal, state, or local laws.

V. Criteria

These interim practices may be employed in addition to the approved grading plan to reduce erosion and sediment transport.

A. Surface Roughening - Surface roughening is abrading the soil surface with horizontal ridges and depressions across the slope to reduce runoff velocities.

1. **Directional Tracking** - The process of creating ridges with tracked vehicles on unvegetated slopes. This method is used for short durations on sites actively being graded and shall be used in

conjunction with other practices. This practice shall be in place at the end of each workday.

Directional tracking involves driving a tracked vehicle up and down a slope. The tracks create horizontal grooves and ridges. The rough surface slows sheet runoff and helps to prevent rills from forming. (Conversely, if the tracked vehicle is driven along the contour the tracks create vertical grooves and ridges for the water to follow, increasing erosion.)

2. **Tillage** - Utilizing conventional tillage equipment to create a series of ridges and furrows on the contour no more than 15 inches apart.

B. Temporary Ditch Sump - Temporary ditch sumps are ½ to 5 cubic yard excavations made in a drainageway during earthmoving operations. Their purpose is to slow and pond runoff during the time that drainageways are being graded. Sumps shall be in place prior to anticipated rain events.

Construction involves excavating sumps (holes) in the rough ditch grade, and using the excavated material to form a dike on the downstream side of the sump.

Temporary ditch sumps are not effective perimeter controls. Other sediment control practices shall be utilized prior to channels discharging into public waterways.

VI. Considerations

- A. Directional tracking may compact the soil, therefore additional seedbed preparation may be required. Refer to WDNR Conservation Practice Standard Seeding for

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¹ Words in the standard that are shown in italics are described in X. Definitions. The words are italicized the first time they are used in the text.

Construction Site Erosion Control (1059) for seedbed preparation and seeding criteria.

- B. When constructing a temporary ditch sump, compacting the dike provides additional stability.
- C. Consider at a minimum excavating ½ cubic yard per 1% gradient, for every 500 feet of channel when constructing temporary ditch sumps

VII. Plans and Specifications

Due to the interim nature of these practices, and the fact that location determinations are made in the field, they need only be referenced in the erosion control plan narration or general notes.

VIII. Operation and Maintenance

These practices shall be inspected and repaired or reinstalled after every runoff event.

IX. References

Virginia Department of Conservation and Recreation. 1992. Virginia Erosion and Sediment Control Handbook, Third Edition. Chapter 3 – 3.29 Surface Roughening.

Dane County. 2002. Dane County Erosion Control and Stormwater Manual, First Edition. Appendix Surface Roughening S-16.1.

X. Definitions

Temporary (I): An erosion control measure that is utilized during construction site grading activities.

Dust Control On Construction Sites (1068)

Wisconsin Department of Natural Resources
Conservation Practice Standard

I. Definition

Dust control includes practices used to reduce or prevent the surface and air transport of dust during construction.

Dust control measures for construction activities include minimization of soil disturbance, applying mulch and establishing vegetation, water spraying, surface roughening, applying polymers, spray-on tackifiers, chlorides, and barriers.

II. Purpose

This practice may be used to:

- Reduce wind erosion and dust.
- Minimize deposition of dust and wind transported soils into water bodies through runoff or wind action.
- Reduce respiratory problems.
- Minimize low visibility conditions caused by airborne dust.

III. Conditions Where Practice Applies

Dust control measures may be applied at any construction site, but is particularly important for sites with dry exposed soils which may be exposed to wind or vehicular traffic.

IV. Federal, State, and Local Laws

Users of this standard shall comply with applicable federal, state and local laws, rules, regulations or permit requirements governing this practice. This standard does not contain the text of federal, state, or local laws.

V. Criteria

This section establishes the minimum standards

for design, installation and performance requirements.

- A. The implementation of dust control shall limit the area exposed for dust generation.
- B. Asphalt and petroleum based products cannot be used for dust control.
- C. Mulch and Vegetation - Mulch or seed and mulch may be applied to protect exposed soil from both wind and water erosion. Refer to WDNR Conservation Practice Standards Mulching for Construction Sites (1058) and Seeding for Construction Site Erosion Control (1059) for criteria.
- D. Water - Water until the surface is wet and repeat as needed. Water shall be applied at rates so that runoff does not occur. Treated soil surfaces that receive vehicle traffic require a stone tracking pad or tire washing at all point of access. Refer to WDNR Conservation Practice Standard Stone Tracking Pad and Tire Washing (1057) for criteria.
- E. Tillage - A control measure performed with chisel type plows on exposed soils. Tillage shall begin on the windward side of the site. Tillage is only applicable to flat areas.
- F. Polymers - Polymers can be an effective practice for areas that do not receive vehicle traffic. Dry applied polymers must be initially watered for activation to be effective for dust control. Refer to WDNR Conservation Practice Standard Erosion Control Land Application of Polymers (1050) for application criteria.
- G. Tackifiers and Soil Stabilizers Type A - Products must be selected from and installed at rates conforming to the WisDOT Erosion Control PAL. See Section IX for reference. Example products include Latex-based and

Guar Gum.

- H. Chlorides - Chlorides shall be applied according to the most recent version of the WisDOT Standard Specifications for Highway and Bridge Construction.
- I. Barriers - Barriers shall be placed at right angles to prevailing wind currents at intervals of about 15 times the barrier height. Solid board fences, snow fences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and blown soil.

VI. Considerations

Some sites may require an approach that utilizes a combination of measures for dust control.

VII. Plans and Specifications

Plans and specifications for dust control practices shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

VIII. Operation and Maintenance

Areas that have dust control practices shall at a minimum be inspected daily.

IX. References

WisDOT's Erosion Control Product Acceptability List (PAL) can be found on the WisDOT web site:
<http://www.dot.wisconsin.gov/business/engrserv/pal.htm> Printed copies are no longer being distributed.

Appendix D

Public and Private Water Supply Wells Figure and Well Report (Frederiksen)

**Public and Private
Water Supply Wells
Menekaune Harbor -
Lot 24**



Location
Section 14, T30N, R23E
Marinette County, Wisconsin

Project Information
Project Number: 19-0277.32
Modified: April 2, 2014

- Legend**
- Lot 24
 - 1200' Buffer
 - ▲ Private Wells (approximate)

AYRES ASSOCIATES
Sustainable solutions since 1959

3433 Oakwood Hills Parkway
Eau Claire, Wisconsin 54701



Source: Esri, DigitalGlobe, GeoEye, AeroMap, USDA, USGS, AEX, Geoprocessing, Aerial, IGN, IGP, swisstopo, and the GIS User Community

**Well Construction Report For
WISCONSIN UNIQUE WELL NUMBER **AW700****

State of WI - Private Water Systems - DG/2
Department of Natural Resources, Box 7921
Madison, WI 53707
Form 3300-77A
(R 8/00)

Property Owner **PHIL FREDERIKSEN**
Telephone **715-735-9491**
Number

Please type or Print using a black Pen
Please Use Decimals Instead of Fractions.

Mailing Address **W1481 OLD PESHTIGO R**

I. Well Location
 Town City Village
Fire # (if available)
W1481

City **MARINETTE** State **WI** Zip Code **54143**

of **PESHTIGO**
Grid or Street Address or Road Name and Number
W1481 FREDERIKSEN

County of Well Location **Marinette** County Well Permit No. **W** Well Completion Date **10/09/1988**

Subdivision Name Lot # Block #

Well Constructor (Business Name) **JOHNSON GREGORY L** License # **625** Facility ID Number (Public Wells)

Gov't Lot # or NW 1/4 of NE 1/4 of
Section **14** T **30** N; R **23** E W

Address **N3719 LOUCKS ROAD** Public Well Plan Approval #
W--

Latitude Deg. Min. Longitude Deg. Min.

City **PESHTIGO** State **WI** Zip Code **54157** Date of Approval (mm/dd/yyyy)

2. Well Type New Replacement Reconstruction Lat/Long Method **GPS008**

Hicap Permanent well # Common Well # Specific Capacity **2** gpm/ft

of previous unique well # constructed in **88**
Reason for replaced or Reconstructed Well?

3. Well serves **1** # of homes and/or (e.g. barn, restaurant, church, school, industry, etc.)
High capacity Well? Yes No
Property? Yes No

Drilled Driven Point Jetted Other:

4. Is the well located upslope or sideslope and not downslope from any contamination source, including those on neighboring properties? Yes No

Well located within 1,200 feet of a quarry? Yes No If yes, distance in feet from quarry:

Well located in floodplain? Yes No

Distance in Feet from Well to Nearest:

- 1. Landfill
- 17** 2. Building Overhang
- 40** 3. Septic Holding Tank
- 50** 4. Sewage Absorption Unit
- 5. Nonconforming Pit
- 6. Buried Home Heating Oil Tank
- 7. Buried Petroleum Tank

- 9. Downspout/Yard Hydrant
- 10. Privy
- 11. Foundation Drain to Clearwater
- 12. Foundation Drain to Sewer
- 13. Building Drain
 Cast Iron or Plastic Other
- 25** 14. Building Sewer Gravity Pressure
 Cast Iron or Plastic Other
- 15. Collector or Street Sewer:
 Sanitary units in. diam.
 Storm =< 6 > 6
- 16. Clearwater Sump

- 17. Wastewater Sump
- 18. Paved Animal Barn Pen
- 19. Animal Yard or Shelter
- 20. Silo
- 21. Barn Gutter
- 22. Manure Pipe Gravity Pressure
 Cast Iron or Plastic Other
- 23. Other Manure Storage
- 24. Ditch

25. Other NR 812 Waste Storage

5. Drillhole Dimensions and Construction Method			8. Geology			
From (ft.)	To (ft.)	Upper Enlarged Drillhole	Type	Caving/Noncaving, Color, Hardness, etc	From (ft.)	To (ft.)
10	0	5	--S-	SAND	0	20
6	5	65	--C-	CLAY	20	40
			--N-	SAND STONE	40	65

6. Casing, Liner, Screen Material, Weight, Specification From (ft.) To (ft.)
Dia. (in.)

6 ASTM-A120 VSP CO 1200 PSI THRESDRED @ COUPLED 0 41

7. Grout or Other Sealing Material. Method: From (ft.) To (ft.) # Sacks Cement
Kind of Sealing Material

PUDDLED CLAY 0 5

9. Static Water Level ft. above ground surface
10 ft. below ground surface

10. Pump Test
Pumping Level **15** ft. below surface
Pumping at **10** GPM for **16** hours

11. Well is: Above Grade
12 in. Below Grade
Developed? Yes No
Disinfected? Yes No
Capped? Yes No

12. Did you notify the owner of the need to permanently abandon and fill all unused wells on this property?
 Yes No If no, explain:

13. Signature of the Well Constructor or Supervisory Driller Date signed
GJ **10/09/1988**
Signature of Drill Rig Operator (Mandatory unless same as above) Date signed

Well Codes and Identifiers

Geologic Log No
SID Number
Common Well Name
Well Notification #
Batch Seq # 24

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
Northeast Region Headquarters
2984 Shawano Avenue
Green Bay, WI 54313-6727

Scott Walker, Governor
Cathy Stepp, Secretary
Jean Romback-Bartels, Regional Director
Telephone (920) 662-5100
FAX (920) 662-5159
TDD (920) 662-5413



May 7, 2014

Brian Miller
City of Marinette, Dept. of Public Works
1905 Hall Avenue
Marinette WI 54143

SUBJECT: Coverage Under WPDES General Permit No. WI-S067831-04: Construction Site Storm Water Runoff
Permittee Name: City of Marinette, Department of Public Works
Site Name: Menekaunee Harbor Restoration Project
FIN: 50645

Dear Permittee:

The Wisconsin Department of Natural Resources received your Water Resources Application for Project Permits or Notice of Intent, on April 24, 2014, for the Menekaunee harbor Restoration Project site and has evaluated the information provided regarding storm water discharges from your construction site. We have determined that your construction site activities will be regulated under ch. 283, Wis. Stats., ch. NR 216, Wis. Adm. Code, and in accordance with Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit No. WI-S067831-04, Construction Site Storm Water Runoff. All erosion control and storm water management activities undertaken at the site must be done in accordance with the terms and conditions of the general permit.

The **Start Date** of permit coverage for this site is May 07, 2014. The maximum period of permit coverage for this site is limited to 3 years from the **Start Date**. Therefore, permit coverage automatically expires and terminates 3 years from the Start Date and storm water discharges are no longer authorized unless another Notice of Intent and application fee to retain coverage under this permit or a reissued version of this permit is submitted to the Department 14 working days prior to expiration.

A copy of the general permit along with extensive storm water information including technical standards, forms, guidance and other documents is accessible on the Department's storm water program Internet site. To obtain a copy of the general permit, please download it and the associated documents listed below from the following Department Internet site:

<http://dnr.wi.gov/topic/stormwater/construction/forms.html>

- Construction Site Storm Water Runoff WPDES general permit No. WI-S067831-04
- Construction site inspection report form
- Notice of Termination form

If, for any reason, you are unable to access these documents over the Internet, please contact me and I will send them to you.

To ensure compliance with the general permit, please read it carefully and be sure you understand its contents. Please take special note of the following requirements (This is not a complete list of the terms and conditions of the general permit.):

1. The Construction Site Erosion Control Plan and Storm Water Management Plan that you completed prior to submitting your permit application must be implemented and maintained throughout construction. Failure to do so may result in enforcement action by the Department.

2. The general permit requires that erosion and sediment controls be routinely inspected at least every 7 days, and within 24 hours after a rainfall event of 0.5 inches or greater. Weekly written reports of all inspections must be maintained. The reports must contain the following information:

- a. Date, time, and exact place of inspection;
- b. Name(s) of individual(s) performing inspection;
- c. An assessment of the condition of erosion and sediment controls;
- d. A description of any erosion and sediment control implementation and maintenance performed;
- e. A description of the site's present phase of construction.

3. A **Certificate of Permit Coverage** must be posted in a conspicuous place on the construction site. The Certificate of Permit Coverage (WDNR Publication # WT-813) is enclosed for your use.

4. When construction activities have ceased and the site has undergone final stabilization, a Notice of Termination (NOT) of coverage under the general permit must be submitted to the Department.

It is important that you read and understand the terms and conditions of the general permit because they have the force of law and apply to you. Your project may lose its permit coverage if you do not comply with its terms and conditions. The Department may also withdraw your project from coverage under the general permit and require that you obtain an individual WPDES permit instead, based on the Department's own motion, upon the filing of a written petition by any person, or upon your request.

If you believe that you have a right to challenge this decision to grant permit coverage, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed. For judicial review of a decision pursuant to ss. 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review must name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to s. 227.42, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. All requests for contested case hearings must be made in accordance with s. NR 2.05(5), Wis. Adm. Code, and served on the Secretary in accordance with s. NR 2.03, Wis. Adm. Code. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

Thank you for your cooperation with the Construction Site Storm Water Discharge Permit Program. If you have any questions concerning the contents of this letter or the general permit, please contact Sarah Anderson at (920) 662-5441.

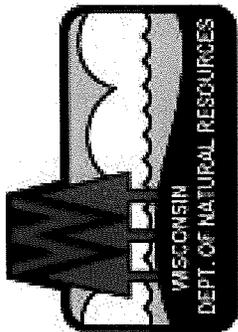
Sincerely,



Sarah Anderson
Northeast Region
Storm Water Management Specialist

ENCLOSURE: Certificate of Permit Coverage

Cc: Dean Free, Ayres Associates, Inc. (email copy)
Cheryl Bougie, WDNR Green Bay (email copy)



CERTIFICATE OF PERMIT COVERAGE

UNDER THE
WPDES CONSTRUCTION SITE STORM WATER RUNOFF PERMIT
Permit No. WI-S067831-04

Under s. NR 216.455(2), Wis. Adm. Code, landowners of construction sites with storm water discharges regulated by the Wisconsin Department of Natural Resources (WDNR) Storm Water Permit Program are required to post this certificate in a conspicuous place at the construction site. This certifies that the site has been granted WDNR storm water permit coverage. The landowner must implement and maintain erosion control practices to limit sediment-contaminated runoff to waters of the state in accordance with the permit.

J-209

EROSION CONTROL COMPLAINTS

should be reported to the WDNR Tip Line at
1-800-TIP-WDNR (1-800-847-9367)

Please provide the following information to the Tip Line:

WDNR Site No. (FIN): 50645

Site Name: Menekaunee Harbor Restoration Project

Address/Location: Lot 24, west end of Murray Street, City of MARINETTE

Additional Information:

Landowner: City of Marinette

Landowner's Contact Person: Brian Miller

Contact Telephone Number: (715) 732-5135

Permit Start Date: May 07, 2014

By: *Sandra Anderson* 05-07-14

WDNR Publication # WT-813 (10/11)

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May 5, 2014

IP-NE-2014-38-00484

City of Marinette
Brian Miller
1905 Hall Ave
Marinette, WI 54143-1716

Dear Mr. Miller:

The Department of Natural Resources has completed its review of your application for a permit to remove materials from the bed of the Menominee River, place rock riprap, and perform habitat enhancement in Menekaunee Harbor, in the City of Marinette, Marinette County. You will be pleased to know your application is approved with a few limitations.

I am attaching a copy of your permit, which lists the conditions that must be followed. A copy of the permit must be posted for reference at the project site. Please read your permit conditions carefully so that you are fully aware of what is expected of you.

The project has not been fully detailed in the permit application because a contractor has not been selected and some project modifications may be required. For example, the contractor may use mechanical and/or hydraulic dredging but the final details will not be known until the contractor is selected. Therefore, this permit grants preliminary approval for the project. A final design plan must be submitted to the Department, and must be approved in writing by the Department, before the project may begin. The plan shall include dredge technology and wastewater treatment design that will be implemented during the project. The dredging shall be done according to the final approved design plans.

Please note you are required to submit photographs of the completed project within 7 days after you've finished construction. This helps both of us to document the completion of the project and compliance with the permit conditions.

Your next step will be to notify me of the date on which you plan to start construction and again after your project is complete. If you have any questions about your permit, please call me at (715) 582-5041 or email Robert.Rosenberger@wisconsin.gov.

Sincerely,

Robert Rosenberger

Water Management Specialist

cc: Nick Domer, Project Manager, U.S. Army Corps of Engineers
Ayres Associates, Chris Goodwin, Consultant
Cheryl Bougie, WDNR – GB Sediment and Monitoring Coordinator

Quality Customer Service is Important to Us. Tell Us How We Are Doing.
Water Division Customer Service Survey
<https://www.surveymonkey.com/s/WDNRWater>

The City of Marinette/Brian Miller, City Engineer is hereby granted under Section 30.12, 30.20(2), Wisconsin Statutes, a permit to remove materials from the bed of the river, place rock riprap along the shoreline, and to place beneficial use fill on the bed of the Menominee River and conduct ecological restoration in Menekaunee Harbor. The dredging is to take place in 2014, and the ecological restoration is to take place in 2015. The project is more fully described in the permit application dated February, 2014. The project is located in the City of Marinette, Marinette County, also described as in the NW1/4 of the NW1/4 of Section 9, Township 30 North, Range 24 East, subject to the following conditions:

PERMIT

1. You must notify Robert Rosenberger at phone (715) 582-5041 or email Robert.Rosenberger@wisconsin.gov before starting construction and again not more than 5 days after the project is complete.
2. You must complete the project as described on or before May 6, 2016. If you will not complete the project by this date, you must submit a written request for an extension prior to expiration of the initial time limit specified in the permit. Your request must identify the requested extension date. The Department shall extend the time limit for an individual permit or contract for no longer than 5 years if you request the extension before the initial time limit expires. You may not begin or continue construction after the original permit expiration date unless the Department extends the permit in writing or grants a new permit.
3. This permit does not authorize any work other than what you specifically describe in your application and plans, and as modified by the conditions of this permit. If you wish to alter the project or permit conditions, you must first obtain written approval of the Department.
4. Before you start your project, you must first obtain any permit or approval that may be required for your project by local zoning ordinances and by the U.S. Army Corps of Engineers. You are responsible for contacting these local and federal authorities to determine if they require permits or approvals for your project. These local and federal authorities are responsible for determining if your project complies with their requirements.
5. Upon reasonable notice, you shall allow access to your project site during reasonable hours to any Department employee who is investigating the project's construction, operation, maintenance or permit compliance.

6. The Department may modify or revoke this permit for good cause, including if the project is not completed according to the terms of the permit or if the Department determines the activity is detrimental to the public interest.
7. You must post a copy of this permit at a conspicuous location on the project site, visible from the waterway, for at least five days prior to construction, and remaining at least five days after construction. You must also have a copy of the permit and approved plan available at the project site at all times until the project is complete.
8. Your acceptance of this permit and efforts to begin work on this project signify that you have read, understood and agreed to follow all conditions of this permit.
9. You must submit a series of photographs to the Department, within one week of completing work on the site. The photographs must be taken from different vantage points and depict all work authorized by this permit.
10. All dredge spoils must be properly disposed at the appropriate landfill site, Lot 24, or beneficial re-use area designated in the harbor, depending on the level of contamination.
11. This project must be completed in compliance with all DNR wastewater, storm water, waterway marker, and solid and hazardous waste permits and approvals.
12. A bubble curtain must be installed and maintained in the channel to the main stem of the Menominee River in lieu of the specified Turbidity barrier in Drawing c3-1.
13. All appropriate erosion control and turbidity control measures must be in-place and effective during every phase of this project.
14. Erosion control measures must be in place at the end of each working day.
15. Erosion control measures must be inspected and any necessary repairs or maintenance performed after every rainfall exceeding ½ inch and at least once per week.
16. You must supply a copy of this permit to every contractor associated with this project.
17. You, your agent, and any involved contractors or consultants may be considered a party to the violation pursuant to Section 30.292, Wis. Stats., for any violations of Chapter 30, Wisconsin Statutes, or this permit.
18. Construction shall be accomplished in such a manner as to minimize erosion and siltation into surface waters. Erosion control measures (such as silt fence and straw bales) must meet or exceed the technical standards of ch. NR 151, Wis. Adm. Code. The technical standards are found at:
http://dnr.wi.gov/topic/stormwater/standards/const_standards.html .

19. Site grading on the banks (where specified) and restoration work will be done in compliance with the floodplain ordinance, NR116, and the city erosion control and storm water ordinances.
20. The project has not been fully detailed in the permit application because a contractor has not been selected and some project modifications may be required. For example, the contractor may use mechanical and/or hydraulic dredging but the final details will not be known until the contractor is selected. Therefore, this permit grants preliminary approval for the project. A final design plan must be submitted to the Department, and must be approved in writing by the Department, before the project may begin. The plan shall include dredge technology and wastewater treatment design that will be implemented during the project. The dredging shall be done according to the final approved design plans.
21. You must develop and implement an invasive species monitoring and maintenance plan for both the ecological restoration area in Menekaunee Harbor and for Lot 24. These plans must be approved in writing by the Department. The Menekaunee Harbor Plan must be implemented in summers or falls of 2016 – 2018. The potential contractor or UW-Marinette Students/Class Project is to be retained by the City. The City Lot 24 disposal site must be monitored for invasive species and if detected the invasives must be properly eradicated. Monitoring and eradication must continue until the site is established with native species to the satisfaction of the Department.
22. All equipment used for the project including but not limited to haul trucks, tracked vehicles, barges, boats, hoses, sheet pile and pumps shall be de-contaminated for invasive and exotic viruses and species prior to use and after use.
23. To avoid impacts to spawning fish, dredging and filling must not be performed between March 15 and July 1 of any calendar year.
24. The turbidity barrier or other in-water BMPs to control turbidity must be properly marked with white lights visible from all directions during dusk to dawn hours to alert boaters to the presence of the turbidity barrier.
25. Navigational aids must be strategically placed to provide safe navigation to all water users during the entire project. It is understood that the safe navigation path may change as sequencing of the project proceeds. You must notify the appropriate agencies when changes occur.
26. Leakage or spillage of hauled materials onto public roads and streets will not be permitted, and if unavoidably done, shall be immediately removed per the stone tracking pad Technical Standard (sweeping, scraping, etc.). Material boxes of hauling equipment shall be of watertight construction and shall be covered.

27. All conditions specified in the conveyance of coverage letter for the carriage and Interstitial water from dredging Operations (WI-0046558-5) WPDES General Permit issued by the wastewater Program shall be followed at all times for the duration of the project and permit coverage term.
28. The following steps must be taken every time you move your equipment to avoid transporting invasive and exotic viruses and species. To the extent practicable, equipment and gear used on infested waters shall not be used on other non-infested waters.
1. **Inspect and remove** aquatic plants, animals, and mud from your equipment.
 2. **Drain all water** from your equipment that comes in contact with infested waters, including but not limited to tracked vehicles, barges, boats, hoses, sheet pile and pumps.
 3. **Dispose** of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals or water from one waterbody to another.
 4. **Wash your equipment** with hot (>104° F) and/or high pressure water,
- OR -
Allow your equipment to **dry thoroughly for 5 days.**

FINDINGS OF FACT

1. The City of Marinette/Brian Miller, City Engineer, has filed an application for a permit to remove materials from the bed of the river, place rock riprap along the shoreline, and to place beneficial use fill on the bed of the Menominee River (Menekaunee harbor) during the 2014 construction season and ecological restoration to take place in 2015. The project is more fully described in the permit application dated February, 2014. The project is located in the City of Marinette, Marinette County, also described as NW1/4-NW1/4 S9, T30N, R24E.
2. The Department has completed an investigation of the project site and has evaluated the project as described in the application and plans.
3. Menominee River is a navigable water (and no bulkhead exists at the project site.)
4. The proposed project, if constructed in accordance with this permit will not adversely affect water quality, will not increase water pollution in surface waters and will not cause environmental pollution as defined in s. 283.01(6m), Wis. Stats.
5. The proposed project will not impact wetlands if constructed in accordance with this permit.

6. The Department of Natural Resources has completed all procedural requirements and the project as permitted will comply with all applicable requirements of 33 U.S.C.S. §1341 (CWA §401); Sections 1.11, 30.12, 30.20(2), Wisconsin Statutes and Chapters NR 102, 103, of the Wisconsin Administrative Code.

The applicant was responsible for fulfilling the procedural requirements for publication of notices under s. 30.208(5)(c)1m., Stats., and was responsible for publication of the notice of pending application under s.30.208(3)(a), Stats. or the notice of public informational hearing under s.30.208(3)(c), Stats., or both. S. 30.208(3)(e), Stats., provides that if no public hearing is held, the Department must issue its decision within 30 days of the 30-day public comment period, and if a public hearing is held, the Department must issue its decision within 20 days after the 10-day period for public comment after the public hearing. S. 30.208(5)(bm), Stats., requires the Department to consider the date on which the department publishes a notice on its web site as the date of notice.

7. The structure or deposit will not materially obstruct navigation because the project is designed to improve navigation.
8. The structure or deposit will not be detrimental to the public interest because wildlife habitat, fisheries habitat, water quality and similar interests will be protected in the proposed project and permit conditions. The project will improve water quality, fish and wildlife habitat with removal of contaminants and ecological restoration of the harbor.
9. The structure or deposit will not materially reduce the flood flow capacity of a stream because the project will not impact the flood capacity.
10. The activity will not cause environmental pollution as defined in s. 299.01(4).
11. No material injury will result to the riparian rights of any riparian owners of real property that abuts any water body that is affected by the activity.

CONCLUSIONS OF LAW

1. The Department has authority under the above indicated Statutes and Administrative Codes, to issue a permit for the construction and maintenance of this project.

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions shall be filed. For judicial review of a decision pursuant to sections 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is

mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

To request a contested case hearing of any individual permit decision pursuant to section 30.209, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources, P.O. Box 7921, Madison, WI, 53707-7921. The petition shall be in writing, shall be dated and signed by the petitioner, and shall include as an attachment a copy of the decision for which administrative review is sought. If you are not the applicant, you must simultaneously provide a copy of the petition to the applicant. If you wish to request a stay of the project, you must provide information, as outlined below, to show that a stay is necessary to prevent significant adverse impacts or irreversible harm to the environment. If you are not the permit applicant, you must provide a copy of the petition to the permit applicant at the same time that you serve the petition on the Department.

The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30 day period for filing a petition for judicial review.

A request for contested case hearing must meet the requirements of section 30.209, Wis. Stats., and sections NR 2.03, 2.05, and 310.18, Wis. Admin. Code, and if the petitioner is not the applicant the petition must include the following information:

1. A description of the objection that is sufficiently specific to allow the department to determine which provisions of this section may be violated if the proposed permit or contract is allowed to proceed.
2. A description of the facts supporting the petition that is sufficiently specific to determine how the petitioner believes the project, as proposed, may result in a violation of Chapter 30, Wis. Stats.;
3. A commitment by the petitioner to appear at the administrative hearing and present information supporting the petitioner's objection.

If the petition contains a request for a stay of the project, the petition must also include information showing that a stay is necessary to prevent significant adverse impacts or irreversible harm to the environment.

Dated at Peshtigo Service Center, Wisconsin on .

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By _____
Robert Rosenberger